Red List of South African Plants

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PA Manyama (editors)

2009
Quick guide to species assessments

Status
The IUCN Categories and Criteria Version 3.1 (2001), with additional categories developed specifically for the South African context, were applied in this Red List. The status given to taxa in this Red List applies only to the section of the global population occurring within South Africa in the case of taxa that are not endemic to South Africa. Status followed by an asterisk indicates nonendemic taxa where the South African national status has been down- or upgraded by one category according to IUCN regional assessment procedures (see National application of the IUCN categories and criteria under section 2.4 for more detailed information).

South African Red List Categories

<table>
<thead>
<tr>
<th>Status</th>
<th>Definition</th>
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<tbody>
<tr>
<td>EX</td>
<td>Extinct</td>
</tr>
<tr>
<td>EW</td>
<td>Extinct in the Wild</td>
</tr>
<tr>
<td>CR PE</td>
<td>Critically Endangered (Possibly Extinct)</td>
</tr>
<tr>
<td>CR</td>
<td>Critically Endangered</td>
</tr>
<tr>
<td>EN</td>
<td>Endangered</td>
</tr>
<tr>
<td>VU</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>NT</td>
<td>Near Threatened</td>
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<tr>
<td>CR</td>
<td>Critically Rare</td>
</tr>
<tr>
<td>Rare</td>
<td>Rare</td>
</tr>
<tr>
<td>Declining</td>
<td>Declining</td>
</tr>
<tr>
<td>DDD</td>
<td>Data Deficient—Insufficiently Known</td>
</tr>
<tr>
<td>DDT</td>
<td>Data Deficient—Taxonomically Problematic</td>
</tr>
<tr>
<td>LC</td>
<td>Least Concern</td>
</tr>
<tr>
<td>Thr+</td>
<td>Thr+</td>
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</tbody>
</table>

Distribution: Indicates endemism, distribution within South African provinces and a brief description of the range.
Habitat: A brief description of the habitat of the taxon, including altitudinal range where known.
Rationale: The assessment rationale provides a justification for the inclusion of the taxon in the category in which it is listed and an explanation of how available data on a taxon meet the criteria for the categories of threat (Critically Endangered, Endangered and Vulnerable).

Provincial abbreviations

<table>
<thead>
<tr>
<th>Province</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>EC</td>
<td>Eastern Cape</td>
</tr>
<tr>
<td>FS</td>
<td>Free State</td>
</tr>
<tr>
<td>G</td>
<td>Gauteng</td>
</tr>
<tr>
<td>KZN</td>
<td>KwaZulu-Natal</td>
</tr>
<tr>
<td>LM</td>
<td>Limpopo</td>
</tr>
<tr>
<td>MP</td>
<td>Mpumalanga</td>
</tr>
<tr>
<td>NC</td>
<td>Northern Cape</td>
</tr>
<tr>
<td>NW</td>
<td>North West Province</td>
</tr>
<tr>
<td>WC</td>
<td>Western Cape</td>
</tr>
</tbody>
</table>

Key to symbols

- F: Taxa included on the South African Red List for the first time.
- S: Subspecific taxa not listed. In some instances taxa are listed at the species level when they have valid subspecific taxa (subspecies and varieties). Reasons for these listings are discussed under section 2.1.
- e: South African endemics
Red List
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Editors:
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D.A. Kamundi & P.A. Manyama

Pretoria
2009
This series has replaced *Memoirs of the Botanical Survey of South Africa* and *Annals of the Kirstenbosch Botanic Gardens* which SANBI inherited from its predecessor organisations.

The plant genus *Strelitzia* occurs naturally in the eastern parts of southern Africa. It comprises three arborescent species, known as wild bananas, and two acaulescent species, known as crane flowers or bird-of-paradise flowers. The logo of the South African National Biodiversity Institute is based on the striking inflorescence of *Strelitzia reginae*, a native of the Eastern Cape and KwaZulu-Natal that has become a garden favourite worldwide. It symbolises the commitment of the Institute to champion the exploration, conservation, sustainable use, appreciation and enjoyment of South Africa’s exceptionally rich biodiversity for all people.

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Front: C. Paterson-Jones. The Vulnerable *Romulea sabulosa* flowering in spring on the Bokkeveld Escarpment near Nieuwoudtville, Northern Cape.
Back: C. Paterson-Jones. The Critically Endangered *Erica recurvata* from the mountains above Napier, Western Cape.

Citing this publication

Entire publication

A section

An individual assessment


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The assessment of the Red List status of plant species is fundamentally dependent on documentation of plant populations, often via herbarium specimens by botanical collectors, and on classification and description of species via taxonomic monographs. This book is therefore dedicated to two individuals whose life work on documenting and monitoring South Africa’s plants has provided us with invaluable data for producing accurate Red List assessments.

Elsie Elizabeth Esterhuysen (1912–2006)
This book is dedicated to Elsie Esterhuysen for her extraordinary documentation of rare endemic taxa of the Fynbos Biome and the Drakensberg Mountain Range. Her inventories of flora of alpine habitats are unsurpassed. During her 60-year career as a botanist and collector she amassed more than 37 000 herbarium specimens. Her dedicated and strategic collecting efforts focused on detecting range extensions, local variants and new species. Her collections have been the backbone of many descriptions of new genera and species. Two genera and 56 species are named after her. The assessments of many rare plant taxa in this Red List are based solely on specimens collected by Elsie Esterhuysen, as she has often been the only collector to visit their habitats and document their occurrence. Assessments of genera with large numbers of rare, high-altitude endemic taxa such as Agathosma, Amphithalea and Erica benefited particularly from her collections. In her later years Esterhuysen also collected extensively in the Cape Lowlands, the area with the highest concentration of threatened plants in South Africa. Her incredible knowledge of the Cape flora meant that she was able to find and survey large numbers of species overlooked by other collectors. Her collections were extremely useful in determining the threat status of many lowland taxa.

Chris Burgers’s entire career was dedicated to the conservation of the Cape flora. As a botanist at Cape Nature Conservation (now CapeNature), it was his responsibility to ensure the conservation of fynbos plant diversity within and outside nature reserves. Burgers’s greatest legacy is a database containing thousands of observation and monitoring records of populations of rare and threatened fynbos plants which he largely collected himself. This database, called Information System for Endangered Plants (ISEP), was invaluable during the compilation of this Red List, especially since it provided otherwise scarcely documented data on numbers of individuals as well as population trends over time. Burgers’s monitoring data, spanning 20 years, are one of the few reliable sources accurately documenting population trends of South African plant species over time. Burgers was particularly dedicated to Cape lowland endemics, and brought many of the last remaining populations of highly threatened lowland species to the attention of the conservation community. Monitoring data were meticulously captured: electronically as entries into the ISEP database, as carefully catalogued slides and in hundreds of hard-copy accounts that were archived for access by future generations. This book is dedicated to Chris for his foresight and absolute commitment to conservation of Cape lowland species. His data were extensively used in this Red List assessment and will continue to serve as an extremely valuable baseline against which we can measure future changes to South African plant populations.
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We gratefully acknowledge the dedicated assistance of the 169 professional and amateur botanists, listed on the previous page, who contributed data to the Red List assessments. Their contributions required spending many hours either in workshops or taking part in one-on-one interviews with staff of the Threatened Species Programme. Without their generous input of specialised field knowledge of our plant taxa, this Red List assessment would not have been possible.

Eighteen individuals stand out in terms of the amount of time and number of assessments they contributed, either to a range of plant taxa from a certain region of the country or to particular plant families or life-history group.


Rob contributed to assessments of plants from KwaZulu-Natal and medicinal plants.

A.G. Rebelo
379 assessments authored

C.R. Scott-Shaw
273 assessments authored

Cornelia contributed to many assessments for plant taxa in the family Mesembryanthemaceae, especially for the genus Lampranthus. She also supplied data from the Bolus Herbarium for the assessment of a range of other taxonomically poorly known genera in the Mesembryanthemaceae.

Peter and John provided extensive assistance on assessments of many taxa in one of the most threatened plant families, the Iridaceae. John also contributed to assessments in the family Hyacinthaceae.

C. Klak
267 assessments authored

P. Goldblatt
254 assessments authored

J.C. Manning
108 assessments authored

Dee provided valuable data for assessment of the families Amaryllidaceae and Hypoxidaceae.

Jan and Anne Lise contributed their extensive knowledge of plants of the Little Karoo region. Jan provided data on subpopulation trends as well as information on threats to taxa in the genera Gibbaeum, Glottiphyllum, Euryops and Haworthia. Anne Lise helped to assess taxa in the genera Aspalathus, Amphithalea, Cyclopia, Podalyria, Stirtotonanthus and Xiphotheca.

D.A. Snijman
222 assessments authored

J.H. Vlok
219 assessments authored

A.L. Schutte-Vlok
131 assessments authored

Mervyn contributed to assessments of plants from Mpumalanga. His in-depth field knowledge, knowledge of threats in the province and accurate GIS data were extremely valuable. He also contributed to many of the medicinal plant assessments.

Ted provided data on many of the Erica assessments and also contributed to assessments of the Cape Orchidaceae.

M. Lötter
217 assessments authored

E.G.H. Oliver
210 assessments authored
Tony contributed to assessments of plants of the Albany hotspot in the Eastern Cape through both his excellent field knowledge and by providing specimen information from the Schonland Herbarium. He also contributed to many of the medicinal plant assessments.

Leanne contributed to assessment of Oxalis, a large, poorly known genus with high numbers of range-restricted taxa.

Kenneth, another expert on the genus Oxalis, also contributed to many assessments for this genus. His extensive field knowledge of Oxalis was of great assistance.

John contributed to assessments of plants of Mpumalanga and also shared his knowledge of ferns and many taxa in the genus Helichrysum.

Ernst shared his extensive knowledge of a range of succulent and crmnothophytic taxa. He also contributed to assessments of taxa in the genera Freylinia, Gasteria, Plectranthus, Tylecodon, Crassula, Cotyledon and Antimima.

Terry contributed valuable knowledge as well as access to specimen data from the Bolus Herbarium for assessment of taxa in the Rutaceae family, especially the genus Agathosma.

Vivienne led the assessment of South Africa's medicinal plants. She conducted in-depth research on medicinal species and facilitated a workshop to obtain observation data from 10 other ecologists and ethnobotanists.

Priscilla provided assistance with a range of succulent plant taxa, especially in the families Mesembryanthemaceae and Crassulaceae.

We are indebted to Kristal Maze, Amanda Driver and Tony Rebelo for reading the introductory sections of the Red List and for providing valuable guidance on content and structure. Mathieu Rouget and Jeff Manuel are acknowledged for providing comments on section 4. We thank Emsie du Plessis for many hours of careful editing of the text, and Sandra Turck for her dedicated commitment to high-quality graphic design of the cover and layout of the text and plates.

Craig Hilton-Taylor, Head of the IUCN Red List team at Cambridge, is acknowledged for providing training to staff of the Threatened Species Programme and for his continuing guidance on applying the IUCN 3.1 Red List Criteria accurately to various taxa.

Finally, the assessment of all 20 456 plant species in South Africa as well as the publication of this book would not have been possible without the generous financial support from the Norwegian Ministry of Foreign Affairs. Our gratitude and appreciation are extended to the Norwegian Ministry for this dedicated funding. The former Department of Environmental Affairs and Tourism is acknowledged for facilitating access to the Norwegian funding.

Twelve staff members of SANBI’s Threatened Species Programme who contributed to this publication over the past six years are:

<table>
<thead>
<tr>
<th>Staff Member</th>
<th>Position held</th>
<th>Year working on Red List at SANBI</th>
</tr>
</thead>
<tbody>
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<td>D. Pillay</td>
<td>Red List Officer</td>
<td>2003, 2004, 2005</td>
</tr>
<tr>
<td>K. Naidoo</td>
<td>Red List Officer</td>
<td>2005, 2006</td>
</tr>
<tr>
<td>L. Potter</td>
<td>Red List Officer</td>
<td>2005, 2006</td>
</tr>
<tr>
<td>F. Daniels</td>
<td>Red List Officer</td>
<td>2005, 2006</td>
</tr>
<tr>
<td>P.F. Matlamela</td>
<td>Red List Intern</td>
<td>2006, 2007</td>
</tr>
<tr>
<td>F. Cholo</td>
<td>Red List Intern</td>
<td>2006</td>
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</tbody>
</table>
Species provide us with essential services: not only food, fuel, clothes and medicine, but also purification of water and air, prevention of soil erosion, regulation of climate, pollination of crops, and many more. They also provide a vital resource for economic activities (such as tourism, fisheries and forestry), as well as having significant cultural, aesthetic and spiritual values. Consequently the loss of any species diminishes the quality of our lives and our basic economic security.

Despite a growing awareness that species diversity supports human livelihoods and underpins healthy ecosystem functioning, it is widely acknowledged that the world is facing an extinction crisis. Many species are declining to critically low levels and significant numbers are going extinct as a direct or indirect result of human activities. Governments and civil society have responded to this challenge by setting clear conservation targets. These include the Convention on Biological Diversity’s 2010 targets of understanding and documenting species diversity, and reducing the current rate of biodiversity loss.

South Africa is recognised as one of the world’s mega-diverse countries in terms of its species richness and high levels of endemism. The country not only contains one of the world’s six floral kingdoms, but three of the world’s biodiversity hotspots are located mainly within its borders. South Africa therefore has a significant global responsibility to manage its floral wealth in a sustainable manner and to ensure that all its plant species are conserved in a way that does not lead to further depletions.

The long tradition of botanical exploration and scientific plant study in South Africa means that there is an impressive amount of information dispersed around the country and elsewhere. Compiled and standardised, this information can be used for developing and implementing strategies to stop the current extinction crisis. The Threatened Species Programme of the South African National Biodiversity Institute (SANBI) is endeavouring very effectively to do just this; hence the production of this Red List of South African plants represents a quantum leap forward in South Africa’s efforts to conserve its plant diversity.

Since the 1980s, South Africa has produced a number of national, provincial and local publications listing plants that are considered to be threatened. All these publications have provided key information used in the development and implementation of conservation strategies and actions. In many respects, South Africa has been the leading country in Africa in terms of plant conservation work. This new publication, however, places South Africa firmly on the global stage as a world leader:

• This is the first time that any of the world’s mega-diverse countries has fully assessed the status of its entire flora—a staggering 20 456 taxa.
• The assessment is of global significance as it includes 13 265 endemics. Therefore, when these entries are submitted for incorporation in the IUCN Red List of Threatened Species they will double the number of plants on the IUCN Global Red List.
• South Africa is one of the few countries with a dedicated team of plant Red List staff.
• The whole process of compiling the list has been a collaborative one involving both professionals from a range of institutions and organisations and amateurs.
• Through the establishment of an extensive civil society network, the Custodians of Rare and Endangered Wildflowers (CREW) programme, SANBI has developed a novel model that recognises the value of civil society in gathering information on populations of threatened plants and implementing conservation actions.
• South Africa recognises that Red Lists are dynamic and has established a process to ensure that the list is regularly updated.
• This Red List includes an assessment of the threats to plant biodiversity for the first time, as well as a section on applications of the Red List for conservation practitioners.
• South Africa clearly recognises that producing this Red List is not an end in itself, but an important informant for guiding conservation action at a variety of scales across the country.

SANBI, in particular the staff of its Threatened Species Programme, together with the many professionals, amateurs and CREW volunteers who have contributed to this work, have done an outstanding job in bringing us this new plant Red List. I know it has not been an easy task, and the co-ordinating team is congratulated for persevering with this mammoth project. The Red List of South African plants represents the very best in process implementation, knowledge development and collaborative participation from right across the stakeholder spectrum.

This new Red List of South African plants should be treated as a clarion call to action in the drive to tackle the extinction crisis. South Africa’s biodiversity is increasingly under pressure from a range of competing land and resource uses, challenging our obligations to conserve plant diversity. This publication contains much valuable information on the state of, and trends in, all wild South African plant species that can be used to effectively deal with these challenges.

Craig Hilton-Taylor
IUCN Red List Unit Manager
May 2009
1. Introduction

L. von Staden, D. Raimondo & W. Foden

1.1 South Africa’s unique flora

South Africa has the world’s richest temperate flora (Germishuizen et al. 2006), with 20 456 recorded indigenous vascular plant taxa. With the current estimate of the global flora at 370 000 taxa (Simiyu 2008), this means that 6% of the world’s plant diversity is represented within South African borders. In addition, the extraordinary levels of vascular plant endemism—some 13 265 taxa representing 65% of our flora— are internationally recognised. South Africa has become one of only two countries in the world with three of the world’s 34 biodiversity hotspots allocated to areas within their boundaries, in our case the Cape Floristic Region (6 210 endemics), the Succulent Karoo (2 439 endemics) and the Maputaland-Pondoland-Albany Region (1 900 endemics) (Mittermeier et al. 2005). South Africa is indisputably a custodian of a significant store of the world’s flora, both in terms of diversity and endemism. The effective conservation of our local flora is therefore a high priority and a great challenge at the same time.

1.2 South Africa’s approach to plant conservation

As a ratified signatory to the Convention on Biological Diversity (CBD), South Africa is obliged to develop national strategies for the conservation and sustainable use of biological diversity. In 2002 the Parties to the Convention adopted a Global Strategy for Plant Conservation (GSPC), a framework guiding conservation action with the objective to halt the continuing loss of plant diversity. The GSPC contains 16 specific outcome-oriented targets—this Red List represents South Africa’s contribution to meeting Target 2, ‘a preliminary assessment of the conservation status of all known plant species, at national, regional and international levels’.

Determining conservation status is a means of highlighting those species that are most in need of conservation action. These are typically those at greatest risk of extinction and in order to identify them, South Africa has adopted the IUCN Species Survival Commission’s internationally endorsed Red List system, the IUCN Red List Categories and Criteria. Initiated in 1963, this system has evolved from an expert-opinion-based method to an objective, rigorously scientifically founded system of classification that can be consistently applied across all species (with the exception of micro-organisms) to identify taxa facing a high risk of extinction in the near future (Mace et al. 2008).

The IUCN Red List Categories and Criteria Version 3.1 (the latest version, adopted in 2001) has been used in the 2009 South African assessments (IUCN 2001). South Africa has used this system specifically because of its strong scientific base, objectivity and transparency. Species are categorised as facing a high risk of extinction when quantitative thresholds within clear, comprehensive and specific criteria, relating to biological factors and aspects of population dynamics indicating high levels of threat, are met. The quantitative nature of the system demands extensive supporting data to justify the categorisation of species, but is also flexible enough to allow categorisation even under uncertainty in the absence of high-quality data, a problem often encountered in megadiverse floras such as South Africa’s, where many taxa are insufficiently known.

In addition, trends in changing extinction risk of species—either as a result of a continuing deterioration in status or populations recovering through effective conservation—are used as indicators in CBD targets towards reducing the rate of biodiversity loss (Mace & Baillie 2007). Species categorised according to the IUCN Red List system are preferred in indices tracking the state of biodiversity internationally (Butchart et al. 2006).

Within South Africa, Red Lists are applied in a variety of local conservation processes (see section 4). One of the obligations of the South African National Biodiversity Institute (SANBI) under the National Environmental Management Biodiversity Act (NEMBA), is to monitor and report on the state of South Africa’s biodiversity. Red Lists are vital components used in the calculation of statistics to inform the Minister of Water and Environmental Affairs, the biodiversity sector and the general public on trends in the country’s biodiversity. The conservation status of taxa is incorporated as biodiversity features in provincial and fine-scale municipal conservation plans. In land use decision-making processes, the detection of the presence of a threatened taxon at a site during an environmental impact assessment often results in a record of decision that is designed to mitigate loss of habitat of the taxon in question.

Owing to the wide-ranging applications of the conservation status of species in local conservation processes, using a list containing only species at risk of extinction is not sufficient to guide conservation action effectively (Possingham et al. 2002; Keller & Bollmann 2004). South Africa has, for example, high numbers of rare and localised endemic plant taxa that are not under threat, and therefore not at risk of extinction, but they are of local conservation concern and have to be included in conservation prioritisation processes such as conservation planning. To deal with this, SANBI’s Threatened Species Programme (TSP) has developed additional categories for classifying taxa of conservation concern in consultation with local botanical experts (see Box 1.1, Figure 1.1 and section 2.6).

1 This number is the current most accurate estimate of vascular plant endemism for South Africa. It was derived through data captured during the compilation of this Red List.
BOX 1.1  From ‘Red-Listed’ species to species of Conservation Concern

The first Red Lists covered only species that the botanical community considered in need of conservation action. As a result, in those early days, the terms ‘Red Data’ and ‘Red-Listed’ species became incorrectly understood to refer only to endangered and/or rare species by both conservationists and the public alike.

As the Red List system developed, it became more rigorous in its focus on risk of extinction as well as in its criteria for determining risk. Accompanied by an increase in data availability and, in some cases, effective conservation actions, many ‘Red Data’ or ‘Red-Listed’ species were found not to be in danger of extinction. The need became clear to allocate species to low extinction risk, least concern categories.

As a result, from 2003 all updates to the IUCN Red List of Threatened Species also include species assessed as Least Concern (LC)—the category indicating a very low risk of extinction—particularly to keep track of species that were assessed as threatened in earlier editions but have since been down-listed. More recently, the IUCN Species Survival Commission has also recommended a move away from selective assessments towards comprehensive assessments of all species, regardless of whether they are suspected to be in danger of extinction or not.

The 2009 Red List is a comprehensive assessment of all South Africa’s indigenous plant taxa—this means that every plant taxon has been given a conservation status and that all South African indigenous plants are now on the Red List or ‘Red-Listed’.

To avoid the confusion that has developed, we recommend using the terms ‘threatened species’ and ‘species of conservation concern’ rather than ‘Red-Listed’ and ‘Red Data’ to refer to rare, declining and/or threatened species.

Threatened species are those that are facing a high risk of extinction, indicated by placement in the categories Critically Endangered (CR), Endangered (EN) and Vulnerable (VU).

Species of Conservation Concern are those that are important for South Africa’s conservation decision-making processes. Hence, in the 2009 Red List, we have considered ‘species of conservation concern’ to include all those that are threatened (CR, EN, VU), Extinct in the Wild (EW), Data Deficient (DDD), Near Threatened (NT), Critically Rare (extremely rare), Rare and Declining (Figure 1.1).

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**Figure 1.1. Structure of the South African Red List categories indicating which categories are included under the terms Red-Listed taxa/species, threatened taxa/species and species/taxa of conservation concern.**

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1 Data Deficient follows the IUCN Categories and Criteria Version 3.1 (IUCN 2001) definition of Data Deficient, but on the South African list the tags ‘D’ or ‘T’ are added to distinguish between those taxa that are insufficiently known but may be threatened, and those that are taxonomically problematic. Figure adapted from IUCN Standards and Petitions Working Group (2008).
1.3 The 2009 Red List of South African plants: a major milestone

The 2009 plant Red List is a major milestone for South Africa in that it is the first data-driven, comprehensive assessment of the country’s indigenous vascular flora. As the first megadiverse country to assess its entire flora comprehensively, this Red List is also a major contribution towards global plant conservation targets.

Three previous regional assessments, Hall et al. (1980), Hilton-Taylor (1996a,b, 1997) and Golding (2002) have laid the basis for the 2009 plant Red List. All these lists, however, have included only a limited number of South African plant taxa. This is the first Red List for which every one of the 20 456 plant taxa known to occur within South African borders has been assessed and assigned to one of 12 Red List categories (Figure 1.2).

Since the first Southern African plant Red List was published (Hall et al. 1980), the IUCN Red List system has been continually refined towards a more objective process of categorisation of species. Quantified criteria, first introduced in 1994 (IUCN 1994), have increased the need for data to support and justify assessments. This requisite information has been assimilated from a wide range of sources (see section 2.5) and the data justifying assessments for each taxon of conservation concern are presented in this publication in the Assessment Rationale. This Red List is therefore the first rigorously qualified list of threatened plant taxa for South Africa. Users of this publication are urged to scrutinise the Assessment Rationales and to alert the Threatened Species Programme (redlist@sanbi.org.za) of any omissions, errors and new information on listed taxa, so that assessments can be corrected and updated.

Most countries party to the CBD who have adopted the Global Plant Conservation Strategy have found Target 2 to be one of the more challenging targets to achieve, and only 3% of the world’s plant taxa have thus far been assessed using IUCN 3.1 criteria (Simiyu 2008). South Africa is among 17 megadiverse countries that collectively hold 70% of the world’s species diversity (Mittermeier et al. 1997) and is the first among these countries to comprehensively assess its flora. Owing to the country’s great botanical diversity, South Africa’s Red List contribution marks a great stride towards reaching Target 2 by increasing the proportion of the global flora assessed to 9%.

1.4 Ongoing updates to the Red List

A Red List is a dynamic tool, and it is critical that it is frequently updated in keeping with changes in land use pressures, the impact of conservation measures to improve the status of species as well as new information such as taxonomic
revisions. Previous Red-Listing initiatives, both in South Africa and globally, have tended to treat the publication of a Red Data Book as an end point. Red Data Book publications in 1980 and 1996 marked the culmination or near-culmination of Hall and Hilton-Taylor’s respective undertakings. For several years prior to the updated publications, the accepted Red List and hence the planning, decision-making and legislation resulting from it, were based on an increasingly inaccurate reflection of the state of South Africa’s flora. A static Red List can never remain accurate for any length of time and this book too will become progressively more out of date. Even between the completion of text and the launch of the book, new information has come to light in the form of new taxonomic revisions and new discoveries of subpopulations in the field.

South Africa is one of very few countries with a dedicated team of plant Red List staff. This core group is aided by a large network of committed botanical experts that form part of an extended professional team concerned with the conservation of South Africa’s flora. SANBI is also able to harness significant capacity from its extensive civil society network, the Custodians of Rare and Endangered Wildflowers programme (CREW), which involves volunteers in monitoring wild populations of rare and threatened plants. In addition to new field data from CREW volunteers and field ecologists, ongoing digitisation of specimens from herbaria around the country is taking place. Given these sources of data and the strong support of botanical expertise that has been established through this Red List initiative, SANBI’s Threatened Species Programme is in a good position to keep the Red List up to date.

To make sure that you always have the most up-to-date Red List assessments and information, we recommend that you use the electronic Red List presented on SANBI’s website (www.sanbi.org) in combination with this book. This web-based version, updated with the latest information and assessments every six months, also provides the option of accessing more detailed information than could be included in this book (see Box 1.2). Further benefits of the web version include the ability to create customised lists for particular provinces, taxonomic groups and biomes.

**BOX 1.2 The South African Plant Red List on the SANBI website**

Large volumes of information on South Africa’s threatened plants have been collated during the compilation of the 2009 Red List. Much of this information could not be presented in this publication. Users of the Red List are invited to visit the South African Plant Red List on the SANBI website (www.sanbi.org), where more comprehensive information on threatened species is provided. Users are also urged to consult the web-based Red List as future updates to the status of species will be posted there. As new information becomes available, the Red List status of some species will change, and the status as presented in this publication will become outdated. The status of a species on the website will therefore always be the currently most accurate.

**Example of information provided on the web-based Red List**

Most information represented on the web will at first be only available for species of conservation concern, and the Threatened Species Programme will be systematically adding basic information on all Red-Listed species.

**Family SALICACEAE**

**Pseudoscolopia polyantha Gilg**

**Status:** NT B1ab(iii,v)

**Assessors:** L. von Staden & A.T.D. Abbott

**Rationale**

Restricted to a highly threatened habitat in southern KwaZulu-Natal and Pondoland. EOO ± 13 500 km², a suspected 10–20 locations continue to decline as a result of frequent and intense grassland fires that affect forest margins. Although three isolated subpopulations occur in KwaZulu-Natal and the Western Cape, subpopulations in Pondoland are not severely fragmented.
**Distribution**

*Endemism* South African endemic.

*Provincial distribution* Eastern Cape, KwaZulu-Natal, Western Cape.

_Distribution_ Mainly Pondoland between Oribi Gorge and Port St Johns. Isolated occurrences at Little Noordsberg and Ngoye (KwaZulu-Natal) and the Groot Winterhoek Mountains (Western Cape).

**Habitat**

*Biomes* Forest, Fynbos.

*Habitat* Sandstone, along forest margins, or in rock outcrops usually on cliffs (Pondoland and KwaZulu-Natal). In the Western Cape it occurs along a rocky stream bank in montane fynbos.

**Threats**

The main threat to Pondoland woody species restricted to forest margins is too frequent and intense grassland fires that are causing forest margins to recede (D. Styles, C.R. Scott-Shaw, pers. obs.). This threat is affecting forest margins mainly in the areas between Umtamvuna and Mkambati Nature Reserves, and around Lusikisiki. The threat probably also has an impact on the subpopulation at the Little Noordsberg, where surrounding grasslands are severely degraded by overgrazing and too frequent fire (Fairbanks et al. 2000). From Port Edward to Oribi the largest remaining areas of forest are fairly well protected within the Umtamvuna and Oribi Gorge Nature Reserves, but some areas of forest above the edges of these deep gorges have undoubtedly been cleared for forestry and agriculture (mainly sugarcane) in the past. Smaller forest patches outside reserves are threatened by the effects of fragmentation and isolation within a transformed landscape as well as by encroachment by invasive alien plants.

The subpopulation in the Groot Winterhoek Mountains is protected within a Wildness Area, but it is also potentially threatened by too frequent and intense fire (A.E. van Wyk, pers. comm.). Fynbos is a fire-prone vegetation, and the subpopulation occurs in a forested kloof along a streambank, a typical fynbos fire refugium.

**Notes**

The Groot Winterhoek subpopulation is not morphologically exactly the same as the Pondoland individuals (A.E. van Wyk, pers. obs.). It is not known whether this subpopulation represents the westernmost extreme of a former widespread population (as suggested in Abbott et al. 2000) or whether it is the result of a rare long-distance dispersal event. The Pondoland flora has many links with the winter-rainfall fynbos, including representatives of the fynbos families Proteaceae, Ericaceae and Bruniaceae (Abbott et al. 2000; Abbott 2006).

**Previous assessment(s)**

<table>
<thead>
<tr>
<th>Status</th>
<th>Publication</th>
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**References**


2. Approach to Red List assessments

L. von Staden, D. Raimondo & W. Foden

2.1 Plant taxa included in the Red List

The IUCN Species Survival Commission recommends that the status of all taxa be assessed, regardless of whether they are suspected to be in danger of extinction or not (Hilton-Taylor 2000). This Red List includes assessments for all 20 456 taxa in the vascular plant groups Pteridophytes (ferns), Gymnosperms and Angiosperms (Monocotyledons and Dicotyledons) known to occur naturally in South Africa. Bryophyta (mosses), Hepatophyta (liverworts) and Anthocerotophyta (hornworts) have not yet been assessed as these groups are currently too poorly known, but they are likely to be facing similar threats as those taxa that have been assessed and should be included in future updates to the South African plant Red List.

Only species, subspecies and varieties were assessed and no taxonomic ranks below variety were included. In a few instances, species that have valid subspecies or varieties were assessed at the species level only. For example, assessments for some taxa harvested for traditional medicine such as Dianthus mooiensis and Haworthia limifolia rely on information about volumes of plants traded in informal markets as well as interviews with traders. Traders often do not distinguish between subspecies and varieties and it is also extremely difficult to identify these species to the correct taxonomic level from the material sold at markets, making it challenging to do individual assessments for taxonomic ranks below species. Such deviations from valid names have been indicated with a superscript \(^7\) before the taxon name in the species assessments.

Natural hybrids and introduced taxa were not assessed. Some taxa that were listed by Hilton-Taylor (1996a,b, 1997) were not reassessed in this Red List because they fall within one of the above categories of excluded taxa. See Appendix II for the list of previously listed taxa excluded from this Red List.

2.2 Structure and organisation of the Red List

Section 9 contains all evaluated taxa and their status, and is sorted alphabetically by genus. Where there have been changes at the generic level since the publication of the South African plant checklist (Germishuizen et al. 2006), directions to the correct genus have been included for easy reference. Taxonomic changes to taxa listed by Hilton-Taylor (1996a,b, 1997) are indicated in Appendix II. Indications regarding other taxonomic changes at species level and below published since Germishuizen et al. (2006), however, cannot be included in this publication. Users are requested to consult the POSA (Plants of Southern Africa) link on the SANBI website (www.sanbi.org) for the latest taxonomy. All taxa of conservation concern (see Box 1.1) have been marked in bold in section 9. The taxa of conservation concern are covered in section 5, which provides information on the distribution and habitat of each taxon, as well as an explanation of how a taxon meets the criteria for inclusion in the category under which it is listed. Section 5 is arranged according to the higher classification of the taxon—Pteridophytes, Gymnosperms, Angiosperms (Monocotyledons and Dicotyledons), and within these groups they are sorted alphabetically by family, genus and species.

2.3 Taxonomic treatment

As far as possible, only taxa validly published in terms of the International Code of Botanical Nomenclature (McNeil et al. 2006) have been included in this Red List. In some instances, however, taxa not yet formally described have been included. The IUCN Species Survival Commission discourages the listing of undescribed taxa, and these are only allowed in exceptional cases on condition that (1) there is a clear conservation benefit to listing the taxon; (2) there is general consensus that it is a clearly distinct entity; (3) the distribution is well defined; and (4) a voucher specimen is available as a reference (IUCN Standards and Petitions Working Group 2008). Some 65 taxa that meet these criteria have been included in the list. The IUCN also requires that descriptions of new taxa be published within four years of their inclusion in the Red List, after which they will be removed from the list.

Some undescribed taxa have been included in other publications (e.g. Goldblatt & Manning 2000; Germishuizen et al. 2006) under provisional names. In this publication, provisional names have not been included for the following reasons: (1) it may create confusion when the provisional epithet is not available at the time of publication; (2) the author might eventually decide to apply a different epithet; (3) another taxonomist may revise the group and give the taxon a different taxonomic status altogether; or (4) the inclusion of taxa under provisional names not formally published may result in the names being used elsewhere in the literature without an indication of their unpublished status, thereby promoting unscientific practices if such taxon names were to become established in the literature. Unpublished taxa are indicated in this publication simply as sp. nov. for new species, subsp. nov. for new subspecies and var. nov. for new varieties. The voucher specimen and herbarium holding the collection are included with the assessment of each undescribed taxon, so that these taxa can be tracked and identified by means of the voucher specimens.
Nomenclature used in this list generally follows Germishuizen et al. (2006). New taxa published subsequent to 2006 have been included in the Red List if they have been captured in the taxon database of the National Herbarium in Pretoria (PRE) Computerised Information System (PRECIS), or if the Threatened Species Programme has been made aware of their publication. Some newly described taxa may not yet have come to the attention of the Threatened Species Programme and users of this Red List are requested to report any omissions they may note.

Conflicting opinions and taxonomic treatments are a major problem when compiling a Red List. With this Red List we have tried to avoid bias in the selection of taxonomic treatments by following only the most recently published treatments. It is possible that some recent revisions may have been missed, and users of this Red List are again requested to inform the Threatened Species Programme, should they note any errors in this regard.

2.4 South African Red List categories and criteria

Categories based on IUCN 3.1 categories and criteria

The IUCN Red List categories and criteria are intended to be a clear and easily understood system of classifying taxa at risk of global extinction. The system provides an explicit, objective framework for the classification of taxa from all levels of biodiversity except micro-organisms. Categorisation should ideally be applied only to wild populations inside their natural range and populations established through benign introductions. Benign introductions are defined as an attempt to establish a taxon, for the purpose of conservation, outside its natural distribution, but only when there is no remaining habitat left within the historic range (IUCN 1998). The criteria should also be applied to translocated or reintroduced subpopulations within the natural range, but only once these subpopulations have become self-sustaining. Most subpopulations of translocated or introduced individuals of threatened plants in South Africa are the result of very recent conservation initiatives and have not yet proved to be self-sustaining and are therefore mostly excluded from assessments for this Red List.

Naturalised subpopulations outside the natural range and subpopulations introduced for nonconservation purposes outside the natural range when intact habitat remains within the natural range, are not included in assessments. However, if a taxon has successfully expanded its range without the aid of translocations or introductions as a result of human impact on the landscape, for example native taxa that thrive in disturbed areas such as crop fields and mining sites, such subpopulations are included in assessments.

Extinct (EX), Extinct in the Wild (EW) and Critically endangered (Possibly Extinct)

A taxon is Extinct when there is no reasonable doubt that the last individual has died. Similarly, a taxon is Extinct in the Wild when there is no reasonable doubt that the last wild individual has died, but it is known to survive in cultivation, or as a naturalised subpopulation far outside the historic range, or as a reintroduced subpopulation in- or outside the historic range that has not yet proved to be self-sustaining.

Taxes should only be listed as Extinct or Extinct in the Wild when exhaustive surveys in all known and potential habitat, at appropriate times (diurnal, seasonal or annual) throughout the historic range and over a time period appropriate to the life history of the taxon, have failed to record an individual. Extinction is, however, very difficult to detect. Many taxa previously classified as Extinct have been rediscovered (see section 3.1). Such rediscoveries make the tracking of global extinction rates highly problematic. Also, classifying a taxon as Extinct means that conservation efforts are withdrawn, and this may leave a taxon that may be on the brink of extinction without any protection if the classification is applied in error. The classification of Extinct and Extinct in the Wild demands a rigorous evidentiary approach, unlike other categories of threat, where a precautionary but realistic approach is preferred. Such a strong evidentiary approach may lead to an underestimation of global extinction rates.

The tag ‘Possibly Extinct’ applied to the category Critically Endangered has been developed especially to highlight taxa that are very likely to be extinct already, but, on the balance of evidence, a small chance remains that they may still be extant. These are typically taxa that are suspected to be extinct but for which adequate field work has not been conducted to confirm their extinctions. The tag is also applied to ephemeral or cryptic taxa that are easily overlooked and extinction is therefore much harder to detect. It is intended that taxa listed as Critically Endangered Possibly Extinct are included with taxa listed as Extinct and Extinct in the Wild within bounded estimates to indicate plausible uncertainty in rates of extinction rather than absolute numbers.

The categories of threat: Critically Endangered (CR), Endangered (EN) and Vulnerable (VU)

Placement of a taxon into one of the categories of threat indicates that it is at risk of extinction. The categories of threat are ranked, thus a taxon categorised as Endangered is facing a higher risk of extinction than one categorised as Vulnerable, and a taxon classified as Critically Endangered is at higher risk of extinction than one classified as Endangered. Listing in a category of higher extinction risk implies a higher expectation of extinction and also that, in the

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1. This section is adapted from IUCN (2001) and IUCN Standards and Petitions Working Group (2008).
2. See Appendix I for the IUCN 3.1 criteria for the categories of threat.
absence of conservation action, more taxa listed in higher categories are likely to go extinct over a specified time frame sooner than those in lower categories.

To qualify for listing in a category of threat, a taxon must meet one or more of the five quantitative criteria (A–E). The criteria were derived through a wide consultation and review process (Mace et al. 2008) and are aimed at detecting a range of biological indicators of populations in danger of extinction so that they can be applied consistently across a broad range of organisms and life histories. The criteria are designed to target symptoms of endangerment rather than causes. Therefore any threatening process that leads to symptoms such as rapid population decline, small population sizes or small geographic distributions will result in a taxon being classified as at risk of extinction. Within each criterion, different quantitative thresholds are used to place a taxon within one of the categories of threat (Table 2.1).

### TABLE 2.1. Biological indicators of extinction risk encompassed by each of the five IUCN criteria. Quantitative thresholds within each criterion determine in which category of threat a taxon is placed. This table provides a short summary of the criteria to illustrate how the quantitative thresholds change between the categories of threat. CR—Critically Endangered, EN—Endangered, VU—Vulnerable. See Appendix I for a full explanation of the structure of the criteria.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Biological indicator</th>
<th>Quantitative thresholds</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Rapid population decline in relation to the life history of the taxon in the past, present or projected into the future</td>
<td>Proportion by which population is reduced</td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Small geographic range, decline and few locations or fragmentation or population fluctuations</td>
<td>Size of geographic range</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of locations</td>
</tr>
<tr>
<td>C</td>
<td>Small population size, decline and fragmentation or population fluctuations</td>
<td>Total number of individuals in global population</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of individuals in largest subpopulation</td>
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<tr>
<td></td>
<td></td>
<td>Proportion by which population is reduced</td>
</tr>
<tr>
<td>D</td>
<td>Very small population size or very restricted distribution</td>
<td>Total number of individuals in global population</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Size of geographic range</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of locations</td>
</tr>
<tr>
<td>E</td>
<td>Quantitative analysis of extinction risk</td>
<td>Probability of extinction over a specified time period</td>
</tr>
</tbody>
</table>

A taxon should always be evaluated against all the criteria. Certain criteria will be inappropriate for some taxa and they will never qualify under these criteria, no matter how close they come to extinction. However, the scope of the five different criteria is designed to be broad enough so that at least some of the criteria can be appropriately used to classify any taxon. A taxon therefore only has to meet the quantitative thresholds for at least one of the five criteria to be classified in a category of threat, but it could also qualify under more than one criterion. If multiple criteria are met, the assessment should be annotated by all the criteria that are met for the category of threat for which taxon qualifies. If multiple criteria are met but the taxon is placed in different categories of threat under different criteria, then the taxon should be listed in the highest category of threat it qualifies for and only the criteria that are relevant for that category should be listed. For example, if a taxon qualifies for Endangered under Criteria A, B and C but also qualifies for Critically Endangered under Criterion A, then it should be listed as Critically Endangered under Criterion A.

The criteria are quantitative in nature, but sufficiently comprehensive and detailed, and relevant data across the entire range of a taxon are rarely available. The IUCN system is designed to be flexible, allowing for the use of estimates, inference and projection to arrive at plausible ranges or best estimates of values needed for quantitative thresholds so that even taxa for which there is very little information can be assessed. Assessors are encouraged to always make the best use of what few data are available and the liberal use of the Data Deficient category is discouraged. It is required, however, that when inference and projection are used, any assumptions made should be documented in the
assessment. For example, in the South African plant assessments, population decline is often inferred from habitat loss. Such inferences assume that there is a linear relationship between the extent of the habitat and the number of mature individuals and that the population is evenly distributed throughout the habitat.

In the absence of complete data or where there is great uncertainty in the data available for assessments, the attitude of the assessor towards uncertainty can greatly affect the outcome of the assessment. A precautionary attitude will always classify a taxon as threatened unless it is certain that it is not threatened, whereas an evidentiary approach will only classify a taxon as threatened when there is very strong evidence that it is threatened. In applying the criteria, assessors are encouraged to adopt a precautionary, but realistic attitude by avoiding 'worst case scenario' reasoning that may lead to unrealistic listings but also resisting reliance on strong evidence and high-quality, accurate data.

**Near Threatened (NT)**

The category Near Threatened is applied to taxa that do not meet the criteria for one of the categories of threat, but are sufficiently close enough to qualifying that they may easily become in danger of extinction in the near future. Near Threatened does not have its own criteria, but it is required that a taxon should nearly meet the thresholds for the category Vulnerable for any of the five criteria and that the criteria nearly met should be included in the assessment and justified in the assessment rationale. Under Criterion B, the application of Near Threatened requires that quantified values are within the bounds for Vulnerable for two out of the three required subcriteria and one may be outside.

**Least Concern (LC)**

The category Least Concern indicates taxa that are not at risk of extinction because they do not qualify and are not close to qualifying for any of the categories of threat. According to IUCN (2001) the category is typically applied to ‘widespread and abundant taxa’. However, because the IUCN system measures risk of extinction, most of the criteria require that threatening processes cause an actual or potential decline in the population, or that the population is very small, consisting of less than 1 000 mature individuals. Many South African plant taxa that are not widespread and abundant are also classified as Least Concern according to the IUCN system because there are no threatening processes that are likely to cause actual or potential decline and there are no data available on numbers of mature individuals. How this issue was dealt with is explained in the section on South African categories below.

**Data Deficient (DD)**

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction. Data Deficient is not a category of threat but it does not imply that a taxon is not threatened. Listing of a taxon in this category indicates that more information is required to establish whether or not the taxon is threatened.

Three kinds of taxa are usually classified as Data Deficient. The first is typically taxa that are known from only one or a few collections, with no or extremely uncertain locality or habitat information. For such taxa it is impossible to define the distribution range or habitat, and because threatening processes often act more severely on some habitats than on others, even within the same landscape, inferring whether a taxon is possibly threatened or not is impossible if habitat information is not available. For example, too frequent fires are a threat only to nonresprouting plants that occur on open mountain slopes and plains, as fires do not usually get into cliffs and extremely rocky sites near mountain summits, and plants that grow in such habitats are generally protected from some or even most fires.

Secondly, while a taxon can be well known and its biology well studied, appropriate and relevant data to measure against the criteria might not be available, or whatever data exist may be extremely uncertain. In such cases every effort should be made to infer and project whatever information is available, and Data Deficient should only be applied as a last resort.

The third typical use of the Data Deficient category is where taxonomic uncertainty over the validity of the taxon prohibits the distribution from being well defined and hence an assessment of its risk of extinction is not possible. Some taxa that have been formally described as separate entities are extremely difficult to distinguish owing to natural variability. In other instances, widespread and highly variable taxa may actually represent multiple taxa, but may remain as unresolved species complexes at the time of the assessment. If any taxon that is taxonomically uncertain, whether it is part of a complex or possibly belongs to another taxon, is likely to be threatened, it should be listed as Data Deficient.

The IUCN Standards and Petitions Working Group (2008) recommends the use of tags to indicate the reasons why taxa are listed in the category Data Deficient. In the South African Red List two tags are used as follows:

**Data Deficient—Insufficient Information (DDD)**

This tag is applied to taxonomically well-defined taxa that are too poorly known to allow an assessment of extinction risk, either because their distribution and habitat are unknown, or they are well known and suspected to be in danger of extinction but relevant data to measure against the criteria for the categories of threat do not yet exist.
Data Deficient—Taxonomically Uncertain (DDT)

This tag is applied to taxa that may be threatened but for which taxonomic uncertainty over the validity of the taxon prohibits the distribution from being defined, and hence an assessment of risk of extinction is impossible. DDT is applied to possibly threatened taxa that are likely to belong to another taxon, regardless of whether the taxon to which it is likely to belong is threatened or not. DDT is also applied to complexes, where one or more of the taxa contained within the complex are likely to be threatened.

Not Evaluated (NE)

A taxon is Not Evaluated when it has not been evaluated against the criteria. As this Red List is a comprehensive assessment of all indigenous plant taxa, there should be no South African plant taxon with a national status of NE.

National application of the IUCN categories and criteria

The IUCN categories are intended to be applied at the global level, where a taxon's entire world distribution range should be included in the assessment. Allowance is, however, made to apply the categories and criteria to subsets of the global population of a taxon, especially at regional, national or local levels, provided that procedures for the regional application of the categories and criteria are followed (IUCN 2003).

The South African assessments contained within this Red List apply only to the section of the global population that occurs within South Africa's borders. Therefore, the national status of taxa that are endemic to South Africa is also their global status, and these assessments are directly submitted to the IUCN for inclusion in the IUCN Red List of Threatened Species. For taxa that are not endemic to South Africa, national assessments documented in this Red List represent regional assessments and will not necessarily be the same as the global assessment submitted to the IUCN.

The national assessment process proceeds in three steps. The first considers which of the taxa that occur within the country are to be assessed. This process is particularly important for highly mobile taxa where issues such as vagrancy, and whether or not the taxon is resident or a breeding or nonbreeding visitor, have to be taken into account, although these considerations are clearly not applicable to plants. However, a consideration that is important in the case of plants is whether or not to assess taxa at the national level when only a very small proportion of their global range falls within the country. If it is decided that such taxa are to be excluded from the list, a lower limit on the proportion of the global population that occurs within the country has to be set before assessments commence. No such limits were set for the South African Red List and all plant taxa with all or part of their natural range falling within South Africa, have been assessed.

In the second step, all taxa that qualify for listing at the national level are assessed by applying the IUCN Red List categories and criteria to the national population in the same way as to the global population. All data used in the national assessment such as area, reduction, decline, fluctuations, subpopulations, locations and fragmentation should reflect only the situation within the national population, and not be influenced or confounded by the situation in the global population outside the country. Two categories additional to the nine global IUCN Red List categories apply at the national level. Not Applicable (NA) applies to taxa that have been excluded from the national list through filters established in step 1. Not Applicable also applies to taxa of which the national population is not part of the natural range, e.g. feral, naturalised or introduced taxa. The second national category, Regionally Extinct (RE), applies to taxa that have become extinct within the country but still survive as wild populations elsewhere in the natural range outside the country. It is possible that Regionally Extinct taxa could re-colonise the country, and in such cases the taxon should be reassessed after the first year of reproduction. Reinroduced, formerly Regionally Extinct taxa should also be reassessed as soon as the reintroduced population successfully reproduces and the offspring are shown to be viable. No taxa have been assessed as Regionally Extinct for this Red List.

In the third step, the status of conspecific populations outside the country and their effects on the risk of extinction of the population within the country should be investigated and the categorisation adjusted accordingly. If the national population is isolated from the rest of the global population, the categories and criteria for global assessments should be applied without modification. However, if the national population is not isolated either because the taxon is capable of long distance dispersal or because the global population is relatively continuous across South African borders, the national population may benefit from ‘rescue effects’, where dispersal from populations outside the country may reduce its risk of regional extinction, and then the national status should be adjusted. If a taxon has been assessed as nationally threatened, but populations outside the country are not declining and are likely to have rescue effects on the national population, the national status should be downgraded by one category. In such cases the downgraded status should be indicated by an asterisk following the standard status abbreviation and the assessment should be annotated by the criteria met under the global categories and criteria prior to downgrading. For example, if a taxon that has been nationally assessed as CR C2a(i), but the status has to be downgraded, the assessment should be documented as EN* C2a(i). Reasons for downgrading should be documented in the assessment rationale.

3 This section is adapted from IUCN (2003).
Categories developed specifically for the South African plant conservation context

In addition to the nine IUCN Red List categories, three categories have been developed for the South African Red List in order to meet local conservation concerns. The IUCN system is designed to detect risk of extinction. Taxa that are not at risk of extinction are classified as Least Concern. However, some taxa that are not at risk of extinction may still be of conservation concern. The Red List statuses of South African plant taxa are used in many local conservation prioritisation processes such as conservation planning, environmental impact assessments and the classification of threatened ecosystems. Within these processes there is a need to include taxa that are of conservation concern but not necessarily in danger of extinction. The South African categories of Critically Rare, Rare and Declining have been developed to highlight those taxa classified as Least Concern according to the IUCN system, should be considered in conservation prioritisation processes.

It is important to emphasise that the South African categories Critically Rare, Rare and Declining are intended for use in local conservation prioritisation processes only. In submission to the IUCN Red List of Threatened Species, these taxa have to be categorised according to the IUCN system and therefore their global status will be Least Concern.

The criteria for the South African categories have been developed in consultation with local botanical experts and are as follows:

**Critically Rare**
A taxon is Critically Rare when it is known to occur only at a single site, but is not exposed to any known direct or plausible potential threat and does not qualify for a category of threat according to the five IUCN criteria.

**Rare**
A taxon is Rare when it is not exposed to any known direct or plausible potential threat and does not qualify for a category of threat according to the five IUCN criteria, but meets one or more of the following criteria:

1. Restricted range: Extent of occurrence (EOO) ≤ 500 km²
2. Habitat specialist: Taxon is restricted to a highly specialised microhabitat so that it has a very small area of occupancy (AOO), typically smaller than 20 km².
3. Low densities of individuals: Taxon always occurs as single individuals or very small subpopulations (typically fewer than 10 mature individuals) scattered over a wide area.
4. Small global population of less than 10 000 mature individuals.

**Declining**
A taxon is Declining when it does not meet any of the five IUCN criteria and does not qualify for the categories Critically Endangered, Endangered, Vulnerable or Near Threatened, but there are threatening processes causing a continuing decline in the population.

2.5 Information sources
These Red List assessments are based on a comprehensive collation of published and unpublished information on the South African flora. For all assessments great effort was made to assemble all available information on a taxon from as wide a range of sources as possible. South Africa is fortunate among megadiverse countries in having a disproportionately high level of capacity in terms of taxonomic expertise and field botanists, and good spatial data such as a national land-use layer and a recently updated vegetation map (Mucina & Rutherford 2006), which greatly enhanced our ability to conduct assessments meeting the data requirements of IUCN 3.1 criteria. There are a number of sources of information without which the compilation of this Red List would have been extremely difficult, if not impossible. These information sources and their applications are discussed here for the benefit of other institutions that may wish to undertake comprehensive assessments of large numbers of taxa.

**National Herbarium, Pretoria (PRE) Computerised Information System (PRECIS)**
PRECIS is a megadatabase containing information on plant taxa recorded within the Flora of southern Africa region in two components. The first is a taxonomic component which contains taxon names, synonyms and distribution within southern Africa and which is used in the compilation of checklists such as Germishuizen et al. (2006). The taxonomic section of PRECIS was extremely useful in the rapid compilation of a basic list of taxa occurring within South Africa that required Red List assessments. It also ensured that the list remained taxonomically up to date during the six years it took

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4 Criteria 1–3 were derived directly from the seven forms of rarity as defined by Rabinowitz (1981), which are widely used in studies of the ecology and conservation of rare species. The thresholds for AOO and subpopulation size were used only as guidelines, because relevant data are seldom available, but the cut-off for EOO was strictly applied as this is more easily calculated for all taxa by using Geographic Information Systems (GIS) and georeferenced localities.
to complete. This section of the PRECIS database also contains information on life cycle, growth forms, altitudinal range, utilisation and whether or not a taxon is a hybrid or an alien species. Unfortunately these data were too sporadically captured to be useful in the Red List and required checking against additional sources of information where such data were needed for assessments. Data on endemism were essential requirements for assessments but were not included in the PRECIS database and had to be captured for all listed taxa by staff of the Threatened Species Programme. We recommend that endemism is included as an essential component in such databases, especially since such information is also more widely needed for national biodiversity conservation plans and in the study of patterns of global biodiversity.

The second component of PRECIS contains information on all herbarium specimens housed in the National Herbarium (PRE) in Pretoria as well as on a small proportion of the specimens held at the Compton (NBG) and Bolus (BOL) Herbaria in Cape Town. Most of the specimens are georeferenced to at least quarter degree square level and during the Red List project efforts were started to georeference to finer scales. Electronic, georeferenced specimen information has been the most crucial source of information both during the initial, semi-automated rapid checking of the ± 16 000 taxa never Red-Listed before, as well as for estimating the range size and number of locations or subpopulations during detailed assessments of taxa identified as likely to be of conservation concern.

Because georeferenced, electronic specimen information was recognised as being very useful in Red List assessments, efforts have been initiated to also encode specimens housed in regional herbaria throughout South Africa. Specimens of taxa of conservation concern held at the KwaZulu-Natal Herbarium (NH) in Durban were encoded in time to be used in assessments contained in this Red List and data from other herbaria will be used in future updates to assessments. The ongoing digitisation of herbarium material is co-ordinated by the South African Biodiversity Information Facility (SABIF), the country node to the Global Biodiversity Information Facility (GBIF). One of SABIF’s key focus areas is promoting the sharing of biological data under a common set of standards by facilitating access to biodiversity and related information on the internet. SABIF funds a large number of projects focused on capturing specimen data.

**Undigitised specimen data**

Where PRECIS lacked sufficient encoded specimens for determining a taxon’s extent of occurrence, likely number of subpopulations and preferred habitat, it was necessary to visit regional herbaria to collect this information. Subpopulation data of ± 800 (17%) of the taxa listed as being of conservation concern were collected directly from herbarium sheets. Several large South African plant families poorly represented in PRECIS that required this form of data collection include the Mesembryanthemaceae, Rutaceae, Restionaceae, Cyperaceae and Bruniiaceae. Most specimens of these families are housed in the Compton and Bolus Herbaria. In addition, many small genera endemic to the Fynbos, especially those in the families Asteraceae and Fabaceae, are only represented by unencoded specimens in the Compton Herbarium.

**Literature**

Both popular and scientific articles on South African plant taxa were searched for useful information. Locating such articles was made possible by the online botanical literature database, the Electronic Plant Information Centre (ePIC), hosted by the Royal Botanic Gardens, Kew, at http://epic.kew.org.

Although South Africa does not have a complete Flora, the first 28 volumes that were produced towards the *Flora of southern Africa* as well as the regional conspectus for the Cape Floristic Region, *Cape plants* (Goldblatt & Manning 2000) and other taxonomic monographs provided much of the information that was essential to assessments, including distribution range, habitat and additional locality data. Recent taxonomic publications provide a wealth of useful information. In addition to good distribution and habitat information, they also provide descriptions of growth forms and life histories enabling the estimation of generation length (essential for Criterion A); seed characters are an indication of possible modes of dispersal and hence a taxon’s susceptibility to severe fragmentation (essential for Criterion B); notes on phenology are useful for estimating ease of detection and the likelihood of underestimation of number of individuals or locations and also for other notes on the ecology of taxa that are often essential considerations for risk of extinction. Where only older taxonomic treatments existed, much of this information, especially on habitat and locality, was not available, and many taxa in groups that have not been recently revised had to be classified as Data Deficient.

Popular articles on threatened plant species, often written by amateur enthusiasts, were very valuable sources of information on local observations of threatening processes and population declines. Such information was generally not available anywhere else in the taxonomic or scientific literature.

**Botanical experts**

A wide range of people with botanical knowledge were consulted to provide information for assessments. These included professional botanists and taxonomists, conservation officials, botanical consultants and amateur enthusiasts with good knowledge of their local flora. Whether or not the experts had extensive and recent field experience made the greatest difference to the value of the data they were able to contribute. Those with extensive field experience are able to add observations of additional subpopulations not documented in the literature or in herbaria, as well as good observations on local threatening processes, specifically whether they are causing continuing declines or not—something which is very
difficult to determine from static land cover data. It was found that even when experts did not know a particular taxon under discussion, they were able to comment on threatening processes likely to affect a taxon by considering their field knowledge of sites of occurrence described in the literature and on herbarium specimens. We also found that quality of contributions from experts improved dramatically once the aim of the Red List system, i.e. to estimate risk of extinction, was made clear to them and they understood the data required to meet the criteria for the categories of threat. A greater understanding of the aim and data requirements of the system also led to a large reduction in and easier resolution of conflicts around threat categories assigned to taxa.

**Monitoring programmes**

Observational data on numbers of mature individuals and population declines are generally very scarce for the South African flora. Data were obtained for a small proportion of taxa assessed through monitoring programmes established by provincial conservation agencies of KwaZulu-Natal and the former Transvaal and Cape Provinces as well as by the civil society volunteer programme CREW (Custodians of Rare and Endangered Wildflowers), which was started in 2003. For 381 taxa in the family Proteaceae, extensive atlas data were collected by civil society volunteers as part of the Protea Atlas Project conducted between 1990 and 2000. As a result of these excellent, globally unique data being available in database format, the Proteaceae assessments were conducted through a radically different approach compared to other assessments in this Red List (see Box 2.1).

**Spatial data**

For all taxa assessed, georeferenced herbarium localities were combined with other localities gathered or deduced from the literature and expert comments to calculate the extent of occurrence (EOO) using a Geographic Information System (GIS). For some areas of South Africa, experts with regional field knowledge were not available. For taxa occurring in these areas, georeferenced herbarium localities were used in combination with national land cover data (Fairbanks et al. 2000) to determine threat status. National land cover was also used in combination with the vegetation map of South Africa (Mucina & Rutherford 2006) to estimate extent of habitat loss for taxa listed under the A criterion.

The use of land cover data to estimate habitat loss was constrained in two ways. Firstly, only two sets of spatial data (produced in 1994 and 2000) covering all of South Africa exist. However, the two datasets were compiled using different methods and at different spatial scales, meaning that comparison between the 1994 and 2000 land cover is extremely difficult, especially at the relatively fine spatial scales at which assessments were conducted. Because the 1994 and 2000 land cover data were effectively not comparable, extent of habitat transformation could only be estimated at a single point in time (1994), and rates of habitat loss could not be determined. Attempts were made to research the time of establishment of major industries such as forestry and sugarcane cultivation in different parts of the country, but such data are not readily available and proved to be too time-consuming for individual assessments. Therefore, listing under the A criterion based on habitat loss estimated through land cover data was only applied for very long-lived taxa (those with a generation length of 30 years or more), where it was assumed that three generations extended in the past to pre-mechanised agricultural times, so that most or all of the habitat transformation was likely to have occurred within the past three generations. Listing under the A criterion for shorter-lived taxa was only applied where observational data were available, or through expert consensus in the case of medicinal plants (see section 2.8, Box 2.2).

The second problem with the land cover data used is that it is very outdated. In many areas of the country there has been rapid expansion of mining, industry, agriculture and urban areas in response to the growing South African economy over the last 10 years. In a few instances where taxa are known to occur in areas where there has been rapid habitat transformation during this time, recent habitat loss was mapped using contemporary satellite images in order to justify listing taxa as threatened under A2 and A4 (where trends in habitat loss over the last 10 years were projected into the future). This method, which was extremely time-consuming, with at least a day needed to complete a single assessment, was only used in a few selected cases.

2.6 A strategic approach to assessing a megaflora

Assessing 20 456 taxa requires a strategic approach (Figure 2.1). This section explains the approach taken to cover all 20 456 taxa within a short time frame five years. As a first step, taxa that were likely to be of conservation concern had to be prioritised for further investigation over those that were very unlikely to be of conservation concern.

About 4 000 taxa that were included in previous Red Lists (Hall et al. 1980; Hilton-Taylor 1996a,b, 1997; Golding 2002) were prioritised for detailed reassessment, regardless of their status on previous lists (Figure 2.1). The remaining ± 16 000 taxa were screened for further investigation using PRECIS specimen data. This automated screening process focused on extracting range-restricted taxa, as this was the only information that could be relatively quickly derived through summary queries of specimen data, and because range-restricted taxa are more likely to be of conservation concern. Most specimens in PRECIS are georeferenced only to quarter degree square level, and the number of unique quarter degree squares in which a taxon has been collected was taken as an indication of the size of its range. However, setting the threshold for maximum number of quarter degree squares occupied by a taxon for nomination for further investigation, was not easy. Considering that the IUCN threshold for restricted range under Criterion B is 20 000 km$^2$
for the category Vulnerable and that the average area of a quarter degree square in South Africa is 676.6 km², up to 30 quarter degree squares could fit within 20 000 km². Setting the threshold for nomination for further investigation at 30 quarter degree squares is not a realistic option, firstly because 13 400 out of the 16 000 taxa not previously assessed then fall within this threshold, and secondly because quarter degree squares of occurrence are seldom clustered together, resulting in many widespread and abundant taxa also being included. We also found that specimen data generally underestimate the range size and number of subpopulations of taxa and therefore the threshold was set at a much more conservative level of five quarter degree squares, resulting in 6 338 taxa being nominated for further investigation (Figure 2.1).

In addition to the above process, genera for which full taxonomic monographs were available as well as all taxa in the Cape Floristic Region documented in Goldblatt & Manning (2000) were systematically checked and taxa that qualified against the IUCN Red List categories and criteria or the additional South African criteria, were included (Figure 2.1).

In the second phase of the assessment process Threatened Species Programme staff worked extensively with botanical experts across the country, gathering further information on previously listed taxa, as well as those that were nominated for further investigation through PRECIS data and literature checks. Experts were also asked to nominate any other taxa not included among the initial selected group that they believed were also of conservation concern. Expert consultation was conducted in two forms, either targeting people with expertise on particular taxonomic groups, or those with general knowledge of the flora of particular regions. Where there were a number of people with expertise on particular taxonomic groups or regions, they were brought together in a workshop and assessments were discussed until consensus was reached. In most cases there were only single regional or taxonomic experts, and in these instances consultation took the form of one-on-one interviews. Altogether 7 756 assessments were conducted in close collaboration with botanical experts; 169 botanists contributed information used in these assessments.

FIGURE 2.1. The process undertaken by the Threatened Species Programme to assess all 20 456 South African plant taxa.
A drawback of the quarter degree square-based screening method that emerged through the consultation phase was its inability to detect formerly common taxa that had declined significantly because of extensive habitat loss. Such taxa were often represented by large numbers of herbarium records, but closer inspection showed that most of the records were very old and did not represent extant subpopulations. We therefore suggest that future screening processes also include land cover data such as the average transformation of the quarter degree squares occupied by each taxon. Taxa occurring in areas that are highly transformed should also be nominated for investigation, regardless of the number of quarter degree squares in which they are recorded. Other taxa not detected by the screening process but that were nominated by experts for detailed assessments included widespread taxa that naturally occur at very low densities, and taxa that are removed from the wild in large volumes for use in traditional medicine or for the commercial horticultural trade.

After conducting the above process, all taxa not considered to be of conservation concern were automatically assigned to the category Least Concern. Owing to this automated approach, it is possible that some widespread taxa that have experienced and continue to experience significant declines may have been missed. It is also likely that a number of taxa with extents of occurrence less than 20 000 km² that also occur outside the Cape Floristic Region, have not yet been taxonomically revised and are not familiar to one of the botanical experts consulted. Such taxa could nonetheless be subject to threatening processes and could also have been missed in this assessment. As Red-Listing is an ongoing responsibility of SANBI's Threatened Species Programme, all automated assessments will be systematically checked over the next 10 years to ensure that, should such taxa qualify for a higher threat status in the future, their assessments are rapidly updated. We request that users bring any taxon suspected to be threatened or rare but that is not listed as such in this assessment, to the attention of the Threatened Species Programme.

2.7 Evaluation of Red List status

IUCN Red List methodology requires that every assessment is evaluated by an independent third party to establish whether the IUCN Red List categories and criteria have been correctly applied and whether sufficient data have been provided to support the category assigned. The assessments published here have been evaluated either by one of the Red List officers in the Threatened Species Programme who was not involved in conducting the assessment, or by one or more of the 169 botanical experts consulted as part of this Red-Listing process.

2.8 Common difficulties with assessments

The quantitative criteria of the IUCN 3.1 system demand specific biological data in order to determine the risk of extinction of a taxon. Particular types of data required to meet certain criteria are not readily available for the South African flora and often hindered the application of these criteria in many assessments. A few examples of critical data that are typically lacking for many plant taxa are as follows:

**Generation length**

Under Criterion A it is required that the time frame of a population reduction is scaled in relation to the longevity of a taxon, based on biological data indicating that long-lived taxa tend to be slow to reach reproductive maturity and produce relatively few offspring, while shorter-lived taxa tend to reach reproductive maturity much earlier and produce larger numbers of offspring. Short-lived taxa are better able to recover from similar population reductions over a set time period than long-lived taxa, and the incorporation of generation length under Criterion A has been designed to address this discrepancy (Mace et al. 2008). Generation length is defined as ‘the average age of parents of the current cohort (i.e. the newborn individuals in the population)’ and is intended to reflect the turnover rate of breeding individuals in a population (IUCN 2001). Besides a few anecdotal notes, data on generation length for South African plant taxa are rarely reported in scientific and taxonomic literature. In most assessments using A criterion recorded in this Red List, the habit, or growth form, of a taxon was used as an indicator of generation length. The assumption was made that trees, suffrutices and resprouting fynbos shrubs generally represent long-lived taxa with generation lengths of at least 30–50 years, but some experts believe it may be much longer, possibly more than 100 years. Generation length in other growth forms such as shrubs, perennial herbs and geophytes is much more variable, and general assumptions on the generation length of such taxa could not be made, resulting in the inability to apply Criterion A to these taxa.

**Population data**

Data on number of mature individuals are essential requirements for Criteria C and D. Both these criteria demand estimates of the number of mature individuals in the population, and also for subpopulations under Criterion C. Although personal observations by botanical experts indicate that South Africa has many plant taxa that occur in very low numbers, population data are only available for the Proteaceae and for a few other taxa monitored through CREW and provincial plant conservation programmes. This resulted in fewer taxa being listed under C and D criteria than what could possibly qualify. To address this problem, we would like to recommend that the number of mature individuals of a taxon occurring in low abundance observed at a collection locality be included in herbarium label notes, instead of the traditional qualitative descriptions of local abundance. More data on population size could also aid significantly in determining rates of population decline.
Rate of decline

Rate of population decline is required for Criteria A and C1. Rate of decline is typically determined by repeated surveys of populations, but acquiring such data is resource intensive, and it generally cannot be generated for large numbers of threatened taxa. The IUCN system, however, allows inference of rates population decline based on rate of habitat loss. Estimating rates of habitat loss is much more cost effective as it can be simultaneously applied to all species occurring within a particular habitat, but even such data are relatively scarce in the South African context. More analyses of current rates of habitat loss in areas of high concentrations of threatened taxa would be useful, especially in allowing the listing of more taxa with shorter generation lengths under Criterion A. A lack of spatial data on the rate and extent of habitat loss due to recently emerging land-use pressures, e.g. the expansion of rooibos tea cultivation (Box 3.1), has also prevented the use of the A and C criteria in many assessments.

Habitat data

The inclusion of habitat information on herbarium labels and in taxonomic treatments has developed only over the past 60 years. There often is no habitat information on taxa described before the 1940s, for those known only from specimens collected before 1940 and for genera not recently revised. As described under section 2.4, it is often very difficult to assign a category other than Data Deficient to taxa of unknown habitat. Taxonomic revisions of poorly known groups aid significantly in assessors’ ability to assign a taxon to an appropriate Red List category.

Poorly known and inconspicuous taxa

The range and number of subpopulations of small or inconspicuous taxa are often under-represented by herbarium specimens. In addition, members of genera that have not been taxonomically revised and are thus difficult to identify, as well as taxa requiring dissection of floral parts and use of a microscope for identification, also tend to be poorly represented in herbaria. Over-listing and assigning too high a threat status are very possible in such cases.

Inference and extrapolation during assessments

According to the guidelines for using the IUCN Red List categories and criteria (IUCN Standards and Petitions Working Group 2008), assigning a taxon to the Data Deficient threat category should be avoided. It should only be used where it is not possible to extrapolate from existing data the information required to assign a taxon to one of the other seven threat categories. Owing to lack of empirical data for many taxa, it is often crucial to request experts to infer and extrapolate when conducting assessments. The best example of this comes from the work conducted to assess South Africa’s medicinal plants (Box 2.2).

BOX 2.1 Assessing the conservation status of the Proteaceae—a high road scenario

The Protea Atlas Project, conducted between 1990 and 2000, involved 478 volunteers and generated detailed data on the distribution of Proteaceae throughout the African subcontinent. Some 250 000 locality records for southern African Proteaceae were generated in this globally recognised atlassing project. As far more distribution and population level information was available for taxa in the Proteaceae compared to other South African plants, an independent assessment process was followed, led by Dr A.G. Rebelo. It involved first spatially plotting Protea Atlas and herbarium georeferenced data points, and then automatically (using a script written in Automated Machine Language [AMLs] for ArcInfo) calculating Extent of Occurrence (EOO), Area of Occupancy (AOO), the degree of transformation of EOO and AOO, and a fragmentation index. This was done for both the total area of the Cape Floristic Region and for exclusively Fynbos areas, for taxa confined to these areas. These data, together with population level data collected by atlassers, were used to automatically (in Visual dBase) assign species to IUCN Red List categories, based on thresholds specified by the IUCN.

Owing to the use of an automated approach, many of the IUCN subcriteria, and the category Near Threatened, that do not have specified quantitative thresholds, were assigned numerical thresholds as summarised in Table 2.2.
TABLE 2.2. Critical levels used in automation of Red List criteria, for criteria not specified in IUCN criteria (Table 2.1).  
EOO = Extent of occurrence, AOO = Area of occupancy, $f =$ Fynbos, $t =$ transformed

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Parameters</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population fluctuation:</td>
<td>EOO or EOO $t &lt; 30$ km$^2$</td>
<td>Serotinous or large-nutted myrmecochorous taxa only</td>
</tr>
<tr>
<td></td>
<td>AOO $&lt; 30$ km$^2$</td>
<td>Serotinous or large-nutted myrmecochorous taxa only</td>
</tr>
<tr>
<td>Fragmentation:</td>
<td>AOO/EOO $&lt; 0.05$</td>
<td>(Fragmentation ratio presented as %.)</td>
</tr>
<tr>
<td>Population decline or continuing population decline:</td>
<td>EOO, or EOO $f &gt; 20%$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AOO $&gt; 20%$</td>
<td></td>
</tr>
<tr>
<td>NT D1:</td>
<td>Population $&lt; 2,500$ plants</td>
<td></td>
</tr>
<tr>
<td>NT D2(ii):</td>
<td>Locations $&lt; 10$ grid squares</td>
<td></td>
</tr>
<tr>
<td>NT D2(i):</td>
<td>EOO or EOO $t &lt; 100$ km$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AOO $&lt; 75$ km$^2$</td>
<td>(Local experts preferred an AOO $&lt; 100$ km$^2$ but this was vetoed by national reviewers.)</td>
</tr>
<tr>
<td>NT A2c:</td>
<td>EOO $t &gt; 25%$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AOO $t &gt; 25%$</td>
<td></td>
</tr>
<tr>
<td>Pattern of decline (Decline ratio)</td>
<td>AOO/EOO for AOO/EOO $&lt; 1$</td>
<td>Focussed $&gt; 1.7$; Escaped $&lt; 0.33$</td>
</tr>
<tr>
<td>RARE</td>
<td>AOO/EOO for AOO/EOO $&gt; 1$</td>
<td>Focussed $&lt; 0.33$; Escaped $&gt; 1.7$</td>
</tr>
<tr>
<td>RARE</td>
<td>AOO $&lt; 100$ km$^2$</td>
<td></td>
</tr>
<tr>
<td>Generation length:</td>
<td>1 vegetation type $&gt; 85%$ records</td>
<td>Using SA Vegetation Map</td>
</tr>
<tr>
<td>Obligate reseeder</td>
<td>20 ($\pm 10$) years</td>
<td>Only applies to Fynbos taxa</td>
</tr>
<tr>
<td>Resprouter</td>
<td>200–400 years</td>
<td>(defaults to 100 year maximum)</td>
</tr>
</tbody>
</table>

In addition, to the above, future declines were modelled by Bomhard et al. (2005). Some 227 Proteaceae taxa endemic to the Cape Floristic Region were modelled for the impact of different land use and climate change scenarios on their distribution ranges, up to the year 2020. Based on these models, Red List status was assigned. For those species predicted to become more threatened in the future, Criteria A3 and/or A4 were applied.

The model-generated Red List assessments were evaluated and modified where necessary at two workshops during 2005–2006, involving 21 Proteaceae experts.

**Fire-related population fluctuations**

One term used only in the Proteaceae assessments is ‘Fire-related population fluctuations’. Many proteas are serotinous (having fruit that are stored in cones on branches and only released after a fire) or myrmecochorous (having fruit with a fleshy aril that attracts indigenous ants, which then bury the seeds in their underground nests where they are stored and only germinate after fire). These two fire-adapted life histories result in populations being highly sensitive to fire frequency, intensity and season. For example, under natural conditions two fires that occur too close together in time may result in population crashes or even complete elimination of a range-restricted taxon. Where the entire population of a taxon occurs in an area that can be affected by one fire (determined as 30 km$^2$), the subcriterion ‘extreme fluctuations’, applicable for use under Criteria B and C, has been applied.

For more details see: Rebelo et al. (in prep.).

A distribution map of *Diastella proteoides*. The red points on the map indicate where small subpopulations of this species were mapped by Protea Atlas volunteers. Grey areas show areas where natural habitat has been lost and pink areas are reserves. This species occurs only in small fragments outside reserves.
Over 1 000 plant taxa are documented to be used in traditional medicine in South Africa (Arnold et al. 2002). A smaller number, 322, repeatedly appear in trade surveys as highly utilised and traded taxa (Victor et al. in prep.). The trade in these plants plays an important role in contributing to the livelihoods of many South Africans. Mander (1998) estimated that there are 27 million consumers of indigenous medicine in South Africa, with a large supporting industry. The trade in traditional medicines forms part of a multimillion rand ‘hidden economy’ in southern Africa (Dold & Cocks 2002). It is therefore a priority to determine the sustainability of this trade.

Many medicinal plants are destructively harvested as the plant parts used often include bulbs, roots and bark. Where studies of local medicinal markets indicate that high volumes of a taxon are traded and that harvesting is destructive, the likelihood of these plants being threatened by the medicinal plant trade is high (Williams 2007). However, medicinal plants were not easy to assess against the IUCN 3.1 criteria as they are typically widespread taxa that occur in hundreds of locations and therefore do not qualify for the restricted-range Criteria B and D. Obtaining the supporting information for listing taxa under the population decline Criteria A or C was not straightforward as this type of information is seldom included in taxonomic publications.

Assessments of South Africa’s medicinal plants were conducted in two phases. Firstly, a very thorough literature search of the most heavily traded species was undertaken and it provided valuable data for certain species. However, owing to limited time frames and budgets, it is not always possible to do extensive literature surveys when assessing a megadiverse flora. Nevertheless, given the value of the medicinal plant trade to South Africa’s second economy, we felt it worth the time and financial investment to do comprehensive literature surveys. The detailed information obtained from the literature sets medicinal plant assessments apart from the conservation assessments of other South African plants.

The second phase of the medicinal plant assessment process was conducted during a two-day workshop with eight ethnobotanists. The distribution, suspected levels of population decline due to trade, and generation time of each species were discussed in detail. The workshop was followed by extensive email correspondence. Critical information such as total population decline over a set time frame (three generations) was extrapolated from known observed loss of individuals or subpopulations and inferred either from high volumes of material traded in local muthi markets or from reports of harvesters interviewed that they had to travel further to find their desired medicinal plants. The generation time of each taxon was estimated by combining field knowledge of growth rates of the different taxa with plants of known age monitored in either ex situ or in situ populations. Information on generation time was one of the most critical pieces of knowledge we gained from the experts as generation time is rarely cited in the literature.

Williams et al. (in prep.) and Victor et al. (in prep.) will report on the total number of medicinal plant taxa Red-Listed, their categories of threat and the proportion thereof. Based on early analyses, under 20% of South Africa’s 322 heavily traded medicinal plant taxa are threatened with extinction, most medicinal plants that were assessed are considered Least Concern and the medicinal trade does not have a detrimental impact on their population status. Given the role that the medicinal plant trade plays in supporting the livelihoods of many South Africans who are part of the second economy, it is important to recognise that only a small proportion of plants traded are threatened. Conservation policies currently in place to manage the medicinal plant trade have to be adapted so that harvesting and trade of all medicinal plant taxa are not indiscriminately limited. Only taxa that are currently listed as threatened or Near Threatened have to be closely managed and monitored.
3. Patterns and trends in the Red List of South African plants

D. Raimondo & L. von Staden

3.1 Summary of key data on plant taxa of conservation concern in South Africa

South Africa has 2,577 plant taxa that are in danger of regional or global extinction, which represent 13% of the indigenous flora. A further 2,232 taxa are listed under other categories of conservation concern, which include the IUCN categories Extinct, Extinct in the Wild, Near Threatened, Data Deficient and the South African categories Critically Rare, Rare and Declining. Combining the number of threatened taxa with those listed under other categories of conservation concern brings the proportion of the South African flora that is of conservation concern to 24%, or one in every four taxa (Figure 3.1, Table 3.1).

<table>
<thead>
<tr>
<th>Category</th>
<th>Total number listed</th>
<th>Number of taxa listed on the South African Red List for the first time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extinct (EX)</td>
<td>33</td>
<td>4</td>
</tr>
<tr>
<td>Extinct in the Wild (EW)</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Critically Endangered, Possibly Extinct (CR PE)</td>
<td>76</td>
<td>19</td>
</tr>
<tr>
<td>Critically Endangered (CR)</td>
<td>364</td>
<td>103</td>
</tr>
<tr>
<td>Endangered (EN)</td>
<td>715</td>
<td>299</td>
</tr>
<tr>
<td>Vulnerable (VU)</td>
<td>1422</td>
<td>672</td>
</tr>
<tr>
<td>Near Threatened (NT)</td>
<td>382</td>
<td>180</td>
</tr>
<tr>
<td>Least Concern (LC)</td>
<td>14,635</td>
<td>13,626</td>
</tr>
<tr>
<td>Data Deficient—Insufficient information (DDD)</td>
<td>359</td>
<td>176</td>
</tr>
<tr>
<td>Data Deficient—Taxonomically uncertain (DDT)</td>
<td>1,012</td>
<td>787</td>
</tr>
<tr>
<td>Critically Rare</td>
<td>154</td>
<td>83</td>
</tr>
<tr>
<td>Rare</td>
<td>1,243</td>
<td>604</td>
</tr>
<tr>
<td>Declining</td>
<td>54</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>20,456</td>
<td>16,589</td>
</tr>
</tbody>
</table>

Number of threatened taxa listed for the first time: 1,093

Number of taxa of conservation concern listed for the first time: 2,176

*Critically Endangered, Possibly Extinct (CR PE) is not strictly a category, but rather a tag applied to the category of threat Critically Endangered. Taxa listed as CR PE are therefore included under counts of numbers of threatened taxa and not under those classified as Extinct (EX or EW).

Only Data Deficient taxa with the tag insufficient information are included in taxa of conservation concern (see Figure 1.1).
The proportion of threatened taxa in South Africa is similar to that of other megadiverse countries that have completed assessments of all endemic taxa in their floras using IUCN 3.1 Categories and Criteria, such as Ecuador, with 18% of its flora classified as threatened (Griffin & Hilton-Taylor 2008). Other megadiverse countries such as Australia (21 000 taxa) and Brazil (55 000 taxa) that have not done comprehensive assessments have identified far lower proportions of their floras as threatened, only 5.7% and 2.7% respectively (Figure 3.2) (Griffin & Hilton-Taylor 2008).

South Africa has 40 plant taxa that are either extinct or extinct in the wild, and a further 76 are highly likely to be extinct (listed as Critically Endangered, Possibly Extinct). Further field surveys of the last remnants of habitat of all Critically Endangered, Possibly Extinct taxa are required before they can be officially listed as extinct.

The number of extinct taxa has decreased since Hilton-Taylor’s (1996a,b, 1997) Red Data List, from 59 (Table 3.2) to 40 (Table 3.1). This large decrease is mostly due to 18 of the previously Extinct taxa having been rediscovered (Table 3.2), a phenomenon known as the Lazarus effect (Keith & Burgman 2004). In the past, application of the category Extinct was less strictly applied than it has been in this assessment. It was previously applied, in certain cases, to taxa that had not been seen for over 100 years but whose habitat still remained intact. Such extinct taxa have been listed as Data Deficient in this assessment. Only taxa where at least 98% of the original habitat has been transformed and for which repeated searches in remaining suitable habitat have been unsuccessful have been listed as Extinct. Despite the decrease in Extinct taxa, South Africa’s flora has indeed become more threatened overall. Five taxa are listed as Extinct for the first time in this list and an additional 76 are listed as Critically Endangered, Possibly Extinct (CR PE). Threatened plant atlassing efforts over the next five years will focus on these CR PE taxa to establish which are definitely extinct. Some 116 taxa are considered either Extinct or Possibly Extinct—a 96% increase from Hilton-Taylor’s (1996a,b, 1997) figure of 59.

FIGURE 3.1. Taxa classified into the South African Red List categories as a proportion of the total flora. Threatened includes the IUCN categories Critically Endangered, Endangered and Vulnerable. Orange and yellow: other categories of conservation concern. Green: categories that are not of conservation concern.

FIGURE 3.2. Number of plant taxa and number of threatened plant taxa in megadiverse countries (countries that hold 70% of global biodiversity). Those marked with * have assessed their species using the IUCN 3.1 criteria. Figures obtained from www.environment.gov.au, accessed November 2008, and Griffin & Hilton-Taylor (2008).
TABLE 3.2. Summary, with explanations of the changes in Red List status of the 59 taxa listed as extinct by Hilton-Taylor (1996a,b, 1997).

<table>
<thead>
<tr>
<th>2009 status</th>
<th>Explanation</th>
<th>Number of the 59 taxa listed as extinct by Hilton-Taylor (1996a,b, 1997)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX or EW</td>
<td>Still considered extinct according to IUCN Red List Categories and Criteria Version 3.1</td>
<td>22</td>
</tr>
<tr>
<td>CR PE</td>
<td>Likely to be extinct</td>
<td>6</td>
</tr>
<tr>
<td>Threatened (CR, EN or VU)</td>
<td>Rediscovered</td>
<td>18</td>
</tr>
<tr>
<td>DD</td>
<td>Poorly known taxa from unexplored areas that are unlikely to be extinct</td>
<td>12</td>
</tr>
<tr>
<td>LC</td>
<td>Taxonomic changes, in synonymy under a widespread and abundant taxon</td>
<td>1</td>
</tr>
</tbody>
</table>

* Critically Endangered, Possibly Extinct (CR PE) is a new category in the IUCN Red List Categories and Criteria Version 3.1. It has been created to document taxa that are quite likely to be extinct, but for which the rigorous survey efforts required to list a taxon as extinct have not yet been carried out.

3.2 Main threats affecting South Africa’s plant species

Habitat loss is the most significant threat having an impact on plant taxa in South Africa, affecting twice as many taxa as any other threat (Figure 3.3). The two main land uses driving habitat loss are crop cultivation and urban and coastal housing development. The impact of these two threats is seen in the number of plant species that have gone extinct or are possibly extinct—43 due to crop cultivation and 26 due to urban development (Table 3.3). Despite having well-developed planning and environmental authorisation processes in South Africa, biodiversity is still often not taken into account during land-use decision-making. Over the past decade there has been a tendency to low-density urban sprawl and coastal ribbon development, both of which have caused significant habitat loss to restricted plant taxa (Figure 3.4). Most of South Africa’s large cities are situated in zones of high plant endemism, making sustainable urban expansion challenging.

TABLE 3.3. Causes of extinction of South African plant taxa (those listed as EX, EW and CR PE). In many cases, multiple threats have affected taxa that have declined to extinction. In these instances the threat that caused the most extensive decline was considered in the analysis.

<table>
<thead>
<tr>
<th>Threat</th>
<th>Number of taxa extinct as a result of threat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop cultivation</td>
<td>43</td>
</tr>
<tr>
<td>Urban development</td>
<td>26</td>
</tr>
<tr>
<td>Overgrazing</td>
<td>10</td>
</tr>
<tr>
<td>Forestry plantations</td>
<td>10</td>
</tr>
<tr>
<td>Invasive alien species</td>
<td>7</td>
</tr>
<tr>
<td>Unknown</td>
<td>7</td>
</tr>
<tr>
<td>Harvesting for horticultural purposes</td>
<td>4</td>
</tr>
<tr>
<td>Fires</td>
<td>2</td>
</tr>
<tr>
<td>Mining</td>
<td>2</td>
</tr>
<tr>
<td>Dam construction</td>
<td>1</td>
</tr>
<tr>
<td>Industrial development</td>
<td>1</td>
</tr>
<tr>
<td>Harvesting for food</td>
<td>1</td>
</tr>
<tr>
<td>Harvesting for medicinal purposes</td>
<td>1</td>
</tr>
<tr>
<td>Natural disasters</td>
<td>1</td>
</tr>
</tbody>
</table>

After habitat loss, the second largest threat to plant species is habitat degradation (Figure 3.3). Overgrazing by livestock is the main driver causing habitat degradation, followed closely by deleterious fire regimes (Figure 3.3). Encroachment by invasive alien plants follows as the third most severe threat (Figure 3.3). It has become more severe over the past decade and currently equals habitat degradation in terms of its impact on plants (Figure 3.4). This trend can be expected to continue.

Although most plants in South Africa are not primarily threatened by plant collecting, a few select groups continue to be heavily targeted by collectors, and a substantial illegal trade exists for cycads and certain succulent and bulbous species. In addition to the illegal horticultural trade, a large informal trade exists for medicinal plants. Some 405 plant taxa are threatened by harvesting for horticultural and medicinal purposes in South Africa. Of the taxa harvested for horticulture, cycads are the most sought after and a significant local and international demand for adult plants puts wild populations under continuous threat of being poached. Of the 322 regularly traded medicinal plant species, fewer than 20% qualify as threatened. Most species in medicinal trade are widely distributed in southern African and have life histories that are resilient to harvesting (Box 2.2).
FIGURE 3.3. Threats affecting South Africa’s plant taxa. Habitat loss and habitat degradation are broken down into causes of loss and degradation.

TABLE 3.4. Summaries by province of data on diversity, endemism, threatened taxa and taxa of conservation concern. Provinces are **EC** Eastern Cape, **FS** Free State, **G** Gauteng, **KZN** KwaZulu-Natal, **LM** Limpopo Province, **MP** Mpumalanga, **NC** Northern Cape, **NW** North West Province and **WC** Western Cape. *a* Mean number of taxa per quarter degree square (QDS)—see Figure 3.5.

<table>
<thead>
<tr>
<th>Province</th>
<th>Area (km²)</th>
<th>% habitat lost</th>
<th>Number of indigenous taxa</th>
<th>Number of endemics</th>
<th>% of RSA flora in province</th>
<th>Endemism %</th>
<th>Number (endemics in brackets)</th>
<th>Mean number per QDS*a</th>
<th>Number (endemics in brackets)</th>
<th>% of RSA’s threatened flora occurring in province</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>169 886</td>
<td>20.4</td>
<td>6 072</td>
<td>1 006</td>
<td>29.7</td>
<td>16.6</td>
<td>567 (311)</td>
<td>6.7</td>
<td>261 (145)</td>
<td>10.1</td>
</tr>
<tr>
<td>FS</td>
<td>129 832</td>
<td>30.3</td>
<td>2 357</td>
<td>24</td>
<td>11.5</td>
<td>1.0</td>
<td>39 (5)</td>
<td>1.2</td>
<td>5 (1)</td>
<td>0.2</td>
</tr>
<tr>
<td>G</td>
<td>18 081</td>
<td>42.2</td>
<td>2 117</td>
<td>25</td>
<td>10.3</td>
<td>1.2</td>
<td>58 (11)</td>
<td>7.0</td>
<td>23 (8)</td>
<td>0.9</td>
</tr>
<tr>
<td>KZN</td>
<td>92 290</td>
<td>33.6</td>
<td>5 246</td>
<td>391</td>
<td>25.6</td>
<td>7.5</td>
<td>470 (198)</td>
<td>8.9</td>
<td>217 (105)</td>
<td>8.4</td>
</tr>
<tr>
<td>LM</td>
<td>123 240</td>
<td>26.6</td>
<td>3 910</td>
<td>174</td>
<td>19.1</td>
<td>4.5</td>
<td>196 (90)</td>
<td>3.9</td>
<td>78 (42)</td>
<td>3.0</td>
</tr>
<tr>
<td>MP</td>
<td>77 854</td>
<td>30.2</td>
<td>4 184</td>
<td>171</td>
<td>20.5</td>
<td>4.1</td>
<td>256 (99)</td>
<td>6.7</td>
<td>128 (74)</td>
<td>5.0</td>
</tr>
<tr>
<td>NC</td>
<td>362 440</td>
<td>1.8</td>
<td>4 635</td>
<td>1 111</td>
<td>22.7</td>
<td>24.0</td>
<td>639 (474)</td>
<td>2.9</td>
<td>246 (190)</td>
<td>9.5</td>
</tr>
<tr>
<td>NW</td>
<td>116 100</td>
<td>32.0</td>
<td>2 026</td>
<td>18</td>
<td>9.9</td>
<td>0.9</td>
<td>43 (9)</td>
<td>1.1</td>
<td>17 (6)</td>
<td>0.7</td>
</tr>
<tr>
<td>WC</td>
<td>129 557</td>
<td>22.0</td>
<td>10 816</td>
<td>6 772</td>
<td>52.9</td>
<td>62.6</td>
<td>3 177 (2 973)</td>
<td>45.3</td>
<td>1 831 (1 752)</td>
<td>71.1</td>
</tr>
</tbody>
</table>
3.3 Location of South Africa’s plant taxa that are threatened and of conservation concern and the main threats affecting them

High concentrations of taxa of conservation concern are found in Namaqualand (in the Northern Cape), the Western and Eastern Cape mountains and coastal lowlands, the area of the Eastern Cape and KwaZulu-Natal coast known as Pondoland, the KwaZulu-Natal Midlands and Drakensberg Mountain Range, the Mpumalanga escarpment, the Magaliesberg and associated ridges in Gauteng and the North West Province, and Sekukhuneland and the Soutpansberg in Limpopo Province (Figure 3.5). These areas generally correspond to well-known regions of floristic endemism in South Africa (Van Wyk & Smith 2001). Areas of high concentrations of threatened taxa, on the other hand, occur where centres of endemism coincide with high levels of habitat loss (Figures 3.6 and 3.7, Table 3.4).

The Fynbos Biome, which falls mainly within the Western Cape Province, contains the highest concentration of the country’s threatened taxa (67%) and taxa of conservation concern (64%) (Figure 3.8). Threatened taxa are concentrated in the lowland areas where most of the natural habitat has been lost to agriculture (Figures 3.6, 3.7, 3.9a, 3.10a). Most of the nutrient-rich shale and granite soils within the Fynbos have been converted to cereals, vineyards and deciduous fruit orchards since 1940. Most species endemic to renosterveld in the Swartland and Overberg regions are now restricted to small fragments between agricultural fields and are declining owing to factors associated with habitat fragmentation, including nutrient runoff, invasion by agricultural weeds and loss of mutualisms such as pollinators. Over the past decade, areas under crop cultivation have expanded in the Sandveld and Cederberg regions (Figure 3.5) mainly for the cultivation of rooibos tea (Box 3.1) and potatoes. Expansion of the wine industry has led to large areas of natural vegetation being ploughed in the Upper Breede River Valley and on the Agulhas Plain (Box 3.2).
Urban and coastal development is second only to crop cultivation in impact on plant taxa in the Fynbos Biome. Housing development has increased substantially along the southern Cape coast, in the northern suburbs of Cape Town and on the west coast around Vredenburg (Figure 3.10a). The western expansion of Port Elizabeth is also affecting many Fynbos plant taxa.

A further reason for the high concentration of threatened plants in the Fynbos, both in the lowland and upland areas, is encroachment by invasive alien species (Figure 3.9a). The areas most affected are the Cape lowlands, specifically the Cape Flats, the Malmesbury–Atlantis flats, the Agulhas and Riversdale coastal plains and the southern Cape coast. In addition, many of the Cape Fold Mountains are being threatened by the rapid invasion of pine and hakeas. Although Fynbos is naturally adapted to burning, changes in fire frequency and intensity, as a result of anthropogenic ignitions, are causing habitat degradation (Figure 3.10a). Areas close to human settlements and roads, e.g., parts of the Cape Peninsula and the Kogelberg Biosphere, are being too frequently burnt. Slow-growing alpine species and serotinous taxa (those with fruiting bodies kept on the plant between fire events and only released after fire) are declining owing to changes in fire frequency. Groundwater extraction is an emerging threat that is starting to have an impact on plant taxa restricted to permanent seeps. This threat is currently affecting Fynbos taxa that occur in the Sandveld, in the mountains near Cape Town and in parts of the Little Karoo. Groundwater extraction is likely to become a significant future threat as the human population in the towns of the Western Cape increases (Figure 3.10a).

The Succulent Karoo Biome has the second highest concentration of threatened taxa and taxa of conservation concern (Figure 3.8). These taxa are mainly concentrated in the Little Karoo and Namaqualand (Figures 3.5 and 3.6). Overgrazing by livestock is the primary threat to this biome. In the Little Karoo, commercial ostrich farming threatens endemic dwarf succulents and bulbs, as ostriches are kept in high numbers where they trample and overgraze the natural vegetation.
Livestock stocking rates are high in many areas of Namaqualand in the Northern Cape, and where these areas coincide with high plant endemism, for example in the Kamiesberg, endemic taxa are rapidly declining (Figure 3.10a,b). Habitat loss due to crop cultivation follows overgrazing in severity (Figure 3.10a). High numbers of taxa are declining because of extensive grape and tomato farming around Vredendal on the fringes of the Knysnaflakte and in certain areas of the Little Karoo. Cereal cultivation is much more localised in the Succulent Karoo than in the Fynbos, as only seasonally moist habitats are ploughed. These habitats are, however, often where range-restricted endemic plant taxa occur (e.g. Kamiesberg). Plant taxa occurring in coastal Namaqualand are also affected by the diamond-mining industry and extensive heavy-mineral sand-mining operations. The Desert Biome, a regionally very small biome situated mainly along the Orange River in the Northern Cape, also has many endemic plant taxa that are being threatened owing to loss of habitat to diamond-mining and quarrying for specific minerals (Figure 3.10a).

The Eastern Cape has high plant diversity much of which is centred around Port Elizabeth and the Albany region, where five of South Africa's nine biomes intersect in a complex mosaic of diverse vegetation types (Figure 3.8). Urban and coastal development is the primary driver of plant extinction in the Albany Thicket Biome (Figure 3.10a) owing to extensive urban expansion around Port Elizabeth, especially in the areas around Coega. The impact of large infrastructural development is also the highest in this biome owing to developments for the Coega Industrial Development Zone (Figure 3.10a, Box 3.3). High concentrations of threatened taxa have been recorded in Pondoland (Figure 3.6). This area and its botanical diversity have become well known through the work of a number of botanists over the years (see Abbott 2006). Plant taxa from other areas of the Eastern Cape that were part of the former Transkei are likely to face threatening processes similar to those recorded in eastern Pondoland. However, these areas are botanically very poorly explored (Figure 3.11) and this has resulted in very low concentrations of threatened taxa having been recorded. The number of threatened taxa in the Eastern Cape is therefore likely to be underestimated (Table 3.4, Table 3.5).
Most of the former Transkei and Pondoland and the entire KwaZulu-Natal coastline fall within the Indian Ocean Coastal Belt (IOCB) Biome. Crop cultivation is a significant threat to plants in the IOCB (Figure 3.10a), where extensive areas have historically been converted to sugarcane. Many threatened taxa remain only in small, isolated fragments between sugarcane plantations, and these remnant habitats are being continually degraded owing to lack of fire and encroachment by alien invaders. Crop cultivation in the form of small-scale cash crop production is causing ongoing habitat loss in Pondoland and Maputaland. Overgrazing is also a significant threat in the IOCB (Figure 3.10a). The Grassland and Savanna Biomes similarly have large proportions where the primary land use is stock farming, and many of these areas are being overgrazed. Coupled with overgrazing is the degradation of habitat by too frequent burning. Although these three biomes are naturally adapted to burning, in many areas vegetation is being burnt more than once a year to promote fresh grass growth and therefore good grazing. This increase in burn frequency is causing habitat degradation. Plant taxa that occur
in areas that are being frequently burnt, are unable to recruit, resulting in the loss of sensitive taxa. In grassland areas where patches of forest exist on hill slopes and in ravines, regular and high-intensity fires are causing forests to shrink. As a result, taxa restricted to forest margins are being negatively affected. Deforestation in the Savanna and Forest Biomes is occurring in communally owned areas, as a lack of access to electricity and other resources means that trees are often the only available source of fuel and structural building material. Plant taxa endemic to these areas are experiencing degradation of habitat from ongoing harvesting of trees.

Although overgrazing and incorrect fire regimes are major threats to plant taxa in the Grassland Biome, the primary threat to grassland plants is habitat loss to commercial forestry plantations (Figure 3.10a). Afforestation took place mainly between 1900 and 1990 and has resulted in severe population declines in many species. Although habitat loss to afforestation is not continuing in most parts of the country, plants restricted to fragments between plantations continue to decline owing to lack of fire and invasion by alien plants. The mistbelt grasslands of the KwaZulu-Natal Midlands, although already fragmented by commercial forestry, are continuing to be transformed for urban development. A similar combination of past loss of habitat to afforestation and ongoing loss to urban development is threatening grassland plant taxa restricted to the eastern escarpment areas of Mpumalanga (Figures 3.9b and 3.10b). A potential future threat to grassland plants from afforestation exists in the Eastern Cape where there are plans to expand plantations.

Harvesting is the primary threat to plant taxa in the Forest Biome. The decline of tree taxa restricted to this biome is due to harvesting for fuel and structural support material in communal areas. This threat is particularly severe in areas of the former Transkei, including Pondoland. Many medicinal plant species also occur in the Forest Biome (Figure 3.9a).

The Nama-Karoo Biome has very low numbers of taxa of conservation concern, despite its large size (Figure 3.8). Although many areas of this biome are remote and poorly collected (Figure 3.11), those that have indeed been collected have few range-restricted taxa. It is likely that even if it were better surveyed, the numbers of restricted taxa would remain low. This biome also has low levels of habitat loss, with overgrazing by livestock the only significant threat to its few taxa of conservation concern (Figure 3.10a).
FIGURE 3.9a. Relative impact of the different threatening processes affecting taxa of conservation concern in each biome.

FIGURE 3.9b. Relative impact of the different threatening processes affecting taxa of conservation concern in each province.
FIGURE 3.10a. Causes of habitat loss and degradation for plant taxa of conservation concern (tcc) in South Africa’s nine biomes. Numbers represent the number of tcc affected by each threat.
FIGURE 3.10b. Causes of habitat loss and degradation for plant taxa of conservation concern (tcc) in South Africa’s nine provinces. Numbers represent the number of tcc affected by each threat.
3.4 Trend analysis—how and why the status of listed plant taxa is changing

Analyses of trends are based on comparisons of current status to the status of taxa as listed by Hilton-Taylor (1996a,b, 1997). Hilton-Taylor’s Red List is not the most recent assessment of threatened plants for South Africa—Golding (2002) represents a more recent report on the status of South African threatened plants. However, in Golding (2002) only 24% of the South African taxa listed by Hilton-Taylor were reassessed. In this publication, trends in the status of listed taxa were therefore determined based on Hilton-Taylor’s list as it is the most comprehensive previous assessment of South African threatened plants, rather than the most recent.

Comparisons of the status of taxa on this Red List to those assigned by Hilton-Taylor (1996a,b, 1997) are problematic and interpretations of trends are challenging because of significant changes in the IUCN Red-Listing system. Trends represented here are based on movements between broadly defined conceptual categories (Table 3.6, Figure 3.12), rather than on individual categories within the different systems. The challenges with comparison between the two systems are illustrated by the fact that changes in Red-Listing systems account for 34% of movements between categories (Figure 3.13a).

There has been a 254% increase in the number of threatened taxa listed between 1997 and 2009 (Figure 3.12). This increase is the result of 1 092 threatened taxa being listed for the first time and 909 taxa moving up from lower categories (Insufficient Information, Rare and Not Threatened). Some 34% of those taxa listed for the first time (Figure 3.13c) and 20% of taxa previously listed that have been elevated to a threat category (Figure 3.13b), have genuinely become more threatened over the past 12 years.

In the case of previously listed taxa having moved up to a category of threat, the change in the Red-Listing system is the reason for nearly 50% of the changes (Figure 3.13b). These changes are mostly the result of the IUCN 3.1 Criteria A and D, which introduced new concepts of risk of extinction that did not feature strongly in the system used in Hilton-Taylor’s (1996a,b, 1997) Red List. Many taxa that were previously categorised as Not Threatened are now listed in a category of
FIGURE 3.12. Changes in the number of taxa listed in the various broad categories of threat or rarity (see Table 3.6 for details of IUCN and South African categories included). Numbers reflected for 1996 represent taxa listed in Hilton-Taylor (1996a,b, 1997). a The category Near Threatened was not included in the Red List system used by Hilton-Taylor.

FIGURE 3.13. Reasons for changes in the numbers of taxa listed under the various categories:
a: Reasons for current status for all taxa listed in Hilton-Taylor’s (1996a,b, 1997) Red List.
b: Reasons for taxa in Hilton-Taylor’s (1996a,b,1997) Red List being elevated to a higher category of threat.
c: Reasons for addition of taxa to one of the categories of threat for the first time.
d: Reasons for addition of taxa of conservation concern for the first time.
threat under Criterion A. This is because Criterion A identifies risk of extinction based on extensive population decline either in the past or in the future. Thus taxa that are still locally relatively common and may have been classified as Not Threatened based on expert opinion in the past, can now be classified as threatened with extinction if there has been a large decline in the population (Appendix I). Examples of taxa that qualify under Criterion A are: long-lived resprouting shrubs that occur in lowland vegetation, e.g. renosterveld, or lowland Fynbos where most of their habitat has been converted for agriculture, and long-lived medicinal plants that despite being widespread, have been heavily harvested over the past 60 years and have experienced significant population declines. The most revolutionary concept introduced under Criterion A is categorising a taxon as in danger of extinction based on projected future population decline (Criteria A3 and A4). Climate change models have shown that a number of taxa in the Proteaceae that at present have stable populations and are unlikely to have been classified as in danger of extinction under Hilton-Taylor's (1996a,b, 1997) system, are in fact likely to decline drastically within the next 20 years. These taxa have now been listed as threatened under Criterion A3 and A4.

Criterion D recognises that taxa that occur in very small numbers or have very restricted ranges but that are not necessarily declining at present, are also vulnerable to extinction owing to unpredictable human actions and stochastic events. Taxa with small populations or very restricted ranges but that were not declining would have been classified as Rare in Hilton-Taylor (1996a,b, 1997), but would now qualify for a category of threat under the IUCN 3.1 system. Some 114 taxa previously classified as Rare have now been listed as Vulnerable under Criterion D2, and 19 others have been listed as either Endangered or Critically Endangered under Criterion D. The status of these taxa has not deteriorated since 1996, but they account for a significant proportion of taxa that have moved from other categories to a category of threat.

Most taxa listed by Hilton-Taylor (1996a,b, 1997) (39%) have remained in the same category and a relatively small percentage (14%) have moved to the categories Extinct, Threatened and Near Threatened owing to the increasing impact of threatening processes on plant populations (Figures 3.12 and 3.13a).

### TABLE 3.6. Relation between and use of the various Red List categories in comparative analyses. Note how the names of categories as well as the criteria for inclusion have changed between various Red-Listing systems. Despite this, certain concepts such as extinction, danger of extinction and low risk of extinction have been consistently represented in all systems.

<table>
<thead>
<tr>
<th>Publication</th>
<th>Hilton-Taylor (1996a,b, 1997)</th>
<th>Golding (2002)</th>
<th>This publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>IUCN classification</td>
<td>Davis et al. (1986)</td>
<td>IUCN Categories and Criteria Version 2.3 (IUCN 1994)</td>
<td>IUCN Categories and Criteria Version 3.1 (IUCN 2001) including additional South African categories¹</td>
</tr>
<tr>
<td>system used</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conceptual category</td>
<td>Categories of each system included under conceptual category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extinct</td>
<td>Extinct (Ex)</td>
<td>Extinct (EX)</td>
<td>Extinct (EX)</td>
</tr>
<tr>
<td></td>
<td>Extinct in the Wild (EW)</td>
<td>Extinct in the Wild (EW)</td>
<td></td>
</tr>
<tr>
<td>Threatened with</td>
<td>Endangered (E)</td>
<td>Critically Endangered (CR)</td>
<td>Critically Endangered (CR)</td>
</tr>
<tr>
<td>extinction</td>
<td>Vulnerable (V)</td>
<td>Endangered (EN)</td>
<td>Endangered (EN)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vulnerable (VU)</td>
<td>Vulnerable (VU)</td>
</tr>
<tr>
<td>Nearly threatened</td>
<td>Not threatened (nt)</td>
<td>Lower Risk Near Threatened (LR-nt)</td>
<td>Near Threatened (NT)</td>
</tr>
<tr>
<td>Not threatened</td>
<td>Lower Risk Least Concern (LR-lc)</td>
<td>Least Concern (LC)</td>
<td></td>
</tr>
<tr>
<td>Insufficient</td>
<td>Indeterminate (I)</td>
<td>Data Deficient (DD)</td>
<td>Data Deficient—Insufficient Information (DDD)¹</td>
</tr>
<tr>
<td>information</td>
<td>Insufficiently Known (K)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No information (?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rare</td>
<td>Rare (R)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Categories excluded</td>
<td>Out of Danger (O)</td>
<td>Lower Risk Conservation Dependent (LR-cd)</td>
<td>Declining¹</td>
</tr>
<tr>
<td>from conceptual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>categories and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>comparative analyses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Another important reason for taxa having been moved from other categories to a category of threat is new information obtained through recent field observations by civil society volunteer groups (CREW\(^2\) and the Protea Atlas Project, see Box 2.1) and botanical experts with extensive field experience (Figure 3.13b). Some 102 taxa previously classified as too poorly known for an assessment of their risk of extinction have been found to be in danger of extinction through new observations.

In the case of threatened species listed for the first time, nearly 68% of taxa now added to the Red List were already in danger of extinction by 1997, but they were overlooked because a comprehensive, systematic assessment of all taxa had not been done (Figure 3.13c). Similarly, 671 other taxa of conservation concern have also been overlooked owing to a lack of a systematic assessment (Figure 3.13d). One of the key lessons learnt from this Red List assessment is that large numbers of taxa of conservation concern are overlooked when an assessment relies solely on expert input for the nomination of taxa for listing—many of the previously overlooked taxa of conservation concern are from taxonomic groups that are not well known, either because there were no local taxonomic experts with an interest in the groups or because there were no recent taxonomic revisions available.

Some 357 newly described taxa have also been added to the Red List for the first time as either threatened or of conservation concern. This accounts for nearly a quarter of taxa of conservation concern listed for the first time (Figure 3.13d) and 12% of threatened taxa listed for the first time (Figure 3.13c), making taxonomic changes another significant reason for the increase in the number of Red-Listed taxa in South Africa.

### 3.5 Families and genera that are most threatened and rare

The most threatened plant group in South Africa are the cycads of which 70% of the taxa are threatened (Table 3.7). Cycads are also the most threatened plant family globally (Donaldson 2003). The main reason for their ongoing decline is the severe harvesting pressure from the specialist horticultural trade. As many as 32 of the 38 (84%) South African cycad species are threatened by over-collecting. Despite significant financial resources being spent by provincial conservation agencies to protect cycads through microchipping of plants and the enforcement of a strict permitting system, numbers of individuals continue to decline. Over the past 10 years, the threat status of 20 species has increased and two species, *Encephalartos brevifoliolatus* and *E. nubimontanus*, have been poached to extinction in the wild in the Limpopo Province.

The Proteaceae is the next most threatened family, with 49% of its taxa listed as threatened (Table 3.7). There is excellent information available on the Proteaceae as a result of the Protea Atlas Programme (Box 2.1). This has allowed Proteaceae taxa on average to qualify against more of the IUCN criteria than other plant taxa in South Africa and is one reason why the family has high numbers of threatened taxa. The Proteaceae also has high numbers of restricted-range endemics that are vulnerable to threats.

#### TABLE 3.7. The top 20 most threatened large families (families containing 10 or more taxa).

<table>
<thead>
<tr>
<th>FAMILY</th>
<th>Number of taxa</th>
<th>Number of threatened taxa</th>
<th>Percentage threatened</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ZAMIACEAE</td>
<td>37</td>
<td>26</td>
<td>70.27</td>
</tr>
<tr>
<td>2 PROTEACEAE</td>
<td>377</td>
<td>185</td>
<td>49.07</td>
</tr>
<tr>
<td>3 LAURACEAE</td>
<td>12</td>
<td>4</td>
<td>33.33</td>
</tr>
<tr>
<td>4 RUTACEAE</td>
<td>307</td>
<td>92</td>
<td>29.97</td>
</tr>
<tr>
<td>5 ERIOSPERMACEAE</td>
<td>95</td>
<td>28</td>
<td>29.47</td>
</tr>
<tr>
<td>6 PENAEACEAE</td>
<td>28</td>
<td>8</td>
<td>28.57</td>
</tr>
<tr>
<td>7 STILBACEAE</td>
<td>14</td>
<td>4</td>
<td>28.57</td>
</tr>
<tr>
<td>8 AMARYLLIDACEAE</td>
<td>233</td>
<td>64</td>
<td>27.47</td>
</tr>
<tr>
<td>9 IRIDACEAE</td>
<td>1,143</td>
<td>295</td>
<td>25.81</td>
</tr>
<tr>
<td>10 BRUNIACEAE</td>
<td>77</td>
<td>19</td>
<td>24.68</td>
</tr>
<tr>
<td>11 GESNERIACEAE</td>
<td>65</td>
<td>16</td>
<td>24.62</td>
</tr>
<tr>
<td>12 ASPHODELACEAE</td>
<td>558</td>
<td>115</td>
<td>20.61</td>
</tr>
<tr>
<td>13 DIOECOREACEAE</td>
<td>15</td>
<td>3</td>
<td>20.00</td>
</tr>
<tr>
<td>14 ERICACEAE</td>
<td>943</td>
<td>185</td>
<td>19.62</td>
</tr>
<tr>
<td>15 PLUMBAGINACEAE</td>
<td>22</td>
<td>4</td>
<td>18.18</td>
</tr>
<tr>
<td>16 RHAMNACEAE</td>
<td>195</td>
<td>33</td>
<td>16.92</td>
</tr>
<tr>
<td>17 ROSACEAE</td>
<td>184</td>
<td>31</td>
<td>16.85</td>
</tr>
<tr>
<td>18 PASSIFLORACEAE</td>
<td>18</td>
<td>3</td>
<td>16.67</td>
</tr>
<tr>
<td>19 FABACEAE</td>
<td>1,632</td>
<td>262</td>
<td>16.05</td>
</tr>
<tr>
<td>20 RESTIONACEAE</td>
<td>338</td>
<td>53</td>
<td>15.68</td>
</tr>
</tbody>
</table>

\(^2\)CREW, the Custodians of Rare and Endangered Wildflowers, is a programme that involves volunteers from the public in the monitoring and conservation of South Africa’s threatened plants. CREW is run by SANBI’s Threatened Species Programme (Raimondo 2004, 2007).
The Zamiaceae, Amaryllidaceae, Rutaceae, Asphodelaceae, Proteaceae, Ericaceae, Iridaceae and Fabaceae have a significantly higher proportion threatened taxa than other plant families (Figure 3.14). Of these, the Rutaceae, Asphodelaceae, Proteaceae, Ericaceae and Iridaceae also have very high numbers of range-restricted endemics (Figure 3.15), one of the main reasons for their being particularly vulnerable to anthropogenic threats. The Restionaceae has very high numbers of range-restricted endemics, but many occur in mountainous habitats where there are few threats and the family does not have a high proportion of threatened taxa. Fabaceae shows the opposite trend—there are more threatened taxa than would be expected from the proportion of taxa that are range-restricted (Figures 3.14 and 3.15). This is due to many of the widespread summer-rainfall grassland Fabaceae taxa being long-lived suffrutes that qualify as threatened under the population decline criterion, Criterion A.

Of the 1 964 vascular plant genera in South Africa, only 213 (10%) have more than 20 taxa, but with 14 519 taxa these genera contain the bulk (71%) of South Africa’s 20 456 taxa. *Encephalartos*, of the family Zamiaceae, is the most threatened large genus in South Africa owing to the severe ongoing horticultural harvesting pressure it faces. The Proteaceae genera *Serruria*, *Leucospermum* and *Leucadendron* follow as the next most threatened genera. Taxa in these genera face multiple threats, but are mainly affected by habitat loss to urban and agricultural development and by invasive alien plants (Table 3.8). *Erepsia* of the Mesembryanthemaceae is also highly threatened owing to habitat loss as it is mostly restricted to lowland soils targeted for agriculture. Many other genera of the Mesembryanthemaceae are likely to be highly threatened as they have high numbers of range-restricted taxa occurring in threatened lowland habitats. However, the taxonomic status of these genera, including *Drosanthemum* and *Ruschia*, is currently too poorly known for assessment of their status (Table 3.9). *Lampranthus*, although listed as the genus with the highest number of Data Deficient taxa, is currently being revised (Klak, pers. comm.) and many taxa currently listed as Data Deficient for taxonomic reasons will soon be put into synonymy. *Babiana* is the most threatened of the Iridaceae genera (Table 3.8), mainly because it is restricted to nutrient-rich lowland soils targeted for agriculture. Although a close relationship between genera with the highest proportion of range-restricted taxa (Table 3.10) and those with the most threatened taxa (Table 3.8) is expected, only three of the top ten range-restricted and threatened genera are shared between these two groupings—*Serruria*, *Encephalartos* and *Acmadenia*. Other range-restricted genera, including *Sorocephalus*, *Osmotopsis* and *Berzelia*, are not highly threatened as they have many species that occur only in untransformed mountain habitats where few threats exist.

![FIGURE 3.14. Number of threatened taxa per family plotted against total number of taxa in that family. The dashed line represents the linear function of expected threatened taxa per family.](image-url)
TABLE 3.8. The top 10 most threatened large genera (genera containing 10 or more taxa).

<table>
<thead>
<tr>
<th>Genus</th>
<th>Family</th>
<th>Number of taxa</th>
<th>Number of threatened taxa</th>
<th>Percentage threatened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encephalartos</td>
<td>ZAMIACEAE</td>
<td>37</td>
<td>26</td>
<td>70.27</td>
</tr>
<tr>
<td>Serruria</td>
<td>PROTEACEAE</td>
<td>56</td>
<td>35</td>
<td>62.50</td>
</tr>
<tr>
<td>Leucospernum</td>
<td>PROTEACEAE</td>
<td>51</td>
<td>28</td>
<td>54.90</td>
</tr>
<tr>
<td>Leucadendron</td>
<td>PROTEACEAE</td>
<td>98</td>
<td>51</td>
<td>52.04</td>
</tr>
<tr>
<td>Diosma</td>
<td>RUTACEAE</td>
<td>28</td>
<td>14</td>
<td>50.00</td>
</tr>
<tr>
<td>Erepsia</td>
<td>MESEMBRYANTHEMACEAE</td>
<td>31</td>
<td>15</td>
<td>48.39</td>
</tr>
<tr>
<td>Liparia</td>
<td>FABACEAE</td>
<td>21</td>
<td>10</td>
<td>47.62</td>
</tr>
<tr>
<td>Spatalla</td>
<td>PROTEACEAE</td>
<td>20</td>
<td>9</td>
<td>45.00</td>
</tr>
<tr>
<td>Acmadenia</td>
<td>RUTACEAE</td>
<td>33</td>
<td>14</td>
<td>42.42</td>
</tr>
<tr>
<td>Babiana</td>
<td>IRIDACEAE</td>
<td>90</td>
<td>38</td>
<td>42.22</td>
</tr>
</tbody>
</table>

TABLE 3.9. The 10 most poorly known genera (genera with the most Data Deficient taxa listed). Note that only large genera (with 10 or more taxa) are included.

<table>
<thead>
<tr>
<th>Genus</th>
<th>Family</th>
<th>Number of taxa</th>
<th>Number of DD taxa</th>
<th>Percentage DD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lampranthus</td>
<td>MESEMBRYANTHEMACEAE</td>
<td>194</td>
<td>121</td>
<td>62.37</td>
</tr>
<tr>
<td>Drosanthemum</td>
<td>MESEMBRYANTHEMACEAE</td>
<td>107</td>
<td>41</td>
<td>38.32</td>
</tr>
<tr>
<td>Ruschia</td>
<td>MESEMBRYANTHEMACEAE</td>
<td>207</td>
<td>76</td>
<td>36.71</td>
</tr>
<tr>
<td>Struthiola</td>
<td>THYMELAEACEAE</td>
<td>34</td>
<td>11</td>
<td>32.35</td>
</tr>
<tr>
<td>Adenogramma</td>
<td>MOLLUGINACEAE</td>
<td>10</td>
<td>3</td>
<td>30.00</td>
</tr>
<tr>
<td>Silene</td>
<td>CARYOPHYLLACEAE</td>
<td>10</td>
<td>3</td>
<td>30.00</td>
</tr>
<tr>
<td>Wahlenbergia</td>
<td>CAMPANULACEAE</td>
<td>179</td>
<td>52</td>
<td>29.05</td>
</tr>
<tr>
<td>Cyphia</td>
<td>LOBELIACEAE</td>
<td>83</td>
<td>24</td>
<td>28.92</td>
</tr>
<tr>
<td>Arctotis</td>
<td>ASTERACEAE</td>
<td>60</td>
<td>17</td>
<td>28.33</td>
</tr>
<tr>
<td>Thesium</td>
<td>SANTALACEAE</td>
<td>171</td>
<td>46</td>
<td>26.90</td>
</tr>
</tbody>
</table>
TABLE 3.10. The top 10 large genera (genera containing 10 or more taxa) with highest percentage of range-restricted taxa (EOO < 500 km²).

<table>
<thead>
<tr>
<th>Genus</th>
<th>Family</th>
<th>Number of taxa</th>
<th>Number of range-restricted taxa</th>
<th>Percentage range-restricted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorocephalus</td>
<td>PROTEACEAE</td>
<td>11</td>
<td>9</td>
<td>81.82</td>
</tr>
<tr>
<td>Serruria</td>
<td>PROTEACEAE</td>
<td>56</td>
<td>37</td>
<td>66.07</td>
</tr>
<tr>
<td>Nivenia</td>
<td>IRIDACEAE</td>
<td>11</td>
<td>7</td>
<td>63.64</td>
</tr>
<tr>
<td>Osmiotopsis</td>
<td>ASTERACEAE</td>
<td>11</td>
<td>7</td>
<td>63.64</td>
</tr>
<tr>
<td>Gibbaeum</td>
<td>MESEMBRANTHEMACEAE</td>
<td>17</td>
<td>10</td>
<td>58.82</td>
</tr>
<tr>
<td>Berzelia</td>
<td>BRUNIACEAE</td>
<td>12</td>
<td>7</td>
<td>58.33</td>
</tr>
<tr>
<td>Mimetes</td>
<td>PROTEACEAE</td>
<td>13</td>
<td>7</td>
<td>53.85</td>
</tr>
<tr>
<td>Pentameris</td>
<td>POACEAE</td>
<td>10</td>
<td>5</td>
<td>50.00</td>
</tr>
<tr>
<td>Encephalartos</td>
<td>ZAMIACEAE</td>
<td>37</td>
<td>18</td>
<td>48.65</td>
</tr>
<tr>
<td>Acmadena</td>
<td>RUTACEAE</td>
<td>33</td>
<td>16</td>
<td>48.48</td>
</tr>
</tbody>
</table>

There are 291 genera that have between five and nine taxa. These small genera together contain 1 952 taxa—10% of the national flora. Some of these small genera are highly threatened, for example Polhillia of the Fabaceae and Marasmodes of the Asteraceae, both with five of their six described taxa threatened as they are restricted to lowland flats in the Overberg and Swartland regions respectively (Table 3.11). These areas have been largely transformed for cereal cultivation and remaining subpopulations of the taxa are highly fragmented and restricted to remnants that are not conserved and are continuously being degraded.

TABLE 3.11. The top 10 small genera (five to nine taxa) with the highest proportion of threatened taxa.

<table>
<thead>
<tr>
<th>Genus</th>
<th>Family</th>
<th>Number of taxa</th>
<th>Number of threatened taxa</th>
<th>Number of range-restricted taxa</th>
<th>Percentage threatened</th>
<th>Percentage range-restricted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polhillia</td>
<td>FABACEAE</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>83.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Marasmodes</td>
<td>ASTERACEAE</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>83.3</td>
<td>83.3</td>
</tr>
<tr>
<td>Acrodon</td>
<td>MESEMBRANTHEMACEAE</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>83.3</td>
<td>33.3</td>
</tr>
<tr>
<td>Clivia</td>
<td>AMARYLLIDACEAE</td>
<td>7</td>
<td>5</td>
<td>1</td>
<td>71.4</td>
<td>14.3</td>
</tr>
<tr>
<td>Diastella</td>
<td>PROTEACEAE</td>
<td>9</td>
<td>6</td>
<td>7</td>
<td>66.7</td>
<td>77.8</td>
</tr>
<tr>
<td>Steirodiscus</td>
<td>ASTERACEAE</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>66.7</td>
<td>33.3</td>
</tr>
<tr>
<td>Merciera</td>
<td>CAMPANULACEAE</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>66.7</td>
<td>33.3</td>
</tr>
<tr>
<td>Eustegia</td>
<td>APOCYNACEAE</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>66.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Freylinia</td>
<td>SCROPHULARIACEAE</td>
<td>9</td>
<td>5</td>
<td>6</td>
<td>55.6</td>
<td>66.7</td>
</tr>
<tr>
<td>Daubenya</td>
<td>HYACINTHACEAE</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>50.0</td>
<td>50.0</td>
</tr>
</tbody>
</table>

BOX 3.1 Rooibos tea expansion

Rooibos tea is produced from the plant *Aspalathus linearis* subsp. *linearis* which occurs naturally in the Cederberg and on the Bokkeveld Escarpment. Rooibos relies on a specific soil bacterium that only occurs in the Western Cape and it cannot be successfully cultivated anywhere else in the world. Over 90% of the rooibos tea found in South African supermarkets, and in the fast-growing international market, is produced from cultivated rooibos. The opening up of export markets in the post-Apartheid era and the appeal of rooibos to health-conscious consumers in the northern hemisphere have led to huge expansions in rooibos production in the Greater Cederberg area (742% increase in exports from 1993–2003). This has driven the expansion of rooibos plantations into the natural habitat of wild *A. linearis* subsp. *linearis*. Rooibos occurs naturally and is cultivated mainly in four vegetation types: Cederberg Sandstone Fynbos, Bokkeveld Sandstone Fynbos, Graafwater Sandstone Fynbos and Olifants Sandstone Fynbos. Of the 435 vegetation types recognised nationally (Mucina & Rutherford 2006), Cederberg Sandstone Fynbos has the highest number of endemic
plant species (195). Also, Bokkeveld Sandstone Fynbos is among the top ten most endemic-rich vegetation types, with 101 endemics occurring only in this vegetation type. Many of these endemics are restricted to the deep, well-drained, sandy habitats where *A. linearis* subsp. *linearis* grows. As a result of the massive expansion of the rooibos industry between 1994 and 2006, many indigenous and endemic species have lost habitat and are now at risk of extinction. In 1997, 37 taxa from the area where rooibos tea is grown were listed as threatened with extinction. Some 12 years later 149 taxa are listed as threatened, a 300% increase in the number of species threatened with extinction as a result of rooibos cultivation. Within the two most severely threatened categories of Endangered and Critically Endangered, only five species were listed in 1997—now there are 57.

Awareness of the increasing threat to these species in the rooibos production sector has led to progressive partnerships among concerned parties, especially over the last two years. The Rooibos Biodiversity Initiative (RBI) is the result of a co-operative partnership between CapeNature and the South African Rooibos Council (SARC) in the context of the Greater Cederberg Biodiversity Corridor. Drawing on the success of the Biodiversity and Wine Initiative (see Box 3.2), the aim of the RBI is to promote the value and conservation of biodiversity, and to highlight the long-term production and economic sustainability to be gained from good land use practice amongst rooibos producers.

*Cullumia floccosa* occurs only near Redelinghuys and has been listed as Critically Endangered as it is known only from two sites and from 61 plants, 60 of which occur in one subpopulation. It has lost more than 80% of its habitat over the past 25 years as a result of the cultivation of rooibos tea and potatoes. Photograph: N. Helme.

*Babiana sambucina* subsp. *longibracteata* is listed as Endangered, as it is a narrow endemic to the Bokkeveld plateau around Nieuwoudtville where it occurs in deep, sandy soils on flats and gentle slopes. Currently extant at only five sites, most of the habitat of this species has been transformed over the last 10 years owing to the expansion of the rooibos tea industry in the area. Photographer: H. Erhardt.
BOX 3.2 Vineyard expansion

South Africa is the world’s eighth largest producer of wine, contributing 3.5% of global wine production, and exports a significant quantity of table grapes. Both the wine and table grape industries in the Western Cape have expanded enormously over the past decade, particularly since the lifting of trade sanctions in 1992. The area most seriously affected by vineyard expansion over the past 10 years is the Upper Breede River Valley, with important expansion in the southern Overberg and Agulhas Plain (associated with the search for cooler terroir). The vegetation types currently suffering the highest rates of loss to vineyards are Breede Alluvium Fynbos, Muscadel Riviere, Breede Alluvium Renosterveld and Robertson Karoo, with important areas of Overberg Sandstone Fynbos and Elgin Shale Fynbos also being affected. The first four are all restricted to the Upper Breede River Valley, and have high numbers of endemic geophytes of the Iridaceae family and succulents of the Mesembryanthemaceae family. Other groups affected are the genera Aspalathus of the Fabaceae and Haworthia of the aloe family (Asphodelaceae).

Sparaxis grandiflora subsp. grandiflora, listed as Endangered, is endemic to the Tulbagh Valley. This subspecies has lost over 50% of its habitat to the expansion of wheatfields and vineyards over the past 100 years. It is known only from nine remaining fragments between vineyards. Photographer: R. Koopman.

Aristea nigrescens, listed as Endangered, is a recently described species with a restricted range (EOO 90 km²) that only flowers after fire. It is known from three sites and is declining owing to expansion of deciduous fruit orchards and vineyards, lack of fire and encroachment by invasive alien plants. One of the three known sites is protected within the Romansrivier Contract Nature Reserve. Photographer: R. Koopman.

In Hilton-Taylor’s (1996a,b, 1997) Red List, 119 species from wine-producing areas were included, but only 76 of them were listed as threatened or as insufficiently known. In the current analysis there are 221 species listed as threatened or data deficient—a 200% increase. Some 105 species from these areas have been added to the Red List for the first time, all of them either threatened or data deficient. Of the 119 species listed by Hilton-Taylor (1996a,b, 1997), 87 (73%) have experienced a genuine increase in threat status owing to vineyard expansion. As a result of the significant impact of the wine industry on endemic plant species in the Fynbos region, the Biodiversity and Wine Initiative (BWI) was started in 2004. This initiative is a collaboration between the conservation sector and the wine industry. The goal of the BWI is to minimise further loss of threatened natural habitat and to contribute to sustainable wine-producing practices through the adoption of biodiversity guidelines by the South African wine industry. The BWI enlists interested producers and growers to champion the initiative. These champions are provided with biodiversity guidelines for managing their vineyards and many are encouraged to conserve their remaining natural areas via CapeNature’s Stewardship Programme. In return, producers and growers are assisted with branding their wine as Biodiversity-friendly. For further information, see www.bwi.co.za.
The Coega Industrial Development Zone (IDZ) is situated 20 km east of the city of Port Elizabeth on the southeastern Indian Ocean coast of South Africa, adjacent to a new deepwater port at the mouth of the Coega River.

The Coega Industrial Development Zone is the location of new industrial investments covering 11 500 ha of land. It is a phased development around industry clusters dedicated for export-oriented manufacturing companies located in the zone.

The vegetation at Coega is rich, with three unique vegetation types occurring in the area of development: the Sundays Valley Thicket with 32 endemic plants, the Coega Bontveld with seven endemics and the Albany Alluvial Vegetation with two endemics.

In Hilton Taylor’s (1996a,b, 1997) Red Data List nine of the plant species that occur at Coega were listed as threatened. Owing to development of this area over the past seven years, 14 plant species not previously threatened have now been added to the List. Some 67% of those listed in 1997 have worsened in threat status. There are three plant species currently Listed as Critically Endangered, all of which have very small ranges restricted to the Coega surrounds, and they may become extinct in this area over the next five years if development at the IDZ and its surrounds is not carefully managed. Currently the IDZ developers are aware of the environmental value of the area and are trying to follow a path of sustainable development by keeping natural green areas within the development matrix. The IDZ has an open space system to protect and link some of the most important areas of natural vegetation. These areas feed into the Nelson Mandela Bay Municipality’s open space system designed to keep representative examples of each type of habitat. Sadly, natural areas outside the IDZ are also under major pressure from a commercial quarry and from rapid expansion of low-cost housing developments for the thousands of people that have flocked from rural areas in the Eastern Cape to the Coega area in the hope of finding work in Port Elizabeth and at the IDZ. The influx of rural people has led to an increase in grazing by livestock, which is causing significant ongoing degradation to remaining areas of natural vegetation.

Orthopterum coegana, Critically Endangered, a highly restricted species that occurs only at Coega (EOO < 10 km², AOO < 1 km²). There were three subpopulations on rocky outcrops. The western ‘Kop’ subpopulation was destroyed as a result of quarrying for the Coega harbour between 1995 and 2000. Although plants were translocated, they have not done well and are declining.

Aloe bowiea, Critically Endangered, a species restricted to the area between Uitenhage and Port Elizabeth. It is locally extinct at four of seven recorded sites. The species is currently extant in three severely fragmented subpopulations. The planned industrial expansion of Coega and the influx of people seeking work there could result in massive urban expansion and a large increase in cattle stocking rates. This species is predicted to experience a further 20% decline over the next five years.

Photographer: I. Ebrahim.
4. Applications of the Red List for conservation practitioners

M. Driver, D. Raimondo, K. Maze, M.F. Pfab & N.A. Helme

4.1 Introduction

The *Red List of South African plants* provides a powerful tool for enabling protection and sustainable use of plants of conservation concern. This section explores the various ways in which conservation practitioners and others can use the Red List to support and enable such protection.

Recommended applications of the *Red List of South African plants* include the following:

- In spatial biodiversity planning (also known as conservation planning), to contribute to the identification of geographic priority areas for biodiversity conservation.
- In environmental impact assessments, to inform decision-making about development applications.
- As one criterion for identifying threatened ecosystems in listing of threatened ecosystems in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA).
- As one factor in determining species suitable for the development of Biodiversity Management Plans in terms of NEMBA.
- To inform prioritisation of sites for Biodiversity Stewardship Programmes, in support of expansion of protected areas.
- To support sustainable use of medicinal plants to ensure their continued availability.
- To contribute to global indicators of biodiversity health, including the CBD indicators.
- To monitor trends in species status as part of monitoring and reporting on national biodiversity and reporting on the state of environment.

The Red List should not be used on its own to determine priorities for conservation action or to guide allocation of scarce conservation resources. As noted by Possingham *et al.* (2002), Red Lists are one tool to help with biodiversity planning and prioritisation, best used in conjunction with a range of other criteria relating, for example, to ecosystems and socio-economic factors.

Key users of the Red List are likely to include the following:

- Environmental assessment practitioners (EAPs) and specialists involved in the EIA process (for example botanical specialists and freshwater specialists).
- Conservation planners.
- Researchers in ecology and related fields.
- Plant systematists.
- Scientific staff and managers of conservation agencies.
- Staff of national and international conservation NGOs.
- Officials involved in land-use decision-making, for example in provincial environmental departments.
- Those involved in monitoring and reporting on the state of the environment, nationally and internationally.

In addition to exploring applications of the Red List, this section discusses the relationship of the Red List to other international, national and provincial species lists, and explains why there are differences between this Red List and these other lists.

Lastly, the section points to research priorities that have emerged from the Red-Listing process.

As noted in section 1, information from the Red List is available on the SANBI website (www.sanbi.org) and can be used in combination with this book. This web-based version will be updated with the latest information and assessments every six months, and also provides the option of accessing more detailed information than could be included in this book (see Box 1.2 in section 1). Further benefits of the web version include the ability to create customised lists for particular provinces, taxonomic groups or biomes.
4.2 Using the Red List to enable protection and sustainable use of taxa of conservation concern

The Red List can be used in several ways to support and enable protection of taxa of conservation concern, each of which is explained and discussed below. Some rely on particular provisions in South African legislation; others could be applied in other countries as well.

As noted previously, the biggest threat to South African plant taxa is loss of habitat, especially through cultivation, urban development, afforestation and mining (see section 3.2). Many of these applications of the Red List are aimed directly or indirectly at addressing the threat of habitat loss. There are several other mechanisms for addressing plant taxa threatened by utilisation that complement the Red List. They are discussed in section 4.3.

4.2.1 Spatial biodiversity planning

Spatial biodiversity plans (also called conservation plans) identify geographic priority areas for conservation action and provide maps of these priority areas that are used for two main purposes:

- Guiding protected area consolidation and expansion by conservation agencies, including through stewardship programmes (see section 4.2.5).
- Informing land-use planning and decision-making by a range of sectors, to avoid loss of natural habitat in biodiversity priority areas that fall outside the protected area network.

Spatial biodiversity plans are produced at various spatial scales in South Africa, from national to local. Bioregional plans published in terms of NEMBA are based on spatial biodiversity plans, and consist of maps of critical biodiversity areas at the district or local level together with guidelines on how critical biodiversity areas should be considered in land-use planning and environmental assessment. The fact that bioregional plans are formally published, gives them additional legal weight.

South Africa uses the systematic approach to biodiversity planning, which is based on two key principles: representation (the need to conserve a representative sample of biodiversity, both ecosystems and species); and persistence (the need to conserve ecological and evolutionary processes that allow biodiversity to persist over time). The third hallmark of systematic biodiversity planning is the setting of quantitative biodiversity targets, which tell us how much has to be conserved. Targets can be set for ecosystems (e.g. a certain number of hectares of a vegetation type) or for species (e.g. a certain number of individuals or subpopulations of a species).

Most biodiversity plans incorporate a range of biodiversity features, both ecosystems (e.g. vegetation types, river types, wetland types) and species. Ecosystems represent most of the common and widespread taxa but seldom adequately represent taxa of conservation concern. To ensure adequate representation and persistence of these taxa and associated rare microhabitats, it is important to include species-level biodiversity features in the biodiversity plan, such as rare and threatened fauna and flora, in addition to ecosystem features. For species data to be useful in a provincial or local biodiversity plan, point locality data with good spatial coverage are required. Coarse-scale species datasets, for example at a quarter degree scale, are useful only at the national scale.

Using species data in a biodiversity plan can be complex. Some of the issues that have to be considered are briefly discussed below. Input from specialists who have an ecological understanding of the area for which the plan is being produced and of the taxa concerned, is required to resolve each of these issues.

- Which taxa of conservation concern should be included?
  Typically all threatened taxa as well as range-restricted rare species should be included. Taxa listed under certain criteria (e.g. Criteria A, E) or taxa for which there are insufficient spatial data may be excluded.

- What targets should be set for taxa of conservation concern included in the plan?
  Biodiversity targets for taxa of conservation concern should aim to avoid an increase in the extinction risk of Endangered and Vulnerable taxa or the extinction of Critically Endangered taxa, while preventing the remaining taxa of conservation concern (i.e. Critically Rare, Rare, Near Threatened and Declining taxa) from becoming Vulnerable because of loss of habitat. This implies that all known subpopulations of Critically Endangered, Endangered and Vulnerable taxa listed under the B, C or D criteria, as well as all known subpopulations of Critically Rare taxa, should be conserved in situ. For Critically Endangered, Endangered and Vulnerable taxa listed solely under the A or E criteria, as well as Near Threatened and Rare taxa, at least 11 locations (or 11 subpopulations in the absence of threats) and 10 000 mature individuals should be conserved. Where taxa are not endemic to the planning domain, targets should be proportionately assigned, for example if 10% of the extent of occurrence of a taxon is within the planning domain, only 10% of the target should be applied.

1 For more on the principles and methods of systematic biodiversity planning, see Driver et al. (2003) and Driver et al. (2005).
How should subpopulations of these taxa be mapped?
Usually the data available are historically recorded localities. Decisions have to be made about the size of the area needed for a subpopulation to be viable, and how that area should be spatially delineated. Often the exact locations of subpopulations of taxa of conservation concern are unknown. In order to include these taxa as biodiversity features in a biodiversity planning exercise, suitable habitat can be mapped in the immediate vicinity of historically recorded localities. In some cases, biodiversity plans include not only known locations of taxa of conservation concern but also potential distribution based on modelling. It is advised that if the biodiversity plan is intended to be used to inform land-use planning and decision-making, only known locations should be included, not potential locations based on modelling.

Finally, ecological processes supporting and maintaining subpopulations of taxa of conservation concern, such as pollination and dispersal, should also be incorporated into the biodiversity plan, for example by planning for wildlife corridors and conserving habitats important for pollinators.

4.2.2 Environmental impact assessments
Environmental impact assessments (EIAs) are required in South Africa in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and its associated EIA Regulations. Broadly speaking, developments likely to have a major impact require scoping and EIA, and those likely to have a lesser impact require a Basic Assessment. In both cases, many of the activities involve change of land use and thus often loss of natural habitat, which is the greatest threat to plant taxa in South Africa (see section 3.2). In terms of the principles of NEMA (Section 2), sustainable development requires the consideration of all relevant factors including disturbance of ecosystems and loss of biodiversity, both of which should be avoided or, if that is not possible, should be minimised and remedied.

If natural vegetation will be affected by a proposed development, a specialist botanical survey should be commissioned as part of the environmental assessment process. If a subpopulation of a taxon of conservation concern is found to occur on the proposed development site, it would be one indicator that the proposed activity is likely to result in loss of biodiversity, bearing in mind that loss of subpopulations of these taxa will either increase their extinction risk or may in fact result in their extinction. The detection of a threatened taxon on a site during an environmental assessment should result in a record of decision from the competent authority that avoids, mitigates, remedies or offsets loss of habitat for the taxon in question. The competent authority may also refuse authorisation for the proposed activity. In practice, the mitigation requirements that allow the proposed development to proceed, including the amount of natural habitat set aside, differ widely, depending on the environmental assessment practitioner’s recommendations and the policies of the competent authority. In order to strengthen the environmental assessment process and improve consistency, this section provides:

- Guidelines for environmental assessment practitioners on how botanical specialists should be chosen and when and in what way botanical surveys should be conducted.
- Guidelines for botanical specialists on the specific recommendations that should be made if a taxon of conservation concern is found on a site as well as general recommendations for the habitat conservation of such taxa.

Taxa of conservation concern are only one aspect of biodiversity that should be considered in the EIA process. The presence of threatened ecosystems on the site and the role of the site in contributing to ecological processes are as important and are frequently neglected. Ecosystem guidelines for environmental assessment have been developed for the Western Cape Province (De Villiers et al. 2005) to assist environmental assessment practitioners and specialists to take the full range of the potential ecological impact into account, and can be developed for other provinces in future. Ecosystem guidelines for environmental assessment complement the guidelines given below.

4.2.2.1 General guidelines for environmental assessment practitioners and botanical specialists
Who should be commissioned to undertake a botanical specialist survey?
A botanical specialist with local botanical and ecological knowledge and experience should be contracted to undertake the survey.

South Africa’s flora is highly diverse and is characterised by many regions where there are high levels of plant endemism. In addition, very different ecological processes that maintain species diversity are at work in the nine different biomes. For example, grassland systems require frequent burning (typically on a less than three-year rotation for maintenance of species), while the Thicket Biome does not burn. Vegetation types within biomes have different ecological needs, for example Cederberg Sandstone Fynbos is an arid fynbos system requiring fire at a longer time interval (typically 20 to 30 years) compared to the more mesic Fynbos on the Cape Peninsula where a fire return interval of between seven and 15 years is appropriate. Given the high levels of endemism and
the need for local-scale ecological understanding, it is critical that only specialist botanists who are familiar with
the ecology of the region in which the site occurs, are employed.

When should a specialist survey take place?
In the summer-rainfall areas of the country botanical surveys should take place between October and April
while in the winter-rainfall areas they should take place between August and October.

South Africa's highly diverse flora is characterised by many plant groups of which the species within a genus look
vegetatively very similar and can only be told apart if flowering or fruiting. Most taxa of conservation concern
are from such groups. There are also a number of taxa that are ephemeral and may appear only after a certain
environmental event such as fire. Given this temporal element to species identification, it is vital that specialist
surveys are conducted in the appropriate season, preferably during the flowering time of the taxa expected to
occur in the local area. Within the summer-rainfall areas of the country this season is from October to April while
in the winter-rainfall areas it is from August to October.

How should a survey be conducted?
The specialist should research possible taxa of conservation concern before undertaking the survey, collect
specimens during the survey and have them identified by taxonomists specialising in the relevant plant
groups. Taxa should be identified to species level wherever possible, not genus level. Taxa that may be
dormant should also be reported.

As part of the botanical survey, prior to visiting the site, the specialist consultant should download a list of taxa
that could potentially occur at the site from the BGIS website (http://bgis.sanbi.org). This list is provided at the
quarter degree square level of accuracy. At this broad scale, the list will often include many species that may not
be found at the proposed site. However, taxa from the BGIS list that are of conservation concern should be well
researched before a site visit is conducted to ensure that the specialist knows what to look for. In Gauteng, the
provincial conservation authority also provides consultants with a list of species of conservation concern that
may occur, or have actually been confirmed, on a site.

During a site visit, conducted in the most appropriate field season, it is very important that specimens are
collected as part of the botanical survey, especially for taxonomic groups likely to be of conservation concern (see
section 5 for information on these groups and taxa). Once specimens are collected, they should be identified at
a herbarium. Potential taxa of conservation concern sampled should be identified by a taxonomist specialising
in the plant group in question. Final species lists for sites produced by specialist consultants that include many
taxa identified only to genus level, for example *Gladiolus* sp., *Melolobium* sp., should not be accepted by the
Environmental Assessment Practitioner as of adequate quality, as it indicates that specimens were possibly not
collected or were not identified at a herbarium. There will almost always be some taxa found on a site that
cannot be identified because they are without flowers or fruit, and such taxa may be listed only as a genus
without a specific epithet. It is therefore the overall proportion of unidentified species that should be an
indication of how well a survey has been conducted. Specialist botanists should also include in their reports
a list of taxa of conservation concern that may occur at a site but may be dormant as a result of unfavourable
environmental conditions, for example species that were not seen because the vegetation at a site has not been
burnt for many years.

Once a plant species list for a site has been obtained, it can be submitted to SANBI at www.sanbi.org in text
format and it will be returned with threat status included as well as any changes in taxonomy that the specialist
may not have been aware of. If a taxon of conservation concern with a threat status marked * in Table 4.1 was
found during a site survey, details on the subpopulation in question should be provided to SANBI’s Threatened
Species Programme at redlist@sanbi.org.za. The fact that a subpopulation of this taxon has been found at a site
zoned for development means that its Red List status has to be reviewed and is likely to be upgraded.

4.2.2.2 Recommendations for taxa of conservation concern found on proposed
development sites
Table 4.1 provides guidelines for specialists on appropriate recommendations for taxa of conservation concern
found on a proposed development site. The recommendations differ depending on how threatened the relevant
taxa are. As a result of the development of this Red List, the provision of such a table is possible because all plant
taxa of conservation concern now have clear criteria that explain the reason for their status.
<table>
<thead>
<tr>
<th>Status</th>
<th>Criterion</th>
<th>Guideline for Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Critically Endangered</td>
<td>PE</td>
<td>No further loss of natural habitat should be permitted as the taxon is currently considered possibly extinct, and all known subpopulations have been lost. The subpopulation in question is likely to be newly discovered and the only remaining subpopulation of this taxon.</td>
</tr>
<tr>
<td>Critically Endangered</td>
<td>A,B,C,D</td>
<td>No further loss of natural habitat should be permitted as the taxon is on the verge of extinction.</td>
</tr>
<tr>
<td>Endangered</td>
<td>B,C,D</td>
<td>No further loss of habitat should be permitted as the taxon is likely to go extinct in the near future if current pressures continue. All remaining subpopulations have to be conserved if this taxon is to survive in the long term.</td>
</tr>
<tr>
<td>Endangered</td>
<td>Listed under A only</td>
<td>If this taxon has a restricted range, EOO &lt; 2 000 km², recommend no further loss of habitat. If range size is larger, the taxon is possibly long lived but widespread, and limited habitat loss may be considered under certain circumstances, such as the implementation of an offset whereby another viable, known subpopulation is formally conserved in terms of the National Environmental Management: Protected Areas Act (Act 57 of 2003), and provided that the subpopulation to be destroyed does not occur (i) within a threatened ecosystem or (ii) within an area required for biodiversity conservation in terms of a relevant spatial biodiversity plan or (iii) on a site associated with additional ecological sensitivities.</td>
</tr>
<tr>
<td>*Vulnerable</td>
<td>D</td>
<td>This taxon either constitutes less than 1 000 individuals or is known from a very restricted range. No further loss of habitat should be permitted as the taxon’s status will immediately become either Critically Endangered or Endangered, should habitat be lost.</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>B,C</td>
<td>The taxon is approaching extinction but there are still a number of subpopulations in existence. Recommend no further loss of habitat as this will increase the extinction risk of the taxon.</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Listed under A only</td>
<td>If this taxon has a restricted range, EOO &lt; 2 000 km², recommend no further loss of habitat. If range size is larger, the taxon is possibly long lived but widespread, and limited habitat loss may be considered under certain circumstances, such as the implementation of an offset whereby another viable, known subpopulation is formally conserved in terms of the Protected Areas Act, and provided that the subpopulation to be destroyed does not occur (i) within a threatened ecosystem or (ii) within an area required for biodiversity conservation in terms of a relevant spatial biodiversity plan or (iii) on a site associated with additional ecological sensitivities.</td>
</tr>
<tr>
<td>*Data Deficient</td>
<td>D</td>
<td>This taxon is very poorly known, with insufficient information on its habitat, population status or distribution to assess it. However, it is highly likely to qualify as threatened. If a Data Deficient taxon will be affected by a proposed activity, the subpopulation should be well surveyed and the data sent to the Threatened Species Programme. Assessments will be repeated and the new status of the taxon, with a recommendation, will be provided within a short timeframe.</td>
</tr>
<tr>
<td>Data Deficient</td>
<td>T</td>
<td>There is uncertainty regarding the taxonomic status of this taxon, but it is likely to be threatened. Contact the taxonomist working on this group to resolve its taxonomic status; status will then be reassessed by the Threatened Species Programme.</td>
</tr>
<tr>
<td>*Near Threatened</td>
<td>D</td>
<td>Currently known from fewer than 10 locations, therefore preferably recommend no loss of habitat. Should loss of this taxon’s habitat be considered, then an offset that includes conserving another viable subpopulation (in terms of the Protected Areas Act) should be implemented, provided that the subpopulation to be destroyed does not occur (i) within a threatened ecosystem or (ii) within an area required for biodiversity conservation in terms of a relevant spatial biodiversity plan or (iii) on a site associated with additional ecological sensitivities.</td>
</tr>
<tr>
<td>Category</td>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Near Threatened</td>
<td>B,C</td>
<td>The taxon is approaching thresholds for listing as threatened but there are still a number of subpopulations in existence and therefore there is need to minimise loss of habitat. Conservation of subpopulations is essential if they occur (i) within a threatened ecosystem or (ii) within an area required for biodiversity conservation in terms of a relevant spatial biodiversity plan or (iii) on a site associated with additional ecological sensitivities.</td>
</tr>
<tr>
<td>Near Threatened</td>
<td>Listed under A only</td>
<td>If this taxon has a restricted range, EOO &lt; 2 000 km², then recommend no further loss of habitat. If range size is larger, the taxon is possibly long lived but widespread, and limited habitat loss may be considered. Conservation of subpopulations is essential if they occur (i) within a threatened ecosystem or (ii) within an area required for biodiversity conservation in terms of a relevant biodiversity conservation plan or (iii) on a site associated with additional ecological sensitivities.</td>
</tr>
<tr>
<td>Critically Rare</td>
<td></td>
<td>This is a highly range-restricted taxon, known from one site only, and therefore no loss of habitat should be permitted as it may lead to extinction of the taxon. The Threatened Species Programme is not aware of any current threats to this taxon.</td>
</tr>
<tr>
<td>Rare</td>
<td></td>
<td>This taxon is likely to have a restricted range, or be highly habitat specific, or have small numbers of individuals, all of which makes it vulnerable to extinction should it lose habitat. Recommend no loss of habitat. The Threatened Species Programme is not aware of any current threats to this taxon.</td>
</tr>
<tr>
<td>Declining</td>
<td></td>
<td>This taxon is declining but the population has not yet reached a threshold of concern; limited loss of habitat may be permitted. Should the taxon be a known medicinal species and if individuals will not be conserved in situ, plants should be rescued and used as mother stock for medicinal plant cultivation programmes.</td>
</tr>
</tbody>
</table>

Please provide information on the subpopulation to the Threatened Species Programme: redlist@sanbi.org.za. The fact that a subpopulation of this taxon has been found at a site zoned for development, means that its Red List status has to be reviewed and is likely to be upgraded.

Criteria are defined and explained in Appendix 1.

In addition to recommendations based on status of taxa found on the site, botanical specialists should include recommendations pertaining to long-term persistence of the taxa concerned.

**Maintaining habitat connectivity**

In many cases, a proposed development such as a township development can be accommodated on a site where a taxon of conservation concern is present. It should be recommended that the subpopulation be conserved in a contiguous natural open space system. This natural area should provide sufficient space for the subpopulation (equivalent to its entire area of occupancy) and a buffer zone of at least 200 m to mitigate deleterious edge effects. In addition, the open space system must be sufficient to conserve pollinators. Connectivity with natural vegetation on adjacent sites should be promoted and habitat fragmentation should be minimised (e.g. by clustering development in the ecologically least sensitive areas).

**The need for an Ecological Management Plan**

If a development is authorised on a site with taxa of conservation concern, an Ecological Management Plan for the open space system on the site should be recommended, to be compiled by a suitably qualified specialist as part of the broader Environmental Management Plan, for implementation by an appropriate management authority (such as a body corporate or Section 21 company). The Ecological Management Plan must ensure the long-term persistence of the taxon of conservation concern, include a monitoring programme for the taxon of conservation concern, facilitate/augment natural ecological processes such as fire and herbivory, provide for the habitat and life history needs of important pollinators, minimise artificial edge effects (e.g. water runoff from developed areas and application of chemicals), and include an ongoing monitoring and eradication programme for nonindigenous taxa, with specific emphasis on invasive and weedy taxa.

**Mitigation of impact during construction**

Mitigation measures to protect the taxon of conservation concern during construction should be recommended, for example fencing off the open space system prior to construction. Landscaping with locally indigenous taxa is preferable and could include forage and host plants required by pollinators.
Strong avoidance of ex situ ('search and rescue') options for conserving taxa of conservation concern

In situ conservation is vital and should be recommended as the only option for conserving taxa of conservation concern. Ex situ conservation, i.e. the removal of a subpopulation from its natural habitat to an artificial environment, a practice often termed 'search and rescue', will result in the erosion of the inherent genetic diversity and characteristics of that taxon and increase its extinction risk in the wild. Similarly, translocation of subpopulations is an unacceptable conservation measure. Translocations are expensive and rarely successful. Even if they are successful, translocated individuals may harm other taxa within the receiving environment, the translocated individuals may transmit pathogens and/or parasites, and translocation may result in rapid changes in the taxon itself.

4.2.2.3 What should the final report of the botanical specialist include?

The final report of the botanical specialist should include:

- The date when the botanical survey took place.
- A list of plant taxa found on the site.
- A list of taxa of conservation concern found on the site, including those that may be dormant.
- Any limitations of the botanical survey, for example related to seasonality.
- A clear recommendation on whether to avoid, mitigate, remedy or offset loss of habitat for the taxa of conservation concern as a result of the proposed development (based on Table 4.1).
- Clear recommendations on appropriate mitigation measures, including mitigation during construction, maintaining habitat connectivity, and the need for an Ecological Management Plan.

Recommendations from the botanical specialist have to be summarised in a clear and explicit way in the specialist’s report, in such a way that they can be copied into the main Basic Assessment or EIA report and then into the record of decision.

4.2.3 Listing of threatened ecosystems

South Africa’s National Environmental Management: Biodiversity Act (Act 10 of 2004) provides for an important new legislative tool for protecting biodiversity: listing of threatened or protected ecosystems. In 2008 SANBI and the then Department of Environmental Affairs and Tourism developed the first draft list of threatened terrestrial ecosystems, publication of which is expected in 2009. The purpose of listing threatened ecosystems is primarily to reduce the rate of extinction of ecosystems and species. This includes preventing further loss of habitat in threatened ecosystems, as well as facilitating proactive management of these ecosystems. Threatened ecosystems can be listed in one of three categories: critically endangered, endangered or vulnerable.

Six criteria were developed to identify threatened terrestrial ecosystems. Of particular relevance to threatened species, is Criterion D, which identifies ecosystems that contain a high number of threatened species. Under criterion D1, an ecosystem is categorised as critically endangered if 80 or more threatened plant taxa are associated with the ecosystem, as endangered if 60 or more threatened plant taxa are associated with the ecosystem, and as vulnerable if at least 40 threatened plant taxa are associated with the ecosystem.\(^2\)

Criterion D1 was applied to ecosystems delineated based on the 434 vegetation types in the South African Vegetation Map (Mucina & Rutherford 2006) and the 26 national forest types recognised by the Department of Water Affairs and Forestry (now Department of Agriculture, Forestry and Fisheries).

Of the 225 threatened ecosystems in the proposed draft list, 24 (11%) met thresholds for Criterion D1. All of them are in the Fynbos Biome, highlighting both the exceptional diversity of the Fynbos Biome and the extent to which it is under threat. Eleven ecosystems were listed solely on the basis of Criterion D1. Eight ecosystems qualified for a higher threat status under Criterion A1 (proportion of natural habitat lost) than under Criterion D1.

Listed ecosystems have explicit links to the EIA regulations, which require that at least a Basic Assessment be carried out for any proposed loss of indigenous vegetation in a critically endangered or endangered ecosystem. Listed ecosystems must also be taken into account in municipal Integrated Development Plans and Spatial Development Frameworks. Lastly, as discussed below, the Biodiversity Act provides for the development of

\(^2\) Threatened Red List plant species used for Criterion D1 include the Red List categories of critically endangered (CR), endangered (EN), vulnerable (VU), extinct (EX), and extinct in the wild (EW). They do not include plant species listed under the category Vulnerable D2 (VU D2), which identifies species with a restricted area of occupancy (i.e. species that are naturally rare).
Biodiversity Management Plans for ecosystems, which could specifically target ecosystems with high numbers of taxa of conservation concern to ensure long-term persistence of both the ecosystem and the species.

The list of threatened ecosystems will be reviewed at least every five years, as required in the Biodiversity Act. Up-to-date, reliable Red Lists for species will play an important role in identifying ecosystems under threat.

Further information about the list of threatened ecosystems is available on SANBI’s BGIS website (http://bgis.sanbi.org).

4.2.4 Biodiversity Management Plans for species

Another new tool for biodiversity conservation provided for by the Biodiversity Act is the publication of Biodiversity Management Plans (BMPs). A BMP can be developed for an ecosystem, an indigenous species or a migratory species. Norms and standards for BMPs for species were published in March 2009 (Regulation 214, Gazette No. 31968, 3 March 2009).

A BMP must be aimed at ensuring the long-term survival in nature of the species or ecosystem to which the plan relates, and must provide for a responsible person, organisation or organ of state to monitor and report on progress with implementation of the plan.

The Red List of South African plants should be one factor in prioritising species for which BMPs should be developed. It is not recommended that BMPs should be developed for all taxa of conservation concern, and threat status is not necessarily the most important criterion for prioritising species for BMPs. For example, a critically endangered species that occurs only on one site probably does not require a BMP. BMPs are most appropriate for species:

- For which co-ordination between multiple role players is required to ensure long-term persistence.
- That contribute to livelihoods of local communities.
- That are nationally or internationally traded, including heavily traded medicinal plant species and horticultural species.
- In which the private sector has a direct interest.

4.2.5 Protected area expansion, including through biodiversity stewardship programmes

One important tool for protecting taxa of conservation concern is through the protected area network. South Africa’s protected area network covers 6.5% of the country, close to 8 million hectares, with strong support nationally for protected area expansion. The National Protected Area Expansion Strategy (NPAES) (SANBI & DEAT 2008) sets ecosystem-based targets for protected area expansion and identifies focus areas for protected area expansion using systematic biodiversity planning techniques. It highlights two main mechanisms for protected area expansion: land acquisition and contract protected areas. Contract protected areas, which allow for land to remain in private or communal hands while being formally recognised in terms of the Protected Areas Act, are often appropriate for small fragments of natural habitat with high numbers of taxa of conservation concern. These small fragments usually occur in production landscapes, for example in between agricultural lands or forestry plantations, making it impractical to include them in large state-owned protected areas.

Through biodiversity stewardship programmes, several provinces are working with private and communal landowners to secure priority sites through contract protected areas, involving long-term contracts between landowners and the conservation authority concerned.

Although the identification of focus areas for protected area expansion in the NPAES was not based on the location of taxa of conservation concern, the location of these taxa can be valuable in helping to identify specific sites for protected area expansion within the focus areas, whether through acquisition or contract protected areas. The location of taxa of conservation concern can also help to identify sites within threatened ecosystems that should be prioritised for contract protected areas. Where possible, within the framework of contributing to ecosystem-based protected area targets, it makes sense to include sites with known taxa of conservation concern in new or expanded protected areas.

SANBI’s Threatened Species Programme has 22 volunteer groups who monitor the status of threatened plants through a programme called Custodians of Rare and Endangered Wildflowers (CREW) (Raimondo 2004, 2007). These groups are based in priority areas for threatened plant conservation and work closely with provincial biodiversity stewardship programmes to help identify priority sites for stewardship contracts. The Threatened Species Programme also ensures that management plans developed for contract protected areas include the management interventions required to conserve the threatened plants occurring on these sites.
4.2.6 Using the Red List to ensure sustainable use of medicinal plants

Only a small proportion, less than 20%, of South Africa’s 322 heavily traded medicinal plant taxa are threatened, according to this Red List assessment (Williams et al., in prep). Most medicinal plant taxa that were assessed were categorised as being of Least Concern, with medicinal trade not having a detrimental impact on their population status. Given the important role that the medicinal plant trade plays in supporting livelihoods of South Africans who are part of the second economy, it is encouraging that by far the majority of medicinal plants are not threatened.

There are two main reasons why most heavily traded medicinal plants are not threatened. The first is that in some cases the harvested plant parts (e.g. leaves, stems, fruit, flowers or bark) are able to re-grow after harvesting. Even with high levels of harvesting, individuals within subpopulations do not die as a result of harvesting and populations of these taxa are not declining. The second reason is that even for taxa that are destructively harvested, many are widely distributed, have large numbers of individuals and are able to recruit rapidly. This means that population growth is rapid and that despite widespread and regular harvesting, the population is able to sustain itself. One such example is the African Potato, a popular muthi plant within the genus Hypoxis, which is widely harvested for its bulbs. The rapid growth rate and high levels of recruitment mean that species of African Potato are currently not declining, in spite of widespread harvesting.

The implication is that conservation policies currently in place to manage the medicinal plant trade should not indiscriminately limit harvesting and trade of medicinal plant taxa. Only taxa that are currently listed as threatened or Near Threatened have to be closely managed and monitored, and should be included on national and provincial lists of threatened species (i.e. lists other than the Red List—see section 4.3). No restrictions on harvesting or trading should be placed on those that are listed as being of Least Concern, while those listed as Declining should be targeted in medicinal plant cultivation projects.

SANBI’s Threatened Species Programme will be working with conservation authorities to revise threatened species lists to ensure that they do not include nonthreatened medicinal plants and that threatened medicinal taxa are given appropriate levels of protection. SANBI is also exploring other tools for ensuring sustainable use of threatened medicinal plants, for example development of Biodiversity Management Plans for species in terms of the Biodiversity Act (see section 4.2.4).

4.2.7 Monitoring

The Red List is a crucial tool for reporting on the state of biodiversity at the international, national and provincial level. As with other uses of the Red List, it should be complemented by ecosystem-based approaches and not used in isolation for state of biodiversity monitoring and reporting.

The Convention on Biodiversity has identified 17 headline indicators for assessing progress towards the 2010 target of reducing biodiversity loss, one of which is the change in status of threatened species (www.twentynet.net, accessed April 2009). One tool to measure change in status of threatened species is the Red List Index which tracks overall changes in the threat status of the species from one Red List Assessment to the next. The index is based on the number of species that move between categories as a result of genuine changes in threat status (excluding moves resulting from improved knowledge or taxonomic changes) (Butchart et al. 2005). To date, the Red List Index has been calculated only for birds and amphibians as they are the only two taxonomic groups for which two thorough assessments have been conducted. This Red List assessment of all of South Africa’s plant taxa is an important baseline dataset, against which future biodiversity loss can be measured via the calculation of the Red List Index.

Nationally, SANBI is mandated by the Biodiversity Act to monitor and report on the state of biodiversity and has developed a national biodiversity monitoring and reporting framework with a series of headline indicators. The Red List provides key inputs for several of these indicators, not only for those dealing directly with changes in the threat status of species but also for some indicators tracking the relative impact of various threats to biodiversity. The Red List also feeds into national, provincial and municipal state of environment reporting. As this is the first comprehensive assessment of all South African plants, it provides an important baseline for all future monitoring and reporting related to the status of plant taxa.

4.3 Relationship of this Red List for plants to other species lists

This Red List is not the only species list relevant to conservation of plants in South Africa, meaning that there is potential for confusion around the various lists. This section explains the difference between the Red List and other lists, including:

- Threatened or protected plant species listed in terms of the Biodiversity Act.
- Threatened or protected plant species listed in terms of provincial conservation legislation.
- Protected tree species listed in terms of the National Forest Act.
- Plant species listed on the CITES appendices.
Congruence between the Red List and these other lists is not high, as shown in Table 4.2. This is for good reason: the different lists serve different purposes. All the lists are briefly described below, and the degree of congruence with the Red List is quantified.3

While the Red List is intended to highlight species threatened for various reasons (including habitat loss), national and provincial conservation legislation is intended to protect only those species threatened by utilisation. The CITES list is intended to protect only those species threatened or potentially threatened by utilisation for international trade. The Red List is therefore the only list of species that enables protection of species from habitat loss, through the role it can play in informing land-use planning (through spatial biodiversity planning products), the environmental assessment process and the listing of threatened ecosystems.

### TABLE 4.2. Overlap between Red List and other lists of plant species in South Africa.

<table>
<thead>
<tr>
<th></th>
<th>Total number of taxa listed</th>
<th>Red List taxa of conservation concern included</th>
<th>Percentage of 4 809 Red List taxa of conservation concern included</th>
<th>Red List threatened taxa included</th>
<th>Percentage of 2 577 Red List threatened taxa included</th>
<th>Red List taxa of conservation concern threatened by utilisation included</th>
<th>Percentage of 293 Red List taxa of conservation concern threatened by utilisation included</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biodiversity Act</strong></td>
<td>74</td>
<td>61</td>
<td>1.3%</td>
<td>47</td>
<td>1.8%</td>
<td>50</td>
<td>17.0%</td>
</tr>
<tr>
<td><strong>Provincial legislation</strong></td>
<td>7 543</td>
<td>2 501</td>
<td>52.0%</td>
<td>1 481</td>
<td>57.5%</td>
<td>229</td>
<td>78.2%</td>
</tr>
<tr>
<td><strong>CITES</strong></td>
<td>494</td>
<td>137</td>
<td>2.8%</td>
<td>79</td>
<td>3.1%</td>
<td>63</td>
<td>21.5%</td>
</tr>
</tbody>
</table>

#### 4.3.1 Listing of threatened species in terms of the Biodiversity Act

The Biodiversity Act empowers the Minister to publish a list of Threatened or Protected Species in one of four categories: critically endangered, endangered, vulnerable or protected. The Act prohibits the carrying out of a range of restricted activities involving specimens of these species without a permit. Restricted activities requiring a permit do not include any form of habitat destruction, only activities relating to utilisation (extractive use) of individuals of a species such as harvesting, hunting, trading etc.

Although the Biodiversity Act uses some of the same terms (critically endangered, endangered and vulnerable) as the IUCN Red List, the list of Threatened or Protected Species and the Red List serve very different purposes. Only species affected by restricted activities are intended to be listed as Threatened or Protected Species in terms of the Biodiversity Act. This is why only 1.3% of Red-Listed taxa of conservation concern and 1.8% of Red-Listed threatened taxa are listed as Threatened or Protected Species in terms of the Biodiversity Act.

According to the Red List, the actual number of plant taxa threatened by utilisation is 293. However, only 50 (17%) of these taxa are included on the current list of Threatened or Protected Species. This means that when it is revised, the additional plant taxa threatened by utilisation should be added. Altogether 24 plant taxa currently listed in terms of the Biodiversity Act are not actually threatened by any form of utilisation and should be removed from the list.

#### 4.3.2 Listing of threatened species in terms of provincial legislation

South Africa's nine provinces have plant species listed in provincial nature conservation legislation.4 Altogether there are 7 543 taxa listed in terms of these provincial ordinances and acts. Of these, 2 501 are Red-Listed taxa of conservation concern, representing 52% of Red-Listed taxa of conservation concern (Table 4.2).

As with the national list of Threatened or Protected Species in terms of the Biodiversity Act, provincial legislation is intended to regulate the utilisation of species, by requiring an authorising permit for picking, possession, trade or transport of a specimen of a listed taxon, but does not protect species from habitat loss. However, of the 7 543 taxa on the provincial lists, only 229 are taxa of conservation concern that are threatened by utilisation. This means that the vast majority, 7 314 taxa, are not in need of the type of regulation provided by provincial legislation, and managing the permitting requirements for these taxa is likely to be placing unnecessary strain on the financial and human capital resources within the provincial conservation authorities.

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3 The list of protected tree species in terms of the National Forest Act is not included in Table 4.2 as only a small proportion of Red-Listed plant taxa are trees. The relevant statistics for protected tree species are given in section 4.3.3.

On a positive note, 78% of the 293 taxa of conservation concern threatened by utilisation in South Africa are covered by provincial legislation (Table 4.2). SANBI’s Threatened Species Programme will be working closely with provinces to ensure that when provincial legislation is revised, remaining taxa of conservation concern threatened by utilisation that are not currently represented on provincial lists, are included.

### 4.3.3 List of protected tree species in terms of the National Forest Act

The former Department of Water Affairs and Forestry has published a list of protected tree species in terms of the National Forest Act (Act 84 of 1998). No person may cut, disturb, damage or destroy any protected tree, or possess, trade or transport a protected tree without a licence from the Minister of Water Affairs and Forestry (now Agriculture, Forestry and Fisheries). Forty-six tree taxa are currently protected on this list, of which 18 are taxa of conservation concern. The Red List includes 122 tree taxa of conservation concern, of which 63 are threatened. Only 15% of these appear on the list of protected tree species.

### 4.3.4 CITES appendices

In addition to national and provincial legislation, South Africa is party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES is an international agreement between governments that aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Currently 173 governments are party to CITES. The species covered by CITES are listed in three appendices, according to the degree of protection they need.

In South Africa’s case, 494 of its plant taxa are listed on CITES. Of these, 63 are taxa of conservation concern threatened by utilisation according to the Red List. Many CITES-listed species are listed in Appendix II of CITES for ‘look alike’ reasons. For example, only a few aloes, ceropegas and orchids are threatened by trade, but all remaining taxa in these genera and families are listed because they look very similar to targeted taxa and customs officials are not able differentiate taxa as it requires specialised taxonomic knowledge. The large number of ‘look alike’ taxa partly explains why only a small proportion of taxa on CITES appendices are of conservation concern.

All South Africa’s cycads in the genus *Encephalartos* are included on CITES Appendix I and are also afforded national and provincial protection in terms of the Biodiversity Act and legislation in all provinces. This protection is much needed given that this is the most threatened genus in the country (see section 3.7). However, these listings with their associated permitting controls are currently proving ineffective in preventing the rapid demise of this highly sought after group.

Most plant taxa on the CITES appendices were added in the 1970s. However, many groups that were then popular in trade are now no longer collected from the wild for international trade, for example aloes and ceropegas. New groups such as brachystelmas have now become popular. There is therefore a need to revise the South African plants currently listed on the CITES appendices.

### 4.4 Research priorities to support Red-Listing for plants

While conducting assessments of all of South Africa’s plant taxa, many individual taxa and taxonomic groups were encountered that could not be adequately assessed because of lack of data. Both plant systematists and ecologists are urged to focus their future work on some of the gap areas identified below.

#### 4.4.1 Systematics

*An urgent focus on taxonomic monographs for groups with high number of taxa listed as DDT is recommended.*

The major priority is for plant systematists to focus on taxonomic monographs for groups with high numbers of taxa listed here as data deficient for taxonomic reasons (DDT). Based on this Red List assessment, it is estimated that currently between 20% and 30% of plant taxa in South Africa either have never been revised or have not had revisions done since 1945. Families with the highest proportion of taxa listed as data deficient for taxonomic reasons are Santalaceae, Campanulaceae, Oxalidaceae, Lobeliaceae and Mesembryanthemaceae.\(^1\)

Old taxonomic revisions do not have information required for conservation assessments. Without adequate revisions, it is impossible to establish vital information on a taxon such as its distribution, current accepted localities where it occurs and life history traits such as recruitment strategies and longevity. Without this information, conservation assessments cannot be carried out.

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\(^1\)A more thorough evaluation of the current state of plant taxonomic coverage, priority genera that require revision as well as details on the data that have to be included in monographs, will be included in a forthcoming paper, *Priorities for plant systematics in South Africa emerging from a comprehensive conservation assessment of South Africa's indigenous flora* (Raimondo & Von Staden, in prep.).
4.4.2 Atlassing work and climate change

*Atlas data are exceptionally useful for Red List assessments as well as for monitoring shifts in distribution and abundance in response to climate change.*

The Protea Atlas Project, which was conducted between 1992 and 2003 and generated 250,000 locality records for taxa within this family, has been the most useful data set for conducting conservation assessments (see Box 2.1). Further atlassing projects would greatly assist with assessments as they provide more accurate distribution ranges than herbarium specimens and are typically the only source of data on population abundance. Atlas projects are also an excellent way of involving the public in biodiversity work. SANBI has a key co-ordinating and facilitating role to play in such projects.

With many South African plant taxa predicted to be affected by climate change (Midgley et al. 2002), more atlas data, especially for those groups predicted to be affected by climate change (e.g. Ericaceae, Iridaceae, Restionaceae and particular groups within the Mesembryanthemaceae), will greatly assist not only in producing accurate conservation assessments but also in monitoring future shifts in plant distribution and population abundance.

In addition to atlas projects, ecological research on the response of species restricted to certain microhabitats, for example quartz patches, as well as the response generally of different plant life histories to climate change, is needed for better understanding of the effects of climate change.

4.4.3 Population ecology studies

*Population ecology studies that include species longevity and population growth rates as well as studies on fire response among slow-growing, nonresprouting taxa, are a priority.*

Many widespread plant taxa suspected to have undergone severe declines, such as grassland taxa that have lost a large proportion of their original distribution range to afforestation and crop cultivation, are currently listed as Least Concern or Data Deficient. This is because of a lack of ecological studies that determine both longevity as well as population growth rates, meaning that Red List Criteria A (Population Decline) and E (Quantitative Analyses) cannot be applied. Population ecological studies that include longevity and population growth rates are a priority.

Lastly, many taxa that occur in the Grassland and Fynbos Biomes have been listed as threatened or potentially threatened as a result of too frequent fire. Studies determining the impact of changes in fire regimes on plant populations are few and far between. More ecological research on fire response is urgently required, especially for plant taxa suspected to be negatively affected by frequent fire, such as slow-growing, nonresprouting taxa.
5. Assessments of taxa of conservation concern

5.1 PTERIDOPHYTES

**CYATHEACEAE**

*Cyathea Sm.*

*Cyathea capensis* (L.f.) Sm. var. *capensis*

**Status:** Declining

**J.E. Victor**

**Distribution:** EC KZN LM MP WC. From the Cape Peninsula southwards along the coast and northwards through the eastern half of South Africa. Also in Zimbabwe, Mozambique, Malawi and southern Tanzania.

**Habitat:** Forest, near waterfalls, streams and permanently moist seepages.

**Rationale:** A widespread taxon (EOO > 30 000 km²). It is declining in Mpumalanga because of mature individuals being collected for sale in the local horticultural trade.

**ISOETACEAE**

*Isoetes L.*

*Isoetes aequinoctialis* Welw. ex A.Braun

**Status:** VU D2

**J.P. Roux & D. Raimondo**

**Distribution:** MP. Also Mali, Ghana, Tanzania, Zambia, Zimbabwe and Namibia.

**Habitat:** Temporarily wet places, such as shallow depressions and streambeds, 1 225–1 350 m.

**Rationale:** One known location in South Africa is potentially threatened by grazing livestock.

*Isoetes capensis* A.V.Duthie

**Status:** EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)

**J.P. Roux, D. Raimondo & I. Ebrahim**

**Distribution:** WC. Darling to Stellenbosch and Cape Flats.

**Habitat:** Seasonally flooded depressions and in pools on granite or shale.

**Rationale:** Endangered because of very limited EOO (4 250 km²) and AOO (< 10 km²), known from six severely fragmented subpopulations. The number of subpopulations declined drastically, principally as a result of urban development. This loss is ongoing.

*Isoetes schweinfurthii* A.Braun ex Baker

**Status:** Rare

**J.P. Roux & D. Raimondo**

**Distribution:** LM. Also Madagascar, Morocco to Namibia and Botswana.

**Habitat:** Seasonally flooded pans and along watercourses, 800–1 100 m.

**Rationale:** Occurs at one site in South Africa, in a pan in the Kruger National Park, where it is not threatened.

*Isoetes stellenbosiensis* A.V.Duthie

**Status:** NT B1ab(iii)

**J.P. Roux & D. Raimondo**

**Distribution:** WC. Darling to Stellenbosch and Cape Flats.

**Habitat:** On sandy soil in seasonally flooded pans and on seeps on rock faces.

**Rationale:** EOO 3 500 km². Known from more than 10 locations. It has lost habitat to urban development. It continues to decline because of invading alien plants and infrastructure development.

**LOMARIOPSIDACEAE**

*Elaphoglossum* Schott ex J.Sm.

*Elaphoglossum drakensbergense* Schelpe

**Status:** Rare

**J.E. Victor**

**Distribution:** EC KZN. Injasuti, Bushman’s Nek and Cathedral Peak.

**Habitat:** Weathered sandstone rock faces or earthy faces overhung by rock, often shaded.

**Rationale:** A rare habitat specialist endemic to the KwaZulu-Natal Drakensberg range. Not threatened.
MARSILEACEAE

Marsilea L.

* Marsilea farinosa Launert subsp. arrecta
  J.E. Burrows
  Status: VU D2
  J.P. Roux & D. Raimondo
  Distribution: LM NW. Also southern Botswana.
  Habitat: Seasonally flooded places and along rivers and streams.
  Rationale: Small range (EOO < 5 000 km²), known from five locations. This taxon is potentially threatened by overgrazing by livestock.

Marsilea schelpeana Launert
  Status: VU B1ab(ii,iii)+2ab(ii,iii)
  J.E. Victor & A.P. Dold
  Distribution: EC WC. Port Elizabeth, Alexandria, Grahamstown to Albertinia.
  Habitat: Margins of seasonal pools and along watercourses from near sea level to ± 200 m.
  Rationale: EOO 7 500 km². Known from fewer than 10 locations. Declining because of urban expansion and agriculture.

OPIIOGLOSSACEAE

Ophioglossum L.

Ophioglossum bergianum Schltdl.
  Status: Rare
  D. Raimondo & J.P. Roux
  Distribution: NC WC. Kamiesberg to Cape Peninsula.
  Habitat: Seeps on sandstone or granite slopes.
  Rationale: A widespread (EOO 23 000 km²) but rare habitat specialist. Subpopulations on the Cape Flats and Stellenbosch have been lost to urban development. Other subpopulations tend to be safe and no ongoing significant decline is currently taking place.

Ophioglossum gracillimum Welw. ex Hook. & Baker
  Status: EN D
  J.E. Burrows, M. Lötter & L. von Staden
  Distribution: LM MP. In South Africa near Polokwane and Bronkhorstspruit. Also occurs in central Africa.
  Habitat: Seasonally moist areas in open deciduous woodland. Depends on mycorrhizal associations, 1 000–1 300 m.
  Rationale: An extremely rare species known from two sites in South Africa. The total number of plants in the South African subpopulation is estimated to be between 50 and 100 mature individuals. One site is potentially threatened. There is a large disjunction between the South African subpopulations and those in central Africa.

THELYPTERIDACEAE

Amauropelta Kunze

Amauropelta knysnaensis (N.C.Anthony & Schelpe) Parris
  Status: VU D2
  C.J. Geldenhuys & J.E. Victor
  Distribution: WC. George.
  Habitat: Damp places in coastal forest.
  Rationale: Known from three locations. Potentially threatened by logging.

Christella H.Lév.

Christella alissima Holttum
  Status: VU
  L. von Staden & J.E. Burrows
  Distribution: KZN LM. Extinct in Durban, but possibly also occurs in the Wolberg Mountains in Limpopo Province.
  Habitat: Coastal forest and possibly riverine forest.
  Rationale: A very poorly known species that was collected at an unspecified site near Durban over 100 years ago. It has not been recorded since, and is most likely extinct in this area as a result of urban expansion. A plant that is very like this species was collected in the Wolberg in Limpopo Province in 1990. However, the identity of this plant remains uncertain as John Burrows, a local fern expert, has not been able to compare this specimen with the type.

WOOSIACEAE

Hypodematum Kunze

* Hypodematum crenatum (Forssk.) Kuhn var. crenatum
  Status: VU D1
  J.E. Burrows, M. Lötter & L. von Staden
  Distribution: MP. Bourke’s Luck Potholes and Sodwala in South Africa. Widespread but very rare in Africa, Madagascar and Asia.
  Habitat: Crevices on dolomite cliffs or in soil at the base of dolomite outcrops, from 1 260–1 600 m.
  Rationale: Very rare in South Africa, with a very small total population, but not threatened. This national assessment is not down-listed because significant dispersal (the closest sites are in northeastern Zambia and Madagascar) is unlikely, and the taxon is also very rare in these areas. Total population is estimated between 250 and 1 000 mature individuals.
Plate 2

**Ophioglossum bergianum Rare**

**Ophioglossum gracillimum EN**

**Isoetes stephanense CR**

**Isoetes schweinfurthii Rare**

**Marsilea farinosa subsp. arrecta VU**
5.2 GYMNOSPERMS

GYMNOSPERMS

CUPRESSACEAE

Widdringtonia Endl.

Widdringtonia cedarbergensis J.A.Marsh
Status: CR A2ab
E.C. February, S. Higgins, S. Fox, D. Raimondo & J.E. Victor
© Distribution: WC. Cederberg.
Habitat: Fynbos, rocky areas, predominantly on quartzitic sandstones, prefers areas with 80% rock cover, also occurs on some shales and mudstones, 800–1 500 m.
Rationale: EOO 660 km², AOO 39.6 km². A long-lived tree, endemic to the Cederberg, this species has been declining over the past century as a result of a deleterious fire regime. Monitoring of permanent plots set up 29 to 35 years ago distributed across the range of this species indicates that a 94% decline of mature individuals has taken place in less than one generation (generation length is estimated to be between 66 and 200 years). Decline has not ceased.

Widdringtonia schwarzii (Marloth) Mast.
Status: NT D2
J.E. Victor & A.E. van Wyk
© Distribution: EC. Bavianskloof and Kougia Mountain.
Habitat: In fire refuges either in ravines or on steep slopes.
Rationale: A paleoendemic known from 12 locations. It is unable to survive fire and is potentially threatened by too frequent fires.

STANGERIACEAE

Stangeria T.Moore

Stangeria eriopus (Kunze) Baill.
Status: VU A2acd; A4cd
© Distribution: EC KZN. Bathurst to southern Mozambique.
Habitat: Scarp and coastal forest, Ngongoni and coastal grassland.
Rationale: At least 20% of the habitat has been lost over the last three generations (150 years) and harvesting for the traditional medicine trade has caused at least a further 10–20% decline in population size. It is a sought-after medicinal plant that is over-exploited in much of its range. It is likely to be threatened in future by further habitat loss and increased harvesting as a result of the proposed N2 highway being extended through the Eastern Cape.

ZAMIACEAE

Encephalartos Lehmann

Encephalartos aemulans Vorster
Status: CR B1ab(v)+2ab(v); C1
J.S. Donaldson
© Distribution: KZN. Vryheid.
Habitat: South-facing sandstone cliffs in short grassland.
Rationale: Occurs almost completely at a single location (two males known from a second location). EOO 12 km², AOO 2 km². There are records of continued decline, and the landowner of the private nature reserve in which they occur believes that plants are still being removed. The population is believed to have declined substantially in the 1980s but the extent of decline is difficult to quantify. Scott-Shaw (1999) classified as EN, but in terms of AOO and EOO it qualifies as CR. Total wild population is 150–250 mature individuals.

Encephalartos altensteini Vorster
Status: VU A2acd; C1
J.S. Donaldson
© Distribution: EC KZN. Eastern Cape and southern KwaZulu-Natal coast, inland to the Amathole Mountains.
Habitat: Open shrubland, steep, rocky slopes and forests near the coast. Often along riverbanks.
Rationale: Total estimated remaining population < 1 000 mature individuals. Repeat photography of sites first photographed between 1906 and 1950 and photographed again between 1996 and 1998 showed > 30% decline. The removal of large numbers of plants to gardens has been corroborated by arrests of poachers and documented removal from specific sites, e.g. 438 plants removed from near Tamara in 1995.

Encephalartos arenarius R.A.Dyer
Status: EN A2acd; B1ab(i,ii,iii,iv,v)+2ab(ii,iii,iv,v); C1
J.S. Donaldson
© Distribution: EC. Port Elizabeth.
Habitat: Coastal dune forest and scrub bush on dunes.
Rationale: EOO 250 km², AOO 20 km². Both EOO and AOO have declined because of changing land use and the removal of mature plants by collectors. Conservation officials estimate that many mature plants have been removed by collectors over the past 40 years. Estimated decline exceeds 50%, based on matched photographs. The number of locations is probably less than five, based on knowledge of plants at Nanaga, Canon Rocks and Kaba Valley.

Encephalartos brevifoliolatus Vorster
Status: EW
J.D. Bosenberg
© Distribution: LM. Formerly occurred near the Blyde River Canyon Nature Reserve.
Habitat: Short grassland in open protea savanna.
Rationale: When this species was described in 1996, there were thought to be five mature plants in one site in the Limpopo Province. Collectors removed most of the remaining plants and left only a few damaged stems. These were removed by conservation officials for ex situ conservation.

Encephalartos caffer (Thunb.) Lehmann
Status: NT A2
J.S. Donaldson
© Distribution: EC KZN. Humansdorp to Oribi Gorge.
Habitat: Grassland and occasionally thicket, often among rocks.
Rationale: A widespread species whose habitat has deteriorated in places such as Bathurst as a result of overgrazing by livestock, and plants have also been removed by collectors in several places. The extent of decline is difficult to quantify, but is suspected to be close to 30%.

Encephalartos cerinus Lavranos & D.L.Goode
Status: CR A2acd; B1ab(i,ii,iii,iv,v) + 2ab(i,ii,iv,v); C2a(ii)
J.S. Donaldson
© Distribution: KZN. Central KwaZulu-Natal.
Habitat: Dry, hot, east-facing cliffs in rocky grassland.
Rationale: EOO and AOO 10 km². The population declined rapidly after it was first described in 1998. The species continues to be targeted by collectors and some experts believe that very few plants remain. The population at the type locality is considered to be extinct, meaning that it now occurs in a single subpopulation. Estimates of the number of remaining plants vary from 10–70.

Encephalartos cupidus R.A.Dyer
Status: CR A2acd; B1ab(ii,iv,v)+2ab(ii,iv,v)
J.S. Donaldson
Distribution: LM MP. Extinct throughout most of the range in Limpopo and Mpumalanga, currently restricted to a small area in northern Mpumalanga.
Habitat: Grassland, on steep, rocky slopes or cliffs and sometimes near seepage areas bordering gallery forests.
Rationale: EOO 50 km², AOO 10 km². Now known from one site. Formerly occurred throughout both Mpumalanga and Limpopo Provinces in South Africa. Surveys in 2004 show it is extinct in Limpopo and now only occurs in the Blyde River Canyon Nature Reserve in Mpumalanga. Based on the number of specimens in collections and the rapid decline in Limpopo, it is estimated that it has declined by > 80% over the past 50 years.

Encephalartos dolomiticus Lavranos & D.L.Goode
Status: CR C1
J.S. Donaldson
Distribution: LM. Sekhukhuneland.
Habitat: Grassland, in shallow soils on dolomite ridges.
Rationale: The total population is less than 250 plants. Although it is not possible to quantify overall decline, there has been intensive collecting of all cycads throughout the Limpopo Province. Recent surveys by nature conservation officials indicate that subpopulations have declined slightly between 1993 and 2004. A decline of 45 plants (25%) over the next 30 years (one generation) is highly probable.

Encephalartos dyerianus Lavranos & D.L.Goode
Status: CR B1ab(i,v)+2ab(i,v)
J.S. Donaldson
Distribution: LM. Phalaborwa.
Habitat: Open grassland and shrubland on the slopes of low granite hills.
Rationale: AOO 0.3 km². Now known from one location (i.e. excluding the few isolated plants that are not reproductive). Although it is now relatively secure within a private reserve, the population was reduced by collectors in the 1970s and almost all cycads in Limpopo Province have been targeted by collectors in recent years.

Encephalartos eugene-maraisii I.Verd.
Status: EN C1
J.S. Donaldson
Distribution: LM. Waterberg.
Habitat: Sandstone hills and rocky ridges in open grassland and savanna.
Rationale: There has been significant collecting over the past 30 years based on the number of mature plants in private collections and the population is suspected to have declined by 20% (generation length 30 years). Between 900 and 1 000 mature individuals are now estimated to be extant. Collecting seems to have decreased in the existing nature reserves. The managers of the farms where they occur are concerned about ongoing poaching although conservation officials noted relatively little evidence of illegal collecting during a population census in 2004. There is good reason to regard cycads in this region as at high risk because of large-scale poaching of cycads across Limpopo Province.

Encephalartos friderici-guilielmi Lehmann.
Status: VU C1
J.S. Donaldson
Distribution: EC KZN. Queenstown to Kokstad.
Habitat: Montane grassland and open shrubland on rocky ridges.
Rationale: Total population size estimated between 5 000–10 000 mature individuals. A continuing decline of at least 10% is expected within the next 30 years (one generation) owing to harvesting for medicinal purposes.

Encephalartos ghelliinkii Lemm.
Status: VU C1
J.S. Donaldson
Distribution: EC KZN. Eastern Cape and Kwazulu-Natal Drakensberg Mountains.
Habitat: Rocky outcrops in montane grasslands, sandstone cliffs and associated with montane fynbos in the Drakensberg.
Rationale: The population size estimated at < 10 000, with declines recorded in several subpopulations. Future decline is expected to exceed 10%, within a generation length of 30 years. Subpopulations on the lowlands are especially vulnerable to illegal collecting, whereas those at higher elevations are less accessible and therefore at lower risk.

Encephalartos heenanii R.A.Dyer
Status: CR B2ab(ii,iv,v)
J.S. Donaldson
Distribution: MP. Southeastern Mpumalanga and Swaziland.
Habitat: Open areas of montane grasslands amidst scarp forest in deep valleys and ravines.
Rationale: AOO 5 km². Now known from one location with ± 500 mature individuals. Continuing decline due to habitat loss, poor reproduction and harvesting for medicinal and horticultural purposes.

Encephalartos hirsutus P.J.H.Hurter
Status: CR A4acd; B2ab(iii,iv,v); C1
J.S. Donaldson
Distribution: LM. Soutpansberg Mountains.
Habitat: Exposed quartzite cliffs in mountain bushveld.
Rationale: AOO 5 km². Known from a very restricted area and from three locations, now extinct at two of them. The total population is less than 100 individuals, occurring as small, severely fragmented subpopulations. It is estimated that the total population has declined by > 25% over the past 30 years (one generation) and will continue to decline in future.

Encephalartos horridus (Jacq.) Lehmann.
Status: EN A2cd
J.S. Donaldson
Distribution: EC. Port Elizabeth to Uitenhage.
Habitat: Xeric thicket, often on rocky quartzite outcrops.
Rationale: Extinct in several parts of its former range, notably west of Port Elizabeth and near Uitenhage. It has a restricted distribution but does not qualify for EN in terms of the B criterion because there are more than five subpopulations that are not severely fragmented. Overall
decline is difficult to judge, but is estimated as being over 50% based on habitat loss and declines recorded in repeat photographs.

**Encephalartos humilis** I.Verd.

*Status:* VU A2acd; C1

*J.S. Donaldson*

*Distribution:* MP. Crocodile River.

*Habitat:* Montane and mistbelt grassland, rocky sandstone slopes.

*Rationale:* Many former sites have been converted to pine plantations. Some illegal collecting occurs, but it is a less popular species amongst collectors. It is, however, also harvested for medicinal purposes. Population estimated at 4 500–10 000 mature individuals. The population is suspected to have declined by 30% over 90 years (three generations).

**Encephalartos inopinus** R.A.Dyer

*Status:* CR A2acd; B1ab(i,ii,iv,v)+ 2ab(i,ii,iv,v); C1+2a(i)

*J.S. Donaldson*

*Distribution:* LM. Northern Limpopo and southern Mpumalanga.

*Habitat:* Shallow soils on steep, rocky slopes and gorges, restricted to dolomite.

*Rationale:* EOO 50 km²; AOO 7 km². This species is popular with collectors and has declined over 80% over the past 30 years. Individuals occur as small fragmented subpopulations. Conservation officials recorded 677 plants in 1992 and only 81 in 2004. Subsequent ground surveys indicate further decline and even possible extinction in the wild.

**Encephalartos laevifolius** Stapf & Burtt Davy

*Status:* CR A2acde

*J.S. Donaldson*

*Distribution:* EC KZN LM MP. Restricted to high mountain peaks in eastern Mpumalanga and parts of Swaziland. Locally extinct in Limpopo, KwaZulu-Natal and Pondoland.

*Habitat:* Steep, rocky slopes in mistbelt grassland, 1 300–1 500 m.

*Rationale:* Subpopulations across the range have declined substantially. Dramatic declines have been recorded at Kaapsehoop, all subpopulations in Limpopo Province are now extinct, and the subpopulation on Mariepskop is virtually extinct. Where it has been monitored, decline has exceeded 80%. All subpopulations are also affected by a fusarium fungus that attacks the cones, preventing the production of viable seeds.

**Encephalartos lanatus** Stapf & Burtt Davy

*Status:* VU B1ab(iii)+ 2ab(iii)

*J.S. Donaldson*

*Distribution:* G MP. Gauteng and eastern Mpumalanga.

*Habitat:* Sheltered, wooded ravines in sandstone ridges, 1 200–1 500 m.

*Rationale:* EOO 1 100 km²; AOO 100 km². Declining because of habitat destruction at two known locations, but other locations not currently threatened. Subpopulations are severely fragmented.

**Encephalartos latifrons** Lehm.

*Status:* CR A2ad; B2ab(iii,v); C1 +2a(i)

*J.S. Donaldson*

*Distribution:* EC. Albany and Bathurst districts.

*Habitat:* Rocky outcrops and slopes in thicket as well as open grassland.

*Rationale:* EOO 350 km²; AOO 10 km². Now comprises several small subpopulations and is extremely fragmented, resulting in no natural seed set. However, individuals are being hand-pollinated and successful seed set has been observed. Based on the number of mature (wild-collected) plants in private collections, the population has declined by > 80% over the past 50 years and continues to decline. Only ± 70 mature individuals remain in the wild.

**Encephalartos lebomboensis** I.Verd.

*Status:* EN A2acd; B1ab(ii,iii,iv,v)+ 2ab(ii,iii,iv,v); C1+2ab(ii,iii,iv,v)

*J.S. Donaldson*

*Distribution:* KZN MP. Lebombo Mountains of southern Mpumalanga, Swaziland and Mozambique.

*Habitat:* Cliffs and rocky ravines in savanna and grassland.

*Rationale:* The exact status of *E. lebomboensis* depends on how the species is defined. Some sources regard only the populations at Mananga and northern Swaziland as true *E. lebomboensis*, in which case it may qualify as CR. If populations in northern KZN are included, the species is less threatened. The current assessment is based on the wider distribution (EOO 450 km²). Some subpopulations have declined substantially because of collecting (e.g. Mananga) and, based on these subpopulations, it is estimated that overall decline exceeds 50%. The number of locations is taken here to be fewer than five, taking sites such as Mananga, Piet Retief and northern Swaziland as individual locations.

**Encephalartos lehmannii** Lehm.

*Status:* NT B1ab(v)

*J.S. Donaldson*

*Distribution:* EC WC. Western and Eastern Cape dry interior.

*Habitat:* Arid, low, succulent shrubland on rocky ridges and slopes.

*Rationale:* EOO 12 000 km², but known from 10–20 locations. Continuing decline due to harvesting for horticultural and medicinal purposes, drought, poor reproduction and damage by porcupines.

**Encephalartos longifolius** (Jacq.) Lehm.

*Status:* NT B1ab(v); C1

*J.S. Donaldson*

*Distribution:* EC. Kouga Mountains to Grahamstown.

*Habitat:* Steep rocky slopes in dense thicket.

*Rationale:* EOO 7 000 km². Known from more than 10 locations. Population size 7 000–15 000 individuals, but current rate of decline unknown, uncertain if it exceeds 10%. It continues to decline because of collecting.

**Encephalartos middelburgensis** Vorster, Robbertse & S.van der Westh.

*Status:* CR A2acd; C1

*J.S. Donaldson*

*Distribution:* G MP. Witbank and Middelburg.

*Habitat:* Open grasslands and in sheltered valleys.

*Rationale:* Recent surveys by conservation officials indicate the overall population is ± 120 individuals.
Subpopulations have continued to decline owing to illegal collecting and some are also affected by disease. Overall decline over the past three generations (90 years) exceeds 80%. Surveys of seed set and pollinator abundance also indicate that several subpopulations are not producing viable seed.

**Encephalartos mzinganus** Vorster
- **Status:** CR B1ab(iii,v)+2ab(iii,v); C1 + 2a(ii)
  J.S. Donaldson
- **Distribution:** KZN. Mzinga.
- **Habitat:** Grasslands, occurs on steep, north-facing slopes, usually among boulders.
- **Rationale:** EOO 2 km², AOO 0.5 km². Known from a single small location and recorded as declining by Scott-Shaw (1999). There are also less than 250 plants in the wild and most of the plants occur in one subpopulation. Based on general illegal trade in rare cycads, it is estimated that over 25% of the remaining plants could be removed within the next 30 years.

**Encephalartos natalensis** R.A.Dyer & I.Verd.
- **Status:** NT A2ad
  J.S. Donaldson
- **Distribution:** EC KZN. Northern Eastern Cape and Kwa-Zulu-Natal as far north as Vryheid.
- **Habitat:** Cliffs, either hot, dry slopes or cool, south-facing, often forested slopes.
- **Rationale:** There is substantial population decline, estimated to be close to 30%. The subpopulation at the type locality is on the verge of extinction and a subpopulation at Hopewell has been devastated by harvesting for muthi to the extent that no adult plants survive.

**Encephalartos ngoyanus** I.Verd.
- **Status:** VU A4acd; C1
  J.S. Donaldson
- **Distribution:** KZN. Lebombo Mountains in Swaziland and Mozambique. An isolated subpopulation occurs in central KwaZulu-Natal.
- **Habitat:** Open grassland and forest margins, often among boulders.
- **Rationale:** Subpopulations have declined over the past 30 years and are projected to continue declining as a result of harvesting for private collections and local use. Past decline is suspected to be over 20% and future decline is likely to exceed 10% over the next generation (30 years). It is apparently extremely difficult to find at the type locality near Ngoye Forest. Only ± 5 000 mature individuals are estimated to remain in the wild.

**Encephalartos nubimontanus** P.J.H.Hurter
- **Status:** EW
  J.S. Donaldson
- **Distribution:** LM. Formerly occurred in the mountains north of Penge.
- **Habitat:** Steep cliffs in low open woodland.
- **Rationale:** Surveys conducted in Limpopo Province show a decline from 66 plants in the 1990s to eight plants in 2001 and no recorded plants in 2004. As with other cycad species in Limpopo Province, it was mostly affected by illegal collecting.

**Encephalartos paucidentatus** Stapf & Burtt Davy
- **Status:** VU A2acd
  J.S. Donaldson
- **Distribution:** MP. Barberton and Swaziland.
- **Habitat:** Forest, occurs on steep rocky slopes and alongside streams in deep gorges.
- **Rationale:** Although once regarded as relatively abundant, subpopulations have declined across its range. The full extent of decline is unknown, but it has been substantial in some subpopulations as a result of harvesting for horticultural purposes. Afforestation has also led to habitat loss in the past. Overall population decline is suspected to exceed 30%.

**Encephalartos princeps** R.A.Dyer
- **Status:** VU A4acd; C1
  J.D. Bosenberg
- **Distribution:** EC. Great Kei River catchment.
- **Habitat:** Dolerite cliffs and rocky outcrops along river valleys.
- **Rationale:** Subpopulations have declined as a result of collecting, overgrazing by livestock and possibly heavy infestation of the invasive alien Lantana camara. A well-known cluster of plants near the Kei Cuttings was damaged by collectors who had sawed off the large stems. Only ± 5 000 mature individuals are estimated to remain in the wild. Past decline and projected future decline over three generations (90 years) exceed 30%.

**Encephalartos senticosus** Vorster
- **Status:** VU A2acd
  J.D. Bosenberg
- **Distribution:** KZN. Lebombo Mountains, northern Kwa-Zulu-Natal and Swaziland.
- **Habitat:** Rocky slopes and cliffs in dry shrubland.
- **Rationale:** Estimated to have declined by at least 30% over the last 90 years (generation length estimated to be 30 years) as a result of harvesting for medicinal and horticultural purposes.

**Encephalartos trispinosus** (Hook.) R.A.Dyer
- **Status:** VU A4cd; C1 + 2a(i)
  J.S. Donaldson
- **Distribution:** EC. Albany, Bathurst, Fort Beaufort and Peddie districts.
- **Habitat:** Arid, low, succulent shrubland on rocky ridges and slopes.
- **Rationale:** Decline is expected to exceed 10% over the next 30–90 years. There are less than 1 000 mature plants in each subpopulation. Subpopulations have declined in the Bushmans and Kariega River basins because of collecting and land use and, in the Helspoort area northwest of Grahamstown, owing to heavy grazing. Based on populations monitored since 1988, the continuing decline is estimated to exceed 30%.

**Encephalartos woodii** Sander
- **Status:** EW
  J.S. Donaldson
- **Distribution:** KZN. Ngoye Forest.
- **Habitat:** Forest.
- **Rationale:** The species was described from a single individual comprising several stems. The last stems were removed from the wild in the early 20th century as they were being badly affected by harvesting for medicinal bark.
5.3 ANGIOSPERMS: MONOCOTYLEDONS

AGAPANTHACEAE

Agapanthus L’Hér.

Agapanthus africanus (L.) Hoffmanns. subsp. walshii (L.Bolus) Zonneveld & G.D.Duncan

Status: EN B1ab(ii,iii); C1
G.D. Duncan & D. Pillay

Distribution: WC. Elgin Valley.
Habitat: Rocky sandstone slopes.
Rationale: Known from a restricted range (35 km²) in the Elgin Valley, recorded from fewer than five locations, with continuing decline of the largest subpopulation occurring as a result of informal settlement expansion.

Agapanthus coddii F.M.Leight.

Status: Rare
D. Pillay

Distribution: LM. Western Waterberg.
Habitat: Montane grassland, found in permanently moist seepage areas below cliffs.
Rationale: A range-restricted species (EOO 160 km²). The habitat is inaccessible and mostly protected within private conservancies and the Marakele National Park. This species is not considered threatened.

Tulbaghia L.

Tulbaghia coddii Vosa & Burb.

Status: VU D2
J.E. Victor

Distribution: MP. Roossenekal to Lydenburg.
Habitat: Northern Escarpment Dolomite Grassland.
Rationale: Known from three locations in an area severely affected by forestry in the past. Expansion of forestry lands has halted but the species remains potentially threatened by grazing livestock and housing development.

Tulbaghia cominsii Vosa

Status: VU D2
J.E. Victor & A.P. Dold

Distribution: EC. King William’s Town district.
Habitat: Buffels Thicket.
Rationale: Known from a small area around King William’s Town and Buffalo River, from two locations where it is potentially threatened by invasive alien animals (naturalised pigs).

AMARYLLIDACEAE

Amaryllis L.

Amaryllis paradisicola Snijman

Status: VU D1 + 2
D.A. Snijman, J.E. Victor & D. Raimondo

Distribution: NC. Richtersveld.
Habitat: Shaded quartzite cliffs.
Rationale: An extremely rare species, known from one location with less than 1 000 individuals.

Apodolirion Baker

Apodolirion amyanum D.Müll.-Doblies

Status: EN B1ab(i,ii,iii)
A.P. Dold & J.E. Victor

Distribution: EC. Grahamstown.
Habitat: Margin of thicket along quartz outcrops.
Rationale: Restricted to a small area in the Grahamstown district (EOO < 500 km²), known from fewer than five locations, with ongoing loss to urban expansion.

Apodolirion bolusii Baker

Status: DDD
D.A. Snijman & J.E. Victor

Distribution: WC. Northern Cederberg.
Habitat: On middle slopes in sandstone-derived sand.
Rationale: A range-restricted species (EOO < 500 km²) protected within the Cederberg Wilderness Area where it is not threatened.

Apodolirion cedarbergense D.Müll.-Doblies

Status: Rare
D.A. Snijman & J.E. Victor

Distribution: WC. Northern Cederberg.
Habitat: Heavy clay soils in renosterveld or valley bushveld.
Rationale: Known from widely scattered locations between the Fish River Valley and Jeffreys Bay. Of the six known locations, two have already been lost to urban expansion in Port Elizabeth. Two more subpopulations will be severely affected, with 80% of their individuals and habitat lost because of urban and industrial development, which is planned to take place over the next 10 years at Puppiesfontein and Coega. The future loss is estimated to result in a 33% decline.

Boophone Herb.

Boophone disticha (L.f.) Herb.

Status: Declining

Distribution: EC FS G KZN LM MP NC NW WC. Throughout South Africa and up to Uganda.
Habitat: Dry grassland and rocky areas.
Rationale: Species assessed as Declining in South Africa because of habitat loss in KwaZulu-Natal and Gauteng Provinces and because trade volumes suggest unsustainable harvesting, especially because large, reproductive individuals are being removed. The species is, however, long-lived, widely distributed and can colonise new sites because of its tumbleweed-like inflorescence.
Brunsvigia Heist.

*Brunsvigia elandsmontana* Snijman

**Status:** CR B1ab(v)
D.A. Snijman & D. Raimondo

**Distribution:** WC. Elandsberg.
**Habitat:** Pebbly soils on flats.
**Rationale:** Known from one location on transition soils between sandstone and clay. Most of the similar surrounding habitat has been transformed by wheat cultivation over the past 70 years. It is known from less than 700 plants and is threatened by grazing by game.

*Brunsvigia herrei* F.M.Leight. ex W.F.Barker

**Status:** VU B1ab(iii,v)
D.A. Snijman & D. Raimondo

**Distribution:** NC. Southern Namibia to northern Namakaland.
**Habitat:** Succulent karoo shrubland, granitic soils on flats and sometimes in deposits of fairly large stones.
**Rationale:** Known from fewer than 10 locations in South Africa, with continuing degradation of habitat as a result of overgrazing by livestock. A few more locations exist in southern Namibia.

*Brunsvigia josephinae* (Redouté) Ker Gawl.

**Status:** VU A2c; C2a(i)
D.A. Snijman & D. Raimondo

**Distribution:** EC NC WC. Nieuwoudtville to Bavaianskloof.
**Habitat:** Heavy clay soils.
**Rationale:** This long-lived bulb species occurs as widely scattered subpopulations in lowland areas that are subject to continued habitat loss to agriculture (30% of habitat has been lost over the past 70 years). There are 18 recorded subpopulations (based on collections in SANBI herbaria) and we estimate that a further 70 unrecorded subpopulations may exist. All subpopulations consist of less than 50 adult plants and are declining as a result of ongoing collecting for medicinal purposes.

*Brunsvigia litoralis* R.A.Dyer

**Status:** EN B2ab(iii,v)
D.A. Snijman, W. Berrington & J.E. Victor

**Distribution:** EC WC. Great Brak River to Port Elizabeth.
**Habitat:** Coastal.
**Rationale:** Occurs as small, severely fragmented subpopulations and is restricted to coastal flats. The total area of available habitat is < 250 km\(^2\). Continuing decline due to habitat loss for coastal development.

*Brunsvigia pulchra* (W.F.Barker) D. & U.Müll.-Doblies

**Status:** Rare
D.A. Snijman & J.E. Victor

**Distribution:** NC. Kamiesberg to Steinkopf.
**Habitat:** Granitic soils in either mountain renosterveld or Namakalaland Broken Veld.
**Rationale:** A northern Namakaland endemic known from eight subpopulations and restricted to elevated slopes. Not threatened.

*Brunsvigia radula* (Jacq.) Aiton

**Status:** VU C2a(i)
D.A. Snijman & D. Raimondo

**Distribution:** NC WC. Kennsvalakte to the Kamiesberg.
**Habitat:** Gravel flats and dolomite outcrops.

**Rationale:** Occurs as small subpopulations (less than 1 000 individuals) and the total population is suspected to be less than 10 000. It has lost habitat to mining of dolomite ridges, and is currently threatened by harvesting for horticultural purposes as well as potentially by future mining activities.

*Brunsvigia undulata* F.M.Leight.

**Status:** Rare
D.A. Snijman & J.E. Victor

**Distribution:** KZN. Mahwaqa Mountain and south of Estcourt.
**Habitat:** Grassland near exposed rocks.
**Rationale:** A sparsely distributed habitat specialist known from six herbarium collecting sites. No known threats.

*Clivia Lindl.*

*Clivia caulescens* R.A.Dyer

**Status:** NT A3d

**Distribution:** LM MP. Limpopo Province to Swaziland.
**Habitat:** Forest patches and forest margins.
**Rationale:** The population is expected to decline by 25% over the next 90 years (generation length suspected to be 30 years) owing to future threats that include persistent and increased harvesting pressures from both the medicinal plant and horticultural trades.

*Clivia gardenii* Hook.

**Status:** VU A2abcd; B1ab(ii,iv,v)

**Distribution:** KZN. Ngome Forest to KwaZulu-Natal Midlands.
**Habitat:** Forest undergrowth.
**Rationale:** EOO 6 900 km\(^2\). Occurring at fewer than 10 locations. It has declined at least 30% over the last 90 years (generation length 30 years) as a result of harvesting for the medicinal plant and horticultural trades as well as some habitat loss to commercial forest plantations, crop cultivation and urban development. The number of mature individuals continues to decline because of harvesting.

*Clivia miniata* (Lindl.) Regel var. *miniata*

**Status:** VU A2abcd

**Distribution:** EC KZN MP. Barberton to Kei Mouth, also in Swaziland.
**Habitat:** Scarp, mistbelt and coastal riverine forests, in loose rocky habitats in light or partial shade, 100–400 m.
**Rationale:** The population has declined at least 40% over the last 90 years (generation length 30 years) because of harvesting for the medicinal plant and horticultural trades as well as some habitat loss to commercial forest plantations, crop cultivation and urban development. The number of mature individuals continues to decline because of harvesting.

*Clivia mirabilis* Rourke

**Status:** VU D2
D.A. Snijman & J.E. Victor

**Distribution:** NC. Nieuwoudtville.
**Habitat:** Light shade in scrub forest.
**Rationale:** Known from two locations on the Bokkeveld Scarp, mistbelt and coastal riverine forests, in loose rocky habitats in light or partial shade, 100–400 m.

**Rationale:** The population has declined at least 40% over the last 90 years (generation length 30 years) because of harvesting for the medicinal plant and horticultural trades as well as some habitat loss to commercial forest plantations, crop cultivation and urban development.
Clivia nobilis Lindl.

Status: VU A2cd


Distribution: EC. Tootabie Forest Reserve and Bushmans River Mouth to Qora Mouth.

Habitat: Coastal and inland forest patches below 600 m.

Rationale: The population has declined by at least 30% over the last 120 years (generation length 40 years) because of harvesting for the medicinal plant trade, horticultural acquisitions and some habitat destruction caused by coastal development.

Clivia robusta B.G.Murray, Ran, De Lange, Hammert, Truter & Swanevelder

Status: VU A2cd; B1ab(ii,iii,iv,v)


Distribution: EC KZN. Pondoland, Port St Johns to the Mzimkulu River north of Oribi Gorge.

Habitat: Afrotemperate forest, 0–500 m.

Rationale: EOO 3 100 km². The number of locations is suspected to be fewer than 10 based on areas accessible to harvesters. There has also been an estimated decline of 30% over the last 90 years (three generations) as a result of harvesting for the medicinal plant trade.

Crinum L.

Crinum acaule Baker

Status: NT B1ab(ii,iii,iv,v)

R. Scott-Shaw, D. Raimondo & J.E. Victor


Habitat: Coastal grassland on arid, sandy flats.

Rationale: Suspected to occur in less than 20 locations in South Africa. This Maputaland endemic has experienced significant habitat loss to cashew nut and forestry plantations.

Crinum bulbispermum (Burm.f.) Milne-Redh. & Schweick.

Status: Declining


Distribution: FS G KZN MP NC NW. Northern Cape eastwards to Mpumalanga and KwaZulu-Natal.

Habitat: Near rivers, streams, seasonal pans and in damp depressions.

Rationale: Localised declines in subpopulations have been observed for this species. It is a long-lived bulb and is regularly found in medicinal plant markets; harvesting is probably causing a continuing decline. However, it is still common enough to obviate listing as NT.

Crinum campanulatum Herb.

Status: NT B1a

A.P. Dold, D.A. Snijman & J.E. Victor

Distribution: EC. Albany district, between Alexandria, Grahamstown, Bathurst and East London.

Habitat: Seasonal vleis.

Rationale: It has a restricted range (EOO 4 600 km²) and is known from 12 small, severely fragmented subpopulations. It is not declining but is potentially threatened by water pollution.

Crinum lineare L.f.

Status: VU B1ab(ii,iii,iv,v)

A.P. Dold, W. Berrington, D.A. Snijman, D. Raimondo & J.E. Victor

Distribution: EC. Port Elizabeth to Peddie.

Habitat: Coastal forelands.

Rationale: EOO 4 600 km². Occurring in small, severely fragmented subpopulations and has lost habitat, subpopulations and individuals because of agricultural expansion and the urban expansion of Port Elizabeth. Ongoing degradation of remaining habitat is taking place as many subpopulations exist only on road verge fragments. Non-remnant locations are overgrazed by livestock.

Crinum macowanii Baker

Status: Declining


Distribution: EC FS G KZN LM MP NW. Eastern Cape to Limpopo Province and from Zimbabwe to Eritrea.

Habitat: Mountain grassland and rocky slopes in hard dry shale, gravelly soil or sandy flats.

Rationale: Declines have been observed for the species. As it is a long-lived bulb and is constantly appearing in the medicinal plant markets, we suspect an overall continuing decline due to harvesting. It is still common enough not to list it as NT.

Crinum moorei Hook.f.

Status: VU A4de


Distribution: EC KZN. Wild Coast and coastal KwaZulu-Natal as far north as Ngome.

Habitat: Coastal and riverine forests, scrubs forest, in damp or marshy places along watercourses, never in grassland.

Rationale: It has declined by at least 20% over the past 70 years (two generations) and is expected to decline a further 10% over the next 20 years as a result of harvesting for the medicinal plant trade and predation by the amaryllis caterpillar.

Crinum stuhlmannii Baker

Status: Declining


Distribution: KZN LM MP. KwaZulu-Natal, Mpumalanga, Limpopo, Swaziland and Mozambique.

Habitat: Scattered in grassland, bushveld and on sandy soils at low altitudes, in deep sand in lowveld bushveld.

Rationale: Despite the widespread distribution, some population decline is likely because very big, old bulbs
are being harvested and sold on medicinal plant markets. However, it can still be seen in a number of localities, and current levels of decline are unlikely to exceed 10% of the population.

**Cyrtanthus Aiton**

†**Cyrtanthus aureolus** Snijman

**Status:** Critically Rare

D.A. Snijman & D. Raimondo

**Distribution:** KZN, Lowveld Plateau.

**Habitat:** On moist cliffs and ledges along wooded watercourses and waterfalls in semishade, 1–200 m.

**Rationale:** A highly range-restricted species (EOO < 5 km²) and known from only two locations. It is threatened by habitat degradation and alteration as a result of invasion by black wattles (Acacia mearnsii).

**Cyrtanthus carneus** Lindl.

**Status:** VU A2c; B1ab(iii,v); C1

D.A. Snijman, C. McMaster & D. Raimondo

**Distribution:** WC, Caledon to mouth of the Breede River.

**Habitat:** Coastal fynbos on south-facing slopes.

**Rationale:** EOO 3 000 km². Known from nine locations. A long-lived bulb species (generation length 30 years) endemic to the Overberg region. It occurs in small, severely fragmented subpopulations and is declining owing to habitat loss to agriculture, invading alien plants and collecting for the horticultural trade. It has lost 30% of its habitat to agriculture over the past 80 years.

†**Cyrtanthus debilis** Snijman

**Status:** Rare

D.A. Snijman, J.H. Vlok & J.E. Victor

**Distribution:** WC, Outeniqua Mountains.

**Habitat:** Montane fynbos on seasonally moist slopes, sandy soils.

**Rationale:** A range-restricted species (EOO < 120 km²) that flowers only after fire and is therefore seldom seen. It is, however, locally common after fire. Most of the population occurs within a protected area and hence it is not considered threatened.

**Cyrtanthus erubescens** Killick

**Status:** Rare

J.E. Victor & C.R. Scott-Shaw

**Distribution:** KZN. Central KwaZulu-Natal Drakensberg Mountains.

**Habitat:** Subalpine grassland in moist gullies near boulders, 2 000–2 700 m.

**Rationale:** A Drakensberg high-altitude endemic, known from four collections. Not threatened.

**Cyrtanthus ecallus** R.A.Dyer

**Status:** VU D2

M. Lötter, J.E. Burrows & L. von Staden

**Distribution:** MP, Barberton.

Habitat: Wooded kloofs in moist, loose soil.

**Rationale:** Known from one location. It has lost habitat to afforestation. Potentially threatened by invading alien plants.

**Cyrtanthus falcatus** R.A.Dyer

**Status:** Rare

J.E. Victor

**Distribution:** KZN. Unzinga River and Loteni River Valleys.

**Habitat:** Cliffs in mountain grasslands, 1 100–1 900 m.

**Rationale:** A Drakensberg high-altitude endemic, known from eight collecting sites. Not threatened.

**Cyrtanthus flavidus** P.E.Barnes

**Status:** VU D2

A.P. Dold & J.E. Victor

**Distribution:** WC, Baviaanskloof.

**Habitat:** Seasonally waterlogged grassland on loose, sandy soils.

**Rationale:** Known from one location which is a municipal commons. Potentially threatened by overgrazing by livestock and by invading alien plants.

**Cyrtanthus guthrieae** L.Bolus

**Status:** CR B1ab(ii,iii,v) + 2ab(ii,iii,v); C2a(i)

D.A. Snijman, C. McMaster & D. Raimondo

**Distribution:** WC. Bredasdorp.

**Habitat:** Well-drained, sandstone mountain slopes.

**Rationale:** Extremely localised distribution in the Bredasdorp district, known from one location (EOO and AOO < 10 km²) and known from less than 250 mature individuals. It has lost habitat to ploughing and its habitat continues to be degraded by trampling and grazing by livestock.

**Cyrtanthus herrei** (F.M.Leight.) R.A.Dyer

**Status:** NT B1ab(v)

D.A. Snijman & J.E. Victor

**Distribution:** NC. Richtersveld and southern Namibia.

**Habitat:** Deeply shaded rock ledges on south-facing rocky slopes.

**Rationale:** Known from a restricted range (EOO 2 000 km²) and 15 locations. The number of mature individuals continues to decline as a result of illegal collecting for the horticultural trade.

**Cyrtanthus junodii** P.Beauv.

**Status:** VU D1

P.J.D. Winter & D. Raimondo

**Distribution:** 1M. Wolkberg Mountains.

**Habitat:** Restricted to cliffs or very steep rock faces.

**Rationale:** Known from one subpopulation where there are less than 1 000 plants.

**Cyrtanthus leptosiphon** Snijman

**Status:** CR B1ab(ii,iii,v) + 2ab(ii,iii,v); C2a(i)

D.A. Snijman & J.E. Victor

**Habitat:** Damp habitats on northern foothills, occurs on sandstone-loam interfaces that are permanently waterlogged.

**Rationale:** Known from one site in the Baviaanskloof. Not threatened owing to the inaccessibility of its habitat.
**Cyrtanthus leptosiphon**

**Status:** EN C2a(i)

**Distribution:** WC. Buffeljagsrivier east of Swellendam.

Habitat: Marginal fynbos and renosterveld. Pebble-strewn loamy soils along the interface of shale and sandstone of the Table Mountain Group.

Rationale: Known from a very restricted range (EOO < 100 km²) and three small, isolated subpopulations totalling less than 250 individuals, with no subpopulation having more than 50 individuals. Habitat loss to agriculture is ongoing, compounded by the high likelihood that it has lost its pollinator.

**Cyrtanthus nutans**

**Status:** NT A2c

**Distribution:** WC. Rooiels to Potberg.

Habitat: Coastal fynbos at the base or on the lower parts of sandstone or shale ridges.

Rationale: A coastal species with highly localised subpopulations that have less than 40 individuals per subpopulation. Known from 14 subpopulations but all are threatened by invading alien plants and more than half are also threatened by coastal development.

**Cyrtanthus macmackenii** Hook.f. subsp. cooperi (Baker) Snijman

**Status:** NT A2c

**Distribution:** WC. Garcia’s Pass in the Langeberg to Corent River near Still Bay.

Habitat: Open, sandy areas on rocky slopes and coastal forelands.

Rationale: Known from less than 1000 mature individuals from six subpopulations. It has lost habitat to afforestation and agriculture. Potentially threatened by habitat degradation from encroachment by invasive alien plants.

**Cyrtanthus ochroleucus** (Herb.) Burch. ex Steud.

**Status:** VU D1

**Distribution:** WC. Langeberg near Swellendam.

Habitat: Montane fynbos, lower to middle slopes.

Rationale: EOO and AOO < 250 km². Four known locations continue to decline as a result of invading alien plants, afforestation and agriculture.

**Cyrtanthus spiralis** Burch. ex Ker Gawl.

**Status:** VU D1

**Distribution:** WC. Langeberg near Swellendam.

Habitat: Montane fynbos, lower to middle slopes.

Rationale: It has lost four of eight historical subpopulations (Despatch, Thescombe, Bethelsdorp and Redhouse) to urban expansion over the past 50 years. Loss is ongoing.

**Cyrtanthus staadensis** Schönland

**Status:** NT A2b(iii)

**Distribution:** WC. Gamtoos River to Grahamstown.

Habitat: Grassly fynbos on moist, rocky slopes.

Rationale: Occurs on steep slopes of mountains or river gorges. Known from eight locations, but likely to occur at a few additional locations in unexplored areas of the Van Stadens and Groot Winterhoek Mountains. Many of the river gorges that bisect the plain between the Gamtoos and Port Elizabeth are heavily infested by invasive alien plants. Subpopulations occurring within these gorges are declining because of habitat degradation.

**Cyrtanthus suaveolens** Schönland

**Status:** NT A2b(iii)

**Distribution:** WC. Gamtoos River to Grahamstown.

Habitat: Grassly fynbos on moist, rocky slopes.

Rationale: Occurs on steep slopes of mountains or river gorges. Known from eight locations, but likely to occur at a few additional locations in unexplored areas of the Van Stadens and Groot Winterhoek Mountains. Many of the river gorges that bisect the plain between the Gamtoos and Port Elizabeth are heavily infested by invasive alien plants. Subpopulations occurring within these gorges are declining because of habitat degradation.

**Cyrtanthus wellandii** Snijman

**Status:** VU D2

**Distribution:** WC. Langeberg near Swellendam.

Habitat: Montane fynbos, lower to middle slopes.

Rationale: EOO and AOO < 250 km². Four known locations continue to decline as a result of invading alien plants, afforestation and agriculture.

**Cyrtanthus leucanthus** Schltr.

**Status:** EN C2a(i)

**Distribution:** WC. Rooiels to Potberg.

Habitat: Coastal fynbos at the base or on the lower parts of sandstone or shale ridges.

Rationale: A coastal species with highly localised subpopulations that have less than 40 individuals per subpopulation. Known from 14 subpopulations but all are threatened by invading alien plants and more than half are also threatened by coastal development.

**Cyrtanthus obliquus** (L.f.) Aiton

**Status:** Declining

**Distribution:** WC. Rooiels to Potberg.

Habitat: Coastal fynbos at the base or on the lower parts of sandstone or shale ridges.

Rationale: A coastal species with highly localised subpopulations that have less than 40 individuals per subpopulation. Known from 14 subpopulations but all are threatened by invading alien plants and more than half are also threatened by coastal development.

**Cyrtanthus wellandii** Snijman

**Status:** VU D2

**Distribution:** WC. Langeberg near Swellendam.

Habitat: Montane fynbos, lower to middle slopes.

Rationale: EOO and AOO < 250 km². Four known locations continue to decline as a result of invading alien plants, afforestation and agriculture.
**Gethyllis L.**

**Gethyllis britteniana** Baker subsp. *herrei* (L.Bolus)

D.Müll.-Doblies

- **Status:** DDD
  - D.A. Snijman & J.E. Victor
- **Distribution:** NC. Richtersveld.
- **Habitat:** Granitic soils.
- **Rationale:** A poorly known taxon, known only from type specimens, apparently confined to the Richtersveld portion of the Gariep Centre. The type specimen is not available in South Africa.

**Gethyllis ciliaris** (Thunb.) Thunb. subsp. *ciliaris*

- **Status:** NT A2ac; B1ab(ii,iii,iv,v)
  - D.A. Snijman & D. Raimondo
- **Distribution:** WC. Clanwilliam to Cape Peninsula.
- **Habitat:** Sandy soils.
- **Rationale:** EOO 18 800 km². Known from 19 locations. About 25% of locations have been lost as a result of agriculture, invading alien plants and coastal development over the past 70 years. This timeframe is less than three generations of this long-lived geophyte, and it continues to decline.

**Gethyllis fimbriatula** D.Müll.-Doblies

- **Status:** DDD
  - D.A. Snijman & J.E. Victor
- **Distribution:** WC. Matjiesfontein.
- **Habitat:** Unknown.
- **Rationale:** Known only from type specimens, which are not located in South Africa.

**Gethyllis grandiflora** L.Bolus

- **Status:** VU C2(j)
  - D.A. Snijman, W.R. Lilved & D. Raimondo
- **Distribution:** NC. Richtersveld to Komaggas.
- **Habitat:** Sandveld.
- **Rationale:** A northern Namaqualand endemic, suspected to occur in less than 100 subpopulations. Subpopulations are small, typically with less than 20 plants. There are a handful of large subpopulations but they never have more than 1,000 individuals. We suspect that there are less than 10,000 plants in total. There is a continuing decline as a result of harvesting for food and horticultural purposes.

**Gethyllis gregoriana** D.Müll.-Doblies

- **Status:** Rare
  - D.A. Snijman, D. Raimondo & J.E. Victor
- **Distribution:** NC WC. Nieuwoudtville to Biedouw Valley.
- **Habitat:** Arid clays or sandstone-derived soils on flats.
- **Rationale:** Known from 13 subpopulations scattered over an area of 4,000 km². All subpopulations consist of very few individuals. There are no significant threats to this species and only a minor historical loss due to cultivation in Nieuwoudtville.

**Gethyllis hallii** D.Müll.-Doblies

- **Status:** Rare
  - D.A. Snijman & J.E. Victor
- **Distribution:** NC. Bitterfontein to Nuwerus.
- **Habitat:** Loose granitic sand in low succulent shrublands.
- **Rationale:** Known from two sites from an area of 1,250 km², this species is suspected to be under-collected as plants are cryptic and seldom seen. No threats recorded.

**Gethyllis kaapensis** D.Müll.-Doblies

- **Status:** EN D
  - D.A. Snijman & D. Raimondo
- **Distribution:** WC. Cape Peninsula.
- **Habitat:** Coastal fynbos, seasonally moist flats.
- **Rationale:** A Cape Peninsula endemic, known from three subpopulations, two of which have been lost as a result of urban development. There are less than 250 plants at the remaining subpopulation in the Cape Peninsula National Park.

**Gethyllis lata** L.Bolus subsp. *lata*

- **Status:** Rare
  - D.A. Snijman, A. Harrower & D. Raimondo
- **Distribution:** WC. Richtersveld.
- **Habitat:** Sandy flats in karroid scrub.
- **Rationale:** A rare taxon known from fewer than 10 subpopulations.

**Gethyllis latifolia** Masson ex Baker

- **Status:** CR D
  - D.A. Snijman, A. Harrower & D. Raimondo
- **Distribution:** EC. Sneeuberg, Agter Sneeuberg and Nuweveld Mountains.
- **Habitat:** Tops of rocky, dolerite ridges.
- **Rationale:** A rare and cryptic species known from two sites. Not threatened.

**Gethyllis namaquensis** (Schönland) Oberm.

- **Status:** VU C2a(j)
  - D.A. Snijman, W.R. Lilved & D. Raimondo
- **Distribution:** NC. Augrabies area immediately east of Port Nolloth to the Namus Mountains north of Rosh Pinah and the Auras Mountains in southern Namibia.
- **Habitat:** High elevations in succulent karoo shrubland.
- **Rationale:** A northern Namaqualand and southern Namibian endemic, suspected to occur in less than 100 sites. Subpopulations are small (typically less than 20 plants). There are a few large subpopulations but they never have more than 1,000 individuals. We suspect that there are less than 10,000 plants in total. There is a continuing decline as a result of harvesting for food and horticultural purposes.

**Gethyllis pectinata** D.Müll.-Doblies

- **Status:** VU D2
  - D.A. Snijman & J.E. Victor
- **Distribution:** NC. Nieuwoudtville to Calvinia.
- **Habitat:** Clay soils amongst sparse karroid vegetation.
- **Rationale:** One known location is potentially threatened by overgrazing and illegal bulb collecting.
**Haemanthus L.**

**Haemanthus amarylloides** Jacq. subsp. amarylloides

**Status:** NT B1ab(ii,iii,v)
D.A. Snijman & J.E. Victor

**Distribution:** NC WC. Garies to Clanwilliam.

**Habitat:** Granite- or Table Mountain Sandstone-derived soils, usually in seasonally wet depressions or along watercourses.

**Rationale:** Occurs as localised subpopulations, known from 15 locations. Declining as a result of agriculture, urban expansion and overgrazing and trampling by livestock.

**Haemanthus amarylloides** Jacq. subsp. toximontanus

**Status:** EN B1ab(iii,v)
D.A. Snijman & J.E. Victor

**Distribution:** WC. Gifberg.

**Habitat:** Dry montane fynbos of the Table Mountain Sandstone Group, restricted to seasonally wet rock ledges.

**Rationale:** Known from five locations in a restricted area (Eoo 625 km²), Threatened by road-scrapping in the past, currently threatened by harvesting for horticultural purposes and altered drainage as a result of surrounding agricultural activities.

**Haemanthus canaliculatus** Levyns

**Status:** EN B1ab(iii,v); C2a(i)
D.A. Snijman, D. Raimondo & J.E. Victor

**Distribution:** WC. Rooiels to Betty’s Bay.

**Habitat:** Marshy coastal lowlands.

**Rationale:** A range-restricted species (Eoo < 50 km²), known from three locations with less than 1 000 mature individuals in the total population. Declining as a result of coastal housing developments, a deleterious fire regime and harvesting for horticultural purposes.

**Haemanthus dasyphyllus** Snijman

**Status:** Rare
D.A. Snijman & J.E. Victor

**Distribution:** NC. Kamiesberg to Loeriesfontein.

**Habitat:** Rock crevices on shale or granite outcrops.

**Rationale:** Known from four, highly localised subpopulations. Not threatened because of the inaccessibility of its habitat.

**Haemanthus deformis** Hook.f.

**Status:** NT B1ab(v)
V.L. Williams & N.R. Crouch

**Distribution:** EC KZN. Mthatha to Durban.

**Habitat:** Forest margins, sheltered sites under bushes or on moist rocky banks.

**Rationale:** Eoo of 17 900 km². Severely fragmented and never abundant. Species known to occur only in forest patches close to the coast, therefore AOO likely be to restricted. The population is declining as a result of harvesting for the local medicinal plant trade.

**Haemanthus graniticus** Snijman

**Status:** EN B1ab(i,ii,iii,v)
D.A. Snijman & J.E. Victor

**Distribution:** NC. Springbok to Kamiesberg.

**Habitat:** Namaqualand Klipkoppe Shrubland or Namaqua-land Granite Renosterveld.

**Rationale:** Known from three locations within an area of 2 500 km², declining because of habitat loss to ploughing for crops and illegal collecting for the horticultural trade.

**Haemanthus lanceifolius** Jacq.

**Status:** VU A2ac
D.A. Snijman & D. Raimondo

**Distribution:** NC. Southern Namibia to Kharkams in Namaqualand.

**Habitat:** Sheltered habitats under the protection of low shrubs or wedged between granite rocks.

**Rationale:** Known from eight subpopulations in Namaqualand, all subpopulations are localised, with few individuals, and are scattered over a relatively wide range, Eoo 4 000 km².

**Haemanthus namaquensis** R.A.Dyer

**Status:** Rare
D.A. Snijman & D. Raimondo

**Distribution:** NC. Southern Namibia to the Groen River in Namaqualand.

**Habitat:** Not threatened because of the inaccessibility of its habitat.

**Rationale:** Known from six sites. Not threatened because of the inaccessibility of its habitat.

**Haemanthus pauculifolius** Snijman & A.E.van Wyk

**Status:** Rare
D.A. Snijman & J.E. Victor

**Distribution:** KZN MP. Middle Pongolo River catchment and Blydepoort to Pigg’s Peak.

**Habitat:** Savanna and cliffs in forested kloofs, on humus-rich ledges.

**Rationale:** Known from six sites. Not threatened because of the inaccessibility of its habitat.

**Haemanthus pubescens** L.f. subsp. arenicola Snijman

**Status:** Rare
D.A. Snijman & J.E. Victor

**Distribution:** NC. Southern Namibia to the Groen River in Namaqualand.

**Habitat:** Succulent Karoo shrubland and West Coast strandveld, in deep, windblown, red coastal sands.

**Rationale:** Recorded from eight subpopulations, occurs as isolated individuals that are widely scattered within suitable habitat. Not threatened.

**Haemanthus pubescens** L.f. subsp. leipoldtii Snijman

**Status:** VU D2
D.A. Snijman & J.E. Victor

**Distribution:** NC WC. Springbok to Kamiesberg.

**Habitat:** Namaqualand Klipkoppe Shrubland or Namaqua-land Granite Renosterveld.

**Rationale:** Known from three locations from an area of 750 km². This species is a long-lived geophyte (generation length 20 years) that has lost a minimum of 30% of its habitat to crop cultivation over the past 60 years.
Haemanthus pumilio Jacq.  
**Status:** EN A2ab; C1  
D.A. Snijman & J.E. Victor  
**Distribution:** WC. Stellenbosch.  
**Habitat:** Renosterveld, in heavy soils on seasonally waterlogged clay flats.  
**Rationale:** 66% of habitat and known subpopulations lost over the past 90 years, with at least 20% of this loss taking place over the past 60 years as a result of crop cultivation and urban development. We suspect that this bulb species is long-lived, with a generation length of 30 years. It is now known from two locations with ± 2 000 mature individuals. It is threatened by harvesting for horticultural purposes, a deleterious fire regime and predation by locusts and rodents.

Haemanthus tristis Snijman  
**Status:** VU D1  
D.A. Snijman & D. Raimondo  
**Distribution:** WC. Southeastern Tanqua Karoo.  
**Habitat:** Flat, seasonal washes in soils derived from Ecca shales.  
**Rationale:** Known from five sites, subpopulations consist of scattered bulbs growing in seasonal washes. Not threatened.

Hessea Herb.  
**Hessea cinnamomea** (L’Hér.) T. Durand & Schinz  
**Status:** EN A2ac; B1ab(iii)  
D.A. Snijman, J.E. Victor & D. Raimondo  
**Distribution:** WC. Cape Peninsula, Riverlands and Joostenberg.  
**Habitat:** Fynbos, in seasonally waterlogged, peaty lowlands.  
**Rationale:** EOO 2 400 km². Over 50% of available habitat and known subpopulations has been lost to urban expansion on the Cape Flats over the past 140 years. This timeframe is less than three generations of this long-lived bulb species (generation length estimated to be 50 years). Ongoing habitat loss due to urban growth, crop cultivation and invasive alien plants continues to threaten the five remaining subpopulations.

Hessea incana Snijman  
**Status:** VU D2  
D.A. Snijman & D. Raimondo  
**Distribution:** NC. Namaqualand, Kamiesberg.  
**Habitat:** Mixtured of Kamiesberg Mountains Shrubland and Namaqualand Karoo, on elevated sandy plains at the base of large granite domes, 1 035 m.  
**Rationale:** A range-restricted species, known from three locations. Potentially threatened by crop cultivation and overgrazing and trampling by livestock.

Hessea mathewsi** W.F. Barker  
**Status:** CR B1ab(i,ii,iii)+2ab(i,ii,iii)  
D.A. Snijman & D. Raimondo  
**Distribution:** WC. Vredenburg and Langebaanweg.  
**Habitat:** Coastal forelands near granite rocks or limestone outcrops in damp depressions.  
**Rationale:** A highly range-restricted species (EOO 70 km²), found exclusively in damp depressions (AOO < 5 km²). Known from three severely fragmented subpopulations. Declining as a result of crop cultivation, grazing by livestock and rapid urban expansion.

Hessea pilosula D. & U. Müll.-Doblies  
**Status:** Rare  
D.A. Snijman & J.E. Victor  
**Distribution:** NC. Steinkopf to Hondeklip Bay.  
**Habitat:** Seasonal washes in deep, loose sand and also recorded on deep, red coastal sands.  
**Rationale:** A habitat specialist with no known threats.

Hessea pulcherrima (D. & U. Müll.-Doblies) Snijman  
**Status:** Rare  
D.A. Snijman & J.E. Victor  
**Distribution:** NC. Bokkeveld Escarpment.  
**Habitat:** Seasonally damp places in heavy clay soils.  
**Rationale:** Known from nine collecting sites. Although it has lost habitat to wheat cultivation, the clay soils on which it occurs are no longer being converted to wheat.

Hessea stenosiphon (Snijman) D. & U. Müll.-Doblies  
**Status:** Rare  
D.A. Snijman, D. Raimondo & J.E. Victor  
**Distribution:** NC. Northern Knysnlaake.  
**Habitat:** Soil pockets on granite domes.  
**Rationale:** Recorded from only five sites. Not threatened because of the inaccessibility of its habitat.

Hessea tenuipedicellata Snijman  
**Status:** VU D2  
D.A. Snijman & J.E. Victor  
**Distribution:** WC. Gifberg and Matsikamma Mountains.  
**Habitat:** Open, dry montane fynbos, in wet areas around Table Mountain Sandstone, 600 m.  
**Rationale:** Known from three locations. It seasonally waterlogged habitat is potentially threatened by drought and ploughing of surrounding areas for rooibos plantations.

Namaquanula U. & D. Müll.-Doblies  
**Namaquanula bruce-bayeri** D. & U. Müll.-Doblies  
**Status:** VU D1  
D.A. Snijman & J.E. Victor  
**Distribution:** NC. Lüderitz to Richtersveld.
Plate 8

Zantedeschia pentlandii (habitat) VU

Zantedeschia pentlandii VU

Zantedeschia jucunda VU

Zantedeschia odorata Rare
Habitat: Sandy and gravelly flats.

Rationale: Known from eight locations in an area of 8 000 km². Subpopulations are always small and the total number of mature individuals is estimated to be less than 1 000. Continuing decline of habitat occurs as a result of mining, crop cultivation and overgrazing.

NERINE Herb.

NERINE bowdenii Watson

Status: Rare

J.E. Victor & C.R. Scott-Shaw

Distribution: EC KZN. Southern Drakensberg Mountains to King William’s Town.

Habitat: Subalpine grassland and Drakensberg-Amathole Afromontane Fynbos, in cool moist pockets of cliffs and steep slopes where deep humic soils accumulate.

Rationale: Known from nine subpopulations, all of which have low numbers of individuals. Not threatened because of the inaccessibility of its habitat.

NERINE gibsonii Douglas

Status: VU D2

A.P. Dold & J.E. Victor

Distribution: EC Cala and Engcobo.

Habitat: High-altitude grasslands, wedged between rocks.

Rationale: Four known locations are potentially threatened by overgrazing by livestock.

NERINE gracilis R.A.Dyer

Status: NT A2ac; B1ab(iii)

J.E. Victor & D. Raimondo

Distribution: G MP NW. Belfast and Ermelo to Wolmaransstad.

Habitat: Undulating grasslands in damp areas.

Rationale: Relatively widespread, occurring in an area of 20 000 km² and known from 15 locations. It has lost habitat to crop cultivation in the past. It is currently threatened by ongoing degradation and habitat loss due to overgrazing and urban development.

NERINE huttoniae Schönland

Status: VU B1ab(iii,v)

A.P. Dold & J.E. Victor

Distribution: EC. Great Fish River Floodplain.

Habitat: Floodplains, in sandy alluvial flats.

Rationale: Known from fewer than 10 locations from an area of under 10 000 km². Its habitat is continuously being degraded as a result of conversion to crop plantations, as well as overgrazing by livestock on land used for subsistence farming.

NERINE marincowitzii Snijman

Status: VU D1 + 2

D.A. Snijman, D. Raimondo & J.E. Victor

Distribution: WC. Leeu-Gamka.

Habitat: Gamka Karoo, on north-facing slopes in seasonal washes amongst chips of grey slate (shales).

Rationale: Known from one location, where 350 adult plants have been counted. The only known subpopulation is potentially threatened by scouring of its seasonal wash habitat by excessive flooding, damage by baboons, flower-picking and overgrazing and trampling by livestock.

NERINE masoniorum L.Bolus

Status: CR B1ab(i,j,iii)

D.A. Snijman, A.P. Dold, D. Raimondo & J.E. Victor

Distribution: EC. Mthatha.

Habitat: Grassland, large, exposed sheets of dolerite that receive mist from coastal plains.

Rationale: A highly localised endemic (EOO 62 km²), known from two locations, one of which was recently lost as a result of the development of an informal settlement.

NERINE pancratioides Baker

Status: VU B1ab(ii,iii,iv,v)

D.A. Snijman & D. Raimondo

Distribution: KZN MP. Wakkerstroom to Groenvlei.

Habitat: Montane grassland, margins of permanently moist vleis and levees of riverbanks.

Rationale: Known from fewer than 10 locations (EOO < 20 000 km²). There is a continuing decline of habitat as a result of afforestation.

NERINE pudica Hook.f.

Status: Rare

D.A. Snijman & J.E. Victor

Distribution: WC. Riviersonderend Mountains.

Habitat: Montane fynbos.

Rationale: A range-restricted species known from two sites. It occurs on mountain slopes and is not threatened. This species flowers only after fire and is therefore rarely seen.

NERINE ridleyi E.Phillips

Status: Rare

D.A. Snijman, D. Raimondo & R.C. Turner

Distribution: WC. Kouebokkeveld to Hex River Mountains.

Habitat: Steep, south-facing sandstone ledges.

Rationale: A high-altitude habitat specialist with no known threats.

STRUUMARIA Jacq. ex Wild.

STRUUMARIA aestivalis Snijman

Status: VU D2

D.A. Snijman & J.E. Victor

Distribution: NC. Loeriesfontein.

Habitat: Namaqualand Klipkoppie Shrubland, in shaded sites on south- to southeast-facing slopes or banks of seasonal streams, 950 m.

Rationale: A range-restricted species (EOO < 625 km²) known from three locations. Potentially threatened by illegal harvesting for horticultural purposes.
Strumaria barbarae Oberm.  
**Status:** Rare  
D.A. Snijman & J.E. Victor  
**Distribution:** NC. Aus in Namibia to the northern Riekersveld.  
**Habitat:** Exposed limestone scree.  
**Rationale:** A range-restricted habitat specialist with no known threats.

Strumaria bidentata Schinz  
**Status:** EN B1ab(iii,y)  
D.A. Snijman, J.E. Victor  
**Distribution:** NC. Mouth of the Orange River.  
**Habitat:** Succulent karoo shrubland, in loose sand on gravel plains and sandy flats.  
**Rationale:** Known from a highly restricted area of 225 km², from three locations. Severely threatened by diamond mining and overgrazing by livestock.

Strumaria chaplinii (WF.Barker) Snijman  
**Status:** EN B1ab(iii)  
D.A. Snijman, J.E. Victor & D. Raimondo  
**Distribution:** WC. Vredenburg to Langebaan.  
**Habitat:** Moist patches at the base of granite domes.  
**Rationale:** A range-restricted habitat specialist known from three locations. Experiencing continuing declines in habitat quality as a result of invasions of alien grass and eutrophication due to proximity to housing developments. Subpopulations are also potentially threatened by future urban expansion.

Strumaria discifera Marloth ex Snijman subsp. bulbifera Snijman  
**Status:** NT D2  
D.A. Snijman, J.E. Victor  
**Distribution:** NC WC. Koebee and Bokkeveld Escarpments.  
**Habitat:** Deep, red, loamy soils derived from Dwyka tillite and dolerite.  
**Rationale:** Known from six locations. Potentially threatened by crop cultivation and invading alien plants.

Strumaria karooica (WF.Barker) Snijman  
**Status:** Rare  
D.A. Snijman & J.E. Victor  
**Distribution:** NC WC. Middelpos to Sutherland and Matjiesfontein.  
**Habitat:** Shallow clay soils, in seasonally damp depressions.  
**Rationale:** Known from fewer than 10 sites. Subpopulations comprise small, fairly dense aggregations of a few hundred bulbs. No known threats.

Strumaria karopoortensis (D. & U.Müll.-Doblies) Snijman  
**Status:** VU D1  
D.A. Snijman & D. Raimondo  
**Distribution:** NC WC. Southern Tanqua Karoo to Anysberg.  
**Habitat:** Succulent Karoo, in heavy Dwyka- and Ecca-derived soils on south- and east-facing slopes.  
**Rationale:** Known from two small, disjunct subpopulations that together comprise less than 1 000 mature individuals.

Strumaria leipoldtii (L.Bolus) Snijman  
**Status:** CR B1ab(iii) + 2ab(iii); C2a(ii)  
D.A. Snijman & D. Raimondo  
**Distribution:** WC. Lambert’s Bay.  
**Habitat:** South-facing sandstone ledges along banks of seasonal rivers.  
**Rationale:** Known from one subpopulation with ± 200 mature individuals, there is ongoing loss and degradation of habitat due to quarrying.

Strumaria massoniella (D. & U.Müll.-Doblies) Snijman  
**Status:** VU D1  
D.A. Snijman & J.E. Victor  
**Distribution:** NC. Kamiesberg to Loeriesfontein.  
**Habitat:** Semi-arid flats in deep sand.  
**Rationale:** Known from three subpopulations. This species is sparsely distributed and occurs as small subpopulations totalling less than 500 plants. No known threats.

Strumaria merxmuelleriana (D. & U.Müll.-Doblies) Snijman  
**Status:** Rare  
D.A. Snijman & J.E. Victor  
**Distribution:** NC. Northern Namaqualand, near Springbok and Steinkopf.  
**Habitat:** Seasonal watercourses in sandy, granite-derived soils.  
**Rationale:** This species is sparsely distributed, with no known threats.

Strumaria perryae Snijman  
**Status:** Critically Rare  
D.A. Snijman & J.E. Victor  
**Distribution:** NC. Bokkeveld Escarpment.  
**Habitat:** Clay soils derived from karoo shales under low karroid shrubs.  
**Rationale:** A highly localised species known from a single subpopulation. No known threats.

Strumaria picta WF.Barker  
**Status:** Rare  
D.A. Snijman & J.E. Victor  
**Distribution:** NC. Bokkeveld Escarpment.  
**Habitat:** Flats and slopes in greyish clay soils derived from Dwyka tillite shales.  
**Rationale:** A range-restricted species (EOO 220 km²) with no known threats.

Strumaria prolifera Snijman  
**Status:** Critically Rare  
P.A. Manyama  
**Distribution:** NC. Namaqualand, Kourkammaberg.  
**Habitat:** Southern slopes near mountain summit, confined to shaded sites.  
**Rationale:** Known from the one subpopulation, this species has no recorded threats.

Strumaria pubescens WF.Barker  
**Status:** Rare  
D.A. Snijman & J.E. Victor  
**Distribution:** WC. Southern Roggeveld Escarpment.  
**Habitat:** Steep, south-facing slopes in clay soils on rock ledges.  
**Rationale:** Known from two sites. Not threatened because of the inaccessibility of its habitat.
Strumaria pygmaea Snijman
Status: Rare
D.A. Snijman & J.E. Victor
Distribution: WC. Northern Knysna area between Bitterfontein and Nuwerus.
Habitat: In moist patches near rocky quartz outcrops in succulent karoo shrubland.
Rationale: This habitat specialist has no known threats.

Strumaria salteri W.F.Barker Plate 7
Status: VU D1ab(ii,iii,y)
D.A. Snijman & J.E. Victor
Distribution: WC. Doring River Valley.
Habitat: Succulent karoo shrubland, in heavy, loamy soil covered with slate chips and rocks on north-facing slopes.
Rationale: Known from one large subpopulation. Potentially threatened by overgrazing, human disturbance and harvesting for horticultural purposes.

Strumaria unguiculata (W.F.Barker) Snijman Plate 7
Status: VU D2
D.A. Snijman & J.E. Victor
Distribution: WC. Doring River Valley.
Habitat: Succulent karoo shrubland, in heavy, loamy soil covered with slate chips and rocks on north-facing slopes.
Rationale: Known from one large subpopulation. Potentially threatened by overgrazing, human disturbance and harvesting for horticultural purposes.

Strumaria villosa Snijman
Status: Rare
D.A. Snijman & J.E. Victor
Distribution: NC. Richtersveld.
Habitat: Quartz pebble patches on exposed, east-facing slopes in succulent karoo shrubland.
Rationale: This Gariep Centre endemic is known from five sites on the southern edge of the Richtersveld, bulbs are locally abundant and this species is not threatened.

Strumaria watermeyeri L.Bolus subsp. botterkloofensis (D. & U.Müll.-Doblies) Snijman
Status: Rare
D.A. Snijman & J.E. Victor
Distribution: NC. Botterkloof Pass.
Habitat: Sandstone sheets in shallow, sandy pans in dry montane fynbos.
Rationale: Known from three small subpopulations. Its sandstone pavement habitat is safe from ploughing and this taxon is not threatened.

Strumaria watermeyeri L.Bolus subsp. watermeyeri
Status: Rare
D.A. Snijman & J.E. Victor
Habitat: Sandstone sheets in shallow, sandy pans in dry montane fynbos.
Rationale: Known from six subpopulations. Its sandstone pavement habitat is safe from ploughing and this taxon is not threatened.

Chlorophytum Ker Gawl.

Chlorophytum lewisiae Oberm.
Status: Rare
D. Raimondo
Distribution: NC. Botterkloof Pass and Spektakelberg.
Habitat: Succulent karoo shrubland and mountain renosterveld in rocky areas on granitic soils.
Rationale: Known from two highly disjunct sites, the Botterkloof Pass on the Botkevekl Escarpment and Spektakelberg in Namaqualand. Although likely to be under-collected, this species remains a rare plant specific to granitic rocky soils.

Chlorophytum monophyllum Oberm.
Status: Rare
D. Raimondo
Distribution: WC. Kouebokkeveld.
Habitat: Sand flats.
Rationale: Known from the type collection made by Adamson in 1954; the site description on the specimen is vague. Its sandy flats habitat has been extensively transformed for agriculture (deciduous fruit orchards) and it is therefore likely to be threatened.

Chlorophytum pauciphyllum Oberm.
Status: Rare
D.A. Kamundi & J.E. Victor
Distribution: WC. Nardous to Cederberg Mountains.
Habitat: Rocky sandstone slopes.
Rationale: A range-restricted mountain species (EOO < 500 km²) with no known threats.

Chlorophytum radula (Baker) Nordal
Status: CR B2ab(iii)
L. von Staden & P.J.D. Winter
Habitat: Mistbelt grassland. Grows in crevices on sheet-rock of a granite-gneiss outcrop, 1 900 m.
Rationale: First described in the 1880s from a collection from an unspecified location in the Woodbush area. It was not recorded again for almost 100 years until a small population of only 10–30 mature individuals was found in the same area in 1999, on a rock outcrop in grassland between a road and timber plantations. Three other small subpopulations have since been found within an area of ± 170 km². Since the 1800s, over 90% of the grasslands in the Woodbush–Tzaneen area have been transformed to forestry plantations. The four subpopulations occur on tiny grassland fragments (AOO estimated < 1 km²) that are threatened by invading alien plants, poor fire management and ongoing expansion of plantations.

Aponogeton L.f.

Aponogeton angustifolius Aiton
Status: VU A2c; B1ab(iii)
E. Sieben, J.A. Day & D. Raimondo
Distribution: WC. Malmesbury to Worcester.
Habitat: Sandy lake shores that dry out in summer, shallow pools or slow-flowing rivers, in water up to 1 m deep. Below 300 m.

APONOGETONACEAE

ANTHERICACEAE

AMARYLLIDACEAE Strumaria pygmaea
**APONOGETONACEAE** Aponogeton angustifolius

**APONOGETONACEAE Aponogeton angustifolius ANGIOSPERMS: MONOCOTYLEDONS**

**Zantedeschia pentlandii**

**Zantedeschia odorata**

**Zantedeschia jucunda**

**Aponogeton ranunculiflorus**

**Aponogeton fugax** J.C. Manning & Goldblatt

**Status:** VU D2

**D. Raimondo, J.C. Manning & D.A. Snijman**

**Distribution:** NC. Nieuwoudtville.

**Habitat:** Seasonal pools on Bokkeveld sandstone.

**Rationale:** This recently discovered species is known from two locations (AOO < 2 km²). Although not currently declining, it is potentially threatened by road maintenance activities.

**Aponogeton ranunculiflorus** Jacot Guill. & Marais

**Status:** VU D2

**C.R. Scott-Shaw, L. von Staden & J.E. Victor**

**Distribution:** KZN. Drakensberg Mountains in South Africa and Lesotho, mainly from Sehlabathebe National Park and surrounds.

**Habitat:** Rock pools, permanently wet tanns and high-altitude mires up to 7 m deep, basalt and sandstone, 2 400–3 300 m.

**Rationale:** Potentially threatened by climate change and habitat degradation at one location in South Africa.

**ARACEAE**

**Zantedeschia Spreng.**

**Zantedeschia jucunda** Letty

**Plate 8**

**Status:** VU B1ab(v)+2ab(v)

**L. von Staden, P.J.D. Winter & D. Raimondo**

**Distribution:** LM. Sekhukhuneland, along the summit of the Leolo Mountains.

**Habitat:** Grassland, norite outcrops and cliffs.

**Rationale:** EOO and AOO < 380 km². Known from 5–10 locations. Declining as a result of removal of plants for horticultural purposes and is now quite rare in the southern Leolo Mountains, where it was discovered. Potentially threatened by mining and expanding human settlements.

**Zantedeschia odorata** P.L. Perry

**Plate 8**

**Status:** Rare

**J.E. Victor**

**Distribution:** NC. Nieuwoudtville.

**Habitat:** Grows in crevices between dolerite boulders on seasonally waterlogged, red clay soils.

**Rationale:** A range-restricted species known from a very limited area near Nieuwoudtville (EOO 46 km²), occurring in dolerite outcrops. Not threatened by crop cultivation at present as it is protected by the rocky, inaccessible nature of its habitat.

**Zantedeschia pentlandii** (R. Whyte ex W. Watson) Wittm.

**Plate 8**

**Status:** VU B1ab(v)

**J.E. Victor & S.J. Siebert**

**Distribution:** MP. Roossenenekal to Dullstroom.

**Habitat:** Rocky hillsides.

**Rationale:** EOO 12 000 km². Subpopulations are small and severely fragmented and there is a continuing decline as a result of mining and harvesting for horticultural purposes.

**Zantedeschia valida** (Letty) Y. Singh

**Status:** Rare

**J.E. Victor**

**Distribution:** KZN. KwaZulu-Natal Drakensberg Mountains. Montane grasslands in moist sites.

**Rationale:** Known from fewer than five sites. Not threatened.

**ARECACEAE**

**Jubaeopsis Becc.**

**Jubaeopsis caffra** Becc.

**Status:** EN D

**P.J.H. Hurter, L. von Staden, J.E. Victor & A.E. van Wyk**

**Distribution:** EC. Mtentu and Msikaba Rivers.

**Habitat:** Pondoland coastal forest, steep sandstone cliffs above riverbanks, 10–80 m.

**Rationale:** Known from two small subpopulations, each consisting of less than 50 mature individuals. One subpopulation, which occurs outside a reserve, is potentially threatened by heavy exploitation of the fruits as a food source and harvesting for the horticultural trade. However, there is no evidence of a continuing decline in the number of mature individuals. The population appears to be maintained by vegetative reproduction.

**Raphia P. Beauv.**

**Raphia australis** Oberm. & Strey

**Status:** VU D2

**C.R. Scott-Shaw, L. von Staden, J.E. Victor & A.E. van Wyk**

**Distribution:** KZN. Kosi Bay and Mozambique.

**Habitat:** Swamp forest, on seasonally inundated coastal dunes.

**Rationale:** Known from two locations in South Africa in northern KwaZulu-Natal. Potentially threatened by subsistence agriculture and harvesting for building materials. Individuals reach maturity only at 25–35 years, when they flower once, set seed and then die. If palms are cut down for any reason before they reach maturity, they could potentially undergo a rapid decline to extinction within one generation as there will be no seed from which they could re-establish.

**ASPARAGACEAE**

**Asparagus L.**

**Asparagus elephantinus** S.M. Burrows

**Status:** Rare

**S.M. Burrows, J.E. Burrows, D. Raimondo & L. von Staden**

**Distribution:** LM. Olifants River Valley west of Penge to the Abel Erasmus Pass.

**Habitat:** Ledges on steep, rocky slopes.

**Rationale:** A range-restricted species (EOO estimated 1 800 km²). The habitat is inaccessible and not affected by any threats.

**Asparagus exsertus** (Oberm.) Fellingham & N. L. Mey

**Status:** VU D2

**D. Raimondo & D.A. Kamundi†**
Asparagus exsertus

**Distribution:** WC. Worcester.

**Habitat:** Transition between fynbos and succulent karoo, on low, moist shale on southeastern mountain slopes.

**Rationale:** Known from two locations on shale slopes north of Worcester. Potentially threatened by urban expansion.

**Asparagus fourei** (Oberm.) Fellingham & N.L.Mey.

**Status:** VU D2

S.M. Burrows, J.E. Burrows, M. Lötter, D. Raimondo & L. von Staden

**Distribution:** LM MP. Sekhukhuneland, Burgersfort to Penge.

**Habitat:** Mixed bushveld, on rocky, dolomite outcrops.

**Rationale:** A rare, range-restricted Sekhukhuneland endemic. As it is restricted to dolerite outcrops, it is somewhat protected from mining and the associated expanding human settlements as mining tends to have a more severe impact on mineral-rich norite than on dolerite. There is, however, a potential threat of habitat degradation to some of the subpopulations that occur near human settlements.

**Asparagus fractiflexus** (Oberm.) Fellingham & N.L.Mey.

**Status:** EN A2c; B1ab(iii)

J.E. Burrows, M. Lötter, S.M. Burrows, D. Raimondo & L. von Staden

**Distribution:** MP. Between Carolina and Badplaas to Wakkerstroom.

**Habitat:** High-altitude, open grasslands, on rocky outcrops or among boulders.

**Rationale:** An extremely rare species from southern Mpumalanga, recorded only four times. Around 80% of its habitat in some parts of its range was transformed around the 1940–1950s, which is within the last three generations of this long-lived, resprouter (generation length 50 years). An overall 50% decline across the range is suspected. The open areas between plantations, which served as firebreaks and were important refugia, are now being planted up, causing ongoing loss of habitat.

**Asparagus hirsutus** S.M.Burrows

**Status:** VU D1 + 2

S.M. Burrows, J.E. Burrows, D. Raimondo & L. von Staden

**Distribution:** LM. Restricted to a hill above the Atok Platinum Mine at Monamatse in Sekhukhuneland.

**Habitat:** Sekhukhune Mountain Bushveld. Plants grow in full sun on rocky northwest-facing hill slopes.

**Rationale:** Extremely restricted range (EOO 6 km²) and known from a single location with 500–1 000 mature individuals. Potentially threatened by mining.

**Asparagus sekukuniensis** (Oberm.) Fellingham & N.L.Mey.

**Status:** EN A2c

S.M. Burrows, J.E. Burrows, M. Lötter, D. Raimondo & L. von Staden

**Distribution:** LM MP. Leolo Mountains, Sekhukhuneland.

**Habitat:** Bushveld, on rocky slopes.

**Rationale:** The habitat of this long-lived resprouter is extensively transformed and degraded by mining, informal settlements, overgrazing and crop cultivation. It had lost 58% of its habitat by 1996, and recent surveys indicate that the subpopulation at the type locality is extinct. The habitat destruction is irreversible and ongoing, as there is renewed interest in mining in Sekhukhuneland. It is, however, not declining at present, although there is a strong chance that the habitat will decline further in future.

**Asparagus spinescens** Steud. ex Roem. & Schult.

**Status:** Rare

D. Raimondo, F. Cholo & D.A. Kamundi†

**Distribution:** EC. Uitenhage to Queenstown.

**Habitat:** Mountain slopes and valleys.

**Rationale:** Known from four widely disjunct collections in the Eastern Cape (EOO 9 400 km²), but likely to have a few more undiscovered subpopulations. Most collections are from mountain slopes and the species is therefore not threatened.

**Asparagus stipulaceus** Lam.

**Status:** NT B1ab(ii,iii,iv,v)

D. Raimondo & D.A. Kamundi†

**Distribution:** WC. Cape Peninsula to Witsand near Bredasdorp.

**Habitat:** Coastal dunes.

**Rationale:** EOO 2 200 km². Known from 12 locations and a few more are likely to exist. Declining as a result of coastal housing development and the spread of invasive alien acacias.

**ASPHEODELACEAE**

**Aloe L.**

**Aloe albida** (Stapf) Reynolds

**Status:** NT B1ab(i,ii,iii,iv,v) + 2ab(i,ii,iii,iv,v)

M. Lötter, J.E. Burrows & D. Raimondo

**Distribution:** MP. Barberton to border of northeastern Swaziland.

**Habitat:** Mistbelt grassland.

**Rationale:** It has a very small range (EOO < 2500 km²), has lost habitat to commercial forestry plantations and is declining because of invasive alien species degrading its habitat. However, there are more than 15 existing locations and subpopulations are not severely fragmented. It therefore nearly qualifies for VU under Criterion B.

**Aloe arenicola** Reynolds

**Status:** NT B1ab(ii,iii,iv,v)

J.E. Victor & G.F. Smith

**Distribution:** NC WC. Sandveld, Lambert’s Bay to the mouth of the Orange River.

**Habitat:** Grows on deep coastal sands in West Coast strandveld vegetation.

**Rationale:** EOO 3 300 km². There is a continuing decline in habitat, subpopulations, locations and mature individuals due to mining and overgrazing. Subpopulations are not severely fragmented as aloes are wind-dispersed. There are 13 known locations.

**Aloe bowiea** Schult. & J.H.Schult.

**Status:** CR A4acd; B2ab(i,ii,iii,iv,v)

D. Raimondo, J.E. Victor, G.F. Smith, W. Berrington & A.P. Dold

**Distribution:** EC. Uitenhage, Coega and Kariega.

**Habitat:** Subtropical transition thicket, in rocky soils on level to southwest-facing slopes.

**Rationale:** EOO 550 km², AOO 5 km². Locally extinct at four of seven recorded locations and documented population decline of 60–70% over the past 19 years, as a result of illegal collecting, overgrazing by cattle, low-
income housing expansion and construction of the Coega Industrial Development Zone. Currently this species is extant in three severely fragmented subpopulations. With the planned industrial expansion of Coega, the anticipated influx of people seeking work there could result in massive urban expansion and large increases in cattle stocking rates. This species is predicted to experience a further 20% decline over the next five years.

**Aloe brevifolia** Mill. var. brevifolia

**Status:** VU A2c; C1+2a(i)

**D. Raimondo & N.A. Helme**

**Distribution:** WC. Bot River to Riversdale, and around Bredasdorp southwards to Cape Agulhas. Also in Breede River Valley between Swellendam and Ashton.

**Habitat:** Heavy clay soils in exposed rocky shale slopes and cliffs in Rüens Silcrete Renosterveld.

**Rationale:** At least 80% of its habitat has been lost to wheat cultivation over the past 80 years. It is restricted to dry slopes within this habitat, and we suspect an overall 40% decline of subpopulations within the past three generations (90 years). Subpopulations are small, typically less than 100 individuals. Decline is ongoing because of invading alien plants, trampling by livestock and collecting for horticultural purposes.

**Aloe broomii** Schönland var. tarkaensis Reynolds

**Status:** Rare

W. Foden & L. Potter

**Distribution:** EC N.C. Tarkastad, Middelburg and Graaff-Reinet districts, possibly also in the Victoria West district.

**Habitat:** Nama-Karoo, found on low, stony ridges.

**Rationale:** A range-restricted taxon (EOO < 100 km²) and much rarer than the nominate variety. There are four or five known subpopulations (based on herbarium collections), but there may be others because it occurs in an area that is not intensively collected. Not threatened and not declining.

**Aloe buhrii** Lavranos

**Status:** VU D2

L. von Staden

**Distribution:** NC. Nieuwoudtville.

**Habitat:** Grows in succulent karoo shrubland on shale soils, 1 000–1 500 m.

**Rationale:** A rare, range-restricted species (EOO < 100 km²) known from fewer than five locations and although not declining at present, it is potentially threatened by changes in land ownership and collecting for horticultural purposes.

**Aloe challisii** Van Jaarsv. & A.E. van Wyk

**Status:** VU D2

D. Raimondo, J.E. Burrows & M. Lötter

**Distribution:** MP. Steenkampsberg.

**Habitat:** Afromontane mistbelt grassland, in rock crevices among moss on upper vertical, south to southeast-facing sandstone cliffs, 1 700–1 800 m.

**Rationale:** Known from a single location, potentially threatened by collecting and invading alien plants.

**Aloe chlorantha** Lavranos

**Status:** VU D2

J.E. Victor

**Distribution:** NC. Williston and Fraserburg.

**Habitat:**Nama-Karoo, grows among dolerite boulders at the top of ridges.

**Rationale:** A rare, range-restricted species known from four locations. Potentially threatened by changes in natural species dynamics and poor recruitment. Rock hyrax populations have greatly increased as a result of the decline of predators in many areas where this species occurs, and they are capable of causing extensive damage to vegetation. The impact of rock hyraxes on inflorescences may explain the lack of recruitment.

**Aloe chortolirioides** A.Berger var. chortolirioides

**Status:** VU A2c

M. Lötter, J.E. Burrows & D. Raimondo

**Distribution:** KM MP. Mbabane, Barberton to Carolina.

**Habitat:** Mistbelt grassland, wedged between rocks on slopes and mountain tops.

**Rationale:** At least a 30% habitat loss over the last three generations (100 years) to commercial forestry plantations. Remaining subpopulations are still declining because of the effects of isolation and fragmentation by forestry plantations, resulting in a deleterious fire regime, loss of pollinators and a lack of recruitment.

**Aloe ciliaris** Haw. var. redacta S.Carter

**Status:** VU D2

J.E. Victor

**Distribution:** EC. Kentani.

**Habitat:** Coastal dune forest.

**Rationale:** Known from one location. Potentially threatened by habitat degradation as a result of expanding rural settlements and subsistence agriculture.

**Aloe commixta** A.Berger

**Status:** VU D1 + 2

N.A. Helme & D. Raimondo

**Distribution:** WC. Southern Cape Peninsula.

**Habitat:** Rocky sandstone outcrops, 150–600 m.

**Rationale:** AOO < 20 km². Restricted to a small area on the Cape Peninsula between Fish Hoek, Kommetjie (Slangkop), the Bonteberg and Simon’s Town, and known from less than 1 000 mature individuals. Potentially threatened by trampling and harvesting for horticultural purposes. Alien plants were a past threat but this is currently being managed by South African National Parks. They may become a threat in future if management changes.

**Aloe cooperi** Baker subsp. cooperi

**Status:** Declining

L. von Staden

**Distribution:** KZN LM MP. Widespread across KwaZulu-Natal, Mpumalanga highveld to Wolkberg Mountains in Limpopo Province. Also in Swaziland.

**Habitat:** Occupies a wide variety of habitats in grasslands, from marshy areas to dry and well drained, often wedges in shallow pockets among rocks, but also on hillsides in open grasslands.

**Rationale:** Although there has been widespread habitat loss across the range of this widespread taxon, declines have taken place over a period much longer than three generations. There are continuing declines in many areas, mainly due to overgrazing and invasive alien encroachment, but *A. cooperi* is still too widespread and common to qualify under Criterion B. No population data are available, but it is also unlikely to qualify under Criteria C or D.

**Aloe craibii** Gideon F.Sm.

**Status:** CR C2a(i)

M. Lötter, J.E. Burrows, L. von Staden & D. Raimondo

**Distribution:** MP. Barberton.
Habitat: Montane grassland, in well-drained, relatively deep soils on serpentine and sandstone substrates, in full sun on mountain summits, but not on rocky outcrops, 1 500–1 800 m.

Rationale: Three subpopulations known, the largest of which consists of 50 mature individuals while the others have less than 20 mature individuals. There is a continuing decline in habitat quality as a result of invasive alien encroachment. Too frequent fires kill newly recruited seedlings and, together with decline in habitat quality, are causing a continuing decline in the population.

Aloe dabenorisana Van Jaarsv.
Status: Rare
J.E. Victor & L. von Staden

Distribution: NC. Occurs on two mountains along the Orange River Valley.

Habitat: Vertical, southwest-facing upper slopes in crevices of quartz rock, 900–1 000 m.

Rationale: A rare, range-restricted species known from two sites within an EOO of 260 km². The inaccessible cliff face habitat in an extremely remote area makes it unlikely to be threatened.

Aloe dichotoma Masson
Status: VU A3ce
W. Foden

Distribution: NC WC. From Nieuwoudtville east to Olifantsfontein and north to Brandberg (Namibia).

Habitat: On north-facing rocky slopes (particularly dolomite) in the south of its range. Any slopes and sandy flats in the central and northern parts of range.

Rationale: Climate change models project a 36% decline in range in 100 years, assuming dispersal into newly suitable areas. Patterns of modelled declines have been supported by field and repeat photo studies. However, no colonisation of newly suitable areas has yet happened. Without dispersal, the models predict a 73% decline in 100 years, qualifying the species as EN.

Aloe dominella Reynolds
Status: NT B1ab(ii,iii,iv)
L. von Staden

Distribution: KZN. Western KwaZulu-Natal, from Mooi River to Bergville and northwards to Vryheid.

Habitat: In grassland or thornveld, in hilly or gently undulating areas, often in rocky outcrops but can also occur in open grasslands and along road reserves.

Rationale: Restricted range (EOO 12 400 km²), recorded from 13–15 locations and continuing decline due to severe overgrazing, a threat that is likely to increase in future.

Aloe gerstleri Reynolds
Status: VU B1ab(i,ii,iii,v)
J.E. Victor, E. van Wyk & G.F. Smith

Distribution: KZN. Banango district.

Habitat: Thornveld, on rocky slopes and outcrops along streams, on quartz, but favouring granite, 900 m.

Rationale: Restricted range (EOO 111 km²) and known from seven locations. Declining in extent and habitat quality and in the number of mature individuals as a result of erosion caused by overgrazing and subsistence farming.

Aloe hardyi Glen
Status: Rare
H.F. Glen, J.E. Victor & G.F. Smith

Distribution: LM MP. Pilgrim’s Rest to the Olifants River Valley, possibly also on Mariepskop.

Habitat: Vertical dolomite cliffs in mistbelt.

Rationale: A range-restricted (EOO estimated 490–1 400 km²) habitat specialist. The vertical cliff habitat is inaccessible and therefore this rare species is not likely to be threatened.

Aloe inconspicua Plowes
Status: EN B1ab(iii)+2ab(iii)
L. von Staden

Distribution: KZN. Bushmans River Valley, near Estcourt.

Habitat: Transition between grassland and bushveld, mostly in short grassland, generally on gently sloping ground beside large hills and in hilly thornveld.

Rationale: A rare, range-restricted species (EOO 200 km²) that moved rapidly from VU D2 to EN B when potential threats became a reality. Plans in 2002 were to convert most of the range of this species to a private conservancy, but between 2002 and 2007 the area of the proposed conservancy was granted to a local community in a land claim. Subsequently, a newly established informal settlement destroyed part of one subpopulation at one of the only four known locations. Spreading informal settlements and increasing pressures on the land are expected.

Aloe integra Reynolds
Status: VU B1ab(ii,iii,iv,vi)
M. Lötter, J.E. Burrows, S. Craib, L. von Staden & D. Raimondo

Distribution: MP. Mpumalanga, from Vaalhoek north of Pilgrim’s Rest southwards to Amsterdam. Also at Mankaysane in Swaziland.

Habitat: Dry highveld grassland, on exposed, rocky sites with short grass on north- and northwest-facing slopes.

Rationale: EOO 10 200 km². Known from seven locations. At least 40% of its habitat has been lost to pine plantations. The isolation and fragmentation of grasslands by pine plantations have resulted in the loss of pollinators and changed herbivore foraging dynamics that now threaten the survival of this species. A continuing decline due to too frequent fires and expanding timber plantations has been recorded.

Aloe kniphofioides Baker
Status: VU A2c
M. Lötter, J.E. Burrows, S. Craib, L. von Staden & D. Raimondo

Distribution: EC KZN MP. High-altitude grasslands of Mpumalanga, KwaZulu-Natal and northeastern Eastern Cape.

Habitat: Montane grassland.

Rationale: A 42% loss of habitat has occurred as a result of afforestation, a deleterious fire regime, loss of pollinators, mining and invading alien plants. It is a long-lived, slow-growing resprouter and the habitat loss has taken place over 50–80 years (one to two generations).

Aloe kouebokkeveldensis Van Jaarsv. & A.B.Low
Status: Rare
L. von Staden

Distribution: WC. Kouebokkevel Mountains.

Habitat: Montane fynbos, in rock crevices and shallow soils on steep, southwest-facing slopes and cliffs of Table Mountain Sandstone, 600–800 m.

Rationale: A recently discovered species, at present known from a few subpopulations within an area of ±100 km². The habitat, cliff faces on high mountain slopes, is protected and inaccessible.
Aloe krapohliana Marloth
Status: DDD
L. von Staden

Distribution: NC WC. Namaqualand, from Vanrhynsdorp to the Orange River.
Habitat: Occurs in the extremely arid northern regions of the Succulent Karoo, on clay, stony (mostly quartzitic) and sandy soils on flats and slopes.

Rationale: A fairly widespread species in the arid northwestern region of South Africa (EOO 68 000 km²), known from around 20 historical sites. Anecdotal reports indicate significant declines since the 1960s. Renewed interest in mining in Namaqualand poses a significant potential threat. In recent years (2000–2006) at least three subpopulations have been found, but a thorough survey across the extent of its range is lacking. It is probably threatened, but no reliable estimates on population size and rate of decline are available. Indications are that subpopulations are generally very small, but data are insufficient to assign a threat status.

Aloe linearifolia A.Berger
Status: NT A2c; B1ab(ii,iii,iv,v)
L. von Staden & C.R. Scott-Shaw

Distribution: EC KZN. Central and southern KwaZulu-Natal and the Pondoland region of the Eastern Cape.
Habitat: High-rainfall mistbelt, Ngongoni and coastal grassland, occurs in short grasslands in hilly areas, often in rocky outcrops.

Rationale: A range-restricted species (EOO 9 700 km²) occurring in the highly transformed grasslands in southern and central KwaZulu-Natal. More than 56% of its habitat has been lost over the last 150 years to crop cultivation (mainly sugarcane) and forestry, but its generation length is relatively short (10 years) and only 15–25% of habitat loss has occurred within the last three generations. This once common species has disappeared from many areas and is now known from 20–25 locations. Subpopulations continue to decline because of overgrazing by livestock and urban expansion.

Aloe longistyla Baker
Status: DDD
L. von Staden

Distribution: EC WC. Calitzdorp eastwards to Grahamstown and northwards to Graaff-Reinet, Cradock and Middelburg.
Habitat: Occurs on gentle slopes and on flat or stony ground in karroid shrubland. Plants are usually scattered and grow under 'nurse' shrubs, particularly Pteronia and Pentzia species.

Rationale: A widespread species (EOO 81 500 km²) that was common in the past, but anecdotal reports indicate that it has become very rare as a result of illegal collecting and habitat degradation caused by overgrazing. Hilton-Taylor (1996a) listed this species as vulnerable. Most experts feel that this species is likely to be threatened, but data are insufficient to assign a threat status.

Aloe meyeri Van Jaarsv.
Status: Rare
J.E. Victor & G.F. Smith

Distribution: NC. Northeastern Richtersveld and southern Namibia.
Habitat: Steep or vertical, south-facing upper slopes in crevices of quartzite rock. Occurs in succulent karoo shrubland.

Rationale: A rare, range-restricted species (global EOO 130 km²). The habitat is remote, inaccessible and in South Africa entirely protected within a National Park. This species has no known threats.

Aloe micracantha Haw.
Status: NT B1ab(ii,iii,iv,v)
L. von Staden

Distribution: EC WC. Uniondale to the Great Fish River Valley east of Grahamstown, southwards to the coastal plains between Humansdorp and Port Elizabeth.
Habitat: Grassy fynbos, plains and slopes, 0–700 m.

Rationale: EOO 12 508 km². Known from more than 10 locations. Declining in the southern parts of the range because of urban expansion, agriculture and invading alien plants.

Aloe microstigma Salm-Dyck subsp. framesii
(L.Bolus) Glen & D.S.Hardy
Status: NT B1ab(ii,iii,iv)
L. von Staden

Distribution: NC WC. Saldanha Bay to Port Nolloth.
Habitat: Flat, sandy areas on coastal lowlands.

Rationale: EOO 17 000–33 000 km². Known from 6–10 locations, all of which are highly transformed and/or facing ongoing threats from mining, crop cultivation and coastal development. It is likely that undiscovered subpopulations exist. It is placed on the list as a precautionary measure until more information indicates that it is more common and not threatened.

Aloe modesta Reynolds
Status: VU B2ab(ii,iii,iv,v)
M. Lötter, J.E. Burrows, S. Krynauw & L. von Staden

Distribution: KZN MR. Dullstroom and Wakkerstroom districts in Mpumalanga and also possibly occurs near Vryheid in KwaZulu-Natal.
Habitat: Montane grassland, 1 600–2 000 m.

Rationale: A rare species known from two disjunct areas in Mpumalanga and northern KwaZulu-Natal. Although widespread (EOO 11 000–28 000 km²), the AOO is low (estimated less than 1 000 km²) and it is known from eight locations. Surveys of suitable habitat by C. Craib failed to locate more subpopulations. There is a continuing decline as a result of invading alien plants, urban expansion (mainly around Dullstroom), forestry and overgrazing.

Aloe monotropa 1.Verd.
Status: VU D2
J.E. Victor & G.F. Smith

Distribution: 1M. Dublin Mine Kloof, southern Limpopo Province.
Habitat: Occurs on steep, rocky slopes at the margins of closed woodland, 1 000–1 400 m.

Rationale: Known from a single location. Potentially threatened by mining and harvesting for horticultural purposes.

Aloe peglerae Schönland
Status: EN A2d; B1ab(ii,v)+2ab(ii,v)
J.E. Victor & M.F. Pfaf

Distribution: G NW. Magaliesberg and Witwatersberg.
Habitat: Grassland, in shallow, gravelly quartzitic soils on rocky, north-facing slopes or summits of ridges.

Rationale: A range-restricted species (EOO 3 445 km², AOO 387 km²) known from three locations. Field observations reported a 50% decline over the past 10 years due to urban expansion and collecting for the specialist succulent horticultural trade.
This taxon is declining in the northern parts of its range because of mining. It is also potentially threatened by afforestation.

**Aloe reitzii** Reynolds var. *vernalis* D.S.Hardy

**Status:** CR B1ab(v) + 2ab(v)

**Distribution:** KZN. Vryheid.

**Habitat:** Stony grassland, in well-drained, humus-rich soil on steep, broken granite slopes, 935 m.

**Rationale:** Highly range-restricted (EOO and AOO < 1 km²), known from two subpopulations. Declining as a result of harvesting for medicinal purposes and damage by baboons.

**Aloe reynoldsii** Letty

**Status:** Rare

**Distribution:** EC. Mbashe River Catchment up to 50 km inland.

**Habitat:** Grows wedged in rock crevices on exposed sites on steep cliffs above rivers.

**Rationale:** A range-restricted species (EOO 120–300 km²) that occurs in a very specialised habitat. Although collecting may still cause sporadic local declines, the population is mostly in inaccessible sites that are unlikely to be targeted, especially since the species has been introduced into cultivation.

**Aloe saundersiae** (Reynolds) Reynolds

**Status:** CR B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)

**Distribution:** KZN. Nkandla.

**Habitat:** Mistbelt grassland, on cool, shady, south-facing slopes of granite outcrops, often in crevices and pockets of soil with moss.

**Rationale:** Known from two subpopulations on a single mountain top (EOO < 20 km²). Subjected to severe ongoing overgrazing and frequent fires.

**Aloe simii** Pole-Evans

**Status:** CR B2ab(ii,iii,iv,v)

**Distribution:** MP. Sabie southwards to White River and around Nelspruit.

**Habitat:** Open woodland and grassland, along drainage lines and wetlands, 600–1 100 m.

**Rationale:** A narrow habitat specialist (AOO 10 km²) and known from five severely fragmented subpopulations. Declining because of afforestation, drying up of its wetland habitat as a result of adjacent plantations and extraction of water, invading alien plants, urban expansion and rural development.

**Aloe soutpansbergensis** Letty

**Status:** Rare

**Distribution:** 1M. Soutpansberg Mountains.

**Habitat:** Mistbelt regions on steep, south-facing mountain slopes in extremely thin soils, above 1 500 m.

**Rationale:** A range-restricted Soutpansberg endemic (EOO 20–240 km², AOO < 18 km²), known from two sites, but locally abundant. It declined as a result of collecting in the past, but this is no longer a serious threat and the population appears to have recovered.
Aloe striata Haw. subsp. komaggasensis (Kritzinger & Van Jaarsv.) Glen & D.S.Hardy Plate 10

Status: VU D2

Distribution: NC. Namaqualand Escarpment to the east of Komaggas.
Habitat: Succulent karoo-renosterveld transitional vegetation. Rocky slopes of quartz koppies.
Rationale: Range-restricted taxon (EOO < 500 km²), recorded from four locations, potentially threatened by habitat degradation as a result of overgrazing and removal of plants from the wild by succulent collectors.

Aloe thompsoniae Groenew.

Status: Rare
J.E. Victor & G.F. Smith

Distribution: LM. Wolkberg Mountains.
Habitat: Montane mistbelt grasslands, rock crevices on steep cliffs, among large boulders, or in seepages or shallow soils at the edges of large exposed rock sheets.
Rationale: Previously listed as EN (Victor 2002). It has a restricted range (EOO < 100 km²), known from six locations. Adapted to a rare and very specialised habitat on mineral-rich serpentine soils. Potentially threatened by mining but not declining at present.

Aloe thorncroftii Pole-Evans Plate 10

Status: NT D2
M. Lötter, E. van Wyk, J.E. Burrows & J.E. Victor

Distribution: MP. Barberton.
Habitat: Steep, rocky slopes in grassland, restricted to serpentine soils.
Rationale: A rare, range-restricted species (EOO 231 km², AOO < 36 km²), known from six locations. Adapted to a rare and very specialised habitat on mineral-rich serpentine soils. Potentially threatened by mining but not declining at present.

Astroloba herrei Uitewaal

Status: VU D2
D. Raimondo

Distribution: WC. Knersvlakte to Port St Johns.
Habitat: Dense coastal bush on dunes from the beach margin to a few hundred metres inland, but no further than the top of the first sea-facing slope.
Rationale: Experts estimate that 20–30% of the habitat has been lost to urban and coastal development over the last three generations (generation length 20 years). Decline is continuing as a result of habitat loss and illegal collecting for the specialist succulent horticultural trade.

Astroloba Uitewaal

Astroloba rubriflora (L.Bolus) Gideon F.Sm. & J.C.Manning

Status: VU B1ab(ii,iii,iv,v)
D. Raimondo & N.A. Helme

Distribution: WC. Robertson, Bonnievale and McGregor.
Habitat: Rocky karroid flats and low hills.
Rationale: Decline is continuing as a result of habitat loss and illegal collecting for the specialist succulent horticultural trade. There has been a 15% habitat loss over the past 50 years and conversion for crop cultivation is ongoing.

Bulbine Wolf

Bulbine cremnophila Van Jaarsv.

Status: Rare
E.J. van Jaarsveld & L. Potter

Distribution: EC. Willowmore district, Baviaanskloof Wilderness Area.
Habitat: Quartzite cliff faces.
Rationale: A rare habitat specialist that is not threatened.

Bulbine disimilis G.Will.

Status: Rare
D. Raimondo & J.E. Victor

Distribution: NC. Namaqualand, Springbok to Wallekraal.
Habitat: Rocky slopes or quartz patches.
Rationale: Known from four sites in remote areas of Namaqualand. The only land use, goat herding, is not known to have an impact on this species.

Bulbine esterhusyeniae Baijnath

Status: Rare
C. Archer, D. Raimondo & J.E. Victor

Distribution: WC. Cederberg and Warmwatersberg Mountains.
Habitat: In shallow soil on sandstone pavements on mountain plateaus.
Rationale: Known from two sites from the Cederberg and Warmwatersberg. Not threatened.

Bulbine fallax Poelln.

Status: Rare
E.J. van Jaarsveld & L. Potter

Distribution: NC. North of Steinkopf and near Nuwerus.
Habitat: In pebbly, loose soil shaded by overhanging rocks.
Rationale: A habitat specialist recorded from two sites. Rare but not threatened.

Bulbine fragilis G.Will.

Status: Rare
D. Raimondo

Distribution: NC. North of Steinkopf and near Nuwerus.
Habitat: In pebbly, loose soil shaded by overhanging rocks.
Rationale: A habitat specialist recorded from two sites. Rare but not threatened.

Bulbine haworthioides B.Nord.

Status: VU D2
C. Archer, D. Raimondo & J.E. Victor

Distribution: WC. Knersvlakte near Lutzville.
Habitat: Quartz gravel on hillocks.
Rationale: Known from one location. Potentially threatened by agriculture, collecting for horticultural purposes and trampling by livestock.
Plate 10

Aloe commixta VU

Aloe thorncroftii NT

Aloe pegleri EN

Aloe striata subsp. komaggasensis VU

Aloe comosa LC

Aloe ramosissima EN

Aloe dichotoma VU

Aloe pilansii EN
**Bulbine louwii** L.I.Hall  
Status: Rare  
D. Raimondo  

- **Distribution:** WC. Bitterfontein and Platbakkies to southern Knersvlakte.  
- **Habitat:** In open patches amongst quartz pebbles.  
- **Rationale:** Known from fewer than five sites, a habitat specialist that occurs only in quartz patches. Not threatened.

**Bulbine margarethae** L.I.Hall  
Status: VU D2  
C. Archer, D. Raimondo & J.E. Victor  

- **Distribution:** WC. Knersvlakte.  
- **Habitat:** Limestone outcrops.  
- **Rationale:** Known from one location and has lost habitat to mining of limestone ridges. Although not currently declining it remains potentially threatened by harvesting for horticultural purposes and future mining activities.

**Bulbine monophylla** Poelln.  
Status: CR B1ab(iii)  
D. Raimondo & N.A. Helme  

- **Distribution:** WC. Porterville and Tulbagh.  
- **Habitat:** On the edges of vleis.  
- **Rationale:** EOO < 100 km². One known location remains after habitat loss to wheat cultivation in the past. It continues to decline because of habitat degradation as a result of alien grass infestation and overgrazing.

- **Bulbine navicularifolia** G.Will.  
Status: Rare  
D. Raimondo  

- **Distribution:** WC. Botterkloof Pass to Nieuwoudtville.  
- **Habitat:** On gentle slopes, in stony clay.  
- **Rationale:** Known from fewer than five sites. Not threatened.

**Bulbine pendens** G.Will. & Bajinath  
Status: Critically Rare  
D. Raimondo  

- **Distribution:** NC. Richtersveld.  
- **Habitat:** Vertical quartz cliffs.  
- **Rationale:** A range-restricted species (EOO < 10 km²), known from one site. Not threatened because of the inaccessibility of its habitat.

- **Bulbine quartzicola** G.Will.  
Status: VU D2  
C. Archer & J.E. Victor  

- **Distribution:** NC. Southern Richtersveld to Bulletrap Pass and central Knersvlakte.  
- **Habitat:** On pebbly, quartzite pavements and ledges.  
- **Rationale:** Fewer than five known locations are potentially threatened by grazing and trampling by livestock.

**Bulbine rhopalophylla** Dinter  
Status: NT° D2  
E.J. van Jaarsveld, J.E. Victor & L. Potter  

- **Distribution:** NC. Sperrgebiet (Namibia) and Gariep Valley.  
- **Habitat:** On slopes in micaceous schist and on flats in quartz gravel.  
- **Rationale:** Recorded from five locations in South Africa. Potentially threatened by mining and grazing and trampling by goats. Down-listed from VU D2 because of application of regional assessment criteria.

**Bulbine striata** Bajinath & Van Jaarsv.  
Status: Critically Rare  
E.J. van Jaarsveld & L. Potter  

- **Distribution:** NC. Pellaberg.  
- **Habitat:** Amongst quartz pebbles and rocks in well-drained soil on the upper and middle slopes below sheer rock faces.  
- **Rationale:** Known from one site. Not threatened because of the inaccessibility of its habitat.

- **Bulbine torta** N.E.Br.  
Status: Rare  
D. Raimondo, P.A. Manyama & D.A. Kamundji  

- **Distribution:** WC. Kotzesrus and Platbakkies to southern Knersvlakte.  
- **Habitat:** Succulent Karoo, amongst white quartz pebbles.  
- **Rationale:** Known from five subpopulations in Namaqualand. Even within the correct habitat this species is rare, occurring as widely scattered individuals. No known threats.

**Bulbinella Kunth**  

- **Bulbinella eburniflora** P.L.Perry  
Status: VU D2  
E. Marinus & D. Raimondo  

- **Distribution:** NC. Nieuwoudtville to Clanwilliam.  
- **Habitat:** Renosterveld, clay soils in flat, tillite-shale areas.  
- **Rationale:** EOO < 150 km², AOO 14 km². Habitat loss to agriculture since 1940 is > 80%. Plants are very sensitive to disturbance and trampling and grazing by livestock results in death. Populations are all small and fragmented and are potentially threatened by grazed vegetation, future ploughing and climate change.

- **Bulbinella latifolia** Kunth subsp. doleritica (P.L.Perry) P.L.Perry  
Status: VU B1ab(v)+2ab(v)  
D. Raimondo & E. Marinus  

- **Distribution:** NC. Botkeveld Escarpment.  
- **Habitat:** Heavy red clay on vertisol aprons surrounding dolerite koppies.  
- **Rationale:** EOO 63 km², AOO < 20 km². This taxon is restricted to dolerite vertisol aprons and is known from seven locations. It has lost habitat (12%) to agriculture in the past. At present populations are decreasing for unknown reasons, but we suspect that it is highly sensitive to grazing and climate fluctuations.

- **Bulbinella latifolia** Kunth subsp. toximontana (P.L.Perry)  
Status: VU D1 + 2  
C. Archer, N.A. Helme & J.E. Victor  

- **Distribution:** WC. Gifberg and Matsikamma Mountains.  
- **Habitat:** Seasonally wet sands alongside streams.
**Rationale:** A range-restricted taxon (EOO < 50 km²) known from two locations, 150 plants have been found in the four known subpopulations. A few more undiscovered subpopulations are likely to exist but we suspect that there are less than 1 000 mature individuals in the population. This taxon is potentially threatened by alterations in drainage patterns due to rooibos tea cultivation.

**Bulbinella nana** P.L.Perry

**Status:** VU D2  
C. Archer & J.E. Victor

**Distribution:** NC.Namaqualand, Steinkopf and Springbok.

**Habitat:** Namaqualand Klipkoppe Shrubland, on granitic soils.

**Rationale:** Known from two locations in northern Namakaland. Potentially threatened by overgrazing.

**Bulbinella potbergensis** P.L.Perry

**Status:** CR B1ab(iii)+2ab(iii)  
N.A. Helme & D. Raimondo

**Distribution:** WC. Northern side of the Potberg range.

**Habitat:** Clay silcrete with stones, shale with sandstone colluvium.

**Rationale:** EOO 10 km². Known from two locations. It has lost habitat to agriculture and habitat quality is declining as a result of invasion by alien plants as well as the recent introduction of ostriches.

**Gasteria** Duval

**Gasteria batesiana** G.D.Rowley var. batesiana

**Status:** NT A2d; B1ab(v)  
E.J. van Jaarsveld & D. Raimondo

**Distribution:** KZN LM MP. Northern Kwazulu-Natal, Mpmalanga and as far north as the Snyderpoort Mountains in Limpopo Province. Also occurs in Swaziland.

**Habitat:** Dry places on rock outcrops and cliffs, 600–900 m.

**Rationale:** EOO 19 000 km². Known from less than 15 locations. The number of mature individuals is suspected to have declined by 20% over the past three generations (generation length 30–40 years). Decline is the result of consistently high rates of harvesting of adult individuals for the medicinal plant trade.

**Gasteria batesiana** G.D.Rowley var. dolomitica

**Status:** Critically Rare  
E.J. van Jaarsveld & D. Raimondo

**Distribution:** LM. Penge.

**Habitat:** Sheer dolomite cliffs.

**Rationale:** Known from one site, occurs on cliffs and is therefore not threatened.

**Gasteria baylissiana** Rauh

**Status:** Rare  
J.E. Victor, E.J. van Jaarsveld & A.P. Dold

**Distribution:** EC. Suurb erg.

**Habitat:** Sheer rock faces derived from quartzitic sandstone of the Witteberg Group, usually in light shade.

**Rationale:** Known from a single gorg in the Suurb erg range. Not threatened because of the inaccessibility of its habitat.

**Gasteria bicolor** Haw. var. liliputana (Poelln.) Van Jaarsv.

**Status:** Rare  
J.E. Victor, A.P. Dold & E.J. van Jaarsveld

**Distribution:** EC. Grahamstown district, Pluto’s Vale.

**Habitat:** Sandstone ridges.

**Rationale:** A range-restricted taxon (EOO < 500 km²). Not threatened as its habitat is unsuitable for agricultural activities.

**Gasteria carinata** (Mill.) Duval var. retusa

**Status:** Rare  
E.J. van Jaarsveld & D. Raimondo

**Distribution:** WC. Upper Breede River Valley.

**Habitat:** Steep slopes on shale growing in Breede Shale Renosterveld.

**Rationale:** Although this taxon has lost some habitat and individuals (less than 5% over the past 10 years) to vineyards, loss is not ongoing and remaining individuals are safe as they occur on steep slopes that are not ploughable.

**Gasteria carinata** (Mill.) Duval var. thunbergii (N.E.Br.) Van Jaarsv.

**Status:** Rare  
E.J. van Jaarsveld & D. Raimondo

**Distribution:** WC. Gourits River.

**Habitat:** Enon conglomerates on riverbanks in Southern Cape Valley Thicket.

**Rationale:** A range-restricted taxon (EOO 25 km²), known from two sites. It occurs on steep riverbanks and is therefore not threatened by agriculture.

**Gasteria croucheri** (Hook.f.) Baker

**Status:** VU A2d  
E.J. van Jaarsveld & D. Raimondo

**Distribution:** EC KZN. Mapumulo to Port St Johns.

**Habitat:** Scarp forest, on sandstone outcrops and cliffs, usually in partial shade in dry areas, 200–600 m.

**Rationale:** A 30% decline in the number of mature individuals over the past three generations is suspected (generation length 30–40 years). Decline is the result of consistently high rates of harvesting of adult individuals for the medicinal plant trade.

**Gasteria disticha** (L.) Haw.

**Status:** CR B1ab(iii,iv)+2ab(iii,iv)  
E.J. van Jaarsveld & D. Raimondo

**Distribution:** WC. Riebeek-East district, Swartwaterspoort.

**Habitat:** Shale renosterveld, limestone outcrops.

**Rationale:** Known from one location and less than 300 mature individuals. It has previously lost habitat and continues to decline as a result of limestone quarrying and mining.

**Gasteria doreeniae** Van Jaarsv. & A.E.van Wyk

**Status:** Critically Rare  
E.J. van Jaarsveld & D. Raimondo

**Distribution:** EC. Riebeek-East district, Swartwaterpoort.

**Habitat:** Steep, south-facing slopes in shade in Suurb erg Quartzite Fynbos.

**Rationale:** Known from one site. Not threatened.
Gasteria ellaphieae Van Jaarsv.

Status: Rare
E.J. van Jaarsveld, A.P. Dold & D. Raimondo

Distribution: EC. Patensie, southern end of the Baviaanskloof.
Habitat: Steep, south-facing slopes in subtropical thicket vegetation, in rock crevices.
Rationale: Known from three collections near Patensie. Not threatened as subpopulations occur within a protected area and are very isolated.

Gasteria glauca Van Jaarsv.

Status: Critically Rare
E.J. van Jaarsveld & D. Raimondo

Distribution: EC. Joubertina district, Kouga River Valley.
Habitat: Cliff faces in quartzitic sandstone.
Rationale: Known from one site. Despite a number of searches in similar habitat it has not been found elsewhere. Not threatened because of the inaccessibility of its habitat.

Gasteria glomerata Van Jaarsv.

Status: Critically Rare
E.J. van Jaarsveld & J.E. Victor

Distribution: EC. Gamtoos Valley.
Habitat: Coastal renosterveld.
Rationale: Known from one location and potentially threatened by future diamond quartz mining. Also potentially threatened by agriculture, and ongoing harvesting for horticultural purposes and quarrying. Currently threatened by future development. A further 20% destruction of habitat due to urban expansion and mining (rock quarrying) in the southern part of the range. Collecting for horticultural purposes poses an additional pressure on mature individuals.

Gasteria nitida (Salm-Dyck) Haw. var. armstrongii (Schönland) Van Jaarsv.

Status: CR A4cd; B1ab(v)
E.J. van Jaarsveld & D. Raimondo

Distribution: EC. Gamtoos Valley.
Habitat: Coastal renosterveld.
Rationale: Known from one location in the Gamtoos River Valley (EOO 8 km²). This taxon has suffered past losses as a result of coastal development, harvesting for horticultural purposes and quarrying. Currently threatened by agriculture, and ongoing harvesting for horticultural purposes. Also potentially threatened by further coastal development. Past and future habitat loss and expected continuing decline in the number of mature individuals will result in at least an 80% reduction in the total population over less than three generations (generation length 30 years).

Gasteria pillansii Kensit var. nov.

Voucher: Van Jaarsveld & Duncan 7912 NBG
Status: VU D2
E.J. van Jaarsveld & D. Raimondo

Distribution: NC. Springbok.
Habitat: Succulent shrubland, quartz veins.
Rationale: A taxon that is in the process of being described, known from only one location and potentially threatened by future diamond quartz mining.

Gasteria polita Van Jaarsv.

Status: Critically Rare
E.J. van Jaarsveld & D. Raimondo

Distribution: WC. Knysna forests.
Habitat: Semi-exposed shrub forest on upper slopes of steep embankments and outcrops in Afro-temperate forest.

Gasteria polita var. nov.

Voucher: Van Jaarsveld & Duncan 7912 NBG
Status: VU D2
E.J. van Jaarsveld & D. Raimondo

Distribution: NC. Springbok.
Habitat: Succulent shrubland, quartz veins.
Rationale: A newly described species known from one site. Not threatened as it occurs on cliff faces in a very remote area where it is not easily accessible.

Haworthia Duval

Haworthia aristata Haw.

Status: EN B1ab(i,ii,iii,iv,v)
J.H. Vlok & D. Raimondo

Distribution: EC. Port Elizabeth to Kommadagga.
Habitat: Thicket mosaics.
Rationale: EOO 1 000 km². Known from four locations. There is ongoing degradation of habitat throughout its range as a result of grazing by livestock. There is further destruction of habitat due to urban expansion and mining (rock quarrying) in the southern part of the range. Collecting for horticultural purposes poses an additional pressure on mature individuals.

Haworthia attenuata (Haw.) Haw.

Status: EN A4acd
V.L. Williams & A.P. Dold

Distribution: EC. Hankey to the Fish River.
Habitat: Bushveld and dry karroid scrub.
Rationale: Estimated to have declined by > 30% over the past 100 years as a result of medicinal plant harvesting and habitat loss to urban development. A further 20% reduction is predicted over the next 50 years because of urban expansion as well as persistent harvesting of medicinal plants. The plants are very long-lived (generation length 50 years) and their restricted habitat and distribution (EOO 9 400 km²) is a further threat to their persistence.

Haworthia bayeri J.D.Venter & S.A.Hammer

Status: EN A2a; B1ab(ii,iii,iv,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Uniondale to south of Oudtshoorn.
Habitat: Gravel apronveld and renosterveld-spekboomveld transitions.
**Rationale:** EOO 1 500 km². Subpopulations are small and isolated. There has been a 50% decline in the number of individuals at all nine subpopulations over the past 15 years as a result of succulent collecting and habitat degradation from firewood extraction and grazing and trampling by livestock (generation length suspected to be a minimum of 10 years).

**Haworthia blackburniae** W.F.Barker var. derustensis M.B.Bayer

*Status:* EN A2ad
*Habitat:* Arid north-facing slopes.
*Distribution:* WC. De Rust.
*Rationale:* Known from one location, with a 50% loss of the population over the past 10 years due to succulent plant collecting.

**Haworthia blackburniae** W.F.Barker var. graminifolia (G.G.Sm.) M.B.Bayer

*Status:* CR B1ab(iii,v)
*Habitat:* Succulent karoo shrubland, hard ground under small bushes on low, stony hills.
*Rationale:* Known from three locations. Potentially threatened due to encroachment from invasive alien grasses. The immediate area in which this taxon occurs is affected by agriculture and infrastructure development for tourism.

**Haworthia bruynsii** M.B.Bayer

*Status:* EN B1ab(ii,iii)
*Habitat:* Succulent karoo shrubland, hard ground under small bushes on low, stony hills.
*Rationale:* EOO < 300 km². Known from three locations. It has lost adult individuals as a result of harvesting for horticultural purposes and is currently threatened by grazing by livestock, which is causing continuing decline of its habitat.

**Haworthia chloracantha** Haw. var. denticulifera (Poelln.) M.B.Bayer

*Status:* EN B1ab(ii,iii,iv,v)
*Habitat:* Renosterveld thicket mosaic, in gravelly, clay soil on south-facing slopes.
*Rationale:* EOO 300 km². Recorded from five locations. All known subpopulations are under threat and there is a continuing decline of individuals as a result of collecting for the specialist horticultural trade, and habitat loss to urban expansion and encroachment of invasive alien plants.

**Haworthia chloracantha** Haw. var. subglaucu Poelln.

*Status:* EN B1ab(ii,iii,v)+2ab(ii,iii,v)
*Habitat:* Shale and conglomerate.
*Rationale:* Known from three locations along a 20 km² stretch of the Great Brak River. It continues to decline because of urban expansion, agriculture and invading alien plants.

**Haworthia coarctata** Haw. var. tenuis (G.G.Sm.) M.B.Bayer

*Status:* Critically Rare
*Habitat:* Clay soils in Kowie Thicket.
*Rationale:* Known from one site with 80% loss of individuals as a result of severe overgrazing and from ongoing collecting for the specialist succulent horticultural trade. Less than 100 mature individuals are known to be extant.

**Haworthia emelyae** Poelln. var. comptoniana (G.G.Sm.) J.D.Venter & S.A.Hammer

*Status:* CR A2a; B1ab(ii,iii,iv,v); C1+2a(i)
*Habitat:* Mountain tops from a variety of geological formations.
*Rationale:* Known from two locations. Potentially threatened due to encroachment from invasive alien grasses. The immediate area in which this taxon occurs is affected by agriculture and infrastructure development for tourism.

**Haworthia emelyae** Poelln. var. emelyae

*Status:* VU B1ab(ii,iii,iv,v); C1+2a(i)
*Habitat:* Amongst quartz stones.
*Rationale:* Known from one site with 80% loss of individuals as a result of severe overgrazing and from ongoing collecting for the specialist succulent horticultural trade.

**Haworthia emelyae** Poelln. var. multifolia

*Status:* EN B1ab(ii,iii,iv,v)+2ab(ii,iii,v)
*Habitat:* Clay soils in Kowie Thicket.
*Rationale:* Known from one location with severe habitat degradation due to grazing by livestock and ongoing degradation of remnant habitat as a result of grazing by livestock and invading alien plants.
locations at the base of the Langeberg. Around 50% of individuals lost over the past 20 years as a result of succulent plant collecting and habitat degradation. Decline is ongoing, but moderate.

**Haworthia fasciata** (Willd.) Haw.

*Status:* NT B1ab(ii,iii,iv,v) J.E. Victor & G. Marx

*Distribution:* EC. Gamtoos River Valley to Port Elizabeth.

*Habitat:* Stony areas in grassy fynbos in acid sandstone-derived soil.

*Rationale:* Although it has a restricted distribution (EOO 3 400 km²), it has been recorded from more than 20 locations. Habitat loss is ongoing as a result of ploughing for pasture as well as rapid urban expansion.

**Haworthia floribunda** Poelln. var. *floribunda*

*Status:* CR B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v) J.H. Vlok, N.A. Helme & D. Raimondo

*Distribution:* WC. Heidelberg.

*Habitat:* Well-shaded areas in shale renosterveld in microhabitats of moss and lichen.

*Rationale:* EOO 20 km², AOO 1 km². Known from two highly localised, severely fragmented subpopulations. It is affected by collecting for the specialist succulent horticultural trade, road construction and grazing by livestock.

**Haworthia glabrata** (Salm-Dyck) Baker

*Status:* VU D1 + 2 N.A. Helme

*Distribution:* EC. Butterworth.

*Habitat:* Steep cliffs.

*Rationale:* Only recently discovered in the wild. There is one confirmed population of around 1 000 plants. Potentially threatened by grazing by livestock and collecting for the specialist succulent horticultural trade.

**Haworthia heidelbergensis** G.G.Sm. var. *heidelbergensis*

*Status:* EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v) J.H. Vlok, N.A. Helme & D. Raimondo

*Distribution:* WC. Heidelberg.

*Habitat:* Deeply embedded in moss and lichen in shaded areas on south-facing slopes.

*Rationale:* EOO 30 km², AOO < 10 km². Known from three locations threatened by habitat degradation as a result of grazing by livestock, the spread of informal settlements and harvesting for the specialist succulent horticultural trade.

**Haworthia kemari** M.Hayashi

*Status:* Rare D. Raimondo

*Distribution:* EC WC. Jansenville.

*Habitat:* Rocky karroid vegetation.

*Rationale:* A range-restricted species (EOO < 50 km²), known from one site. No known threats.

**Haworthia kingiana** Poelln.

*Status:* CR A4ac; B1ab(iii,v) J.H. Vlok & D. Raimondo

*Distribution:* WC. Mossel Bay.

*Habitat:* Renosterveld, on slopes of low hills.

*Rationale:* EOO 45 km². Two of the four known subpopulations have been lost over the past 20 years, one to road construction and the second as a result of a landowner digging up the entire subpopulation to sell to the special-
ist succulent horticultural trade. Continuing decline of habitat at the largest remaining subpopulation is taking place as a result of invading alien plants, grazing by livestock and coastal development. A 50% decline has taken place in the past generation (30 years) and another 30% is expected during the next two generations (60 years).

Haworthia koelmaniorum Oberm. & D.S.Hardy var. koelmaniorum

Status: VU A2acd; C2a(i)
L. von Staden & M. Lötter

Distribution: Mp. Groblersdal to Loskop Dam.
Habitat: Bushveld, on sandstone outcrops and ridges.
Rationale: The total population of this taxon is estimated to be 2 600 mature individuals. Collecting of plants out of the wild for medicinal and horticultural purposes is the main threat and has resulted in the local extinction at the type locality and drastic reductions at two other sites. Further to this loss from collecting, one subpopulation was lost when the habitat was converted to farmland. We suspect an overall decline of 30% to have taken place over the past three generations (60 years). Overgrazing and trampling by cattle on communally owned lands as well as invading alien plants are additional, but less severe, threats causing continuing declines.

Haworthia koelmaniorum Oberm. & D.S.Hardy var. mcmurtryi (C.L.Scott) M.B.Bayer

Status: EN B1ab(iii,v) + 2ab(ii,v)
M. Lötter, J.E. Burrows, A. Bikó'o & J.E. Victor

Distribution: Mp. Loskop Dam.
Habitat: Grassland.
Rationale: EOO and AOO 4 km². Known from two subpopulations. Declining as a result of a deleterious fire regime, herbivory and harvesting for horticultural and medicinal purposes.

Haworthia limifolia Marloth

Plate 14

Status: VU A2d

Distribution: KZN MP. From Hectorspruit, Barberton and Mtubatuba through the Swaziland Lebombo Mountains. Probably Mozambique.
Habitat: Elevated grasslands along the tops of hills and ridges, often camouflaged amongst small stones and clumps of grass.
Rationale: This species is very popular in the medicinal plant trade and remains the preferred matthithibala (Zulu for 'standing still', referring to various plants traditionally used for warding off witches, lightning and evil spirits) species, despite the existence of substitute species and being cultivated by healers and traders. The long-term protection of the plants in the wild, even in protected sites, is therefore not assured. Large numbers of mature plants have been removed from the wild and a reduction of more than 30% over the last 60 years is a reasonable estimate of its decline in South Africa. Presence in Mozambique is uncertain, and is possibly highly localised and close to the South African and Swaziland borders. It is heavily harvested in Swaziland, hence we also estimate a 30% decline globally and the national assessment is not downgraded.

Haworthia lockwoodii Archibald

Status: EN B1ab(iii,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Laingsburg.
Habitat: Succulent karoo shrubland, on dry, north-facing slopes, usually in Witteberg quartzite.
Rationale: EOO 110 km². Recorded from five subpopulations. Declining as a result of collecting for the specialist succulent horticultural trade and overgrazing by livestock. A consignment of plants seized at Laingsburg in 2005 contained over 200 plants of this species.

Haworthia longiana Poelln.

Status: EN A2bc; B1ab(iii,v) + 2ab(ii,v)
J.H. Vlok & D. Raimondo

Distribution: EC. Sundays and Gamtoos River Valleys.
Habitat: Valley bottoms and lower slopes of hills in rocky, loamy soils.
Rationale: EOO 3 500 km², AOO 600 km². More than 50% of its habitat has been lost to intensive citrus and other irrigated crop cultivation. Habitat loss commenced in the 1960s, which is less than three generations of this long-lived species (generation length 20 years). Degradation of remnant habitat by grazing practices is currently taking place.

Haworthia magnifica Poelln. var. acuminata (M.B.Bayer) M.B.Bayer

Status: CR B1ab(iii,v) + 2ab(iii,v); C2a(ii)
J.H. Vlok, D. Raimondo & N.A. Helme

Distribution: WC. Lower Gourits River.
Habitat: Transition from limestone to clay.
Rationale: Known from one location (EOO and AOO < 1 km²), with most of the original population destroyed by road construction. There is a slow, continuing decline due to invading alien plants and collecting for the specialist succulent horticultural trade. The number of mature individuals is estimated to be less than 200.

Haworthia magnifica Poelln. var. atrofuscus (G.G.Sm.) M.B.Bayer

Status: VU B1ab(iii,iv,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Riversdale and Potberg.
Habitat: Renosterveld on shale.
Rationale: EOO 735 km². Known from fewer than 10 locations. There has been severe habitat loss due to wheat cultivation, and there is ongoing loss because of invading alien plants and collecting of wild plants for the specialist succulent horticultural trade.

Haworthia magnifica Poelln. var. dekenahii (G.G.Sm.) M.B.Bayer

Status: CR B1ab(iii,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Northwest of Albertinia.
Habitat: Shales.
Rationale: Known from one location (EOO and AOO < 10 km²) and declining as a result of collecting for the specialist succulent horticultural trade, invading alien plants and grazing and trampling by ostriches.

Haworthia magnifica Poelln. var. splendens J.D.Venter & S.A.Hammer

Status: CR A2a; B1ab(iii,v); C2a(i)
J.H. Vlok, D. Raimondo & N.A. Helme

Distribution: WC. Albertinia.
Habitat: Renosterveld-fynbos transition, loamy soil.
Rationale: EOO 64 km². Known from five small, severely fragmented subpopulations. The total number of mature
individuals is estimated to be 150. This taxon has lost over 80% of its habitat to agriculture and severe invasion by alien plants over the past 100 years (generation length 50 years). Continuing decline of habitat and mature individuals is taking place as a result of collecting for the specialist succulent horticultural trade, invading alien plants and overgrazing by livestock.

**Haworthia marginata** (Lam.) Stearn  
**Plate 14**  
Status: VU  
B1ab(ii,iii,v) + 2ab(ii,iii,v)  
J.H. Vlok & D. Raimondo  
**Distribution: **WC. Worcester to Ashton to Bredasdorp.  
Habitat: On shales, sandstone or gravel.  
**Rationale:** EOO 4 500 km². Known from 10 locations. It has lost habitat because of grazing and ploughing for wheat. Declining as a result of collecting for the specialist succulent horticultural trade, invading alien plants, hybridisation with other *Haworthia* species, and overgrazing and trampling by livestock, especially ostriches.

**Haworthia marumiana** Uitewaal var. dimorpha  
(M.B.Bayer) M.B.Bayer  
Status: VU  
D2  
N.A. Helme  
**Distribution: **WC. Waaihoek to Shark Bay.  
Habitat: Fynbos, amongst pebbles and low-growing plants in sandstone-derived depauperate clay.  
**Rationale:** Known from one location (EOO 20 km², AOO 1 km²). Potential threats include collecting for the specialist succulent horticultural trade and overgrazing by livestock.

**Haworthia minima** (Aiton) Haw. var. poellnitziana  
(Uitewaal) M.B.Bayer  
Status: VU  
D1+2  
N.A. Helme  
**Distribution: **WC. Shark Bay.  
Habitat: Fynbos, on old river gravels.  
**Rationale:** Known from one location (EOO 20 km², AOO 1 km²) where less than 1 000 mature individuals are potentially threatened by agriculture.

**Haworthia mirabilis** (Haw.) Haw. var. badia  
(Poelln.) M.B.Bayer  
Status: CR  
B1ab(ii,iii,v) + 2ab(ii,iii,v)  
J.H. Vlok, N.A. Helme & D. Raimondo  
**Distribution: **WC. Meiring.  
Habitat: Succulent Karoo-renosterveld transition, on arid, north-facing slopes in weathered shales.  
**Rationale:** EOO and AOO < 2 km². Known from one subpopulation. A second subpopulation has been lost. This taxon lost habitat because of urban expansion, quarrying, plant collecting and invading alien plants. There is an ongoing threat from alien plant infestations and collecting for the specialist succulent horticultural trade.

**Haworthia mirabilis** (Haw.) Haw. var. beukmannii  
(Poelln.) M.B.Bayer  
Status: CR  
B1ab(ii,iii,v)  
J.H. Vlok & D. Raimondo  
**Distribution: **WC. Caledon.  
Habitat: Succulent Karoo-renosterveld transition, on arid, north-facing slopes in weathered shales.  
**Rationale:** EOO and AOO 1 ha, known from one remnant patch of renosterveld next to a public road. Declining as a result of collecting for the specialist succulent horticultural trade and habitat degradation caused by soil erosion and moderate pressure from grazing livestock.

**Haworthia mirabilis** (Haw.) Haw. var. calcarea  
M.B.Bayer  
Status: Rare  
N.A. Helme  
**Distribution: **WC. De Hoop to Potberg.  
Habitat: Coastal fynbos on limestone.  
**Rationale:** A range-restricted taxon (EOO < 200 km²) known from five subpopulations. Most of the population is conserved in De Hoop Nature Reserve and it is therefore not threatened.

**Haworthia mirabilis** (Haw.) Haw. var. consanguinea  
M.B.Bayer  
Status: Rare  
N.A. Helme  
**Distribution: **WC. Greyton.  
Habitat: Fynbos on sandstone slopes.  
**Rationale:** A range-restricted taxon (EOO < 100 km²) known from fewer than five collecting sites. Not threatened.

**Haworthia mirabilis** (Haw.) Haw. var. mirabilis  
Status: CR  
B1ab(iii,v)  
N.A. Helme, J.H. Vlok & D. Raimondo  
**Distribution: **WC. Swellendam.  
Habitat: Succulent Karoo-renosterveld transition, on arid, north-facing slopes in weathered shales.  
**Rationale:** EOO and AOO < 2 km². Known from one subpopulation. A second subpopulation has been lost. This taxon lost habitat because of urban expansion, quarrying, plant collecting and invading alien plants. There is an ongoing threat from alien plant infestations and collecting for the specialist succulent horticultural trade.

**Haworthia mirabilis** (Haw.) Haw. var. paradoxa  
(Poelln.) M.B.Bayer  
Status: EN  
B1ab(ii,iii,v)  
J.H. Vlok & D. Raimondo  
**Distribution: **WC. Vermaaklikheid.  
Habitat: Limestone in coastal fynbos.  
**Rationale:** EOO < 10 km². Recorded from two locations. This taxon is declining because of collecting for the specialist succulent horticultural trade, invading alien plants and coastal development.

**Haworthia mirabilis** (Haw.) Haw. var. sublineata  
(Poelln.) M.B.Bayer  
Status: CR  
B1ab(ii,iii,v) + 2ab(ii,iii,v)  
J.H. Vlok, N.A. Helme & D. Raimondo  
**Distribution: **WC. Bredasdorp.  
Habitat: Arid fynbos on sandstone soils.  
**Rationale:** EOO and AOO < 2 km². Known from one subpopulation. A second subpopulation has been lost over the past 15 years to urban expansion, encroachment from invasive aliens and collecting for the specialist succulent horticultural trade. Invasive aliens and collecting are causing a continuing decline of the population.

**Haworthia monticola** Fourc. var. asema  
M.B.Bayer  
Status: VU  
D1+2  
N.A. Helme  
**Distribution: **WC. Northeast of Calitzdorp.  
Habitat: Conglomerates in succulent karoo shrubland.  
**Rationale:** EOO < 200 km². Known from three sites with less than 1 000 mature individuals. Potentially threatened by trampling and habitat degradation by ostriches.
**Haworthia monticola** Fourc. var. monticola

*Status*: Rare

*J.E. Victor*

*Distribution*: EC WC, Uniondale to Herold.

*Habitat*: Arid fynbos slopes, 740–850 m.

*Rationale*: EOO < 1 000 km². Known from five sites. Not threatened.

**Haworthia mutica** Haw. var. mutica

*Status*: VU A2bc; B1ab(ii,iii,iv,v)

*N.A. Helme & D. Raimondo*

*Distribution*: WC, Drew to De Hoop.

*Habitat*: Rocky shale ridges.

*Rationale*: EOO < 3 000 km². This taxon has lost 35% of its habitat to agriculture over the past 70 years, which is less than three generations (generation length 40 years). In addition, it is known from fewer than 10 locations. A decline as a result of agriculture (wheat and fruit cultivation) is ongoing.

**Haworthia nigra** M.B. Bayer

*Status*: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)

*J.H. Vlok, N.A. Helme & D. Raimondo*

*Distribution*: WC, Heidelberg and Kransriviermond.

*Habitat*: Shale renosterveld mosaic with thicket.

*Rationale*: EOO 20 km², AOO < 2 km². Known from four locations in the Heidelberg area. This taxon is declining because of collecting for the specialist succulent horticultural trade, urban expansion, overgrowing by livestock, and invading alien plants.

**Haworthia outeniquensis** M.B. Bayer

*Status*: VU B1ab(ii,iii,iv,v)

*J.H. Vlok & D. Raimondo*

*Distribution*: WC. Robinson Pass to Montagu Pass and inland to Paardepoort.

*Habitat*: Arid fynbos on rocky sandstone outcrops.

*Rationale*: EOO 270 km². Known from three locations. A few more undiscovered subpopulations and locations are likely to occur. There is continuing decline as a result of dense alien infestations (pines, *Acacia mearnsii* and species of *Hakea*) at all known locations.

**Haworthia parksiana** Poelln.

*Status*: CR A2acd; B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)

*J.H. Vlok & D. Raimondo*

*Distribution*: WC. Great Brak River.

*Habitat*: Renosterveld with karroid elements, in sandy soil, completely under the protection of small shrubs, well hidden in fallen leaf debris or among moss and lichen.

*Rationale*: EOO < 30 km², AOO < 2 km². Known from three small, fragmented subpopulations in the Mossel Bay region. It has suffered extensive loss of subpopulations around Great Brak as a result of urban development, road construction and invasion by alien plants over the past 60 years. There is also a severe, ongoing threat from plant collecting, which has resulted in an overall population decline of over 80% over the past three generations (generation length 20 years).

**Haworthia pulchella** M.B. Bayer var. lividá

*Status*: VU D2

*N.A. Helme*

*Distribution*: WC. Worcester.

*Habitat*: Lower north-facing slopes of quartzitic rocky outcrops.

**Haworthia pulchella** M.B. Bayer var. globifera

*Status*: Rare

*D. Raimondo & F. Cholo*

*Distribution*: WC. Southeast of Anysberg.

*Habitat*: Stony slopes, 500–1 000 m.

*Rationale*: A range-restricted taxon (EOO < 50 km²) known from one site. No known threats.

**Haworthia pungens** M.B. Bayer

*Status*: VU D2

*D. Raimondo & F. Cholo*

*Distribution*: WC. Joubertina.

*Habitat*: Rock crevices on mountain peak.

*Rationale*: A range-restricted habitat specialist (EOO < 10 km²) known from one site. No known threats.

**Haworthia pygmaea** Poelln. var. argenteo-maculosa (G.G.Sm.) M.B. Bayer

*Status*: CR A2a; B1ab(ii,iii,iv,v) + 2ab(i,ii,iii,iv,v)

*J.H. Vlok, N.A. Helme & D. Raimondo*

*Distribution*: WC. Gourits River to Mossel Bay.

*Habitat*: On rocky quartz outcrops.

*Rationale*: This taxon has lost two subpopulations and 80% of its habitat because of grazing and plant collecting over the past 70 years (generation length 30 years). The three remaining subpopulations have also been significantly reduced and are now small, isolated from one another and continue to be threatened by coastal development and plant collectors.

**Haworthia pygmaea** Poelln. var. pygmaea

*Status*: CR B1ab(i,ii,iii,iv,v)

*J.H. Vlok & D. Raimondo*

*Distribution*: WC. Mossel Bay and Great Brak.

*Habitat*: Shales in renosterveld.

*Rationale*: Occurring as two severely fragmented subpopulations. It has suffered a severe habitat loss over the past 20 years as a result of coastal development, overgrowing by livestock, invasion by alien plants, quarrying and road construction. Loss from all these threats is continuing.
Haworthia retusa (L.) Duval

Status: VU A2a
J.H. Vlok & D. Raimondo

Distribution: WC. Riversdaled.
Habitat: Stony, shale soil with very short bushes and a covering of pebbles on the ground.

Rationale: This species occurs in renosterveld fragments around Riversdale. The fragmentation is the result of crop cultivation (wheat cultivation), and at least 30% of the habitat of this long-lived species has been converted since 1940, a time period less than three generations (generation length 30 years).

Haworthia scabra Haw. var. lateganiae (Poelln.)
M.B. Bayer

Status: Critically Rare
N.A. Helme & J.H. Vlok

Distribution: WC. North of Oudtshoorn.
Habitat: Steep, hot north-facing slopes.

Rationale: EOO < 50 km². AOO < 10 km². Known from fewer than five locations. Potentially threatened by collecting for the specialist succulent horticultural trade and tourism development.

Haworthia serrata M.B. Bayer

Status: CR B1ab(iii,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Heidelberg.
Habitat: Rocky outcrops.

Rationale: EOO < 5 km². This species lost a subpopulation to ploughing for wheat cultivation 10 years ago, and the remaining subpopulation is declining as a result of succulent plant collecting and threats associated with wheat cultivation (herbicide drift and grazing of fragments between wheat fields by livestock).

Haworthia sordida Haw. var. lavranii C.L.Scott

Status: VU B1ab(iii,v)
J.H. Vlok, N.A. Helme & D. Raimondo

Distribution: EC. Steyterville to Kleinpoot Station.
Habitat: Low-altitude sandstone slopes.

Rationale: EOO 760 km². Currently recorded from four locations but up to six more are likely to exist in poorly explored areas within its range. This taxon is declining in habitat quality and the number of mature individuals as a result of grazing and trampling by livestock.

Haworthia springbokvlakensis C.L.Scott

Status: EN B1ab(iii) + 2ab(iii)
J.H. Vlok, D. Raimondo & A.P. Dold

Distribution: EC. Steyterville, mainly on the Springbokvlakte, but found from Klipplaat to Kirkwood.
Habitat: Succulent karoo, in a variety of habitats ranging from flat, pan-like areas to very stony areas, but usually in well-drained soils.

Rationale: Recorded from fewer than 10, severely fragmented subpopulations in an area of 200 km². The former impact of collecting for the specialist succulent horticultural trade is no longer a threat, but much of its range is currently being heavily grazed by livestock and there is a continuing decline in the quality of habitat.
Haworthia vlokii M.B. Bayer
Status: Rare
D. Raimondo

Distribution: WC. Swartberg Mountains.
Habitat: Pondoland coastal grassland. Msikaba Formation Sandstone, 50–200 m.
Rationale: EOO 4 700 km². Known from 13 locations. The taxonomic placement of this species is uncertain.

Haworthia zanthneriana Poelln. var. minor M.B. Bayer
Status: Critically Rare
D. Raimondo

Distribution: EC KZN. Oribi Gorge to Mkambati.
Habitat: Montane grassland, moist ledges, seepage lines and streambanks, 1 900–2 300 m.
Rationale: A range-restricted species (EOO 60 km²), known from one population. No known threats.

Kniphofia Moench

Kniphofia acraea Codd
Status: Rare
J.E. Victor & A.P. Dold

Distribution: EC KZN. Oribi Gorge to Mkambati.
Habitat: Pondoland coastal grassland. Rock outcrops of Msikaba Formation Sandstone, 70–600 m.
Rationale: A range-restricted taxon (EOO < 10 km²) known from one population. No known threats.

Kniphofia coddiana Cufod.
Status: NT B1ab(iii)
C.R. Scott-Shaw & J.E. Victor

Distribution: EC KZN. Oribi Gorge to Mkambati.
Habitat: Pondoland coastal grassland. Rock outcrops of Msikaba Formation Sandstone, 70–600 m.
Rationale: A range-restricted species (EOO 700 km²). Known from six small, severely fragmented subpopulations. Some 67% of its range has been transformed by afforestation and crop cultivation over the last 50 years (generation length 15 years). The disruption of drainage systems by the construction of dams has led to the loss of a number of subpopulations, and is causing continuing declines in habitat quality.

Kniphofia ensifolia Baker subsp. autumnalis Codd
Status: EN A4c; B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
L. von Staden

Distribution: FS. Eastern Free State, Harrismith to Van Reenen.
Habitat: Grassland, occurs in black clay soils on streambanks and low-lying, seasonally moist areas.
Rationale: EOO 400 km², estimated AOO < 160 km². Known from five locations. The habitat is heavily affected and degraded by agriculture, construction of dams that cause disruption of drainage lines to seasonally moist seeps and wetlands, by urban expansion of Harrismith and invasive alien plants. An estimated 36% habitat loss occurred over the last 10 years, and if this trend continues, this taxon could lose up to 70% of its habitat within 20 years (two generations).

Kniphofia evansii Baker
Status: Rare
C. Archer & J.E. Victor

Distribution: KZN. Northern KwaZulu-Natal, between Glencoe and Dannhauser.
Habitat: Grassland, on edge of wetlands amongst dense, tall grasses and sedges, not in permanent standing water.
Rationale: EOO 150 km². Known from three locations. Experiencing an ongoing degradation of its wetland habitat as a result of a deleterious fire regime, trampling and overgrazing by cattle.

Kniphofia flammula Codd
Status: EN B1ab(iii) + 2ab(iii)
C.R. Scott-Shaw & J.E. Victor

Distribution: KZN. Northern KwaZulu-Natal, between Glencoe and Dannhauser.
Habitat: Grassland, on edge of wetlands amongst dense, tall grasses and sedges, not in permanent standing water.
Rationale: EOO 700 km². Known from six small, severely fragmented subpopulations. Some 67% of its range has been transformed by afforestation and crop cultivation over the last 50 years (generation length 15 years). The disruption of drainage systems by the construction of dams has led to the loss of a number of subpopulations, and is causing continuing declines in habitat quality.
Kniphofia leucocephala Baijnath
Status: CR B1ab(iii)+2ab(iii)
B. Church, C.R. Scott-Shaw, I.M. Johnson & L. von Staden
Distribution: KZN. Richards Bay.
Habitat: Wetlands in low-lying coastal grassland, in moist, black, sandy clay soil.
Rationale: EOO 0.13 km², AOO < 0.1 km². Known from one location and endemic to the grasslands between Richards Bay and St Lucia. This area had been extensively transformed by urban development, commercial forestry plantations, commercial sugarcane and subsistence farming over the past 70 years, such that less than 2% of natural grassland remains. A subpopulation was discovered in 1990, and although thorough surveys of remaining grassland patches were conducted, no further subpopulations were located. There was a remarkable recovery after implementation of a conservation plan in 2001 that prescribed regular fire. Survival of this species is uncertain because the surrounding pine plantations have recently been replaced by Eucalyptus plantations, which are likely to place ongoing pressures on the wetland habitat in which this species occurs.

Kniphofia littoralis Codd
Status: NT B1ab(i,ii,iii,iv,v)
C.R. Scott-Shaw & J.E. Victor
Distribution: KZN. St Lucia to Port Shepstone.
Habitat: Coastal grassland. Moist depressions, not usually in permanently waterlogged soils, 5–200 m.
Rationale: Widespread in coastal KwaZulu-Natal (EOO 23 000 km²), but known from 13 locations. Extensive and ongoing habitat loss to agriculture, forestry and urban expansion.

Kniphofia pauciflora Baker
Status: CR D
C.R. Scott-Shaw, I.M. Johnson & L. von Staden
Distribution: KZN. Durban.
Habitat: Marshy grassland, 10–200 m.
Rationale: Previously thought to be extinct in the wild. The existence of a small natural population consisting of 18 mature individuals surviving in a grassland fragment amidst the urban expanse of Durban was confirmed recently.

Kniphofia triangularis Kunth subsp. obtusiloba (A.Berger) Codd
Status: Rare
C. Archer & J.E. Victor
Distribution: KZN MP. Mpumalanga Drakensberg Mountains and Ngome in KwaZulu-Natal.
Habitat: Quartzitic rocky outcrops in montane grasslands, 1 200–2 200 m.
Rationale: Known from 10 sites, mostly from Mpumalanga Drakensberg but with one record from Ngome in KwaZulu-Natal. This taxon occurs at high altitudes on rocky outcrops and is not threatened.

Kniphofia typhoides Codd
Status: NT A2ac
L. von Staden & J.E. Victor
Distribution: G LM MP NW. Parys to Lydenburg to Paulpietersburg to Newcastle.
Habitat: Low-lying wetlands and seasonally wet areas in climax Themeda triandra grasslands on heavy black clay soils, tends to disappear from degraded grasslands.
Rationale: A survey of the range of this species by C. Craib reported extensive declines in the population over the last 30 years as a result of habitat loss to coal mining, overgrazing by cattle, urban expansion (especially in Gauteng), crop cultivation in the eastern North West Province and invasion by alien plants in western Mpumalanga and North West Province. The full extent of the decline is unknown, but it is suspected to be over 25%.

Trachyandra Kunth

Trachyandra aridimontana J.C.Manning
Status: Rare
D. Raimondo & R.C. Turner
Distribution: NC. Richtersveld.
Habitat: Grows among rocks and on stony west-facing slopes.
Rationale: A range-restricted Richtersveld endemic (EOO < 100 km²) known from six sites. Populations on mountain summits are safe. At lower altitudes, the habitat of this species is under slight threat from overgrazing by goats. However, members of the genus are generally not highly palatable and this species is therefore considered rare and not threatened or declining.

Trachyandra erythrorrhiza (Conrath) Oberm.
Status: NT B1ab(ii,iii,iv,v)
M.F. Pfaf & J.E. Victor
Habitat: Black turf marshes.
Rationale: It has a restricted range (EOO 20 404 km²) and there is ongoing habitat loss due to urban and agricultural expansion and invasion by alien plants. There are, however, more than 10 locations, and subpopulations are not severely fragmented.

Trachyandra esterhuysenae Oberm.
Status: Rare
R.C. Turner & D. Raimondo
Distribution: WC. Porterville Mountains to Kogelberg and Riviersonderend Mountains.
Habitat: Shale bands in montane fynbos.
Rationale: A mid- to high-altitude species known from five sites. Not threatened.

Trachyandra graciilenta Oberm.
Status: Rare
J.E. Victor & R.C. Turner
Distribution: NC. Biedouw Valley to Lakenburg.
Habitat: Rocky sandstone slopes in arid fynbos.
Rationale: Localised distribution, occurring only on the southern part of the Bokkeveld Escarpment. Not threatened as it occurs on rocky slopes that cannot be ploughed.

Trachyandra montana J.C.Manning & Goldblatt
Status: Critically Rare
P.A. Manyama
Distribution: WC. Riviersonderend Mountains, Jonaskop.
Habitat: Stony sandstone slopes in open, rocky ground in montane fynbos.
Rationale: Known from one site, but its mountain slope habitat is not threatened.

Trachyandra prolifer a P.L.Perry
Status: VU D2
D. Raimondo, C. Archer, J.E. Victor & R.C. Turner
Distribution: NC. Nieuwoudtville.
Habitat: Transition soils between dolerite clays and Dwyka tillite.
Rationale: Known from one subpopulation in two locations, less than 5 km apart (EOO < 15 km²) on the dolerite-tillite transition soil. Habitat loss to wheat cultivation remains a potential threat.

**COLCHICACEAE**

*Colchicum* L.

*Colchicum cruciatum* (U. & D.Müll.-Doblies) J.C.Manning & Vinn.
- Status: VU D2
- Distribution: NC. Steinkopf to Springbok.
- Habitat: Gravel washes.
- Rationale: EOO 220 km². Known from three locations. Potentially threatened by habitat degradation as a result of overgrazing by livestock.

*Colchicum henssenianum* (U. & D.Müll.-Doblies) J.C.Manning & Vinn.
- Status: VU D2
- Distribution: NC. Richtersveld, Eksteenfontein.
- Habitat: Dry sandy valley.
- Rationale: Known from one location (EOO < 10 km²). Potentially threatened by habitat degradation due to overgrazing and trampling.

*Colchicum hughocymbion* (U. & D.Müll.-Doblies) J.C.Manning & Vinn.
- Status: VU D2
- Distribution: WC. Worcester and Bredasdorp.
- Habitat: Stony flats and slopes.
- Rationale: Known from two naturally disjunct locations, both of which are potentially threatened by cultivation of wheat and vineyards and trampling by livestock (ostriches and sheep).

*Colchicum huntleyi* (Pedrola, Membrives, J.M.Monts. & Caujapé) J.C.Manning & Vinn.
- Status: Rare
- Distribution: NC. Richtersveld, Anenous flats.
- Habitat: Sandy flats.
- Rationale: A range-restricted species (EOO < 200 km²), known from four subpopulations. No known threats.

*Colchicum kunkelianum* (U. & D.Müll.-Doblies) J.C.Manning & Vinn.
- Status: DDD
- Distribution: NC. Sutherland.
- Habitat: Unknown.
- Rationale: Known only from the type, collected in 1968. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

*Colchicum undulatum* (U. & D.Müll.-Doblies) J.C.Manning & Vinn.
- Status: Rare
- Distribution: WC. Swartberg Mountains, Seweweekspoort to Tierberg.
- Habitat: Rock ledges and crevices, 1 000 m.
- Rationale: A range-restricted species (EOO 470 km²), known from three subpopulations. No known threats.

- Status: Rare
- Distribution: NC. Richtersveld.
- Habitat: Rock crevices and quartzite outcrops.
- Rationale: A range-restricted species (EOO 91 km²), known from three subpopulations. No known threats.

*Colchicum villosum* (U. & D.Müll.-Doblies) J.C.Manning & Vinn.
- Status: Critically Rare
- Distribution: NC. Kliprand.
- Habitat: Gravel slopes among granite rock ledges.
- Rationale: A range-restricted species (EOO < 20 km²), known from one site. No known threats.

Ornithoglossum Salisb.

*Ornithoglossum gracile* B.Nord.
- Status: NT B1ab(ii,iii,iv,v)
- Distribution: NC WC. Vanrhynsdorp, Clanwilliam and Calvinia.
- Habitat: Grows on rocky, shale-covered mountain slopes in mountain renosterveld or karroid scrub.
- Rationale: Known from five collections but suspected to occur at around 15 locations. It is threatened by slow but ongoing conversion of its habitat for crop cultivation.

Sandersonia Hook.

*Sandersonia aurantiaca* Hook.
- Status: Declining
- Distribution: EC KZN MP. Northern KwaZulu-Natal to East London, also in Swaziland.
- Habitat: Cool, moist slopes with minimal herbivory and fire, 200–1 800 m.
- Rationale: Widespread (EOO > 40 000 km²), but rare throughout its range. Declining because of flower-picking, crop cultivation, forestry and overgrazing by livestock.

Wurmbea Thunb.

*Wurmbea capensis* Thunb.
- Status: VU D2
- Distribution: WC. Darling district.
**ANGIOSPERMS: MONOCOTYLEDONS**

**COLCHICACEAE**

Wurmbea capensis

**Status:** VU D2
C. Archer & J.E. Victor

**Distribution:** WC. Montagu.

Habitat: Montagu Shale Renosterveld, in damp soils derived from shales.

**Rationale:** Restricted to the Montagu area, where it is known from four locations. Potentially threatened by vineyard and deciduous fruit cultivation.

Wurmbea compacta

**Status:** VU B1ab(iii,v)
N.A. Helme & D. Raimondo

**Distribution:** WC. Cape Peninsula.

Habitat: Damp sandy slopes in low-altitude fynbos.

**Rationale:** A Cape Peninsula endemic (EOO 540 km²) now restricted to 5–10 subpopulations. A number of historical locations have been lost to urban expansion of the city of Cape Town. Remaining subpopulations are concentrated on the southern Cape Peninsula and are threatened by invading alien plants.

Wurmbea hiemalis

**Status:** VU B1ab(iii,v)
D. Raimondo & N.A. Helme

**Distribution:** WC. Cape Peninsula.

Habitat: Damp sandy slopes in low-altitude fynbos.

**Rationale:** A Cape Peninsula endemic (EOO 540 km²) now restricted to 5–10 subpopulations. A number of historical locations have been lost to urban expansion of the city of Cape Town. Remaining subpopulations are concentrated on the southern Cape Peninsula and are threatened by invading alien plants.

Wurmbea inusta (Baker)

**Status:** VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo

**Distribution:** WC. Tulbagh to Bredasdorp including the Cape Peninsula.

Habitat: Damp clay flats in lowland renosterveld.

**Rationale:** A habitat specialist (EOO 12 600 km²) that has lost a minimum of 40% of locations as a result of urban and agricultural expansion. Degradation of habitat is ongoing as a result of eutrophication from surrounding wheat fields, alien grass invasions, and overgrazing and trampling by livestock. Habitat loss, from urban expansion especially, in the northern suburbs of Cape Town and in the Gordon’s Bay, is also ongoing.

Wurmbea robusta

**Status:** CR PE
D. Raimondo & N.A. Helme

**Distribution:** WC. Moorreesburg to Malmesbury.

Habitat: Clays flats in renosterveld.

**Rationale:** Restricted to clay flats between Malmesbury and Moorreesburg. Over 94% of its habitat has been converted to wheat cultivation over the past 70 years. The only two historical sites are 97% transformed and there is little chance that the species still occurs on these properties. It has not been collected for 114 years and is therefore possibly extinct, although it is small and easily overlooked. Targeted searches are required to determine if any extant subpopulations still exist.

**COMMELINACEAE**

Aneilema

**R.Br.**

Aneilema longirrhizum

**Status:** NT B1ab(i,ii,iii,iv,v)
L. von Staden, P.J.D. Winter & D. Raimondo

**Distribution:** LM. Sekhukhuneland, northern Leolo Mountains and Olifants River Valley.

**Habitat:** Sekhukhune Plains Bushveld, on well-drained, gravel slopes and along dry riverbeds.

**Rationale:** A range-restricted species (EOO estimated 320–1 900 km²) that is still fairly common and is likely to occur at more than 10 locations. There is extensive, ongoing habitat degradation and habitat loss due to mining, expanding human settlements and overgrazing. These threats are likely to increase in future. Not protected in any reserves.

**Cyperaceae**

Carex L.

**F**

Carex acocksii

**Status:** VU B2ab(ii,iii)
C. Archer & E. Sieben

**Distribution:** WC. KwaZulu-Natal coast, from Umdoni Park to St Lucia.

**Habitat:** Coastal grasslands and dunes, associated with seasonal pans, forms a conspicuous zone around the water’s edge, 5–50 m.

**Rationale:** A range-restricted species (EOO estimated 3 800 km²) that is still fairly common and is likely to occur at more than 10 locations. There is extensive, ongoing habitat degradation and habitat loss due to mining, expanding human settlements and overgrazing. These threats are likely to increase in future. Not protected in any reserves.

C. Archer & J.E. Victor

**Distribution:** WC. Moorreesburg to Malmesbury.

**Habitat:** Doleritic soils on arid mountain summits.

**Rationale:** One known location is potentially threatened by overgrazing by livestock.

**F**

Carex subinflata

**Status:** VU B2ab(ii,iii)
C. Archer & E. Sieben

**Distribution:** NC. Hantamsberg Mountain.

**Habitat:** Doleritic soils on arid mountain summits.

**Rationale:** Known from fewer than 10 locations. Subpopulations in Lesotho and Maclear are declining as a result of overgrazing. Subpopulations near Naude’s Nek and Ongeluksnek are secure.

Carpha R.Br.

**F**

Carpha schlechteri

**C.B.Clarke**

**Status:** DDD
N.A. Helme & D. Raimondo

**Distribution:** WC. Skurweberg and Kouebokkeveld.

**Habitat:** Unknown.

**Rationale:** Known from two collections, both made before 1950. Habitat, locations and status of subpopulations are too poorly known to allocate it to a threat category.

Cyperus L.

**F**

Cyperus sensilis

**Baijnath**

**Status:** NT B1ab(i,ii,iii,iv,v)
L. von Staden

**Distribution:** KZN. KwaZulu-Natal coast, from Umdoni Park to St Lucia.

**Habitat:** Coastal grasslands and dunes, associated with seasonal pans, forms a conspicuous zone around the water’s edge, 5–50 m.

**Rationale:** Known from fewer than 10 locations. Subpopulations in Lesotho and Maclear are declining as a result of overgrazing. Subpopulations near Naude’s Nek and Ongeluksnek are secure.

Carpha R.Br.

**F**

Carpha schlechteri

**C.B.Clarke**

**Status:** DDD
N.A. Helme & D. Raimondo

**Distribution:** WC. Skurweberg and Kouebokkeveld.

**Habitat:** Unknown.

**Rationale:** Known from two collections, both made before 1950. Habitat, locations and status of subpopulations are too poorly known to allocate it to a threat category.
**Ficinia Schrad.**

**Ficinia anceps** Nees
- **Status:** Rare
- **N.A. Helme & M. Muasya**
- **Distribution:** WC, Cape Peninsula.
- **Habitat:** Rocky cliffs.
- **Rationale:** A range-restricted species (EOO 230 km²), known from 11 subpopulations scattered across the Cape Peninsula. Not threatened.

**Ficinia anysbergensis** Muasya
- **Status:** Rare
- **M. Muasya & D. Raimondo**
- **Distribution:** WC, Anysberg and Rooiberg Mountains.
- **Habitat:** Base of large boulders where water accumulates.
- **Rationale:** A range-restricted species (EOO < 800 km²), known from two sites, occurs on arid mountain slopes. Not threatened.

**Ficinia cedarbergensis** T.H. Arnold & Gordon-Gray
- **Status:** Rare
- **M. Muasya & D. Raimondo**
- **Distribution:** WC, Cederberg.
- **Habitat:** Fynbos, rocky sandstone slopes, 960–1 200 m.
- **Rationale:** A Cederberg endemic from high-altitude slopes known from six herbarium sites. Not threatened.

**Ficinia distans** C.B. Clarke
- **Status:** VU D2
- **N.A. Helme & D. Raimondo**
- **Distribution:** WC, Stanford to Bredasdorp.
- **Habitat:** Lowland fynbos, deep sandy flats and lower slopes below 100 m.
- **Rationale:** Known from four locations on the Agulhas Plain (EOO 683 km²). It is threatened by invasion by alien plants and habitat loss to crop cultivation.

**Ficinia fastigiata** (Thunb.) Nees
- **Status:** VU D2
- **M. Muasya & D. Raimondo**
- **Distribution:** WC, Cape Peninsula.
- **Habitat:** Base of shaded rocks.
- **Rationale:** Known from two locations on the Cape Peninsula. Potentially threatened by too frequent fires affecting its shaded woody habitat.

**Ficinia grandiflora** T.H. Arnold & Gordon-Gray
- **Status:** Rare
- **M. Muasya & D. Raimondo**
- **Distribution:** WC, Du Toit’s Kloof to Hottentots Holland Mountains.
- **Habitat:** Granite slopes below 800 m in fynbos.
- **Rationale:** A narrow habitat specialist known from four sites. Not threatened.

**Ficinia latifolia** T.H. Arnold & Gordon-Gray
- **Status:** EN B1ab(iii,iii,v)
- **N.A. Helme & D. Raimondo**
- **Distribution:** WC, Table Mountain and Kogelberg.
- **Habitat:** Seepages on low sandstone slopes.
- **Rationale:** EOO 270 km². Known from three locations, of which the two from Table Mountain have not been collected since 1933. This may indicate sensitivity to human hiking damage. All three recorded locations are vulnerable to ongoing degradation of habitat.

**Ficinia micrantha** C.B. Clarke
- **Status:** Rare
- **M. Muasya & D. Raimondo**
- **Distribution:** WC, Anysberg, Touwsberg and Klein Swartberg Mountains.
- **Habitat:** Base of shaded rocks.
- **Rationale:** Known from two locations on the Cape Peninsula. Potentially threatened by too frequent fires affecting its shaded woody habitat.

**Ficinia minutiflora** C.B. Clarke
- **Status:** Rare
- **N.A. Helme & M. Muasya**
- **Distribution:** WC, Hottentots Holland Mountains and Kogelberg.
- **Habitat:** Seepage habitats on moist fynbos slopes.
- **Rationale:** Known from 10 sites and occurring as localised subpopulations. Not threatened.

**Ficinia petrophila** T.H. Arnold & Gordon-Gray
- **Status:** Rare
- **N.A. Helme & M. Muasya**
- **Distribution:** WC, Anysberg, Touwsberg and Klein Swartberg Mountains.
- **Habitat:** At the base of granite boulders, a seasonally moist habitat, on mountain slopes above 700 m.
- **Rationale:** Known from fewer than five sites. Not threatened.

**Ficinia pinguior** C.B. Clarke
- **Status:** VU B1ab(ii,iii,iii,v)
- **M. Muasya & D. Raimondo**
- **Distribution:** WC, Cape Peninsula to Kleinmond.
Isolepis bulbifera

ANGIOSPERMS: MONOCOTYLEDONS CYPERACEAE

Distribution: WC. Lambert’s Bay to Bredasdorp.
Habitat: Seasonally wet coastal pans.
Rationale: Although relatively widespread (EOO 36 000 km²) and known from 10 locations, it is suspected to occur at a few more as it is a small, inconspicuous sedge that is likely to be under-collected. It continues to decline because of ongoing loss of its restricted, specialised habitat to crop cultivation, urban expansion and invasion by alien plants.

Ficinia pygmaea Boeck.

Status: NT B1ab(ii,iii,iv,v)
M. Muasya & D. Raimondo

Distribution: WC. Cape Peninsula to Malmesbury.
Habitat: Seasonally flooded areas on shallow coastal soils.
Rationale: EOO 580 km². Three known locations continue to decline as a result of ongoing habitat loss to urban expansion, agriculture (wheat and pasture cultivation) and invasion by alien plants.

Ficinia rigida Levyns

Status: VU B1ab(ii,iii,iv,v)
N.A. Helme & M. Muasya

Distribution: WC. Cape Peninsula to Kleinmond.
Habitat: Sandy coastal slopes in fynbos.
Rationale: EOO 1 008 km². Known from fewer than 10 locations. Occurs on low sandstone slopes where there is ongoing habitat loss to coastal and urban development.

Ficinia sp. nov.

Voucher: Drège 290a Paris
Status: Rare
N.A. Helme

Distribution: WC. Hex River Mountains to Du Toit’s Kloof.
Habitat: Upper sandstone slopes.
Rationale: Known from three sites on high-altitude slopes on the Hex River, Slanghoek and Du Toit’s Kloof Mountains.

Fimbristylis Vahl

Fimbristylis aphylla Steud.

Status: VU B1ab(iii)
C. Archer, L. von Staden & E. Sieben

Distribution: KZN. KwaZulu-Natal coast to tropical West Africa and tropical Asia.
Habitat: Permanently wet vleis, open places and swamps, often in water. Usually near the sea.
Rationale: It has a restricted distribution in KwaZulu-Natal (EOO 12 600 km²) and is known from five collections. However, it is possibly under-collected, and since it is fairly widely distributed, it is estimated that there could be up to 10 locations, especially since it does not appear to be very habitat specific. There is a continuing decline in habitat across the range as a result of subsistence farming, urban expansion and coastal development.

Isolepis R.Br.

Isolepis bulbifera (Boeck.) Muasya

Status: EX
M. Muasya & D. Raimondo

Distribution: WC. Cape Flats.
Habitat: Shallow soil at the edge of a vlei.
Rationale: Endemic to wetlands on the Cape Flats, known from two herbarium records. Last collected before 1950 at Kenilworth Racecourse, and despite four thorough searches in the correct habitat it has not been relocated; it is therefore considered extinct. It went extinct because of the impact of urban expansion and invading alien plants.

Isolepis inconspicua (Levyns) J.Raynal

Status: EN B1ab(ii,iii,iv,v)
M. Muasya & D. Raimondo

Distribution: WC. Cape Peninsula to Malmesbury.
Habitat: Seasonally flooded areas on shallow coastal soils.
Rationale: EOO 580 km². Three known locations continue to decline as a result of ongoing habitat loss to urban expansion, agriculture (wheat and pasture cultivation) and invasion by alien plants.

Isolepis leucoloma (Nees) C.Archer

Status: VU D2
M. Muasya & D. Raimondo

Distribution: WC. Cape Peninsula to Kleinmond.
Habitat: Damp depressions in shallow soils.
Rationale: Known from three locations, a rare species potentially threatened by invading alien plants.

Isolepis minuta (Turrill) J.Raynal

Status: DDD
M. Muasya & D. Raimondo

Distribution: WC. Ceres.
Habitat: Sandstone slopes.
Rationale: Known from the 1908 type specimen by Pearson and Stephens collected in the mountains near Ceres.

Isolepis pellocolea B.L.Burtt

Status: Rare
M. Muasya & D. Raimondo

Distribution: KZN. Drakensberg mountain range.
Habitat: Marshy ground at stream sides.
Rationale: Known from three sites and restricted to alpine bogs. Potentially threatened by overgrazing in Lesotho.

Isolepis pusilla Kunth

Status: DDD
M. Muasya & D. Raimondo

Distribution: WC. Cape Flats to Bokkeveld Escarpment.
Habitat: Shallow seasonal pans both natural and as a result of roadside disturbance.
Rationale: This species was known from old collections from the Cape Peninsula and was assumed to be extinct. Since 2002, three new subpopulations have been discovered. One is in natural habitat (Riverlands) but two are very disjunct and in roadside depressions. More fieldwork is required to determine the distribution, dispersal ability and habitat of this species.

Isolepis venustula Kunth

Status: VU B1ab(iii,iv)
M. Muasya & D. Raimondo

Distribution: WC. Yzerfontein to Hermanus.
Habitat: Edges of brackish, seasonal coastal pans.
Rationale: EOO 5 800 km². Known from four locations and a very specialised habitat. This habitat is being affected by coastal development and invading alien plants, causing continuing decline of habitat quality and numbers of mature individuals.
Tetraria P. Beauv.

Tetraria brachyphylla Levyns
Status: NT B1a(b)(ii,iii,iv,v)
G.A. Verboom & D. Raimondo

Distribution: WC, Cape Peninsula to Plettenberg Bay.
Habitat: Coastal dunes and limestones.
Rationale: Widespread on dunes along the Cape southwest coast (EOO < 10 000 km²), recorded from 10–15 locations, but threatened throughout its range by invasive alien plants and coastal development.

Tetraria graminifolia Levyns
Status: VU D2
N.A. Helme, G.A. Verboom, D. Raimondo & R.C. Turner

Distribution: WC, Cape Peninsula.
Habitat: Granite loams on slopes.
Rationale: Known from one location. Potentially threatened by invading alien plants.

Tetraria paludosa Levyns
Status: CR PE
G.A. Verboom & D. Raimondo

Distribution: WC, Cape Peninsula, Camps Bay.
Habitat: Marshy lower slopes below 500 m.
Rationale: Not collected for over 50 years and its two recorded sites are highly transformed by urban expansion and invading alien plants. Thorough searches are required before this species can be declared extinct.

Trianoptiles Fenzl

Trianoptiles solitaria (B. Clarke) Levyns
Status: CR B1a(b)(iii) + 2ab(iii)
C. von Witt, M. Musa & D. Raimondo

Distribution: WC, Cape Peninsula, Rondebosch Common and Kenilworth Racecourse.
Habitat: Damp depressions in acid sands.
Rationale: Restricted to the Cape Flats, this species had not been collected since 1950 and was thought to be extinct. It was fortunately rediscovered in 2008 and is now known only from a small fragment where it is threatened by alien grass invasions and eutrophication from surrounding urban areas.

Dioscorea L.

Dioscorea elephantipes (L’Hér.) Engl.
Status: Declining
J.E. Victor & A.P. Dold

Distribution: EC FS WC. Springbok to Clanwilliam to Grahamstown.
Habitat: Rocky (quartzite and shales) east-facing hillsides.
Rationale: Although a widespread and in places a fairly common geophyte, this species is declining in some areas because of harvesting for the local medicinal trade as well as being eaten and sometimes destroyed by Angora goats.

Dioscorea mundii Baker
Status: NT B1a(b)(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Nature’s Valley to George.
Habitat: Coastal forest on fixed dunes and edges of afromontane forest.
Rationale: EOO < 1 000 km². Fewer than 10 known locations continue to decline as a result of coastal development, agriculture (pasture plantations) and invasion by alien plants.

Dioscorea sp. nov.

Voucher: Hurter 106 GLOW, PRU
Status: CR B1a(b)(v) + 2ab(v); C1
L. von Staden, J.E. Victor, D. Raimondo & P.J.H. Hurter

Distribution: MP. Oshoek.
Habitat: Exposed, open grassland, in serpentine soils on steep, southeast-facing slopes, 1 100 m.
Rationale: Recently discovered, known from one location and less than 250 mature individuals. The tubers of this species are used as medicine by the Ebutsini tribe, on whose tribal land the only known subpopulation occurs. Medicinal harvesting is causing a continuing decline in the number of mature individuals. It appears to be a very slow-growing species (generation length estimated to be 50 years). There has been at least a 25% decline in the number of mature individuals over the past 150 years as a result of medicinal harvesting.

Dioscorea sylvatica Eckl.
Status: VU A2cd

Distribution: EC FS G KZN LM MP WC. Also in Swaziland, Zimbabwe and Zambia.
Habitat: Wooded and relatively mesic places, such as the moister bushveld areas, coastal bush and wooded mountain knoobs.
Rationale: There was a huge population decline from 1955–1960 as a result of indiscriminate commercial harvesting for diosgenin, a substance that was used to manufacture cortisone and other steroid hormones. Exploitation of tubers for the local medicinal plant trade is ongoing and is preventing recovery. The overall decline is estimated to be > 30% over the past 90 years (generation length estimated to be 30 years).

Dracaena L.

Dracaena transvaalensis Baker
Status: Rare
L. von Staden, J.E. Burrows & S. Burns

Distribution: LM MP. Dublin Mine to Penge.
Habitat: Quartzite or dolomite lithosols, sometimes in

DIOECIOCEAE

DRACAENACEAE

Dracaena L.
deep rock cracks, hot and dry exposed slopes covered in deciduous woodland, occasionally in light shade in tall evergreen woodland on mountain slopes, 750–1 000 m. **Rationale:** Known from seven sites, this habitat specialist is not threatened.

**Sansevieria** Thunb.

*Sansevieria metallic* Gérôme & Labroy

**Status:** Critically Rare

**Distribution:** KZN. Northern KwaZulu-Natal, Tembe Elephant Park.

**Habitat:** Savanna in deep sand, usually in shade of trees, 20–100 m.

**Rationale:** Currently known from only one site. Not threatened as it occurs within a nature reserve.

**ERIOSPERMACEAE**

**Eriospermum** Jacq. ex Willd.

**Eriospermum aequilibre** Poelln.  

**Status:** VU D2

C. Archer & J.E. Victor

**Distribution:** WC. Uniondale district.

**Habitat:** Uniondale Shale Renosterveld.

**Rationale:** Known from two locations from the eastern Little Karoo. Potentially threatened by wheat cultivation.

**Eriospermum algiferum** A.V.Duthie

**Status:** DDD

D. Raimondo

**Distribution:** WC. Southern Tanqua Karoo.

**Habitat:** Quartzitic hill.

**Rationale:** Known only from the 1919 type collection by Marloth in the Tanqua Karoo.

**Eriospermum appendiculatum** A.V.Duthie

**Status:** VU D2

D. Raimondo & N.A. Helme

**Distribution:** WC. Steytlerville district.

**Habitat:** Succulent karoo shrubland, quartzite colluvium on river terraces.

**Rationale:** Known from two locations in the Steytlerville Karoo. Potentially threatened by habitat degradation as a result of livestock farming.

**Eriospermum arachnoideum** P.L.Perry  

**Status:** CR B1ab(ii,iii,v)+2ab(ii,iii,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Knysnvlakte.

**Habitat:** Succulent karoo shrubland, in rock crevices of limestone outcrops.

**Rationale:** Known from one location in the Knysnvlakte and threatened by ongoing limestone and marble quarrying.

**Eriospermum arenosum** P.L.Perry

**Status:** VU B1ab(ii,iii,v)+2ab(ii,iii,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Velddrif to Wallekraal.

**Habitat:** West Coast strandveld or succulent karoo shrubland, either white or red sandy aeolian soils, under small karroid bushes.

**Rationale:** EO0 12 000 km2. Known from five collections although a few more undiscovered subpopulations are likely, fewer than 10 locations are suspected. Habitat is declining as a result of agricultural expansion and heavy-mineral sand mining along the coast.

**Eriospermum aribesense** P.L.Perry

**Status:** VU D2

C. Archer & J.E. Victor

**Distribution:** NC. Namaqualand, north of Steinkopf.

**Habitat:** Namaqualand Shale Shrubland, in well-drained stony, yellow-brown, sandy loam on moderate slopes.

**Rationale:** Known from one location near Steinkopf. Potentially threatened by mining and grazing by goats.

**Eriospermum armianum** P.L.Perry

**Status:** Rare

N.A. Helme, C. Archer & J.E. Victor

**Distribution:** NC. Springbok to Kliprand.

**Habitat:** Talus on a granite cliff edge, partially shaded by shrubs.

**Rationale:** This habitat specialist is known from four naturally disjunct subpopulations in Namaqualand. Not threatened.

**Eriospermum attenuatum** P.L.Perry

**Status:** DDD

D. Raimondo

**Distribution:** WC. Kamiesberg to Knysnvlakte.

**Habitat:** Granitic soils in Namaqualand Klipkoppe Shrubland or on quartz-covered saline soils in Vanrhynsdorp Gannabosveld.

**Rationale:** Last collected in 1950, despite much searching in the region. As there are five collections between 1933 and 1950, this may indicate a decline due to overgrazing by livestock.

**Eriospermum bowieanum** Baker

**Status:** VU B1ab(ii,iii,iv,v)

N.A. Helme

**Distribution:** WC. Worcester to Ashton.

**Habitat:** Clay soils, amongst low karroid bushes.

**Rationale:** A Worcester Karoo endemic that occurs on clay soils (EO0 < 2 500 km2). There are probably fewer than 10 locations although only four are known. It is severely threatened by wheat and vineyard expansion.

**Eriospermum bracteatum** Archibald

**Status:** VU D2

N.A. Helme & D. Raimondo

**Distribution:** EC. Grahamstown district.

**Habitat:** Semi-arid scrub in hard, clay soil formed from dolerite and shale in open karroid communities between bush clumps.

**Rationale:** Known from two locations and potentially threatened by harvesting for medicinal use, invasive alien plants and crop cultivation.

**Eriospermum bruynsii** P.L.Perry

**Status:** VU D2

C. Archer & J.E. Victor

**Distribution:** WC. Calitzdorp.

**Habitat:** Semi-arid scrub in hard, clay soil formed from dolerite and shale in open karroid communities between bush clumps.

**Rationale:** Known from two locations and potentially threatened by harvesting for medicinal use, invasive alien plants and crop cultivation.
ERIOSPERMACEAE

**Eriospermum calceatum** P.L.Perry

- **Status:** EN B1ab(ii,iii,v) + 2ab(ii,iii,v)
- **N.A. Helme**
  - **Distribution:** WC. Knersvlakte.
  - **Habitat:** Red sands and limestone outcrops.
  - **Rationale:** Known from two locations in a restricted range (EOO 20 km²), threatened by vineyard and tomato cultivation, and by quarrying (marble and limestone).

**Eriospermum stoloniferum** (L.) Thunb. subsp.

**Eriospermum ernstii** P.L.Perry

- **Status:** Rare
  - **E.J. van Jaarsveld & L. Potter**
  - **Distribution:** NC. Bushmanland, Dabenoris and Pellaberg Mountains.
  - **Habitat:** Lower, south-facing mountain slopes, amongst hard quartzitic rocks.
  - **Rationale:** Known from two areas in Bushmanland, no significant threats are known to affect this species.

**Eriospermum exiguum** P.L.Perry

- **Status:** Rare
  - **R. Klopper, N.A. Helme & D. Raimondo**
  - **Distribution:** WC. Bokeveld Escarpment between Vanrhyn’s Pass and Gifberg.
  - **Habitat:** Shallow soils in rock pockets on sandstone pavements.
  - **Rationale:** Known from two collections but because of its tiny size, it is likely to be overlooked. The Bokeveld Escarpment and Gifberg are currently threatened by rooibos tea cultivation and sandstone quarrying, but this species mostly occurs on sandstone pavements, so most of its habitat is out of danger.

**Eriospermum exile** P.L.Perry

- **Status:** Rare
  - **C. Archer, D. Raimondo & J.E. Victor**
  - **Distribution:** WC. Little Karoo, western Great Karoo and Ceres Karoo.
  - **Habitat:** Grows on steep, shady, southeast-facing slopes in damp pockets amongst quartzitic rocks and also on Beaufort shales.
  - **Rationale:** When this species was described it was known from a few scattered plants growing at two widely separated sites, in the southern Tanqua Karoo and western Great Karoo. Recent collections indicate, however, that it occurs more widely in the western parts of the Great Karoo and there is also a collection from southernNamaqualand, which greatly extends its range. However, it is still known from a few plants at widely scattered sites and hence it qualifies as a rare species owing to low density of individuals.

**Eriospermum flicicaule** P.L.Perry

- **Status:** Rare
  - **C. Archer, J.E. Victor & D. Raimondo**
  - **Distribution:** NC. Steinkopf to Alexander Bay.
  - **Habitat:** Grows in flat stony ground among karroid bushes.
  - **Rationale:** A naturally rare species found only in a limited area around Steinkopf in northern Namaqualand in the southern Gariep Centre. There is also a collection from an unknown site within the Richtersveld, indicating that the species may be more common than generally thought.

**Eriospermum flavum** P.L.Perry

- **Status:** Rare
  - **D. Raimondo**
  - **Distribution:** WC. Cederberg.
  - **Habitat:** Sandy pockets amongst rocks of Table Mountain Group-derived sandstone.
  - **Rationale:** Cederberg endemic, said to be locally common after fire, known from three sites but a few more likely within unexplored areas of its range.

**Eriospermum capense** (L.) Thunb.

**Eriospermum coactum** P.L.Perry

- **Status:** VU D2
  - **C. Archer & J.E. Victor**
  - **Distribution:** NC. Springbok district.
  - **Habitat:** Namaqualand Shale Shrubland on granitic soils.
  - **Rationale:** Known from four locations and potentially threatened by grazing livestock (goats).

**Eriospermum crispum** P.L.Perry

- **Status:** VU A2c; C1
  - **J.H. Vlok & D. Raimondo**
  - **Distribution:** WC. Calitzdorp.
  - **Habitat:** Eastern Little Karoo on clay soils derived from shales.
  - **Rationale:** Restricted to the Calitzdorp area, where there is ongoing degradation and fragmentation of its habitat as a result of ostrich farming. There are less than 10 000 plants as subpopulations consist of very few plants each. There has been an estimated 10% decline in the population over the past 100 years (generation length suspected to be 50 years for this very slow-growing geophyte).

**Eriospermum erinum** P.L.Perry

- **Status:** EN A2c
  - **D. Raimondo, S. Todd & E. Marinus**
  - **Distribution:** WC. Nieuwoudtville district.
  - **Habitat:** Dwarf karoo shrubland on hill slopes (in soils derived from the dolerite outcrops) and on flats (in clay soils derived from Dwyka tillite).
  - **Rationale:** A Bokeveld Escarpment endemic known from an area of 800 km². It has experienced habitat loss to wheat cultivation (over 73% of its habitat was transformed over 60 years). Eriospermums are long-lived (ed to be 50 years for this very slow-growing geophyte).

**Eriospermum eriophorum** P.L.Perry

- **Status:** CR B1ab(iii)
  - **D. Raimondo**
  - **Distribution:** WC. Vansrynsdorp district.
  - **Habitat:** Sparse succulent karoo, clay soils on dry, rocky hills.
  - **Rationale:** Known from one location south of Vansrynsdorp where it is being heavily affected by overgrazing, which is causing continuing decline in habitat quality.

**Eriospermum erinum** P.L.Perry

- **Status:** VU D2
  - **C. Archer & J.E. Victor**
  - **Distribution:** WC. Malmsbury to Cape Town, Worcester and Caledon.
  - **Habitat:** Clay soils.
  - **Rationale:** EOO < 5 000 km². Known from fewer than 10 locations. This taxon has lost significant amounts of habitat to urban expansion and agriculture (vines and wheat). The loss of habitat to these threats is ongoing.

**Eriospermum erinum** P.L.Perry

- **Status:** VU A2c
  - **J.H. Vlok & D. Raimondo**
  - **Distribution:** NC. Springbok district.
  - **Habitat:** Namaqualand Shale Shrubland on granitic soils.
  - **Rationale:** Known from four locations and potentially threatened by grazing livestock (goats).

**Eriospermum crispum** P.L.Perry

- **Status:** VU A2c; C1
  - **J.H. Vlok & D. Raimondo**
  - **Distribution:** WC. Calitzdorp.
  - **Habitat:** Eastern Little Karoo on clay soils derived from shales.
  - **Rationale:** Restricted to the Calitzdorp area, where there is ongoing degradation and fragmentation of its habitat as a result of ostrich farming. There are less than 10 000 plants as subpopulations consist of very few plants each. There has been an estimated 10% decline in the population over the past 100 years (generation length suspected to be 50 years for this very slow-growing geophyte).

**Eriospermum erinum** P.L.Perry

- **Status:** EN A2c
  - **D. Raimondo, S. Todd & E. Marinus**
  - **Distribution:** WC. Nieuwoudtville district.
  - **Habitat:** Dwarf karoo shrubland on hill slopes (in soils derived from the dolerite outcrops) and on flats (in clay soils derived from Dwyka tillite).
  - **Rationale:** A Bokeveld Escarpment endemic known from an area of 800 km². It has experienced habitat loss to wheat cultivation (over 73% of its habitat was transformed over 60 years). Eriospermums are long-lived (ed to be 50 years for this very slow-growing geophyte).

**Eriospermum eriophorum** P.L.Perry

- **Status:** CR B1ab(iii)
  - **D. Raimondo**
  - **Distribution:** WC. Vansrynsdorp district.
  - **Habitat:** Sparse succulent karoo, clay soils on dry, rocky hills.
  - **Rationale:** Known from one location south of Vansrynsdorp where it is being heavily affected by overgrazing, which is causing continuing decline in habitat quality.
Eriospermum fragile P.L.Perry
Status: Rare
D. Raimondo
Distribution: WC. Vanrhynsdorp to Springbok.
Habitat: Flats in very hard clay soil.
Rationale: Known from three disjunct sites in Namaqualand. Low density of individuals suspected, otherwise this species would have been more regularly collected. A naturally rare species that is not threatened.

Eriospermum glaciale P.L.Perry
Status: EN A2c
D. Raimondo & N.A. Helme
Distribution: NC. Nieuwoudtville.
Habitat: Dwyka tillite clays.
Rationale: This geophyte has a very limited distribution, EOO 800 km². Over 75% of its habitat has been lost to ploughing for wheat over the past 70 years. This loss has taken place over less than three generations of this slow-growing species (generation length estimated to be 30 years).

Eriospermum laxiracemosum P.L.Perry
Status: VU B1ab(ii,iii)
N.A. Helme & D. Raimondo
Distribution: WC. Vanrhynsdorp to Clanwilliam.
Habitat: Sandy flats or slight slopes on sandstone-derived soils.
Rationale: EOO < 550 km². Known from fewer than 10 locations. Its particular habitat is currently being targeted for rooibos tea cultivation, resulting in continuing loss of habitat.

Eriospermum macgregoriorum P.L.Perry
Status: Rare
N.A. Helme & D. Raimondo
Distribution: NC. Nieuwoudtville to Calvinia.
Habitat: Dolerite-derived clays.
Rationale: Known from four sites but a few more likely. Not threatened as the soils on which it grows are not suitable for ploughing.

Eriospermum minutipustulatum P.L.Perry
Status: VU D2
C. Archer & J.E. Victor
Distribution: WC. Koebbe Escarpment.
Habitat: Mountain renosterveld on clay soils.
Rationale: Known from one location, and potentially threatened by overgrazing by livestock, especially goats.

Eriospermum occultum Archibald
Status: Critically Rare
D. Raimondo
Distribution: EC. Suurb erg near Somerset East.
Habitat: Mo ist, black, sandy soils formed from Witteberg quartzite, amongst clumps of tussock grass.
Rationale: Known from one site on the southern slopes of the Suurb erg, no significant threats are known.

Eriospermum papilliferum A.V.Duthie
Status: DDD
D. Raimondo
Distribution: NC. Namaqualand, near Steinkopf.
Habitat: Probably occurs in granitic soils in succulent karoo shrubland.
Rationale: A poorly known species recorded only from the type, collected in 1930 near Steinkopf in northern Namaqualand.

Eriospermum parvulum P.L.Perry
Status: VU D2
C. Archer & J.E. Victor
Distribution: NC. Richtersveld.
Habitat: Goariep Mountain Succulent Shrubland, in coarse sand amongst granite rocks.
Rationale: A rare species from a remote area in the Richtersveld. Potentially threatened by grazing goats.

Eriospermum patentiflorum Schltr.
Status: VU B1ab(ii,iii,v)
N.A. Helme
Distribution: NC. Springbok to Aggeneys.
Habitat: Steep, shaded areas amongst rocks.
Rationale: Northern Namaqualand endemic confined to steep rocky areas. Known from three sites but as this species is very small, it is likely to have been overlooked and possibly occurs at a few more sites.

Eriospermum pusillum P.L.Perry
Status: Rare
D. Raimondo
Distribution: NC. Namaqualand, west of Kamiesberg to Riethuis.
Habitat: Sandy soils probably derived from granite.
Rationale: A poorly known species recorded from four widely separated sites in Namaqualand. Occurs as small subpopulations at low densities.

Eriospermum ramosum P.L.Perry
Status: Rare
N.A. Helme
Distribution: NC. Namaqualand, Ratelpoort between Springbok and Steinkopf.
Habitat: Dry, rocky, quartzitic, northwest-facing slope.
Rationale: A range-restricted species (EOO < 400 km²). Not threatened.

Eriospermum ratelpoortianum P.L.Perry
Status: Rare
N.A. Helme
Distribution: WC. Clanwilliam and Vanrhynsdorp.
Habitat: Arid fynbos, in sandy soils.
Rationale: EOO < 1 000 km². Known from fewer than 10 locations. Declining as a result of agriculture (vineyards, tomatoes and onions) and mining.

Eriospermum rhizomatum P.L.Perry
Status: VU C1
J.H. Vlok & D. Raimondo
Distribution: WC. Oudtshoorn and Calitzdorp.
Habitat: Succulent karoo transitional to renosterveld, amongst leafy humus under karroid bushes on rocky outcrops.
Rationale: A Little Karoo endemic from the Oudtshoorn and Calitzdorp districts. Less than 10 000 plants are likely to occur as all subpopulations are very small (fewer than 10 plants). Ostrich farming is the predominant threat in the area and plants suffer from trampling and grazing. More than 10% of the population has been lost over the past 50 years and this threat is ongoing.
Eriostereum sabulosum P.L.Perry
Status: VU D2
C. Archer & J.E. Victor
Distribution: NC. namaqualand, southwest of Ka-
mieskroon.
Habitat: namaqualand klipkoppe shrubland, on flats in
coarse granitic sand near granite outcrops.
Rationale: known from the type locality on the edge of
the Kamiesberg. Potentially threatened by ploughing for
Cereal crops.

Eriostereum spirale Schult.
Status: VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Cape Flats to Vanrhynsdorp.
Habitat: Sandy or clay flats.
Rationale: EOO 12 000 km². Known from fewer than 10
locations. Occurs only on clay or sand flats, and is known
from widely disjunct locations between stellenbosch
and Vanrhynsdorp. It is highly threatened throughout
its range by agriculture and urban expansion. Over 50%
of historical locations have been lost to urban develop-
ment and crop cultivation over the past 120 years, loss is
continuing.

Eriostereum subincanum P.L.Perry
Status: EN A4ac; B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Vanrhynsdorp to Biedouw.
Habitat: Sandy flats.
Rationale: It has a highly restricted range (EOO 1 850
km²), and is confined to the exact habitat where rooibos
tea grows well. The rooibos tea industry is currently ex-
Panding rapidly and ploughing of new lands is predicted
to continue at least for the next 20 years. Known from
four locations, but recent rooibos cultivation has had a
heavy impact on the Sandkraal type locality. There has
been a minimum of 20% habitat loss over the past 10
years and we suspect that a further 30% of habitat will
be lost over the next 20 years ( generation length is esti-
ated to be 25 years).

Eriostereum subtile P.L.Perry
Status: Rare
N.A. Helme & D. Raimondo
Distribution: NC WC. Bokkeveld and Roggeveld Escarp-
ments.
Habitat: Shale slopes.
Rationale: Known from three sites but it is likely that a
few more undiscovered subpopulations exist. Subpopula-
tions are small and widely scattered.

Eriostereum titanopsoides P.L.Perry
Status: VU D2
N.A. Helme, C. Archer & J.E. Victor
Distribution: WC. Vredendal to Bitterfontein.
Habitat: Quartz patches on shales.
Rationale: Restricted to quartz patches on the kners-
vakte, where it has been recorded at four locations.
Potentially threatened by overgrazing and mining.

Eriostereum tuberculatum P.L.Perry
Status: VU D2
N.A. Helme, C. Archer & J.E. Victor
Distribution: NC. Kharkams.
Habitat: Granite slopes.
Rationale: One known location is potentially threatened
by habitat loss to cereal crops.

Eriostereum undulatum P.L.Perry
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: NC. Kharkams to Steinkopf.
Habitat: Granite flats and slopes.
Rationale: Known from four locations in northern
Namaqualand. Occurs mostly in communal areas where
heavy grazing pressure from goats poses a potential
threat.

Eriostereum vermiforme P.L.Perry
Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,v)
N.A. Helme
Distribution: WC. Gourits River to Great Brak River.
Habitat: Lower slopes or flats, in sandy soil amongst low
bushes.
Rationale: EOO < 2 500 km². Known from four locations
in the Mossel Bay area, declining as a result of agricul-
ture, coastal development, quarrying and invasion by
alien plants.

Eriostereum viscosum P.L.Perry
Status: VU D2
N.A. Helme, C. Archer & J.E. Victor
Distribution: NC. Vioolsdrif to Steinkopf.
Habitat: Arid shales.
Rationale: Known from four collections in the Steinkopf
vicinity. Occurs as small, sparse subpopulations, in com-
munally owned areas where grazing pressure from live-
stock is a potential threat. There is also a slight potential
threat from mining.

Caeisia R.Br.

Caeisia capensis (Bolus) Oberm.
Status: Rare
N.A. Helme & D. Raimondo
Distribution: WC. Groot Winterhoek Mountains and Du
Toit’s Peak to Seweweekspoort.
Habitat: Sandstone, high alpine peaks, over 1 600 m.
Rationale: Only from the highest peaks in the Cape Fold
Mountains. Not threatened.

Caeisia sp. nov.
Voucher: Manning 1023 NBG
Status: VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Redelinghuys to Blouberg.
Habitat: Deep sandy flats.
Plate 15

Eriogonum crisum (leaves) VU

Eriogonum arachnoideum (leaves) CR, with a flower of Isla caulis

Eriogonum aequilibre VU

Eriogonum crisum (flower) VU
**HYACINTHACEAE**

**Albuca L.**

- **Albuca clanwilliamigloria U.Müll.-Doblies**  
  **Plate 16**  
  Status: EN B1ab(ii,iii,v)  
  N.A. Helme & D. Raimondo  
  *Distribution*: WC. Redelinghuys to Olifants River Valley.  
  *Habitat*: Deep acid sands.  
  *Rationale*: Known from three locations. It has lost habitat to citrus cultivation and is experiencing an ongoing habitat loss to onion, potato and vineyard expansion. The main population north of Clanwilliam has lost 40% of its subpopulation and habitat since 2000, and new fields continue to be ploughed.

- **Albuca crudenii Archibald**  
  Status: VU D2  
  J.E. Victor, A.P. Dold & R. Klopper  
  *Distribution*: EC. Grahamstown to Aliedale.  
  *Habitat*: Thornveld.  
  *Rationale*: Known from two locations. Invasive alien plants have infested much of the Dassieklip area (one of the locations) in the past, but recent clearing is reversing this trend. Invasive aliens remain a potential threat.

- **Albuca thermarum Van Jaarsv.**  
  Status: Critically Rare  
  D. Raimondo  
  *Distribution*: WC. Calitzdorp.  
  *Habitat*: Wedged in rock crevices or pockets on sheer cliff faces.  
  *Rationale*: Occurs at a single site and is not threatened because of the inaccessibility of its habitat.

**Bowia** Harv. ex Hook.f.

- **Bowia volubilis** Harv. ex Hook.f. subsp. *volubilis*  
  Status: VU A2ad  
  *Distribution*: EC G ZKv LM MP. Eastern Cape to Limpopo Province. Widespread elsewhere in southern and eastern Africa.  
  *Habitat*: Low and medium altitudes, usually along mountain ranges and in thickly vegetated river valleys, often under bush clumps and in boulder scree, sometimes scrambling at the margins of karroid, succulent bush in the Eastern Cape. Occurs in bushy kloofs at the coast and inland in KwaZulu-Natal. In Gauteng, Mpumalanga and North West Province it is often found in open woodland or on steep rocky hills, usually in well-shaded situations. Tolerates wet and dry conditions, growing predominantly in summer-rainfall areas with an annual rainfall of 200–800 mm.  
  *Rationale*: This taxon is under severe pressure from medicinal plant harvesting over most of its range in South Africa. Provincial authorities estimate a minimum decline of 30% nationally. This decline has taken place over the past 30 years. The estimated decline is based on observed declines at known sites and subpopulations as well as on changes in the size of individual bulbs available on the muthi markets. Generation length is estimated to be 10 years.

**Draubena Lindl.**

- **Draubena alba** A.M.van der Merwe  
  Status: Rare  
  P.A. Manyama  
  *Distribution*: NC. Middelpos.  
  *Habitat*: Seasonally waterlogged dolerite clay, on low hills or at the foot of rocky dolerite outcrops, 1 000–1 500 m.  
  *Rationale*: A range-restricted habitat specialist from the Roggeveld Escarpment, known from fewer than five sites. No significant threats.

- **Draubena aurea** Lindl.  
  Status: VU B1ab(ii,iii,iv,v)  
  G.D. Duncan & J.E. Victor  
  *Distribution*: NC. Roggeveld Mountains.  
  *Habitat*: Karoo shrubland on stony, heavy red clay soil.  
  *Rationale*: EOO < 3 000 km². Known from nine locations. It has lost habitat to overgrazing and agriculture and is declining because of soil disturbance by porcupines and crop cultivation.

- **Draubena capensis** (Schltr.) A.M.van der Merwe & J.C.Manning  
  Status: NT D2  
  D. Raimondo  
  *Distribution*: WC. Bokkeveld Escarpment and Western Karoo.  
  *Habitat*: Dolerite clays.  
  *Rationale*: A range-restricted species (EOO 49 km²), known from eight locations. In the 1950s, 13% of its dolerite vertisol clay habitat was ploughed for wheat. This habitat is not currently targeted for agriculture but the species remains potentially threatened by future crop cultivation and overgrazing by livestock.

- **Draubena stylosa** (Barker) A.M.van der Merwe & J.C.Manning  
  Status: VU D2  
  E. Marinus & D. Raimondo  
  *Distribution*: NC. Bokkeveld Escarpment.  
  *Habitat*: Dolerite clay soils.  
  *Rationale*: Known from three locations in a very restricted range (EOO 165 km²). Potentially threatened by agriculture and grazing by livestock.

- **Draubena zeyheri** (Kunth) J.C.Manning & A.M.van der Merwe  
  Status: EN B1ab(ii,iii,v)  
  N.A. Helme & D. Raimondo  
  *Distribution*: WC. Paternoster to Langebaan.  
  *Habitat*: Coastal granite boulders and occasionally on adjacent sands and calcrites.  
  *Rationale*: EOO < 100 km². Known from three locations. Experiencing habitat loss due to coastal development.

**Drimia Jacq. ex Wildl.**

- **Drimia albiflora** (B.Nord.) J.C.Manning & Goldblatt  
  Status: VU D2  
  D. Raimondo  
  *Distribution*: WC. Montagu to Stormsvlei.  
  *Habitat*: Low-altitude slopes.  
  *Rationale*: Known from one location. Potentially threatened by agriculture (deciduous fruit and wheat cultivation).
Drimia altissima (L.f.) Ker Gawl.
Status: Declining
Distribution: EC FS G KZN LM MP NW WC. Western Cape to Limpopo Province and Swaziland, and through southern Africa northwards to Angola and the Congo.
Habitat: Hot, dry bushveld and thicket.
Rationale: Considered to be Declining because medium to large volumes of bulbs are evident on the medicinal markets, but the species appears to be widespread in southern Africa. It has experienced some decline in the past, but the extent and time frame are unknown; declines are not suspected to have exceeded 10% of the population.

Drimia arenicola (B.Nord.) J.C.Manning & Goldblatt
Status: VU D2
J.E. Victor & R.C. Turner
Distribution: NC WC. Namaqualand and western Karoo to Clanwilliam.
Habitat: Sandy habitats.
Rationale: Known from five locations. Potentially threatened by bulb collecting for the horticultural trade.

Drimia barkerae Oberm. ex J.C.Manning & Goldblatt
Status: EN B1ab(ii,iii,iv,v)
R.C. Turner
Distribution: WC. Eendekuil.
Habitat: Shale slopes and shallow, loamy soils fringe fine clays and quartzite pebble fields.
Rationale: Endemic to the flats surrounding Piketberg, between the foot of Piekensierskloof Pass and Redelinghuys (EOO 450 km²). It is known from fewer than five locations and continues to decline as a result of wheat and vineyard expansion and grazing by livestock. Much of the habitat has been irreversibly transformed and this loss is ongoing.

Drimia chalumnensis A.P.Dold & E.Brink
Status: VU D2
A.P. Dold, J.E. Victor & R.C. Turner
Distribution: EC. Chalumna River.
Habitat: Buffels Thicket.
Rationale: Known from two locations. Potentially threatened by informal housing development.

Drimia cooperi (Baker) Baker
Status: VU A2ad; C2a(i)
V.L. Williams & N.R. Crouch
Distribution: EC KZN. King William’s Town to Pietermaritzburg.
Habitat: Grassy hills.
Rationale: Estimated to have experienced over 30% decline over last 30 years because of habitat loss and some muthi collecting. The subpopulations are fragmented and suspected to occur in fewer than 10 locations. The population size is estimated to be less than 10 000 mature individuals, and the number of mature individuals that have been recorded in a subpopulation is less than 100. Generation length is suspected to be 20 years.

Drimia cyanelloides (Baker) J.C.Manning & Goldblatt
Status: DD
J.E. Victor & D. Raimondo
Distribution: EC. Komga to Maclear and eastwards to the coast.
Habitat: Unknown.
Rationale: The only literature on this species (Nordenstam 1970) indicates that it is known only from the type, collected in the Komga district, but there have been a number of collections made in the Transkei and Maclear area since 1970. This genus requires a taxonomic revision to clarify the exact range and habitat of this taxon.

Drimia flagellaris T.J.Edwards, D.Styles & N.R.Crouch
Status: Rare
C.R. Scott-Shaw & J.E. Victor
Distribution: KZN. Pinetown.
Habitat: Cliff faces, southern or southeastern aspects, in dry or permanently moist conditions and in shady as well as exposed situations.
Rationale: A range-restricted species (EOO 30 km²). Grows on cliff faces where it is protected from serious threats.

Drimia hyacinthoides Baker
Status: Rare
J.E. Victor & A.P. Dold
Distribution: EC. Albany district.
Habitat: Thornveld.
Rationale: EOO 2 900 km². Known from five sites but likely to be under-collected. Not threatened.

Drimia involuta (J.C.Manning & Snijman)
J.C. Manning & Goldblatt
Status: VU D2
D. Raimondo, R.C. Turner & D.A. Snijman
Distribution: NC. Bokkeveld Mountains.
Habitat: Loamy soil on exposed sandstone pavements.
Rationale: EOO and AOO < 2 km². Known from the type locality that occurs on sandstone pavements. Although its habitat cannot be ploughed, there is ongoing loss of surrounding natural vegetation to rooibos tea cultivation. This is likely to result in isolation of the only known sub-population, with a potential threat of loss of pollinators.

Drimia montana A.P.Dold & E.Brink
Status: Rare
P.A. Manyama
Distribution: EC. Groot Winterberg and Stomberg Mountains.
Habitat: Arid montane grassland on flat, exposed sandstone rock slabs.
Rationale: A range-restricted species known from two mountain peaks (EOO < 100 km²). It probably occurs elsewhere on these peaks. Its inaccessible habitat is under no immediate threat.

Drimia nana (Snijman) J.C.Manning & Goldblatt
Status: VU D1
D. Raimondo & R.C. Turner
Distribution: NC. Kourkammaberg, Kamiesberg and Spektakel Pass.
Habitat: Granite rock crevices, 600–1 600 m.
Rationale: This rare Kamiesberg endemic is known from three sites and is possibly under-collected, but subpopulation numbers are low, with all three known subpopulations having less than 100 plants each. We suspect the population is smaller than 1 000 individuals.

**Drimia sanguinea** (Schinz) Jessop

Status: NT A2d

**Distribution:** G LM MP NC NW. Northern Cape and diagonally across to Limpopo and Mpumalanga Provinces, Namibia, Botswana and Zimbabwe.

Habitat: Open veld and scrubby woodland in a variety of soil types.

**Rationale:** The population has declined by 20–25% over the last three generations (generation length 20 years) as a result of harvesting for the medicinal plant trade, especially for the Gauteng trade. Declines are expected to continue and the species should be re-evaluated in the future.

**Drimia uranthera** (R.A.Dyer) J.C.Manning & Goldblatt

Status: VU D2

**Distribution:** WC. Little Karoo, Ladismith.

Habitat: Stony slopes.

**Rationale:** Known from three locations potentially threatened by habitat degradation as a result of overgrazing and trampling by livestock (sheep, goats and ostriches).

**Drimiopsis** Lindl. & Paxton

**Drimiopsis burkei** Baker subsp. *stolonissima* U. & D.Müll.-Doblies

Status: Critically Rare

**Habitat:** Grows on steep rocky slopes, 800–900 m.

**Rationale:** Known from a single site. Occurs on steep inaccessible cliffs and is therefore unlikely to be threatened.

**Drimiopsis davidsoniae** U. & D.Müll.-Doblies

Status: VU D2

**Distribution:** MP. Blyde River Canyon Nature Reserve.

Habitat: Rocky slopes.

**Rationale:** Known from three locations. Potentially threatened by mining and development.

**Eucomis** L’Hér.

**Eucomis autumnalis** (Mill.) Chitt.

Status: Declining

**Distribution:** EC FS G KZN LM MP NC NW WC. South Africa, Swaziland, Lesotho, Botswana, Zimbabwe and Malawi.

Habitat: Damp, open grassland and sheltered places from the coast to 2 450 m.

**Rationale:** Has experienced large population declines and is very widespread. It is a very popular medicinal plant. Because of its very widespread distribution, however, it was felt that the decline was not sufficient to qualify as NT. This should be re-assessed in the future, especially given its popularity in the market place, the large numbers harvested and the decrease in the average bulb size sold on the markets.

**Eucomis bicolor** Baker

Status: NT A2d

**Distribution:** FS KZN. KwaZulu-Natal, Free State and Lesotho.

Habitat: Well-drained, grassy mountain slopes, sometimes in forests, along watercourses and on rocky cliffs, generally at higher altitudes up to 2 800 m.

**Rationale:** Collected for the traditional medicinal trade, but most populations are well protected within inaccessible areas in the high Drakensberg along the KwaZulu-Natal–Lesotho border. Believed to have declined by 20% over the last 75 years.

**Eucomis commosa** (Houtt.) Wehrh.

Status: Declining

**Distribution:** EC KZN. Eastern Cape and KwaZulu-Natal.

Habitat: Damp, grassy hillside.

**Rationale:** Some decline may have occurred given its prevalence on the Eastern Cape markets, but the extent of decline and time frames are not known.

**Eucomis montana** Compton

Status: Declining

**Distribution:** MP. Dullstroom to Steenkampsberg and Midlands.

Habitat: Well-drained grassland in sandy soils derived from quartzitic rocky outcrops. In rock crevices or under overhanging rocks, confined to outcrops on slopes and plateaus of higher peaks, predominantly on north-facing slopes, 2 200–2 500 m.

**Rationale:** AOO < 1 000 km². Known from 18 locations. Declining as a result of harvesting for medicinal purposes, urban expansion, degradation by grazing cattle and drainage of wetlands for conversion to crop fields.

**Eucomis pallidiflora** Baker subsp. *pole-evansii* (N.E.Br.) Reyneke ex J.C.Manning

Status: NT B2ab(v)

**Distribution:** MP. Pilgrim’s Rest and Lydenburg to Swaziland.

Habitat: Woods in grassland, often in standing water up to 300 mm deep.

**Rationale:** AOO < 1 000 km². Known from 18 locations. Declining as a result of harvesting for medicinal purposes, urban expansion, degradation by grazing cattle and drainage of wetlands for conversion to crop fields.

**Eucomis vandermerwei** I.Verd.

Status: VU B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)

**Rationale:** Has experienced large population declines and is very widespread. It is a very popular medicinal plant. Because of its very widespread distribution, however, it was felt that the decline was not sufficient to qualify as NT. This should be re-assessed in the future, especially given its popularity in the market place, the large numbers harvested and the decrease in the average bulb size sold on the markets.
result of overgrazing and trampling by livestock, harvesting for medicinal purposes, a deleterious fire regime and invasion by alien plants. It is also potentially threatened by coal mining.

**Lachenalia Jacq. ex Murray**

* Lachenalia alba W.F.Barker ex G.D.Duncan
  Status: VU D2
  G.D. Duncan & D. Raimondo
  *Distribution*: NC. Bokkeveld Escarpment.
  *Habitat*: Heavy clay soils in renosterveld.
  *Rationale*: It has lost ± 25% of its habitat to ploughing for wheat cultivation and the habitat that remains is smaller than 20 km². Potentially threatened by trampling by livestock and digging by porcupines.

* Lachenalia amelieae W.F.Barker
  Status: NT B1ab(ii,iii,iv,v)
  J.H. Vlok, G.D. Duncan & D. Raimondo
  *Distribution*: WC. Ceres to Montagu and Touwsrivier.
  *Habitat*: Clay flats.
  *Rationale*: EOO 3 500 km². Known from less than 20 locations. There is ongoing habitat loss and local extinctions due to crop cultivation and overgrazing and trampling by sheep and ostriches.

* Lachenalia angelica W.F.Barker
  Status: VU D2
  J.E. Victor, G.D. Duncan & D. Raimondo
  *Distribution*: WC. Ceres to Montagu and Touwsrivier.
  *Habitat*: Seasonally wet flats.
  *Rationale*: A naturally rare dwarf species endemic to the Gariep Centre. Not threatened.

* Lachenalia auchenthnotiae W.F.Barker
  Status: CR B2ab(ii,iii,iv,v)
  D. Raimondo, J.E. Victor & G.D. Duncan
  *Distribution*: WC. Cape Flats.
  *Habitat*: Marshy flats.
  *Rationale*: AOO < 10 km². Known from two severely fragmented subpopulations where there are less than 130 mature plants. It has lost 98% of its habitat to urban expansion on the Cape Flats over the past 70 years. Both remaining locations are severely threatened by eutrophication as a result of runoff from surrounding industrial areas, and by invading alien plants.

* Lachenalia bachmanii Baker
  Status: EN B1ab(iii,iv,v)
  N.A. Helme & D. Raimondo
  *Distribution*: WC. Piketberg to Stellenbosch.
  *Habitat*: Edges of vernal pools on clay.
  *Rationale*: EOO 1 300 km². Known from six severely fragmented subpopulations in the Swartland. There is a continuing decline of occupancy and habitat quality as a result of overgrazing, fertiliser runoff and infilling of wetlands.

* Lachenalia Barkeriana U.Müll.-Doblies, B.Nord. & D.Müll.-Doblies
  Status: Rare
  J.E. Victor & G.D. Duncan
  *Distribution*: NC. Vanrhynsdorp to Kliprand to Loeriesfontein.
  *Habitat*: Deep sand in Namaqualand Broken Veld.

* Lachenalia Buchubergensis W.F.Barker
  Status: Rare
  N.A. Helme & D. Raimondo
  *Distribution*: WC. Cape Peninsula.
  *Habitat*: Sandstone slopes.
  *Rationale*: EOO 80 km². Historically known from six locations in the southern part of the Cape Peninsula. It has experienced habitat loss and local extinction as a result of urban development. The loss to urban expansion is ongoing in the Simon’s Town and Hout Bay areas and there are declines due to invasion by alien plants around Smitswinkel Bay and Red Hill.

* Lachenalia concordiana Schltr. ex W.F.Barker
  Status: Rare
  J.E. Victor
  *Distribution*: NC. Springbok to Calvinia.
  *Habitat*: Succulent karoo shrubland on granitic soils.
  *Rationale*: A poorly known, naturally rare species recorded from six scattered sites in Namaqualand and Bushmanland. Occurs as small subpopulations. Not threatened.

* Lachenalia congesta W.F.Barker
  Status: Rare
  J.E. Victor
  *Distribution*: NC. Sutherland and Calvinia.
  *Habitat*: Shale in karroid scrub.
  *Rationale*: Known from two disjunct subpopulations, both with small localised subpopulations of less than 35 mature individuals. Not threatened.

* Lachenalia contaminata Aiton
  Status: NT B1ab(i,ii,iii,iv,v)
  N.A. Helme & D. Raimondo
  *Distribution*: WC. Lambert’s Bay to De Hoop.
  *Habitat*: Seasonally wet flats.
  *Rationale*: Known from a relatively large range (EOO 22 000 km²), and we estimate that more than 20 locations remain. Subpopulations are severely fragmented and are experiencing continuing declines as a result of agricultural expansion, overgrazing and encroachment from invasive alien grass species.

* Lachenalia convallarioides Baker
  Status: CR D
  J.E. Victor & A.P. Dold
  *Distribution*: EC. Grahamstown.
  *Habitat*: Rocky quartzite outcrops, 17–1 800 m.
  *Rationale*: Known from one site and 50 mature individuals. Potentially threatened by invading alien plants.
**Lachenalia corymbosa** (L.) J.C. Manning & Goldblatt

**Status:** VU B1ab(ii,iii,iv,v)

D. Raimondo & R.C. Turner

**Distribution:** WC. Citrusdal to Gordon’s Bay.

**Habitat:** Seasonally inundated clay flats.

**Rationale:** Seven of 14 subpopulations have been lost to crop cultivation and urban expansion over the past 100 years, and over 90% of its EOO has been transformed. The remaining seven subpopulations are severely fragmented across a large range (EOO 15 000 km²).

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**Lachenalia dehoopenensis** W.F. Barker

**Status:** VU D2

D. Raimondo & G.D. Duncan

**Distribution:** WC. De Hoop Nature Reserve.

**Habitat:** Sandy flats.

**Rationale:** Known from two locations. It lost habitat to crop cultivation in the past, and although not currently declining, it remains potentially threatened by invading alien plants.

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**Lachenalia duncanii** W.F. Barker

**Status:** VU D2

J.E. Victor & G.D. Duncan

**Distribution:** NC. Nieuwoudtville, Calvinia and Williston.

**Habitat:** Heavy doleritic clay soil in full sun.

**Rationale:** Known from two locations. Potentially threatened by road widening.

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**Lachenalia esterhuysenae** W.F. Barker

**Status:** Rare

J.E. Victor & G.D. Duncan

**Distribution:** WC. Cederberg.

**Habitat:** Stony slopes on shale bands.

**Rationale:** A Cederberg endemic restricted to a specific habitat of shale bands. Not threatened.

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**Lachenalia gillettii** W.F. Barker

**Status:** EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v);

C1

D. Raimondo, R. Koopman, J.E. Victor & G.D. Duncan

**Distribution:** WC. Tygerberg to Paarl.

**Habitat:** Renosterveld on shale.

**Rationale:** EOO 45 km², AOO 1 km². Extant at four locations. It has lost extensive amounts of habitat to urban and vineyard expansion over the past 130 years. Decline is continuing because of eutrophication, invasive alien grasses and infrastructure maintenance.

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**Lachenalia haarelemensis** Fourc.

**Status:** VU B1ab(ii,iii,iv,v); C1

J.H. Vlok & D. Raimondo

**Distribution:** WC. Kammanassie Mountains to Langkloof.

**Habitat:** Deep loam soils.

**Rationale:** EOO 3 000 km². Known from fewer than 10 locations. Declining as a result of crop cultivation taking place on the deep loam soils on which this species occurs. Subpopulations are small and the total number of individuals is not more than 10 000. There has been a 10% decline in the population over the past 10 years owing to crop cultivation.

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**Lachenalia kliprandensis** W.F. Barker

**Status:** Rare

J.E. Victor & G.D. Duncan

**Distribution:** NC. Kliprand.

**Habitat:** Deep red sands.

**Rationale:** A naturally rare species, known from the type locality near Kliprand in southwestern Bushmanland. Not threatened.

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**Lachenalia lactosa** G.D. Duncan

**Status:** EN B1ab(ii,iii,iv,v)

J.E. Victor, G.D. Duncan & D. Raimondo

**Distribution:** NC. Kliprand.

**Habitat:** Sandy flats and gentle slopes at the foot of mountains.

**Rationale:** Known from one location, it has lost habitat to vineyard expansion in the past. Further ploughing for vineyards and trampling by livestock are potential threats.

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**Lachenalia leipoldtii** G.D. Duncan

**Status:** VU D2

A. Harrower & D. Raimondo

**Distribution:** WC. De Doorns Valley.

**Habitat:** Sandy flats and gentle slopes at the foot of mountains.

**Rationale:** Known from one area, it has lost habitat to vineyard expansion in the past. Further ploughing for vineyards and trampling by livestock are potential threats.

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**Lachenalia leomontana** W.F. Barker

**Status:** Critically Rare

N.A. Helme

**Distribution:** WC. Langeberg Mountains.

**Habitat:** Rocky outcrops in kloofs in montane fynbos.

**Rationale:** Known from one area on the slopes of Leeuvruiter Mountain in the Langeberg. Not threatened because of the inaccessibility of its habitat.

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**Lachenalia liliflora** Jacq.

**Status:** Declining

N.A. Helme & D. Raimondo

**Distribution:** WC. Piketberg to Malmesbury.

**Habitat:** Shale flats and lower slopes.

**Rationale:** EOO 11 000 km². It has lost a minimum of 50% of its habitat over the past 70 years, mainly to wheat cultivation. Loss due to urban expansion and crop cultivation is ongoing but this species is still present in more than 50 fragments, where it is locally common.
Lachenalia lutzeyeri G.D.Duncan
Status: VU D2
PA. Manyama

Habitat: Full sun in open areas or between sandstone boulders on southwest-facing moderate slopes, 390 m.
Rationale: Known from the type locality on the Witkansberg in the Groothbos Private Nature Reserve northwest of Gansbaai. Potentially threatened by a deleterious fire regime.

Lachenalia maximiliani

Lachenalia mathewsii W.F.Barker
Status: VU D2
J.E. Victor & G.D. Duncan

Distribution: NC. Nieuwoudtville.
Habitat: Karoo shrubland on red clay soils in dolerite rock cracks.
Rationale: Known from one location. Potentially threatened by grazing and trampling by livestock.

Lachenalia margaretiae W.F.Barker
Status: VU D1
N.A. Helme, D. Raimondo & G.D. Duncan

Distribution: WC. Cederberg.
Habitat: Rock ledges, in partial shade.
Rationale: Known from four sites, occurring as small subpopulations (fewer than 10 plants) and we estimate that there are less than 1 000 mature individuals.

Lachenalia martinae W.F.Barker
Status: VU D2
G.D. Duncan & D. Raimondo

Distribution: WC. Olfants River Valley and mountains.
Habitat: Karoo Broken Veld on heavy clay soils in rocky habitats and on sandstone outcrops.
Rationale: Known from four or five locations. It has lost habitat to citrus cultivation. Potentially threatened by future road widening, further crop cultivation and future urban development.

Lachenalia mathewsii W.F.Barker
Status: CR B1ab(ii,iii,v)+2ab(ii,iii,v)
G.D. Duncan, I. Ebrahim & D. Raimondo

Distribution: WC. Vredenburg.
Habitat: Sandy soils in seasonally wet areas.
Rationale: Thought to occur only at the type locality and feared extinct when repeated searches between 2004 and 2006 failed to find any plants. The type locality has been severely degraded by overgrazing and this has probably led to the loss of this subpopulation. A new subpopulation of over 10 000 plants was found within 15 km of the location of the type collection in 2007. Most of its habitat has been lost to crop and pasture cultivation over the past 70 years, loss is ongoing.

Lachenalia maximiliani Schltr. ex W.F.Barker
Status: Rare
D. Raimondo & G.D. Duncan

Distribution: WC. Cederberg.
Habitat: Steep, rocky mountain slopes in dry montane fynbos, succulent karoo and the transitional area between these two vegetation types.
Rationale: A range-restricted species (EOO < 240 km²) known from fewer than five sites. Not declining.

Lachenalia mediana Jacq. var. mediana
Status: VU B1ab(ii,iii,iv,v); C2a(ii)
D. Raimondo & N.A. Helme

Distribution: WC. Vredenburg and Porterville to Gordon’s Bay.
Habitat: Renosterveld on flat clay flats.
Rationale: EOO 8 400 km². A lowland species that occurs on flat loams and clays. More than 80% of its habitat has been transformed over the past 80 years. Remaining subpopulations are severely fragmented, occurring on small remnants of renosterveld isolated from one another by intervening wheat and vineyard agricultural lands and by suburbs in the greater Cape Town area. Loss to urban development, crop cultivation and invasive alien plants is continuing.

Lachenalia mediana Jacq. var. rogersii (Baker) W.F.Barker
Status: EN B1ab(ii,iii,v)
D. Raimondo & N.A. Helme

Distribution: WC. Durbanville to Porterville.
Habitat: Renosterveld on flat clay flats.
Rationale: EOO 1 700 km². Known from four locations. Severely threatened by wheat cultivation, overgrazing by livestock and invasion by alien annual grasses.

Lachenalia minima W.F.Barker
Status: VU D2
J.E. Victor & G.D. Duncan

Distribution: WC. Bitterfontein.
Habitat: Succulent karoo shrubland on moist clay flats.
Rationale: Known from four locations. Subpopulations occur adjacent to major roads which, if widened, would result in the extinction of this species in the wild.

Lachenalia moniliformis W.F.Barker

Lachenalia Murrayi W.F.Barker
Status: VU B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: WC. Arnoldist to Still Bay.
Habitat: Limestone hills and flats.
Rationale: EOO 2 400 km². Known from fewer than 10 locations. Threatened by invading alien plants throughout its range and by coastal development and crop cultivation at a number of subpopulations outside the De Hoop Nature Reserve.

Lachenalia neilii W.F.Barker ex G.D.Duncan
Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
G.D. Duncan & D. Raimondo

Distribution: NC. Nieuwoudtville.
Habitat: Heavy red dolerite clays.
Rationale: EOO < 200 km², AOO < 10 km². Severely fragmented subpopulations at five known locations continue to decline owing to ongoing habitat loss and degradation as a result of infrastructure development and overgrazing by livestock.
**Lachenalia nervosa** Ker Gawl.

**Status:** EN B1ab(ii,iii,iv,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Swellendam to George.

**Habitat:** Coastal grasslands.

**Rationale:** EOO 2 900 km². Known from clay flats and low slopes. Possibly still extant at four of its known historical locations. There is a continuing decline due to invasion by alien plants and cultivation for pasture and wheat.

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**Lachenalia nordenstamii** W.F.Barker

**Status:** Rare

J.E. Victor & G.D. Duncan

**Distribution:** NC. Richtersveld.

**Habitat:** Sheltered rock cracks.

**Rationale:** A range-restricted species occurring only in a specialised habitat, known from three sites. Not threatened.

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**Lachenalia orthopetala** Jacq.

**Status:** VU B1ab(ii,iii,iv,v)

D. Raimondo & G.D. Duncan

**Distribution:** WC. Durbanville to Piketberg.

**Habitat:** Clay soils in renosterveld.

**Rationale:** EOO 4 000 km². Known from fewer than 10 locations. It has lost over 90% of its clay habitat to wheat cultivation over the past 80 years. Declining as a result of urban expansion, invasion by alien plants, clearing of roadsides and is potentially threatened by road widening.

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**Lachenalia pallida** Aiton

**Status:** Declining

D. Raimondo & N.A. Helme

**Distribution:** WC. Piketberg to Stellenbosch.

**Habitat:** Clay flats in renosterveld.

**Rationale:** Although 80% of its habitat has been lost (mainly as a result of wheat cultivation), this species is very common in Swartland renosterveld and there are still over 40 sites (renosterveld fragments) where it occurs in large numbers. The generation length of 5–10 years is too short for this species to qualify under Criterion A.

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**Lachenalia paucifolia** (W.F.Barker) J.C.Manning & Goldblatt

**Status:** EN B1ab(ii,iii,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Paternoster to Langebaan.

**Habitat:** Amongst granite rocks and also on calcretes.

**Rationale:** EOO < 200 km². Known from seven small fragmented locations. Declining as a result of urban coastal development and industrial expansion.

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**Lachenalia peersii** Marloth ex W.F.Barker

**Status:** VU B1ab(ii,iii,iv,v)

G.D. Duncan & D. Raimondo

**Distribution:** WC. Cape Hangklip to Hermanus.

**Habitat:** Full sun situations in fynbos amongst rocks or on forest verges a few metres from the high-water mark, in acid sandy soil on acid sandstone.

**Rationale:** EOO < 100 km². Known from six locations. This species is still quite common in the vicinity of Hermanus, but its habitat is rapidly being lost throughout its range as a result of expansion of coastal housing developments.

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**Lachenalia physocaulos** W.F.Barker

**Status:** EN B1ab(ii,iii,iv,v)

D. Raimondo & G.D. Duncan

**Distribution:** WC. Robertson to Swellendam.

**Habitat:** Transition between succulent karoo and renosterveld on sandy flats and slopes.

**Rationale:** EOO < 300 km². Known from two locations. This species is losing habitat as a result of vineyard expansion in the Robertson–McGregor area.

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**Lachenalia polyphylla** Baker

**Status:** EN B1ab(ii,iii,iv,v)

D. Raimondo & I. Ebrahim

**Distribution:** WC. Piketberg to Tulbagh.

**Habitat:** Moist, open, clay gravel flats.

**Rationale:** EOO 600 km². Known from fewer than 10 severely fragmented subpopulations. It has lost habitat to wheat cultivation and is declining as a result of further crop cultivation, expansion of low-cost housing and invasion by alien plants.

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**Lachenalia polypodantha** Schltr. ex W.F.Barker

**Status:** Rare

J.E. Victor & G.D. Duncan

**Distribution:** NC. Springbok and Vioolsdrif.

**Habitat:** Sandy areas in succulent karoo shrubland.

**Rationale:** A naturally rare dwarf species, for a long time known from only two collections made near Springbok in Namaqualand. The species was later also discovered near Vioolsdrif further to the north. Not threatened.

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**Lachenalia purpureo-caerulea** Jacq.

**Status:** CR B1ab(iii)+2ab(iii)

D. Raimondo & G.D. Duncan

**Distribution:** WC. Darling and Mamre.

**Habitat:** Gravel flats.

**Rationale:** EOO < 20 km², AOO < 1 km². Confirmed from two subpopulations but possibly occurring at a third, all severely fragmented. Most of its habitat has been lost to wheat and pasture cultivation over the past 100 years. It is currently threatened by encroachment from invasive alien annual grasses, grazing by livestock and eutrophication. There are less than 250 mature individuals of this species known.

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**Lachenalia pustulata** Jacq.

**Status:** NT B1ab(ii,iii,iv,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. St Helena Bay to Cape Peninsula.

**Habitat:** Flats and rocky outcrops in nutrient-rich soils.

**Rationale:** EOO 6 800 km². Known from less than 20 locations. Declining because of urban expansion and invasive alien grass encroachment. Over 60% of its habitat has been lost over the past 70 years as a result of crop cultivation and urban development.

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**Lachenalia reflexa** Thunb.

**Status:** VU B1ab(ii,iii,iv,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Malmsbury to the Cape Peninsula.

**Habitat:** Lowland sand plain fynbos or renosterveld on seasonally inundated sandy flats.

**Rationale:** Restricted to seasonally wet lowland soils (EOO < 1 700 km²), known from fewer than 10 locations. There is a continuing decline as a result of urban expansion, crop cultivation, trampling by livestock and invasion by alien plants.
Lachenalia salteri W.F.Barker
Status: EN B1ab(iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Cape Peninsula to Bredasdorp.
Habitat: Seasonally wet flats near the coast.
Rationale: This summer-flowering species (EOO 1 164
km²) is known from four locations and is threatened by
coastal development, especially in the Hermanus and
Betty’s Bay areas.

Lachenalia sargeantii W.F.Barker Plate 18
Status: VU D2
D. Raimondo & G.D. Duncan
Distribution: WC. Bredasdorp Mountain.
Habitat: Rocky sandstone outcrops.
Rationale: AOO < 4 km². Known from one location. This
postfire-flowering species occurs as scattered subpopula-
tions all over Bredasdorp Mountain. Potentially threat-
ened by invading alien plants.

Lachenalia thomasiae W.F.Barker
Status: EN B1ab(ii,iii,v)
N.A. Helme, G.D. Duncan & D. Raimondo
Distribution: WC. Worcester to Robertson.
Habitat: Karroid flats.
Rationale: Known from one location. Not currently de-
clining but potentially threatened by crop cultivation and
overgrazing by goats.

Lachenalia stayneri W.F.Barker
Status: EN B1ab(ii,iii,iv,v)
N.A. Helme, G.D. Duncan & D. Raimondo
Distribution: WC. Wellington to Betty’s Bay.
Habitat: Seasonally wet flats near the coast.
Rationale: This summer-flowering species (EOO 1 164
km²) is known from four locations and is threatened by
coastal development, especially in the Hermanus and
Betty’s Bay areas.

Lachenalia viridiflora W.F.Barker Plate 18
Status: CR B1ab(iii,v)+2ab(ii,iii,v)
J.E. Victor & G.D. Duncan
Distribution: WC. St Helena Bay.
Habitat: Granite slopes, in moist depressions where large
quantities of humic soil have accumulated.
Rationale: EOO < 100 km². Known from three severely
fragmented subpopulations. Threatened by collecting
for the horticultural trade and coastal housing develop-
ments.

Ledebouria Roth

Ledebouria mokobulanensis A.J.Hankey & T.J.Edwards
Status: Rare
L. von Staden & M. Lötter
Distribution: MP. Long Tom Pass to Buffelskloof.
Habitat: Montane grassland above 2 000 m.
Rationale: This range-restricted endemic is known from
three locations along the highest peaks of the Mpuma-
langa Escarpment, amidst extensive forestry plantations.
Potentially threatened at all three locations by mining,
expanding forestry plantations and too frequent fires.

Ledebouria cremnophila S.Venter & Van Jaarsv.
Status: Rare
L. von Staden & M. Lötter
Distribution: MP. Barberton.
Habitat: Grows in humus-filled cracks on high, shady,
south-facing cliffs of quartzite rocks.
Rationale: A recently described species known from the
type locality northeast of Barberton. There appears to
be no serious threats to this species as a result of its
inaccessible habitat. Plants collected in the Stegi district
of northern Swaziland may also be this species, but this
awaits confirmation and this site is not considered in this
assessment.

Ledebouria atrobrunnea S.Venter
Status: Rare
D. Raimondo & A.J. Hankey
Distribution: NW. Beestekraal, Kroondal and Northam.
Habitat: Foothills of the Magaliesberg, on quartzite.
Rationale: Known from three locations. Occurs in a
densely populated part of South Africa. Potentially threat-
ened by agriculture, and by habitat degradation through
overgrazing by livestock.

Ledebouria crispa S.Venter Plate 17
Status: EN B1ab(iii)
L. von Staden & P.J.D. Winter
Distribution: LM. Hills south and east of Polokwane.
Habitat: Hills in Polokwane Plateau Bushveld.
Rationale: EOO 300 km². Known from 2–5 locations.
There is ongoing habitat loss due to expansion of urban
and rural settlements, quarrying and overgrazing by
livestock.

Ledebouria dolomitica S.Venter Plate 17
Status: VU D1
J.E. Victor & A.J. Hankey
Distribution: LM. Strydpoort Mountains.
Habitat: Steep dolomite slopes and cliffs.
Rationale: Known from a single site in the Strydpoort
Mountains where there are less than 1 000 mature indi-
viduals. There are no recorded threats.
\textbf{Ledebouria galpinii} (Baker) S.Venter Plate 17

\textbf{Status: EN B1ab(iii)+2ab(iii)}

A.J. Hankey, M. Lötter, J.E. Burrows & L. von Staden

\textbf{Distribution:} MP. Kaapsehoop.

\textbf{Habitat:} Short, damp, montane mistbelt grassland on sandy, humus-rich black reef quartzite soil, 1 700 m.

\textbf{Rationale:} EOO 15 km², AOO < 5 km². Known from three locations around the town of Kaapsehoop. Various factors have led to the species now occupying only rocky refugia, which is not its preferred habitat. Likely to have lost habitat to afforestation and road and housing development. Experiencing an ongoing degradation of its habitat due to a deleterious fire regime, invading alien plants and trampling by wild horses.

\textbf{Ledebouria lepida} (N.E.Br.) S.Venter Plate 17

\textbf{Status: Rare}

J.E. Victor & A.J. Hankey

\textbf{Distribution:} LM. Palala district, eastern Waterberg.

\textbf{Habitat:} Waterberg Mountain Bushveld.

\textbf{Rationale:} Known from three sites (EOO < 150 km²).

There are no known threats.

\textbf{Ledebouria parvifolia} S.Venter

\textbf{Status: DDD}

J.E. Victor & A.J. Hankey

\textbf{Distribution:} MP. Graskop district.

\textbf{Habitat:} Dolomite of the Malmani Formation in the Chui-niespoort Group.

\textbf{Rationale:} Unknown type location, but if it occurs near Pilgrim’s Rest it is probably threatened by invading alien plants.

\textbf{Merwilla} Speta

\textbf{Merwilla plumbea} (Lindl.) Speta

\textbf{Status: NT A2bd}

V.L. Williams, A.B. Cunningham & D. Raimondo

\textbf{Distribution:} KZN MP. Widespread in eastern half of South Africa. Also in Swaziland and Lesotho.

\textbf{Habitat:} Montane mistbelt and Ngongoni grassland, rocky areas on steep, well-drained slopes, 300–2 500 m.

\textbf{Rationale:} A highly sought after species that has been exploited over most of its range for medicinal use. Individuals are long-lived, the average age of mature individuals is suspected to be 25 years. A minimum of a 25% decline over the past three generations (75 years) is suspected, based on a number of studies that document very high volumes of plants traded on muthi markets, an overall decrease in the average size of bulbs traded, and anecdotal harvester reports that plants are becoming difficult to find.

\textbf{Neopatersonia} Schönland

\textbf{Neopatersonia namaquensis} G.J.Lewis

\textbf{Status: VU D2}

J.E. Victor & G.D. Duncan

\textbf{Distribution:} NC. Namaqualand, Kamiesberg.

\textbf{Habitat:} Namaqualand Klipkoppe Shrubland or mountain renosterveld on stony slopes in soils derived from granite.

\textbf{Rationale:} Known from fewer than five locations in the Kamiesberg area. Potentially threatened by crop cultivation, infrastructure expansion and overgrazing and trampling by livestock.

\textbf{Ornithogalum L.}

\textbf{Ornithogalum britteniae} F.M.Leight.

\textbf{Status: VU D2}

J.E. Victor, A.P. Dold & R.C. Turner

\textbf{Distribution:} EC. Grahamstown.

\textbf{Habitat:} Eastern Cape Thornveld.

\textbf{Rationale:} Known from one location on Table Farm near Grahamstown. Potentially threatened by trampling by livestock.

\textbf{Ornithogalum estherhuyseniae} Oberm.

\textbf{Status: Rare}

R.C. Turner

\textbf{Distribution:} WC. Ceres to Grabouw.

\textbf{Habitat:} Upper mountain slopes in wet places.

\textbf{Rationale:} EOO 2 250 km². Known from nine sites. A high-alpine species from the Hex River to Hottentots Holland Mountains. Infrequently collected and extremely localised. Not threatened.

\textbf{Ornithogalum hallii} Oberm.

\textbf{Status: CR PE}

D. Raimondo & R.C. Turner

\textbf{Distribution:} WC. Vredendal.

\textbf{Habitat:} Undisturbed strandveld in full sun on hard, red soils.

\textbf{Rationale:} Extinct at the 1976 type locality in the Vredendal district. A second site was alleged to exist nearby, but was never collected or recorded. Given that this area and the habitat of this species (red sands) have been significantly transformed over the past 20 years for agriculture, it is probably extinct at this additional site.

\textbf{Ornithogalum inclusum} F.M.Leight.

\textbf{Status: CR B1ab(ii,iii,v)}

D. Raimondo & R.C. Turner

\textbf{Distribution:} WC. Northeast of Clanwilliam.

\textbf{Habitat:} Karoo shrubland on sandy soils.

\textbf{Rationale:} EOO 32 km². Known from one historical location in the Botterkloof Valley. It occurs in an area that is heavily transformed by crop cultivation and degraded by grazing by livestock. The current threat of rooibos tea cultivation is causing ongoing destruction of its habitat.

\textbf{Ornithogalum juncifolium} Jacq. var. emsii Van Jaarsv. & A.E.van Wyk

\textbf{Status: Critically Rare}

P.A. Manyama

\textbf{Distribution:} EC. Koonap Reserve near the Great Fish River.

\textbf{Habitat:} Vertical, south-facing shale cliffs.

\textbf{Rationale:} Known only from the type locality. Not threatened.

\textbf{Ornithogalum kirstenii} J.C.Manning & Goldblatt

\textbf{Status: Rare}

D. Raimondo & P.A. Manyama

\textbf{Distribution:} WC. Malgas and De Hoop.

\textbf{Habitat:} Shale cliffs along gullies and rivers.

\textbf{Rationale:} EOO 150 km². Known from two sites. Not threatened as it occurs on very steep cliffs that are not invaded by alien plants.
Ornithogalum naviculum W.F.Barker
Status: VU D2
D. Raimondo & R.C. Turner
 Distribution: WC. Knersvlakte, Hol River.
Habitat: Succulent karoo on white quartz patches.
Rationale: An extremely localised species (EOO < 75 km²) known from one location. It has lost habitat for a railway line construction and faces a potential threat from gypsum mining and crop cultivation.

Ornithogalum perdurans A.P.Dold & S.A.Hammer
Status: VU D2
J.E. Victor & R.C. Turner
 Distribution: EC. Grahamstown and Kommadagga.
Habitat: Silcrete remnants overlying kaolinised bedrock or on shales, silstone and sandstones.
Rationale: Known from a small area close to Grahamstown, from two locations. Potentially threatened by agricultural activities, especially grazing by and trampling livestock.

Ornithogalum pullaturn F.M.Leight.
Status: Rare
D. Raimondo & R.C. Turner
 Distribution: NC. Calvina to Nieuwoudtville.
Habitat: Dolerite vertisol soils.
Rationale: EOO < 7 200 km². A habitat specialist known from six naturally disjunct sites, no significant threats recorded.

Ornithogalum sardienii Van Jaarsv.
Status: Critically Rare
E.J. van Jaarsveld, L. Potter & R.C. Turner
 Distribution: WC. Wynansriver near Outdshoorn.
Habitat: Enon Conglomerate hillsides.
Rationale: Known only from the type locality (EOO < 10 km²) near Calitzdorp where it was collected by Van Jaarsveld in 1990. Not threatened.

Ornithogalum unifoliatum (G.D.Rowley) Oberm.
Status: Critically Rare
J.E. Victor & R.C. Turner
 Distribution: NC. Steinkopf.
Habitat: Quartzite patches.
Rationale: Although it has a highly restricted distribution (EOO < 20 km²) and is known only from one location, it is very common where it occurs and has no known threats.

Ornithogalum zebrinum (Baker) Oberm.
Status: Rare
D. Raimondo & R.C. Turner
 Distribution: NC. Namaqualand from Eksteenfontein in the Richtersveld to Platbakkies east of the Kamiesberg.
Habitat: Rocky succulent karoo shrubland.
Rationale: Known from nine sites, with subpopulations often small (fewer than 10 plants). Not threatened.

Spetaea Wetschnig & Pfoisser
 Spetaea lachenaliiflora Wetschnig & Pfoisser
Status: Rare
D. Raimondo & F. Cholo
 Distribution: WC. Du Toit’s Kloof and Bain’s Kloof.
Habitat: Rocky places on sandstone slopes.
Rationale: A range-restricted species (EOO 70 km²), known from two subpopulations. No known threats.

Urginea Steinh.
 Urginea lydenburgensis R.A.Dyer
Status: NT B1ab(v)
 Distribution: MP. Mpumalanga and Swaziland.
Habitat: Rocky ledges, rock fissures and shallow depressions.
Rationale: EOO 15 800 km². A medicinal plant species. Some decline has occurred, but the extent and time frame are unknown. It is not heavily harvested but its constant presence on markets suggests a continuing decline in mature individuals. Subpopulations are severely fragmented, and this species may become threatened in the future if further harvesting leads to significant declines in population size.
Plate 19

\textbf{Saniella occidentalis}

\textbf{Status:} VU D2
Y. Singh & J.E. Victor

\textbf{Distribution:} KZN. Newcastle.

\textbf{Habitat:} Moist grassland.

\textbf{Rationale:} Known from one location. Potentially threatened by harvesting for medicinal use, commercial crop cultivation and subsistence farming.

\textbf{Pauridia} Harv.

\textbf{Pauridia longituba} M.F.Thomps. Plate 19

\textbf{Status: EN B1ab(i,ii,iii,iv,v)}
C. Boucher, N.A. Helme, D.A. Snijman & D. Raimondo

\textbf{Distribution:} WC. St Helena Bay to Saldanha.

\textbf{Habitat:} Base of granite domes and boulders.

\textbf{Rationale:} EOO < 120 km². Known from five severely fragmented subpopulations. Declining as a result of urban expansion around Vredenburg.

\textbf{Pauridia minuta} (L.f.) T.Durand & Schinz

\textbf{Status:} NT B1ab(i,ii,iii,iv,v)
N.A. Helme & D. Raimondo

\textbf{Distribution:} WC. Langebaan to Riversdale.

\textbf{Habitat:} Damp clay flats throughout its range and on limestone on the West Coast.

\textbf{Rationale:} EOO 22 500 km². Known from less than 20 locations. It has lost at least 40% of its habitat to urban development, crop cultivation and invasion by alien plants over the past 100 years. It cannot be listed under Criterion A because it is a tiny, short-lived species. The above threats are causing a continuing decline.

\textbf{Rhodohypoxis} Nel

\textbf{Rhodohypoxis incompta} Hilliard & B.L.Burtt

\textbf{Status:} Rare
Y. Singh & J.E. Victor

\textbf{Distribution:} KZN. Sehlabathebe to Sani Pass.

\textbf{Habitat:} Subalpine grassland, wet, gravelly silt draining off rocks or wet grass tussocks near rock sheets, 2 300–2 900 m.

\textbf{Rationale:} Southern KwaZulu-Natal Drakensberg endemic restricted to a specialised habitat. Not threatened.

\textbf{Rhodohypoxis thodiana} (Nel) Hilliard & B.L.Burtt

\textbf{Status:} Rare
Y. Singh & J.E. Victor

\textbf{Distribution:} KZN. Bushmans River to Giant’s Castle.

\textbf{Habitat:} Subalpine grassland and Drakensberg alpine tundra. Damp turf surfaces on or just below basalt summit plateaux, 2 600–3 050 m.

\textbf{Rationale:} KwaZulu-Natal Drakensberg endemic that is localised in wet areas at high altitudes. Not threatened.

\textbf{Saniella} Hilliard & B.L.Burtt

\textbf{Saniella occidentalis} (Nel) B.L.Burtt

\textbf{Status:} Rare
D.A. Snijman & J.E. Victor

\textbf{Distribution:} NC WC, Calvinia, Sutherland and Ceres Mountains.

\textbf{Habitat:} In damp depressions in heavy soils at high altitudes.

\textbf{Rationale:} A narrow habitat specialist occurring as disjunct subpopulations over an area of 3 600 km². Known from 10 sites. Not threatened.

\textbf{Spiloxene} Salisb.

\textbf{Spiloxene alba} (Thunb.) Fourc.

\textbf{Status:} VU B1ab(ii,iii,iv,v)
D.A. Snijman & D. Raimondo

\textbf{Distribution:} WC. Koue Bokkeveld to Hermanus and Breede River Valley.

\textbf{Habitat:} Seasonally damp sites mostly in heavy clay soils in remnant patches of renosterveld.

\textbf{Rationale:} EOO 8 500 km². Of the 26 subpopulations recorded, 13 have been lost to urban development of Cape Town and Stellenbosch, and crop cultivation around Malmesbury and Wellington. Remaining subpopulations are severely fragmented and loss to urban development, crop cultivation and encroachment from invasive alien grasses is continuing.

\textbf{Spiloxene} canaliculata Garside

\textbf{Status:} EN B1ab(ii,iii)
D.A. Snijman & D. Raimondo

\textbf{Distribution:} WC. Cape Town to Darling.

\textbf{Habitat:} Coastal fynbos, seasonally damp depressions.

\textbf{Rationale:} EOO 70 km². Known from five locations. Declining as a result of crop cultivation, urban expansion and alien grass invasions.

\textbf{Spiloxene linearis} (Andrews) Garside

\textbf{Status:} VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
D.A. Snijman & D. Raimondo

\textbf{Distribution:} WC. Jacobsbaai to Mamre.

\textbf{Habitat:} Limestone and granite soils.

\textbf{Rationale:} EOO 1 500 km², AOO < 1 500 km². Fewer than 10 remaining locations continue to decline because of urban expansion around Langebaan, Danger Bay, Yzerfontein and Mamre. It is also threatened by invading alien plants and agriculture around Mamre and Darling respectively.

\textbf{Spiloxene maximiliani} (Schltr.) Garside

\textbf{Status:} EN B1ab(ii,iii,iv,v)
D.A. Snijman & D. Raimondo

\textbf{Distribution:} WC. Olifants River Valley.

\textbf{Habitat:} Cool, shaded, moist habitats in rock crevices on steep slopes.

\textbf{Rationale:} EOO 40 km². Known from two locations. It has lost much habitat to citrus cultivation in the past. As irrigation techniques improve, more of the Olifants River Valley is being transformed. Crop cultivation remains a severe, ongoing threat to this species. In addition, a substantial portion of a subpopulation was recently lost to road widening. Future infrastructure development is likely to cause further declines.

\textbf{Spiloxene minuta} (L.) Fourc.

\textbf{Status:} EN B1ab(iii,v)
D.A. Snijman & D. Raimondo

\textbf{Distribution:} WC. Pakhuis Pass to Cape Peninsula and Strand.

\textbf{Habitat:} Lowland renosterveld, in damp sites.

\textbf{Rationale:} EOO < 1 800 km². Formerly widespread in the Swartland in wet clay habitats. Now restricted to three or four small, severely fragmented habitat remnants due to urban development and wheat and vineyard expansion. It is currently threatened by ongoing invasion of alien grasses.
Spiloxene nana Snijman

Status: Rare
D.A. Snijman & D. Raimondo

Distribution: NC. Bokkeveld Escarpment.
Habitat: Shallow soil under damp, shaded rock ledges on southwest-facing slopes.
Rationale: A range-restricted species (EOO 450 km²), known from 10 sites. Not threatened because of its habitat not being suitable for rooibos tea cultivation.

Spiloxene pusilla Snijman

Status: Rare
D.A. Snijman & D. Raimondo

Distribution: WC. Gifberg, Matsikamma Mountain and Pakhuis Pass.
Habitat: Sandstone pavements, but only under south-facing, overhanging rocks in shallow, sandy soil.
Rationale: A habitat specialist restricted to the sandstone massifs of the northern Cederberg and Matsikamma-Gifberg complex. Not threatened.

Spiloxene umbraticola (Schltr.) Garside

Status: DDD
D.A. Snijman & J.E. Victor

Distribution: WC. Olifants River Valley.
Habitat: Unknown.
Rationale: Not collected since 1964, the exact altitude and substrate where this species grows is unknown so it is difficult to tell how much of its habitat has been lost to crop cultivation.

IRIDACEAE

Aristea Aiton

Aristea biflora Weim.

Status: EN B1ab(iii,v)+2ab(iii,v)
D. Raimondo & D. Pillay

Distribution: WC. Caledon to Drayton.
Habitat: Renosterveld on loamy/gravelly clay.
Rationale: EOO 465 km²; AOO < 30 km². Over 80% of its habitat has been lost to wheat cultivation. It now occurs as severely fragmented subpopulations and is declining because of invading alien plants, incorrect fire regimes and urban expansion around the towns of Caledon and Middleton.

Aristea cantharophila Goldblatt & J.C.Manning

Status: VU B1ab(ii,iii,v)
D. Raimondo, N.A. Helme & P. Goldblatt

Distribution: WC. Kuilsrivier to Bot River.
Habitat: Fynbos or renosterveld, on clay and granite slopes.
Rationale: EOO < 2 200 km². Known from eight locations. Much of its habitat has been lost to commercial forestry plantations, urban expansion and vineyard, orchard and buchu cultivation. Habitat loss to crop cultivation and encroachment from invasive alien acacias is ongoing, especially in the Elgin Valley.

Aristea cistiflora J.C.Manning & Goldblatt

Status: VU D2
P.A. Manyama

Distribution: WC. Langeberg Mountains.
Habitat: Lower southern slopes in peaty sandstone soil.
Rationale: A recently described species known from one location. It flowers only after fire and is potentially threatened by invading alien plants.

Aristea elliptica Goldblatt & A.P.Dold

Status: NT B1ab(ii,iii)
P.A. Manyama & D. Raimondo

Distribution: EC. Eastern Cape, Suurberg Mountain to mouth of the Fish River.
Habitat: Fynbos or grassy fynbos on sandstone slopes and often on rock outcrops.
Rationale: EOO 2 600 km². Known from less than 15 locations with continuing to decline as a result of coastal development, agricultural expansion, afforestation and overgrazing.

Aristea fimбриata Goldblatt & J.C.Manning

Status: Critically Rare
P. Goldblatt & L. von Staden

Distribution: WC. Piketberg.
Habitat: Rocky sandstone slopes in fynbos.
Rationale: Known from one site in the Piketberg, occurs on rocky sandstone slopes that are not suitable for ploughing.

Aristea inaequalis Goldblatt & J.C.Manning

Status: Rare
P. Goldblatt & D. Raimondo

Distribution: NC WC. Bokkeveld Escarpment, Gifberg, and Nardous Mountain.
Habitat: Sandstone rocks, occurs in crevices in sandstone pavements.
Rationale: A habitat specialist that occurs in a limited range (EOO 1 750 km²) and has widely scattered subpopulations. Six sites are currently known but it is likely that there are a few more in the remote, unexplored areas of the southern Bokkeveld and Koebbee Mountains. Not threatened.

Aristea latifolia G.J.Lewis

Status: Rare
P. Goldblatt, D. Raimondo & K. Naidoo

Distribution: WC. Bain’s Kloof and Franschhoek.
Habitat: Sandy kloofs and gullies, 500–1 500 m.
Rationale: A range-restricted species (EOO < 500 km²), restricted to fire refuge habitats. Not threatened.

Aristea lugens (L.f.) Steud.

Status: EN B1ab(i,iii,iv); C2a(i)
D. Raimondo

Distribution: WC. Riebeek-Kasteel to Stellenbosch and Durbanville.
Habitat: Renosterveld on low granitic hills.
Rationale: EOO 2 750 km². It has lost over 90% of its habitat over the past 200 years. It now remains in small fragments within agricultural and urban areas. Remaining subpopulations are severely fragmented and continue to decline because of urban and agricultural development, invasion by alien plants, a lack of fire and loss of pollinators associated with fragmentation. We estimate that there are less than 2 500 mature individuals extant, with all recently surveyed subpopulations containing less than 250 mature individuals.

Aristea nana Goldblatt & J.C.Manning

Status: Rare
P.A. Manyama

Distribution: EC. Western Cape. Robinson Pass to Bavianskloof.
Habitat: Arid marginal fynbos on sandy and rocky sandstone slopes.
Rationale: Known from six sites, mostly at high altitude and therefore not threatened.
**Aristea nigrescens** J.C.Manning & Goldblatt

**Status:** EN B1ab(ii,iii,iv,v)

D. Raimondo & Roopman

**Distribution:** WC. Wolseley to Tulbagh.

Habitat: On ferricrete or sandstone alluvium overlying Malmesbury shale in fynbos-renosterveld transition.

Rationale: A recently described species with a restricted range (EOO 90 km²), flowering only after fire. Known from three locations. Declining as a result of deciduous fruit and vineyard expansion, lack of fire, and invasion by alien plants. One of the three locations is protected within the Romansrivier Contract Nature Reserve.

**Aristea palustris** Schltr.

**Status:** EN B1ab(iii)

D. Raimondo, N.A. Helme & D.I.W. Euston-Brown

**Distribution:** WC. Bredasdorp and Agulhas Plain.

Habitat: Wet sites on coastal low slopes.

Rationale: EOO 350 km². Known from four locations. This specialist to seasonally wet habitats is severely threatened by invading alien plants which utilise high volumes of groundwater, resulting in a lowered water table and desiccation of its habitat.

**Aristea platycaulis** Baker

**Status:** VU D2

L. von Staden, J.E. Victor & C.R. Scott-Shaw

**Distribution:** EC. Lusikisiki district.

Habitat: Margins of coastal forest.

Rationale: A range-restricted species (EOO 200 km²), known from very few records. The forest margin habitat (AOO estimated to be less than 15 km²) is affected by alien acacias, hakeas and pines. One of the three locations is protected within the Romansrivier Contract Nature Reserve.

**Aristea recisa** Weim.

**Status:** Rare

D. Raimondo

**Distribution:** WC. Hottentots Holland Mountains to Hermanus and Swellendam.

Habitat: Sandstone slopes in wet, sandy places, 600–1 200 m.

Rationale: A mountain species restricted to wet sites, known from four subpopulations, all in protected areas. Not threatened.

**Aristea rupicola** Goldblatt & J.C. Manning

**Status:** Critically Rare

P. Goldblatt & L. von Staden

**Distribution:** WC. Cederberg and Pakhuis Mountains.

Habitat: Grows exclusively in small pockets of soil, or rock crevices in sandstone outcrops and low cliffs.

Rationale: A range-restricted species known from one site. Not threatened as it occurs in a nonarable habitat within a protected area.

**Aristea simplex** Weim.

**Status:** NT B1ab(ii,iii,iv,v)

D. Raimondo & P. Goldblatt

**Distribution:** WC. Stellenbosch to George, and Swartberg Mountains.

Habitat: Clay flats and slopes in renosterveld.

Rationale: EOO 15 000 km². Known from less than 30 locations. This species is difficult to assess as it flowers only after fire and it is possible that there are a number of undiscovered locations. However, it occurs only on clay soils where it has lost significant amounts of habitat to agriculture (at least 50%) over the past 70 years. Habitat loss is ongoing.

**Aristea singularis** Weim.

**Status:** Critically Rare

D. Raimondo & D. Pillay

**Distribution:** WC. Northern Cederberg.

Habitat: Sandstone slopes near streams, in shade.

Rationale: Confined to the northern Cederberg where it is known from one site. Not threatened as it occurs in a nonarable habitat within a protected area.

**Aristea teretifolia** Goldblatt & J.C. Manning

**Status:** EN B1ab(iii)

D. Raimondo, J.C. Manning & N.A. Helme

**Distribution:** WC. Shaw’s Pass to Napier and Elim.

Habitat: Renosterveld on ferricrete soils on slopes.

Rationale: Occurs as severely fragmented subpopulations within a restricted area (EOO 1 000 km²). Over 50% of its habitat has been lost to wheat, vineyard and protea cultivation over the past 80 years. Decline is ongoing because of overgrazing and encroachment from invasive alien acacias, hakeas and pines.

**Aristea zeyheri** Baker

**Status:** Rare

P. Goldblatt & J.E. Victor

**Distribution:** WC. Cape Peninsula to Kleinrivier Mountains.

Habitat: Sandstone slopes, usually in damp sites.

Rationale: Known from five sites, restricted to seasonally damp areas and is not threatened as all known subpopulations occur within protected areas.

**Babiana Ker Gawl.**

**Babiana angustifolia** Sweet

**Status:** NT B1ab(iii)

D. Raimondo & N.A. Helme

**Distribution:** WC. Piketberg to Somerset West.

Habitat: Clay flats in renosterveld.

Rationale: EOO 6 000 km². Known from ± 20 locations. It has lost over 95% of its habitat to wheat cultivation and urban expansion over the past 80 years (generation length suspected to be 10 years). At least 20% of this loss has taken place over the past 30 years. Continuing to decline because of urban expansion, especially around Gordon’s Bay and Gouda.

**Babiana arenicola** Goldblatt & J.C. Manning

**Status:** EN B1ab(iii,iv,v)+2ab(iii,iv,v)

J.C. Manning & D. Raimondo

**Distribution:** WC. Brandvlei.

Habitat: Sandy flats.

Rationale: The construction of the Brandvlei Dam caused the loss of a portion of a subpopulation. It is now known from two locations (EOO 10 km²). Loss to vineyard expansion is ongoing.

**Babiana auriculata** G.J.Lewis

**Status:** Rare

J.E. Victor & P. Goldblatt

**Distribution:** WC. Pakhuis Mountains.

Habitat: Sandstone crevices.

Rationale: Known from a restricted range (EOO < 100 km²) from four sites. Not threatened as it occurs in a nonarable habitat.
Babiana blanda (L.Bolus) G.J.Lewis
Status: CR B1ab(iii)
D. Raimondo & R. Koopman

Distribution: WC. Darling to Paarl.
Habitat: Seasonally damp sandy flats.
Rationale: EOO 90 km². Known from two severely fragmented subpopulations. A southern Swartland endemic collected three times in the area between Milnerton and Mamre in the 1940s. It was then not recorded again for 56 years, during which period 98% of its habitat was transformed for urban expansion and agriculture. In 2006 N.A. Helme and R. Koopman rediscovered a subpopulation near Philadelphia, where more than 2,000 plants occur in a highly degraded area. A second subpopulation of ± 1,000 plants were found near Malmesbury in 2007. Habitat quality continues to decline because of invasion by alien plants. Part of the Malmesbury subpopulation will be lost to development by 2012.

Babiana brachystachys (Baker) G.J.Lewis
Status: Declining
P. Goldblatt & J.E. Victor

Distribution: NC WC. Coastal Namaqualand between Lambert’s Bay and Hondeklip Bay.
Habitat: Grows on deep white sands near the coast, in West Coast strandveld vegetation.
Rationale: Heavy-mineral sand mining has caused some decline for this taxon, with two historical subpopulations from Namaqua sands likely to be extinct. However, this species occurs on strandveld and sandveld vegetation and is therefore buffered by the fact that much sandveld habitat is still extant, and only a small proportion of the dunes on which it occurs has been mined.

Babiana carminea J.C. Manning & Goldblatt
Status: EN D
J.C. Manning, P. Goldblatt & D. Raimondo

Distribution: WC. Knysnvlake.
Habitat: Rock crevices in limestone.
Rationale: Known from two sites where less than 100 mature individuals have been recorded.

Babiana cedarbergensis G.J.Lewis
Status: Rare
J.E. Victor

Distribution: WC. Cederberg Mountains.
Habitat: Rocky sandstone soils.
Rationale: An eastern Cederberg endemic (EOO 465 km²), known from 10 sites. Not declining as it occurs in a nonarable habitat and many subpopulations fall within the Cederberg Wilderness Area.

Babiana confusa (G.J.Lewis) Goldblatt & J.C. Manning
Status: VU B1ab(ii,iii,v)
D. Raimondo & P. Goldblatt

Distribution: WC. Lambert’s Bay, Knysnvlake to Nardous Mountain.
Habitat: Sandy flats and mountain plateaus.
Rationale: EOO 2 500 km². Known from five disjunct subpopulations. Possibly under-collected and we estimate that there may be 10 locations. The subpopulation on the Nardous Mountain is experiencing ongoing habitat loss as a result of rooibos tea cultivation.

Babiana engysiphon J.C. Manning & Goldblatt
Status: EN B1ab(iii)
L. von Staden, N.A. Helme & D. Raimondo

Distribution: NC. Southern Boekkveeld Escarpment between Botterkloof and Gibberg.
Habitat: Restio-dominated fynbos in deep, sandy soils.
Rationale: EOO estimated 1,000 km². Known from 3–5 locations. Ongoing habitat loss owing to cultivation of rooibos.

Babiana foliosa G.J. Lewis
Status: CR PE
D. Raimondo & P. Goldblatt

Distribution: WC. Riviersonderend.
Habitat: Clay-loam flats.
Rationale: Known from a single collection near Rivierson- derend in 1951. Much of this area has subsequently been converted to wheat cultivation. Possibly extinct.

Babiana fragrans (Jacq.) Goldblatt & J.C. Manning
Status: NT B1ab(iii)
L. von Staden & D. Raimondo

Distribution: WC. Cape Peninsula to Malmesbury and Ceres.
Habitat: Fynbos and renosterveld, low-lying sandstone, granite and clay slopes and flats below 900 m.
Rationale: EOO 6 800 km². Known from 14–20 locations. A formerly very common species that has lost much of its habitat in low-lying areas between Stellenbosch, Paarl and Cape Town and within the Ceres Valley. Experiencing ongoing habitat loss due to urban development, agricultural expansion and invasion by alien plants.

Babiana framesii L.Bolus
Status: Rare
E. Marinus & D. Raimondo

Distribution: WC. Bokkeveld Plateau.
Habitat: Grows on the rocky dolerite outcrops in heavy clay soils.
Rationale: Confined to the area around Nieuwoudtville (EOO < 100 km²). Not threatened.

Babiana geniculata G.J. Lewis
Status: Rare

Distribution: NC WC. Pakhuis Mountains, Biedouw Mountain and northern Cederberg.
Habitat: Rocky sandstone in dry fynbos.
Rationale: A narrow endemic (EOO < 200 km²). Not threatened as it occurs in a nonarable habitat.

Babiana horizontalis G.J. Lewis
Status: VU D2
P. Goldblatt & D. Raimondo

Distribution: NC. Richtersveld.
Habitat: Succulent Karoo shrubland, in rock crevices on granite outcrops.
Rationale: Known from three locations. Potentially threatened by overgrazing by livestock.

Babiana inclinata Goldblatt & J.C. Manning
Status: EN B1ab(iii) + 2ab(iii)
L. von Staden & D. Raimondo

Distribution: WC. Lowlands between Piketberg, Porterville, Gouda and Darling.
Habitat: Swartland Shale Renosterveld, damp clay flats and lower slopes.
Babiana inclinata

**Distribution:** Fewer than 10 locations. Ongoing diamond mining has restricted range, it is estimated that there are probably less than 10 locations, some subpopulations have been lost through urban and agricultural development. There is a continuing decline due to urban expansion.

**Status:** CR

**Rationale:** EOO 2 800 km², AOO < 55 km². Restricted to an area that is 95% transformed by wheat cultivation and only 10 severely fragmented subpopulations remain in small, isolated habitat remnants, mainly along roadsides. These fragments are continually being degraded as a result of the effects of fragmentation, which include too infrequent fires, invasion by alien plants and loss of specialist pollinators.

**Species:**
- Babiana karrooica Goldblatt & J.C.Manning
  - **Status:** VU B1ab(ii,iii,iv,v)
  - **Distribution:** WC. Oudtshoorn to De Rust.
  - **Habitat:** Enon conglomerate outcrops.
  - **Rationale:** EOO 120 km². A recently described species that was previously confused with other more abundant local Babiana species. This species is known from fewer than 10 locations, some subpopulations have been lost through urban and agricultural development. There is a continuing decline due to urban expansion.

- Babiana leipoeldii G.J.Lewis
  - **Status:** CR D
  - **Distribution:** WC. Base of the Piketberg.
  - **Habitat:** Rocky outcrop in clay flats.
  - **Rationale:** Known from one small rock outcrop in the middle of wheat lands, it has lost 98% of its habitat to wheat cultivation. The only remaining subpopulation has less than 50 extant individuals.

- Babiana leipoldii G.J.Lewis
  - **Status:** VU B1ab(ii,iii,iv,v)
  - **Distribution:** WC. Malmsbury to Darling to Klipheuwel.
  - **Habitat:** Damp sandy flats.
  - **Rationale:** This Swartland endemic was once widespread but has lost > 95% of its habitat to wheat cultivation, urban expansion and dense invasion by alien plants. Less than 5 km² of its damp, sandy flat habitat remains untransformed. It is extant at four small, fragmented locations and is continuing to decline because of invading alien plants and further urban development.

- Babiana lewisiana B.Nord.
  - **Status:** VU D2
  - **Distribution:** NC. Richtersveld, Armmandshoek to Stinkfontein Mountains.
  - **Habitat:** Rocky lower slopes and flats.
  - **Rationale:** Known from one remnant of natural vegetation in the middle of wheat lands. It has lost 98% of its habitat to wheat cultivation. The only remaining subpopulation has less than 50 extant individuals.

- Babiana lobata G.J.Lewis
  - **Status:** Rare
  - **Distribution:** NC. Richtersveld, Armmandshoek to Stinkfontein Mountains.
  - **Habitat:** Rocky lower slopes and flats.
  - **Rationale:** Known from one remnant of natural vegetation in the middle of wheat lands. It has lost 98% of its habitat to wheat cultivation. The only remaining subpopulation has less than 50 extant individuals.

- Babiana longiflora Goldblatt & J.C.Manning
  - **Status:** CR D
  - **Distribution:** WC. Piketberg to Porterville.
  - **Habitat:** Transitional fynbos-renosterveld, on sandstone outcrops.
  - **Rationale:** Known from one remnant of natural vegetation in the middle of wheat lands. It has lost 98% of its habitat to wheat cultivation. The only remaining subpopulation has less than 50 extant individuals.

- Babiana melanops Goldblatt & J.C.Manning
  - **Status:** VU B1ab(ii,iii,iv,v)
  - **Distribution:** WC. Hills between Darling and Mamre and the Tulbagh Valley. Isolated records from Wellington, Klappmuts and Botellary Hills.
  - **Habitat:** Gravel flats and slopes in Swartland Granite Renosterveld, except Tulbagh Valley, where it occurs on rocky sandstone flats in fynbos.
  - **Rationale:** EOO 5 400 km². Known from 7–10 locations. Subpopulations are severely fragmented and its habitat has been extensively transformed by crop cultivation. Remnants are being continually degraded by encroachment from invasive alien species, gravel quarrying, too infrequent fires and the effects of fragmentation such as loss of specialist pollinators.

- Babiana montana G.J.Lewis
  - **Status:** EN B1ab(ii,iii,iv,v)
  - **Distribution:** WC. Caledon to Bredasdorp.
  - **Habitat:** Sandstone and limestone slopes.
  - **Rationale:** EOO < 3 000 km². Known from three locations. It has lost over 80% of its habitat to wheat cultivation over the past 70 years. Remaining subpopulations are threatened by habitat degradation as a result of invasion by alien plants and overgrazing by livestock.

- Babiana mucronata (Jacq.) Ker Gawl. subsp. minor (G.J.Lewis) Goldblatt & J.C.Manning
  - **Status:** EN B1ab(ii,iii,iv,v)
  - **Distribution:** NC WC. Gifberg to Bokkeveld Escarpment.
**Habitat:** Succulent Karoo on sandy soil.

**Rationale:** EOO < 250 km². Known from five locations. The sandy soils in which it grows are a prime target for rooibos tea cultivation, which is causing ongoing decline to the habitat of this taxon.

**Babiana nana** (Andrews) Spreng. subsp. maculata (Klatt) Goldblatt & J.C. Manning

- **Status:** NT B1ab(iii)
  L. von Staden & D. Raimondo
- **Distribution:** WC. Cape Peninsula to Mossel Bay.
- **Habitat:** Sandy coastal flats and dunes.
- **Rationale:** EOO 35 800 km². Known from 15–20 severely fragmented subpopulations. It is restricted to an area that is undergoing extensive habitat loss to coastal development, crop cultivation and invasion by alien plants.

**Babiana pygmaea** (Jacq.) Ker Gawl.

- **Status:** EN B1ab(iii,ii,iii,iv,v)
  J.C. Manning & P.A. Manyama
- **Distribution:** WC. Pietermaritzburg to Durbanville.
- **Habitat:** Alluvial renosterveld on clay flats and slopes.
- **Rationale:** EOO < 3 500 km². Known from 4–10 locations. Subpopulations of this taxon are severely fragmented and are declining mainly as a result of coastal development and invasion by alien plants.

**Babiana purpurea** (Jacq.) Ker Gawl. subsp. nana

- **Status:** NT B1ab(iii)
  L. von Staden
- **Distribution:** WC. Milnerton to Vredenburg Peninsula, extinct in the southern part of the range.
- **Habitat:** Sand plain fynbos and dune strandveld, sandy coastal flats and dunes.
- **Rationale:** EOO 840–1 400 km². Known from 4–10 locations. Subpopulations of this taxon are severely fragmented and are declining mainly as a result of coastal development and invasion by alien plants.

**Babiana noctiflora** J.C. Manning & Goldblatt

- **Status:** EN D
  J.C. Manning, P. Goldblatt, A.B. Low & D. Raimondo
- **Distribution:** WC. Paardeberg.
- **Habitat:** Renosterveld on granite soils on low slopes.
- **Rationale:** EOO < 1 km². It has lost habitat to orchard cultivation. The remaining two subpopulations together have less than 250 mature individuals.

**Babiana odorata** L.Bolus

- **Status:** EN B1ab(ii,iii,iv,v)
  J.C. Manning & D. Raimondo
- **Distribution:** WC. Piketberg to Durbanville.
- **Habitat:** Alluvial renosterveld on clay flats and slopes.
- **Rationale:** EOO < 3 500 km². This Swartland endemic has lost extensive parts of its habitat to wheat cultivation and urban expansion of Malmsbury and Darling. It is extant at four locations, one of which has lost 98% of individuals to urban and infrastructure expansion since 2005. Habitat degradation due to invasion by alien plants is ongoing.

**Babiana papyracea** Goldblatt & J.C.Manning

- **Status:** VU D2
  J.C. Manning, P. Goldblatt & D. Raimondo
- **Distribution:** NC. Nieuwoudtville.
- **Habitat:** Renosterveld on tillite clays.
- **Rationale:** Known from two small fragments. Over 95% of the habitat has been lost to ploughing for wheat since the 1940s. Although not currently declining, potentially threatened by encroachment from invasive alien grasses.

**Babiana patula** N.E.Br.

- **Status:** Declining
  D. Raimondo
- **Distribution:** WC. Tulbagh to Albertinia.

**Babiana pauciflora** (Andrews) Spreng. subsp. maculata

- **Status:** NT B1ab(iii)
  L. von Staden
- **Distribution:** WC. Hopefield to Mamre.
- **Habitat:** Sandy coastal flats and dunes.
- **Rationale:** EOO 175 km². Known from four locations. Continuing habitat loss due to expanding potato cultivation. Potentially threatened by costal development and mining.

**Babiana papyracea** (Jacq.) Ker Gawl.

- **Status:** EN B1ab(iii,ii,iii,iv,v)
  J.C. Manning, P. Goldblatt & D. Raimondo
- **Distribution:** NC. Calvinia, Hantamsberg Mountain to Bloukrans Pass.
- **Habitat:** Dolerite outcrops, often growing in rock crevices in dolerite pavement.
- **Rationale:** Known from fewer than five sites, not threatened because of the inaccessibility of its habitat.

**Babiana praemorsa** Goldblatt & J.C.Manning

- **Status:** Rare
  P.A. Manyama
- **Distribution:** NC. Calvina to Hout Bay.
- **Habitat:** Clay flats and slopes.
- **Rationale:** Occurring over a wide range (EOO 20 000 km²), known from over 20 large subpopulations. Agriculture, urban expansion and invasion by alien plants have caused a loss of over 60% of its habitat, but this loss has taken place over the past 80 years, much longer than three generations (generation length less than five years). Habitat loss is ongoing.

**Babiana pauciflora** G.J.Lewis

- **Status:** VU D2
  P. Goldblatt & D. Raimondo
- **Distribution:** NC. Bot River to Elands Bay.
- **Habitat:** Arid renosterveld on red sandy/clay soils on rocky flats.
- **Rationale:** Known from four locations. It has lost habitat to wheat cultivation in the past, and although not currently declining, olive and further cereal cultivation as well as clearing of road verges are potential threats.

**Babiana petiolata** Goldblatt & J.C.Manning

- **Status:** EN B1ab(iii)+2ab(iii)
  N.A. Helme, L. von Staden & D. Raimondo
- **Distribution:** WC. Veldrif to Lambert’s Bay.
- **Habitat:** Strandveld, flat sandy ground close to the coast.
- **Rationale:** EOO 175 km². Known from four locations. Continuing habitat loss due to expanding potato cultivation. Potentially threatened by costal development and mining.

**Babiana pilosa** G.J.Lewis

- **Status:** Rare
  D. Raimondo, L. Potter & J.E. Victor
- **Distribution:** WC. Nuwereus.
- **Habitat:** Quartzite patches on rocky slopes.
- **Rationale:** Known from two sites. Not threatened because of the inaccessibility of its habitat.

**Babiana praemorsa** Goldblatt & J.C.Manning

- **Status:** Rare
  P.A. Manyama
- **Distribution:** NC. Calvina to Hout Bay.
- **Habitat:** Dolerite outcrops, often growing in rock crevices in dolerite pavement.
- **Rationale:** Known from fewer than five sites, not threatened because of the inaccessibility of its habitat.

**Babiana purpurea** (Jacq.) Ker Gawl.

- **Status:** EN B1ab(ii,iii,iv,v)
  J.C. Manning & D. Raimondo
- **Distribution:** WC. Bot River to Bredasdorp to Robertson.
- **Habitat:** Renosterveld on clay flats and slopes.
- **Rationale:** EOO < 5 000 km². Known from two locations. It has lost > 80% of its habitat over the past 60 years to wheat and vineyard cultivation. The largest remaining subpopulation occurs on a commonage in the town of Caledon where it is threatened by urban development and invaded by alien eucalypts and acacias. The second subpopulation occurs on a road verge and is threatened by road works and verge clearing.

**Babiana pygmaea** (Burm.f.) Baker

- **Status:** CR B1ab(i,ii,iii,iv)
  J.C. Manning, P. Goldblatt & D. Raimondo
- **Distribution:** WC. Hopefield to Mamre.
- **Habitat:** Gravelly flats and sandstone outcrops.
Rationale: Known from two or three small locations that are highly fragmented as a result of conversion of its habitat for wheat cultivation. Threatened by habitat degradation as a result of overgrazing by livestock and invasion by alien plants.

'Babiana radiata' Goldblatt & J.C. Manning
Status: CR B1ab(ii,iii,v) + 2ab(ii,iii)
J.H. Vlok & D. Raimondo

Distribution: WC. De Rust.
Habitat: Deep gravel soils.
Rationale: A recently discovered species (EOO 20 km²), known from three small, fragmented subpopulations. One subpopulation was destroyed by construction of a pig farm in 2006. The remaining two subpopulations occur on road verges and are declining as they are very vulnerable to the impact of road works.

'Babiana regia' (G.J.Lewis) Goldblatt & J.C. Manning
Status: CR B1ab(ii,iii) + 2ab(ii,iii)
P. Goldblatt & D. Raimondo

Distribution: WC. Agter-Parl to Stellenbosch.
Habitat: Seasonally wet flats.
Rationale: EOO 55 km². Eleven of the 14 historical locations have been lost over the past 60 years because of agricultural expansion and invasion by alien plants. The habitat of damp, loamy soils in which this plant occurs is targeted for crop cultivation. All three remaining locations are small, fragmented and threatened by invading alien plants.

'Babiana rubella' Goldblatt & J.C. Manning
Status: VU D1 + 2
N.A. Helme & L. von Staden

Distribution: NC. Kotzesrus, Namaqualand.
Habitat: Sandy flats in Namaqualand Strandsveld.
Rationale: EOO 150 km². Known from two sites. A small area of ± 200 ha around the type locality has been transformed for crop cultivation over the last 10 years and this subpopulation is potentially threatened by further expansion of crops. The total population is estimated to be less than 1 000 mature individuals.

'Babiana rubrocyanea' (Jacq.) Ker Gawl.
Status: VU D2
P. Goldblatt & J.E. Victor

Distribution: WC. Darling.
Habitat: Damp, alluvial sands over clay.
Rationale: Known from one location. Most of its habitat has been lost to wheat cultivation. The remaining subpopulation occurs in a small private nature reserve that is frequented by thousands of tourists during the spring flower season and used for stock farming at other times of the year. Potentially threatened by the impact of grazing by cattle and trampling by tourists.

'Babiana salteri' G.J. Lewis
Status: VU D2
P. Goldblatt & D. Raimondo

Distribution: WC. Knysnvlakte.
Habitat: Grows between white quartz pebbles on saline clay flats.
Rationale: Known from two locations. Potentially threatened by trampling by livestock and gypsum mining.

'Babiana sambucina' (Jacq.) Ker Gawl. subsp. longibracteata (G.J.Lewis) Goldblatt & J.C. Manning
Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
L. von Staden & D. Raimondo

Distribution: NC. Narrow endemic to the Bokkeveld Plateau around Nieuwoudtville.
Habitat: Bokkeveld Sandstone Fynbos, in deep sandy soils on flats and gentle slopes.
Rationale: EOO 450 km². AOO < 450 km². Likely to persist at five locations. Most records of this taxon are from before 1970, in an area that has undergone rapid transformation over the last 10 years as a result of the expansion of the rooibos tea industry. It continues to decline because of ongoing habitat loss.

'Babiana secunda' (Thunb.) Ker Gawl.
Status: CR B2ab(ii)
D. Raimondo & N.A. Helme

Distribution: WC. Hopefield to Paarl.
Habitat: Clay flats.
Rationale: Extant at three small, severely fragmented subpopulations, having lost 44 of 47 historical locations to urban expansion on the Cape Flats and wheat and vineyard expansion in the Swartland. All remaining suitable flat clay renosterveld habitat within its range is smaller than 10 km². Its habitat continues to be degraded because of invasion by alien plants.

'Babiana stenomera' Schltr.
Status: CR PE
P. Goldblatt & D. Raimondo

Distribution: WC. Nuwerus, Kareebereg.
Habitat: Sandy granitic and clay soils.
Rationale: Not collected for over 100 years. Probably extinct because of grazing by livestock, as repeated searches have failed to relocate it.

'Babiana stricta' (Aiton) Ker Gawl.
Status: NT B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Piketberg and Cape Peninsula to Worcester and Swellendam.
Habitat: Waterlogged clay or gravelly soils in renosterveld or fynbos.
Rationale: EOO 22 000 km². This relatively widespread species occurs mainly in a restricted habitat of moist clays. It has lost 47% of subpopulations over the past 120 years as a result of crop cultivation and urban expansion. Its habitat continues to be transformed for agriculture and urban developments and is being degraded owing to encroachment from invasive alien grasses.

'Babiana tanquana' J.C. Manning & Goldblatt
Status: Rare
L. von Staden & N.A. Helme

Distribution: NC. WC. Tanqua Karoo.
Habitat: Dolerite outcrops.
Rationale: Known from four sites, but this recently described species may occur at additional sites. It has a known range of ± 250 km². The full range is not yet known, but the EOO may be as large as 10 000 km² if it occurs across the Tanqua Karoo. It is a habitat specialist that is locally common. Large areas of its habitat, including two of the known sites, are protected within the Tanqua Karoo National Park.
**Babiana thunbergii** Ker Gawl.

**Status:** NT B1ab(ii,iii,iv,v)

D. Raimondo & N.A. Helme

**Distribution:** NC WC. Coastal Namaqualand between Saldanha and the mouth of the Orange River.

**Habitat:** Sandy flats and dunes, coastal.

**Rationale:** It has a long, narrow, coastal distribution from Saldanha Bay to the mouth of the Orange River (EOO 21 000 km²), known from 17 locations. Threatened by diamond mining activities in the northern part of its range and by grazing and development in the southern part. A new threat to the southern populations is the planned mining for heavy minerals in the Groen River area. Some subpopulations may also have been affected by the implementation of centre-point irrigation schemes, which have allowed the planting of crops in previously nonarable areas. If decline continues, this species will soon be considered vulnerable.

**Babiana toximontana** J.C.Manning & Goldblatt

**Status:** EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)

N.A. Helme, L. von Staden & D. Raimondo

**Distribution:** WC. Foothills and plains below the Matzikamma and Gilberg Mountains between Klawer and Vanrhynsdorp.

**Habitat:** Arid fynbos, sandy flats and stony lower slopes.

**Rationale:** EOO 75 km². Known from four or five locations. Subpopulations on sandy flats are threatened by habitat loss as a result of expanding rooibos tea cultivation.

**Babiana tritonioides** G.J.Lewis

**Status:** VU D2

P. Goldblatt, A. le Roux & D. Raimondo

**Distribution:** NC. Southern Richtersveld to Komaggas.

**Habitat:** Stony, granitic slopes.

**Rationale:** Known from fewer than five locations. Potentially threatened by grazing livestock.

**Babiana tubiflora** (L.f.) Ker Gawl.

**Status:** Declining

L. von Staden

**Distribution:** WC. Coastal areas from Lambert’s Bay to Still Bay and inland around Darling and Piketberg.

**Habitat:** Sandy coastal flats and dunes in strandveld and fynbos.

**Rationale:** EOO 47 000 km², AOO ± 4 600 km² (based on available habitat). Known from more than 10 subpopulations and not severely fragmented. It has lost significant amounts of habitat to urban and coastal development as well as agriculture. It is able to tolerate severe disturbance, but coastal development is causing ongoing, irreversible habitat loss and although this species is not threatened at the moment, it should be monitored.

**Babiana tubulosa** (Burm.f.) Ker Gawl.

**Status:** VU D2

J.C. Manning & D. Raimondo

**Distribution:** WC. Darling, Mamre and Langebaan.

**Habitat:** Humic soils on granite.

**Rationale:** Known from three locations. Potentially threatened by urban expansion in Langebaan and trampling and overgrazing by livestock in Darling and Mamre.

**Babiana unguiculata** G.J.Lewis

**Status:** VU D2

P. Goldblatt, J.E. Victor & K. Naidoo

**Distribution:** NC WC. Nardous Mountain and southern Bokkeveld Escarpment.

**Habitat:** Sandy seeps.

**Rationale:** Known from two locations. Restricted to rare seep habitats. Potentially threatened by rooibos tea cultivation at both locations.

**Babiana vanzijliae** L.Bolus

**Status:** NT B1ab(ii,iii,iv,v)

D. Raimondo & P. Goldblatt

**Distribution:** NC. Bokkeveld Mountains, from Nieuwoudtville to Loxenburg.

**Habitat:** Rocky sandstone and tillite-derived soils, in renosterveld and fynbos.

**Rationale:** EOO < 600 km². Known from 10–15 locations. Experiencing ongoing habitat loss to wheat and rooibos cultivation.

**Babiana villosa** (Aiton) Ker Gawl.

**Status:** NT B1ab(ii,iii,iv,v)

D. Raimondo & J.C. Manning

**Distribution:** WC. Malmesbury to Wellington and Tulbagh Valley.

**Habitat:** Shale renosterveld on flats, hills and lower mountain slopes.

**Rationale:** EOO 1 995 km². Known from 16 locations. It has lost 80% of its habitat to agriculture but is short-lived and cannot be listed under Criterion A. Plants are locally common in remnant fragments of renosterveld, especially in the Tulbagh Valley, but it continues to lose habitat to agriculture, especially vineyards and olive cultivation.

**Babiana villosula** (J.F.Gmel.) Ker Gawl. ex Steud.

**Status:** EN B1ab(ii,iii,iv,v)

J.C. Manning & D. Raimondo

**Distribution:** WC. Malmesbury to Gordon’s Bay.

**Habitat:** Renosterveld and shale fynbos in seasonally moist areas on clay flats and slopes.

**Rationale:** A range-restricted species (EOO < 2 000 km²), extant at seven of its 18 historical locations. It has lost over 80% of its habitat to urban development, wheat and vineyard expansion and infestations of invasive alien plants. Occurs as small, severely fragmented subpopulations. Loss to urban expansion and invasion by alien plants is ongoing.

**Babiana virginia** Goldblatt

**Status:** Rare

J.E. Victor & D. Raimondo

**Distribution:** NC. Roggeveld Escarpment, Middelpos to Verlate Kloof.

**Habitat:** Shale outcrops amongst clumps of Merxmuuller a grass.

**Rationale:** A range-restricted Roggeveld endemic (EOO 550 km²). Not threatened or declining.

**Bobartia** L.

**Bobartia fasciculata** J.B.Gillet ex Strid

**Status:** NT B1ab(ii,iii,iv,v)

D. Raimondo

**Distribution:** WC. Tulbagh to Citrusdal.

**Habitat:** Fynbos on mountain slopes, often in sandy places, 350–750 m.

**Rationale:** Although only nine locations are recorded, there are likely to be a few more given that this species occurs in mountainous areas. Two of the historical locations have been lost as a result of rooibos cultivation.
Ongoing habitat loss for subpopulations occurring on sandy areas is probably due to the high rates of transformation of this habitat for rooibos cultivation.

**Bobartia gladiata** (L.f.) Ker Gawl. subsp. major
**(G.J.Lewis)** Strid

*Status:* Rare

*Distribution:* WC. Southern Cape Peninsula.

*Habitat:* Marshy places and sandy plateaus.

*Rationale:* EOO < 500 km². Known from a restricted range (EOO < 500 km²) occurring only on rocky slopes that are not arable. Not threatened.

**Bobartia paniculata** G.J.Lewis

*Status:* Rare

*Distribution:* WC. Kammanassie Mountains.

*Habitat:* Middle to upper slopes in dry fynbos.

*Rationale:* A range-restricted species (EOO < 300 km²) occurring mostly within protected areas in a nonarable habitat. Not threatened.

**Chasmanthe** N.E.Br.

**Chasmanthe bicolor** (Gasp.) N.E.Br.

*Status:* VU B1ab(i,ii,iii,iv,v)

*Distribution:* WC. McGregor and Swellendam.

*Habitat:* Open woodland near streams.

*Rationale:* EOO 600 km². Known from more than one location. Potentially threatened by crop cultivation, dam construction and invasion by alien plants.

**Crocosmia** Planch.

**Crocosmia fucata** (Herb.) M.P.de Vos

*Status:* VU D2

*Distribution:* NC. Northern Kamiesberg.

*Habitat:* Mountain renosterveld on granitic soils in wet kloofs.

*Rationale:* Restricted to the Sneekloop area of the northern Kamiesberg. Only one subpopulation is known from alongside a seasonal stream. Potentially threatened by grazing and trampling by livestock.

**Crocosmia masoniorum** (L.Bolus) N.E.Br.

*Status:* VU B1ab(i,ii,iii,iv,v)

*Distribution:* EC. Southern Drakensberg Mountains, near Engcobo.

*Habitat:* Highland sourveld, loam sandstone soils.

*Rationale:* EOO < 3 000 km². Known from seven locations and severely threatened by invading alien plants, afforestation and overgrazing by livestock.
**Crocosmia pearsei** Oberm.

**Status:** Rare

**J.E. Victor, C.R. Scott-Shaw & P. Goldblatt**

**Distribution:** KZN. Cathedral Peak and Mont-aux-Sources.

**Habitat:** Subalpine grassland, occurring in moist places often at the base of basalt rock faces, 2 200–3 000 m.

**Rationale:** Drakensberg endemic restricted to a specialised habitat at high altitudes. Not threatened as most subpopulations occur within protected areas.

**Devia** Goldblatt & J.C.Manning

**Distribution:** NC. Roggeveld Escarpment northwest of Sutherland.

**Habitat:** Rocky loam in renosterveld, 1 500–1 700 m.

**Rationale:** A highly range-restricted species (EOO 70 km²) occurring only in the highest parts of the Roggeveld Escarpment. Known from two subpopulations. No known threats.

**Dierama** K.Koch

**Dierama dubium** N.E.Br.

**Status:** VU B1ab(iii,iii,y)

L. von Staden, J.E. Victor & C.R. Scott-Shaw

**Distribution:** KZN. Mahlabatini to Mapumulo.

**Habitat:** Grassland, 1 200–1 500 m.

**Rationale:** It has a restricted distribution in central KwaZulu-Natal (EOO 3 800 km²) and is very rare, occurring in very low abundances and known from 5–7 locations. Its habitat is severely transformed in the southern parts of the range. Across the known range of this species there is a continuing decline due to subsistence agriculture (crop cultivation and overgrazing of communal range-land).

**Dierama erectum** Hilliard

**Status:** EN B1ab(ii,iii,iv,y) + 2ab(ii,iii,iv,y)

C.R. Scott-Shaw & L. von Staden

**Distribution:** KZN. Pietermaritzburg to Durban and Valley of a Thousand Hills.

**Habitat:** Open grassland on stony slopes, 300–900 m.

**Rationale:** It has an extremely restricted range (EOO 832 km²), persisting at 6–10 locations in one of the most highly transformed areas of KwaZulu-Natal. More than 50% of the habitat is already transformed, but over a period longer than three generations. There is a severe, continuing decline in the habitat as a result of urban expansion, woody encroachment of smaller grassland fragments, too frequent fires and overgrazing in larger grassland patches.

**Dierama nixonianum** Hilliard

**Status:** EN B2ab(ii,iii,iv)

C.R. Scott-Shaw, L. von Staden & D. Pillay

**Distribution:** KZN. KwaZulu-Natal Midlands and Wakkerstroom.

**Habitat:** Open grassland over sandstone, 760–1 500 m.

**Rationale:** The grassland habitat of this species has been massively transformed by sugarcane cultivation, forestry plantations, subsistence farming and severe overgrazing (over 61% of its habitat has been lost in the Midlands area). Less than 2 000 km² of its mistbelt grassland habitat remains. Extant at 2–6 locations. Occurs mainly between Mapumulo, Richmond and Mount Gilboa in the Lions River district, with one outlying record near Wakkerstroom. The subpopulation at the type locality is locally extinct and many other subpopulations may also be declining or locally extinct. One subpopulation is about to be lost to a housing development.

**Dierama pallidum** Hilliard

**Status:** EN B2ab(ii,iii,iv)

C.R. Scott-Shaw & L. von Staden

**Distribution:** KZN. Pietermaritzburg to Durban and Valley of a Thousand Hills.

**Habitat:** Rocky grasslands, 1 000–1 200 m.

**Rationale:** Known from fewer than 10 locations. Grassland transformation by agriculture and forestry has severely reduced suitable habitat. Most areas of the Noodsberg and Little Noodsberg are transformed to forestry plantations and where heavy grazing by livestock is causing a continuing decline in habitat quality.

**Dierama pumilum** N.E.Br.

**Status:** EN B1ab(iii)

C.R. Scott-Shaw, L. von Staden & J.E. Victor

**Distribution:** KZN. Nkandla to Noodsberg.

**Habitat:** Rocky grasslands, 1 000–1 200 m.

**Rationale:** Known from fewer than 10 locations. Grassland transformation by agriculture and forestry has severely reduced suitable habitat. Most areas of the Noodsberg and Little Noodsberg are transformed to forestry plantations, commercial sugarcane cultivation and subsistence agriculture or degraded because of severe overgrazing. The grasslands between Nkandla and Melmoth are almost completely under forestry plantations and much of the habitat around Mahlabatini is severely degraded because of overgrazing by livestock and subsistence farming.

**Dierama sertum** Hilliard

**Status:** NT B1ab(i,i,iii,iv,y) + 2ab(i,i,iii,iv,y)

C.R. Scott-Shaw, I.M. Johnson & L. von Staden

**Distribution:** KZN. Tugela Mouth to St Lucia.

**Habitat:** Mainly in grasslands between coastal forest patches, but in rocky grassland near Ngoye Forest.

**Rationale:** Occurring in a restricted range (EOO 1 900 km²) at 10–15 locations, but < 700 km² of natural grassland remains within its range. Urban expansion and subsistence farming is causing a continuing decline.
Dierama tysonii N.E.Br.  
Status: VU B1ab(ii,iii)  
C.R. Scott-Shaw & D. Raimondo  
Distribution: EC KZN. East Griqualand, Swartberg and Ngele Mountains to Giant’s Castle in the southern Drakensberg.  
Habitat: Montane grassland, 1 300–1 700 m.  
Rationale: EOO < 4 400 km². Known from fewer than 10 locations. The habitat of this species is being targeted for afforestation and it is declining in habitat quality as a result of overgrazing and trampling by livestock.

Dieters Salisb. ex Klatt  
Dieters bicolor (Steed.) Sweet ex Klatt  
Status: Rare  
D. Raimondo, J.E. Victor & C.R. Scott-Shaw  
Distribution: EC. Grahamstown to East London.  
Habitat: Alongside streams and vleis.  
Rationale: A habitat specialist, not currently known to be declining.

Ferraria Burm. ex Mill.  
Ferraria brevifolia G.J.Lewis  
Status: Rare  
J.E. Victor  
Distribution: NC WC. Southern Namaqualand, Bitterfontein to Garies.  
Habitat: Gravel and rocky granitic slopes.  
Rationale: A range-restricted species (EOO < 100 km²), known from fewer than five sites. Not threatened or declining.

Ferraria crispa Burm. subsp. nortieri M.P.de Vos  
Status: VU A2bc; A4bc  
N.A. Helme & D. Raimondo  
Distribution: WC. Hopefield to Lambert’s Bay to Clanwilliam.  
Habitat: Sandy soil, often amongst rocks.  
Rationale: A sandveld endemic that has lost over 30% of its habitat over the past 15 years (generation length estimated to be 10 years) to potato and rooibos cultivation. This loss is ongoing.

Ferraria densepunctulata M.P.de Vos  
Status: EN B1ab(ii,iii,iv,v)  
P. Goldblatt, N.A. Helme & D. Raimondo  
Distribution: WC. Lambert’s Bay to Langebaan.  
Habitat: Strandveld, deep coastal sands in rocky sites within 15 km of the coast.  
Rationale: A West Coast strandveld endemic (EOO < 1 000 km²), known from four locations. Declining as a result of coastal development, crop cultivation and invasion by alien plants.

Ferraria foliosa G.J.Lewis  
Status: NT B1ab(ii,iii,iv,v)  
D. Raimondo & N.A. Helme  
Distribution: NC. Groen River to Elands Bay.  
Habitat: Deep coastal sands, just above the high-water mark to 15 km inland.  
Rationale: EOO 5 437 km². Recorded from 15 locations but suspected to occur at a few more, declining as a result of diamond and heavy-metal mining activities in the northern parts of its range and because of coastal development and expanding crop cultivation, especially the centre-point pivot irrigation schemes, in the south.

Ferraria kamiesbergensis M.P.de Vos  
Status: VU D2  
P. Goldblatt, J.C. Manning, N.A. Helme & D. Raimondo  
Distribution: NC. Namaqualand, Kamiesberg.  
Habitat: Sandy flats in sandy soils derived from granite.  
Rationale: Known from three locations. Potentially threatened by overgrazing by livestock.

Ferraria ovata (Thunb.) Goldblatt & J.C.Manning  
Status: Rare  
P. Goldblatt & K. Naidoo  
Distribution: NC. Kamiesberg to Bitterfontein.  
Habitat: Shallow soils on granite outcrops and gravel slopes.  
Rationale: Known from three sites, from small subpopulations. Grazing by livestock is not severe in the areas where this species occurs and it is therefore not considered threatened.

Freesia Klatt  
Freesia caryophyllacea (Burm.f.) N.E.Br.  
Status: Declining  
P. Goldblatt & J.E. Victor  
Distribution: WC. Bot River to Swellendam and Bredasdorp.  
Habitat: Mainly clay and shale flats, occasionally in limestone.  
Rationale: Although much of the habitat has been lost to wheat cultivation, it is still very common and occurs at more than 30 localities. Decline due to crop cultivation is ongoing but slow.

Freesia fergusoniae L.Bolus  
Status: VU B1ab(ii,iii,iv,v)  
P. Goldblatt & P. Goldblatt  
Distribution: WC. Heidelberg to Mossel Bay.  
Habitat: Renosterveld on clay flats.  
Rationale: EOO 6 500 km². Subpopulations have been severely fragmented by crop cultivation over the past 70 years and occur mainly on roadside reserves and small renosterveld remnants. The decline due to expanding crop cultivation is ongoing.

Freesia fucata J.C.Manning & Goldblatt  
Status: VU D2  
J.E. Victor & N.A. Helme  
Distribution: WC. Villiersdorp.  
Habitat: Renosterveld, clay slopes and flats.  
Rationale: A range-restricted species (EOO 28 km²), known from three locations. It is likely to have lost habitat to vineyard expansion. Not currently declining but potentially threatened by vineyard expansion.

Freesia leichtlinii Klatt  
Status: VU B1ab(ii,iii,iv,v)  
P. Goldblatt  
Distribution: WC. Agulhas to Mossel Bay.  
Habitat: Deep sands close to the coast.  
Rationale: EOO 6 200 km². Occurs as highly fragmented subpopulations that are declining as a result of coastal development, crop cultivation and invasion by alien plants.
Freesia marginata J.C.Manning & Goldblatt
Status: EN D
J.C. Manning & D. Raimondo

Distribution: WC. Worcester and Robertson.
Habitat: Succulent karoo, in washes on sandstone-shale transition.
Rationale: Known from one site. It has lost habitat to olive cultivation in the past. There are less than 100 mature individuals extant. It remains potentially threatened by crop cultivation.

Freesia sparrmannii (Thunb.) N.E.Br.
Status: Rare
P. Goldblatt & D. Raimondo

Distribution: WC. Langeberg foothills near Grootvadersbosch.
Habitat: Forest margins in loamy clay.
Rationale: EOO < 25 km². Known from one subpopulation. It has lost habitat and part of the subpopulation to crop cultivation in the past. No threats currently have an impact on this species as it occurs adjacent to a protected area, on private land of conservation-minded landowners.

Freesia speciosa L.Bolus
Status: VU B1ab(iii,v); C1
J.H. Vlok & D. Raimondo

Distribution: WC. Montagu to Calitzdorp.
Habitat: Karroid shrubland, in shale-derived soils on stony flats and dry sandstone outcrops.
Rationale: A Little Karoo endemic (EOO < 6 500 km²), known from many small, severely fragmented subpopulations. We estimate that the total population consists of less than 10 000 mature individuals. Declining as a result of crop cultivation and livestock farming and has lost 10% of the total population over the past 10 years.

Geissorhiza Ker Gawl.

Geissorhiza bryicola Goldblatt
Status: Rare
D. Raimondo, B. Mohamed & D.A. Kamundija

Distribution: NC WC. Bokkeveld Mountains, Gifberg and Olifants River Mountains.
Habitat: Dry montane fynbos or mountain renosterveld, in sandstone-derived soils, usually in seasonally moist sites.
Rationale: Eight of 12 records are from the Nieuwoudtville area, which is heavily transformed by crop cultivation. Individual subpopulation numbers are low and there is an immediate, ongoing threat from rooibos tea cultivation.

Geissorhiza cataractarum Goldblatt
Status: Rare
D. Raimondo, B. Mohamed & D.A. Kamundija

Distribution: WC. Cape Peninsula to Malmesbury to Caledon and Bredasdorp.
Habitat: Sandy ground, either swampy or seasonally flooded or at the edge of pools.
Rationale: EOO 13 200 km². Known from seven locations. This wetland specialist used to occur from the Cape Peninsula north to the Malmesbury district and east to Caledon and Bredasdorp. It has lost 50% of locations to crop cultivation and urban development. The loss is ongoing, especially as a result of invasion by alien plants.
**Geissorhiza ciliatula** Goldblatt

**Status:** Rare

D. Raimondo

**Distribution:** WC. Cederberg.

**Habitat:** Wet cliffs and cracks in rocks above 1 400 m in montane fynbos.

**Rationale:** Known from two collections not threatened because of inaccessibility of its habitat.

**Geissorhiza corrugata** Klatt

**Status:** Rare

P. Goldblatt, D. Raimondo & R.C. Turner

**Distribution:** NC. Calvina.

**Habitat:** Seasonally moist, clay soils derived from Karoo shales, on flats and slopes.

**Rationale:** A range-restricted species (EOO 14 km²), with a large but localised population known from four sites. Not threatened or declining.

**Geissorhiza darlingensis** Goldblatt

**Status:** CR B1ab(ii,iii)+2ab(iii); C2a(ii)

P. Goldblatt, J.E. Victor, I. Ebrahim & R.C. Turner

**Distribution:** WC. Darling.

**Habitat:** Damp sandy soil.

**Rationale:** Known from one population of less than 250 plants. Habitat quality is declining because of invasive alien grass.

**Geissorhiza divaricata** Goldblatt

**Status:** Rare

P. Goldblatt, D. Raimondo & R.C. Turner

**Distribution:** EC WC. Kammanassie Mountains and Baviaanskloof Mountains.

**Habitat:** Cool, damp, south-facing slopes.

**Rationale:** Known from two naturally disjunct sites/subpopulations with very low subpopulation numbers. The total number of plants in the entire population is much less than 1 000. It faces a slight potential threat from the combined effect of frequent fires and drought.

**Geissorhiza elsiæ** Goldblatt

**Status:** VU D1

P. Goldblatt & R.C. Turner

**Distribution:** WC. Aanskloof Mountains.

**Habitat:** Cool, damp, south-facing slopes.

**Rationale:** Known from two naturally disjunct sites/subpopulations with very low subpopulation numbers. The total number of plants in the entire population is much less than 1 000. It faces a slight potential threat from the combined effect of frequent fires and drought.

**Geissorhiza eurystigma** L.Bolus

**Status:** CR B1ab(ii,iii,iv,v)

P. Goldblatt, D. Raimondo & R.C. Turner

**Distribution:** WC. Darling and Mamre to Kalkskraal.

**Habitat:** Renosterveld, sand plain fynbos transition in moist granitic soils.

**Rationale:** Recorded recently from one small stand (10 plants) at a location in a nature reserve that is invaded by alien plants. We suspect that there are three severely fragmented subpopulations within an area of 60 km². There has been at least a 60% reduction in the range of this species, with over 94% of its habitat lost as a result of agriculture, grazing and trampling by livestock and invasion by alien plants.

**Geissorhiza foliosa** Klatt

**Status:** NT B1ab(ii,iii,iv,v)

D. Raimondo

**Distribution:** WC. Swellendam to Riversdale.

**Habitat:** Slopes and flats in renosterveld and fynbos.

**Rationale:** Confined to the lower foothills of the Langeberg (EOO 975 km²), known from less than 20 locations. Threatened by ongoing loss and degradation of habitat as a result of crop cultivation and encroachment from invasive alien species.

**Geissorhiza furva** Ker Gawl. ex Baker

**Status:** EN B1ab(ii,iii,iv,v)

P. Goldblatt, D. Raimondo & R.C. Turner

**Distribution:** NC. Brandvlei to Kouebokkeveld.

**Habitat:** Marshes and vleis, in sandy areas.

**Rationale:** EOO < 1 100 km². Known from three locations. It has lost over 50% of locations to wheat and vineyard cultivation over the past 100 years. Declines are continuing as a result of olive and vineyard expansion.

**Geissorhiza geminata** E.Mey. ex Baker

**Status:** EN B1ab(ii,iii,iv,v)

P. Goldblatt, D. Raimondo & R.C. Turner

**Distribution:** NC. Brandvlei to Kouebokkeveld.

**Habitat:** Marshes and vleis, in sandy areas.

**Rationale:** EOO < 1 100 km². Known from three locations. It has lost over 50% of locations to vineyards, orchards and olive cultivation over the past 100 years. It is habitat-specific (occurring in vleis and marshes) and it continues to be threatened by crop cultivation and associated wetland drainage as well as encroachment from invasive alien plants.

**Geissorhiza humilis** (Thunb.) Ker Gawl.

**Status:** VU B1ab(iii,v)

P. Goldblatt, D. Raimondo & R.C. Turner

**Distribution:** WC. Cape Peninsula to Paarl.

**Habitat:** Fynbos, in coarse, sandy soils, 50–300 m.

**Rationale:** EOO 900 km². Known from fewer than 10 locations. At least 60% of its habitat has been lost to crop cultivation and urban development. Declining as a result of invasion by alien plants and urban expansion.

**Geissorhiza imbricata** (D.Delaroche) Ker Gawl. subsp. bicolor (Thunb.) Goldblatt

**Status:** NT B1ab(ii,iii,iv,v)

P. Goldblatt & D. Raimondo

**Distribution:** WC. False Bay to Porterville, and Olifants River Valley.
Habitat: Wet, poorly drained flats and marshes or stream-sides.
Rationale: EOO 5 625 km². Known from 15–20 locations. Declining as a result of crop cultivation, urban expansion and invasion by alien plants.

Geissorhiza inaequalis L. Bolus
Status: Rare
D. Raimondo, E. Marinus, S. Todd & P. Goldblatt
©Distribution: NC. Bokkeveld Escarpment.
Habitat: Grows in heavy red clay soils associated with rocky doleritic outcrops.
Rationale: Known from fewer than 10 sites. Not threatened by ploughing and not a species preferred by livestock.

Geissorhiza intermedia Goldblatt
Status: Rare
D. Raimondo, B. Mohamed & D.A. Kamundi
©Distribution: WC. Simonsberg and Twenty-Four Rivers Mountains.
Habitat: Rocky crevices and at base of cliffs.
Rationale: Known from three sites in mountain habitats. Naturally rare but not threatened.

Geissorhiza kamiesmontana Goldblatt
Status: VU D1
P. Goldblatt, N.A. Helme, R.C. Turner & D. Raimondo
©Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Mountain renosterveld, sheltered sites amongst rocks and tall shrubs on granitic soils.
Rationale: Known from four subpopulations, each with less than 50 plants. Even allowing for undiscovered subpopulations, there are likely to be less than 1 000 plants in total. Not subject to any threats.

Geissorhiza karooica Goldblatt
Status: VU D2
P. Goldblatt, J.E. Victor & R.C. Turner
©Distribution: NC. Roggeveld Mountains to Matjiesfontein.
Habitat: Succulent karoo shrubland, on coarse shale slopes.
Rationale: Known from three locations. Potentially threatened by overgrazing by livestock and soil erosion.

Geissorhiza leipoldtii R.C. Foster
Status: Rare
P. Goldblatt, K. Naidoo & R.C. Turner
©Distribution: WC. Pakhuis Mountains to Citrusdal.
Habitat: South-facing slope habitats.
Rationale: A habitat specialist known from nine sites, not threatened as it occurs mostly within the Cederberg Wilderness Area.

Geissorhiza lithicola Goldblatt
Status: VU D2
P. Goldblatt & R.C. Turner
©Distribution: WC. Kogelberg.
Habitat: Rocky lower slopes, 50–200 m.
Rationale: Known from three locations, with EOO ± 42 km². Potentially threatened by invading alien plants on the slopes above Gordon’s Bay.

Geissorhiza louisabolusiae R.C. Foster
Status: EN B1ab(ii,iii,v)
P. Goldblatt & R.C. Turner

Habitat: Seasonally wet, sandy flats and vleis.
Rationale: EOO < 425 km². Known from three locations. Declining as a result of ongoing, severe habitat loss to citrus cultivation at Citrusdal and in the Koue-bokkeveld.

Geissorhiza malmesburiensis R.C. Foster
Status: CR B1ab(i,ii,iii,iv,v) + 2ab(ii,iii,iv,v); D P. Goldblatt, N.A. Helme, K. Naidoo, J.E. Victor & R.C. Turner
©Distribution: WC. Malmesbury.
Habitat: Renosterveld, on granitic sands.
Rationale: EOO 5.2 km². It has lost extensive amounts of habitat to wheat and pasture cultivation over the past 120 years. It is known from one confirmed subpopulation - where the numbers continue to decline. There is a possible second location which is highly threatened by encroachment from invasive alien acacias that are particularly dense in the seasonally wet habitat favoured by this species.

Geissorhiza minuta Goldblatt
Status: Rare
D. Raimondo
©Distribution: WC. Matsikamma to Pakhuis Mountains.
Habitat: Moist, mossy pads fringing seasonal stream, on rocky steps in fynbos.
Rationale: Known from two sites, this tiny species is confined to a habitat that is not threatened by agriculture.

Geissorhiza monanthos Eckl.
Status: NT B1ab(i,ii,iii,iv,v)
P. Goldblatt, D. Raimondo & R.C. Turner
©Distribution: WC. Citrusdal, Saldanha to Somerset West.
Habitat: Sandy or rocky soils of granitic origin, sometimes in cracks on granite rocks.
Rationale: EOO < 5 000 km². Known from 15 locations. Over 50% of its habitat has been transformed, mostly by crop cultivation, but now also by housing developments along the coast.

Geissorhiza namaquensis W.F. Barker
Status: Rare
P. Goldblatt, N.A. Helme & D. Raimondo
©Distribution: NC. Kamiesberg to Steinkopf.
Habitat: Mountain renosterveld, on granitic soil at the Kamiesberg but elsewhere restricted to shale and quartzite outcrops of the Nama System.
Rationale: A range-restricted species known from four subpopulations. Not threatened.

Geissorhiza nana Katt
Status: VU B1ab(ii,iii,iv,v)
D. Raimondo
©Distribution: WC. Caledon to Riversdale.
**Geissorhiza nigromontana** Goldblatt

**Status:** Rare

P. Goldblatt, K. Naidoo & R.C. Turner

**Distribution:** WC. Groot Swartberg Mountains.

**Habitat:** Along streams.

**Rationale:** Known from one subpopulation occurring at four locations (EOO ± 30 km²). Potentially threatened by invading alien plants in the passes and on surrounding slopes and by future extraction of water. It was threatened by road construction in the past.

**Geissorhiza outeniquensis** Goldblatt

**Status:** VU D2

P. Goldblatt, K. Naidoo & R.C. Turner

**Distribution:** WC. Outeniqua Mountains.

**Habitat:** Moist, shady kloofs, along streams, waterfalls and wet banks in shade.

**Rationale:** Historically known from seven locations but now only three are confirmed (future field assessment is urgently needed). There has been at least a 75% reduction in the number of locations and EOO. Its seasonally wet lowland habitat is now very rare (AOO < 7.5 km²) and under severe threat from crop cultivation, *Acacia saligna* encroachment and urban development. The total population is suspected to be less than 250 plants, with no subpopulation having more than 50 mature individuals. Subpopulations are severely fragmented.

**Geissorhiza purpurascens** Goldblatt

**Status:** CR B2ab[III,v]; C2a(i)

D. Raimondo, P. Goldblatt & R.C. Turner

**Distribution:** WC. Piketberg to Stellenbosch.

**Habitat:** Damp, low-lying places and on the edges of vleis.

**Rationale:** A habitat specialist known from two mountain peaks, EOO 30 km². Not threatened.

**Geissorhiza rupicola** Goldblatt & J.C.Manning

**Status:** Critically Rare

P. Goldblatt, J.E. Victor & R.C. Turner

**Distribution:** WC. Langeberg Mountains, Mostertshoek Twins.

**Habitat:** Moist sites in thin soil on rocks, sometimes in cracks in steep cliffs.

**Rationale:** Known from one subpopulation, occurring in a gorge within a protected area, therefore not threatened.

**Geissorhiza scopulosa** Goldblatt

**Status:** Rare

D. Raimondo

**Distribution:** WC. Hex River Mountains.

**Habitat:** Damp, rocky sites in cliffs or under boulders at high altitudes.

**Rationale:** A habitat specialist known from two mountain peaks, EOO 30 km². Not threatened.

**Geissorhiza setacea** (Thunb.) Ker Gawl.

**Status:** EN B1ab(i,i,iii,iv,v)

D. Raimondo

**Distribution:** WC. Cape Peninsula to Hottentots Holland Mountains to Gouda.

**Habitat:** Wet flats in renosterveld.

**Rationale:** Known from a small range in the southwestern Cape (EOO 2 500 km²), from seven locations. It has lost 60% of locations and > 90% of available habitat over the past 150 years as a result of crop cultivation and urban development. Loss is continuing in the Gordon’s Bay, Strand and Durbanville areas.

**Geissorhiza silenoides** Goldblatt & J.C.Manning

**Status:** VU D2

P. Goldblatt & R.C. Turner

**Distribution:** WC. Ceres, Gydo Pass.

**Habitat:** Heavy clay soils derived from shales.

**Rationale:** Known from one location from a roadside cutting. Potentially threatened by erosion and clearing of road verges.

**Geissorhiza sp. nov.**

**Voucher:** Helme 4200 NGB

**Status:** CR B1ab(i,i,iii,iv,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Northern base of Piketberg.

**Habitat:** Shale foothills.

**Rationale:** EOO 5 km². A recently discovered species known from one location. It has lost most of its habitat to wheat cultivation, and this loss is continuing.

**Geissorhiza spiralis** (Burch.) M.P.de Vos ex Goldblatt

**Status:** VU D2

P. Goldblatt & R.C. Turner

**Distribution:** NC. Sutherland.

**Habitat:** Mountain renosterveld, on stony clay slopes.

**Rationale:** EOO < 500 km². Known from three locations. Potentially threatened by overgrazing by livestock and soil erosion.
**Geissorhiza splendidissima** Diels Plate 22

Status: VU D2
D. Raimondo, E. Marinus & S. Todd

Distribution: NC. Nieuwoudtville.
Habitat: Renosterveld on tillite clay soils.

Rationale: EOO < 90 km², AOO < 10 km². Known from five locations. It has lost 82% of its habitat to wheat cultivation over the past 60 years. Although there is no current decline, a significant proportion of remaining locations is suitable for ploughing, which remains a potential future threat.

**Geissorhiza stenosiphon** Goldblatt Status: Rare N.A. Helme

Distribution: WC. Kouebokkeveld.
Habitat: Sandstone slopes above 1 500 m.

Rationale: Known from two sites in a tiny range in the Kouebokkeveld (EOO < 20 km²). Occurring on high-altitude sandstone slopes and therefore not threatened.

**Geissorhiza subrigida** L.Bolus Status: CR B1ab(iii,v)+2ab(iii,v); C2a(i,ii); D P. Goldblatt & D. Raimondo

Distribution: NC. Bokkeveld Mountains.
Habitat: Dry montane fynbos in rocky soils derived from sandstone.

Rationale: EOO < 20 km² historically, but because of crop cultivation its current EOO is < 0.5 km². There are less than 20 plants known from one location and it is threatened by expanding rooibos tea cultivation, as well as by encroachment from invasive alien acacias and pines.

**Geissorhiza sulphurascens** Schltr. ex R.C.Foster Status: VU B1ab(iii,iv,v) D. Raimondo, N.A. Helme & R.C. Turner

Distribution: NC. Bokkeveld Escarpment.
Habitat: Seasonally wet, deep, sandstone-derived sands.

Rationale: EOO < 800 km². Known from eight locations. Its habitat is declining as a result of rooibos tea cultivation.

**Geissorhiza tabularis** Goldblatt Status: Rare N.A. Helme & D. Raimondo

Distribution: WC. Cape Peninsula, Table Mountain.
Habitat: Seasonally wet, marshy fynbos.

Rationale: Known from a very restricted area on the plateau above Skeleton George (EOO 10 km²), from one continuous subpopulation. Occurs within the Table Mountain National Park and is not threatened. It flowers only in the year following fire.

**Geissorhiza tenella** Goldblatt Status: VU B1ab(iii,iv,v) D. Raimondo & N.A. Helme

Distribution: WC. Darling to De Hoop.
Habitat: Sandy and seasonally wet flats.

Rationale: EOO 19 800 km². It has lost 52% of known locations over the past 100 years, mostly as a result of urban development and crop cultivation. Remaining subpopulations are severely fragmented. Loss is ongoing as a result of invasion by alien plants and further urban and agricultural expansion.

**Geissorhiza tulbaghensis** F.Bolus Status: EN B1ab(ii,iii,iv,v) I. Ebrahim, D. Raimondo & R.C. Turner

Distribution: WC. Porterville to Wellington.
Habitat: Stony clay flats.

Rationale: EOO 360 km². Persists in five small, fragmented locations, mostly on road verges and in remnant patches of renosterveld. It has lost extensive habitat to wheat and vineyard expansion. We suspect that there are less than 2 500 extant mature individuals. Declining as a result of invasion by alien plants, pesticide spraying and agricultural and urban expansion.

**Geissorhiza uliginosa** Goldblatt & J.C.Manning Status: Rare P. Goldblatt & D. Raimondo

Distribution: WC. Swartberg and Kammanassie Mountains.
Habitat: Thin sandy soil over sandstone pavements at high altitudes in fynbos.

Rationale: Known from two collections, one in the Kouebokkeveld and the other in the northern Cederberg. Occurs on high-altitude peaks and is therefore not threatened.

**Gladiolus L.**

**Gladiolus abbreviatus** Andrews Status: VU B1ab(ii,iii,iv,v) P. Goldblatt, D. Raimondo & N.A. Helme

Distribution: WC. Bot River to Riversdale.
Habitat: Renosterveld, in clay soil among low shrubs.

Rationale: EOO < 12 600 km². Now occurs as small, severely fragmented subpopulations that survive on small renosterveld fragments along roads and or railways. It has lost over 80% of its habitat to wheat cultivation. Subpopulations are never large.

**Gladiolus acuminatus** F.Bolus Status: EN B1ab(iii,iv) P. Goldblatt, D. Raimondo & J.E. Victor

Distribution: WC. Caledon to Bredasdorp.
Habitat: Renosterveld in stony clay soils on flats and north-facing slopes at low elevation.

Rationale: EOO < 1 403 km². Fewer than five known locations remain. It has lost > 80% of its habitat to wheat cultivation and continues to decline because of ongoing habitat loss and degradation caused by invading alien plants, overgrazing and loss of pollinators due to fragmentation.

**Gladiolus aquamontanus** Goldblatt Status: VU D2 A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Swartberg Mountains, on the Blesberg.
Habitat: Perennial mountain streams and on wet cliffs.

Rationale: Known from two locations in a restricted
Gladiolus atropictus Goldblatt & J.C.Manning
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: WC. Northern slopes of the Riviersonderend Mountains.
Habitat: Montane fynbos, growing in pockets of deeper soil on rocky sandstone slopes, 600–900 m.
Rationale: Known from two locations. Plants are rare and scattered. Potentially threatened by encroachment of invasive alien pines.

Gladiolus aureus Baker Plate 23
Status: CR A2ace; B1ab(i,ii,iii,v) + 2ab(i,ii,iii,v); C2a(i,ii); D
J.E. Victor & G.D. Duncan
Distribution: WC. Cape Peninsula.
Habitat: Sandstone, in peaty sand in seeps that remain wet well into spring.
Rationale: First collected near Kommetjie in 1894, known from a small area on the mountain slopes above the village. Recorded as having been locally common before 1980. It has declined drastically as a result of quarrying, extraction of groundwater, invasion by alien plants, flower-picking and harvesting of seed. Less than 50 plants remain at one site, which is close to a low-income housing settlement. Decline due to invasion by alien plants, trampling by humans and pollution is ongoing. Generation length suspected to be 7–10 years.

Gladiolus bilineatus G.J.Lewis
Status: VU D1 + 2
P. Goldblatt & D. Raimondo
Distribution: WC. Langeberg Mountains.
Habitat: Fynbos in coarse, sandstone-derived soils or in heavier, loamy sand on sandstone or shales.
Rationale: A very rare species known from five subpopulations, all with low numbers of individuals. We estimate the total population to be less than 1 000 mature individuals. Potentially threatened by overgrazing by livestock and invasion by alien plants.

Gladiolus bonaspei Goldblatt & M.P.de Vos Plate 24
Status: NT D2
J.E. Victor & L. von Staden
Distribution: WC. Cape Peninsula.
Habitat: Seasonally damp, peaty sand, both on flats near the coast and at higher elevations.
Rationale: Known from 6–10 locations. Potentially threatened by overgrazing by alien plants.

Gladiolus buckerveldii (L.Bolus) Goldblatt
Status: Rare
P. Goldblatt & K. Naidoo
Distribution: WC. Northern Cederberg.
Habitat: Riverbanks, hanging down from the banks of mountain streams, on steep moss-covered cliffs, 1 000 m.
Rationale: A range-restricted species (EOO < 50 km²). Occurs within a protected area in a very specific habitat and is not threatened.

Gladiolus caeruleus Goldblatt & J.C.Manning
Status: NT B1ab(ii,iii,v)
N.A. Helme, I. Ebrahim & D. Raimondo
Distribution: WC. Yzerfontein to Cape Columbine.
Habitat: Sandy soils in limestone outcrops or on calcareous sands close to the coast.
Rationale: EOO 560 km². Known from less than 15 locations. Declining as a result of coastal development.

Gladiolus carmineus Goldblatt & C.H.Wright
Status: VU D2
P. Goldblatt & D. Raimondo
Distribution: WC. Cape Hangklip to Cape Infanta.
Habitat: Rocky sandstone outcrops and cliffs along the coast, wedged in cracks between rocks, sometimes with virtually no soil.
Rationale: A habitat specialist that occurs within a very small coastal area (AOO < 20 km²). There is no evidence of decline as the habitat is generally not affected by development, but locations further away from the shore, e.g., at Cape Infanta and Blesberg between Hangklip and Betty’s Bay, could potentially be developed for housing.

Gladiolus cataractarum Oberm.
Status: EN B1ab(iii) + 2ab(iii); C2a(i)
M. Lötter, J.E. Burrows, D. McMurtry, S. Burns & L. von Staden
Distribution: MP. Dullstroom and Lydenburg.
Habitat: Moisture loving, growing on waterfalls, cliffs and steep rocky slopes on quartzite in sheltered, south-facing sites.
Rationale: A rare endemic (EOO < 40 km², AOO < 10 km²), from the eastern escarpment in Mpumalanga. Occurs as scattered subpopulations along three streams in the Dullstroom–Lydenburg area. All these stream systems are invaded by alien wattles which are causing ongoing degradation of the habitat. We estimate that between 500 and 1 000 mature individuals exist, no subpopulation is larger than 250 individuals.

Gladiolus comptonii G.J.Lewis Plate 23
Status: Critically Rare
N.A. Helme & D. Raimondo
Distribution: WC. Olifants River Mountains.
Habitat: Montane fynbos, upper rocky sandstone slopes, 600–700 m.
Rationale: Restricted to a very small area (EOO < 20 km²) on an inselberg in the Clanwilliam district. Not threatened.

Gladiolus crispulatus L.Bolus
Status: Rare
F. Cholo & D. Raimondo
Distribution: WC. Langeberg Mountains between Swellendam and Riversdale.
Habitat: Southern slopes, 300–900 m.
Rationale: A rare, range-restricted endemic (EOO < 500 km²). Not threatened.

Gladiolus cruentus T.Moore
Status: CR B2ab(i,ii,iii,iv,v)
L. von Staden & C.R. Scott-Shaw
Distribution: KZN. Between Pietermaritzburg, Pinetown and Inanda, with isolated occurrences at Umbululu, Little Noodsberg and Kranskop.
Habitat: Scarp forest, on damp sandstone cliffs, often near waterfalls, or anywhere where water drips continu-
Gladiolus cruentus

Status: Rare
D. Raimondo & J.H. Vlok

Habitat: Derived form the Witteberg slopes, mostly confined to rocky hills in the Gopane Mountains in North West Province, an area that is botanically very poorly explored.

Gladiolus dolomiticus

Status: Rare
P. Goldblatt & D. Raimondo

Habitat: Leached, stony, sandstone-derived soil, in seepages that remain moist until the flowering season in midsummer, 1 300 m.

Gladiolus deserticola

Status: Rare
P. Goldblatt, K. Naidoo & D. Raimondo

Habitat: Clay soils on south-facing slopes in lee of rocks or under shrubs.

Gladiolus emiliae

Status: Rare
P. Goldblatt & K. Naidoo

Habitat: Rocky sites on either clay soils or loamy sand along the interface between shale and sandstone rocks.

Gladiolus griseus

Status: Rare
P. Goldblatt & J.E. Victor

Habitat: Clay loam at the interface of shale and sandstone strata.

Gladiolus fourcadei

Status: Rare
P. Goldblatt & D. Raimondo

Habitat: Low coastal scrub, close to the coast, in calcareous sands or limestone gravel.

Gladiolus filiformis

Status: Critically Rare
P. Goldblatt & J.E. Victor

Habitat: Red soil on a rocky outcrop.

Gladiolus geardii

Status: Rare
D. Raimondo

Habitat: Rocky slopes, in loamy, sandstone-derived soil in low fynbos. At Slanghoek and Bain’s Kloof.

Gladiolus griseus

Status: Critically Rare
P. Goldblatt & J.C. Manning

Habitat: Low coastal scrub, close to the coast, in calcareous sands or limestone gravel.

Gladiolus huttonii

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus leonis

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus lineatus

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus lucifer

Status: Critically Rare
P. Goldblatt & J.C. Manning

Habitat: Low coastal scrub, close to the coast, in calcareous sands or limestone gravel.

Gladiolus monopetalus

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus olivieri

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus pauciflorus

Status: Rare
P. Goldblatt & J.E. Victor

Habitat: Clay soils on south-facing slopes in lee of rocks or under shrubs.

Gladiolus petersii

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus raimondii

Status: Critically Rare
P. Goldblatt & J.C. Manning

Habitat: Low coastal scrub, close to the coast, in calcareous sands or limestone gravel.

Gladiolus sabaudus

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus salomonis

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus salsus

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus smellingsianus

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus spectabilis

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus suberosus

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus tuberosus

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.

Gladiolus uniflorus

Status: Near Threatened
D. Raimondo & J.H. Vlok

Habitat: Sandy loam, clay or moderately fertile soils derived from the Witteberg slopes, mostly confined to the coastal plain.
Gladiolus insolens Goldblatt & J.C.Manning
Status: VU D2
N.A. Helme, P. Goldblatt & D. Raimondo

Distribution: WC. Pikerberg.
Habitat: Seeps and streams that remain wet until December, always in rocky sites on higher slopes.
Rationale: Known from one location, damming of streams was a past and is a potential future threat.

Gladiolus jonquilioidorus Eckl. ex G.J.Lewis
Status: EN B1ab(i,ii,iii,iv,v)
D. Raimondo & P. Goldblatt

Distribution: WC. Cape Peninsula to Yzerfontein.
Habitat: Fynbos, on well-drained stony hill slopes and white sandy flats.
Rationale: EOO < 500 km². Known from five locations. Declining as a result of coastal development and invasion by alien plants.

Gladiolus kamiesbergensis G.J.Lewis
Status: Rare
P. Goldblatt, N.A. Helme & D. Raimondo

Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Rocky sites on granites in shrubby fynbos, above 1 200 m.
Rationale: Endemic to the upper slopes of the Kamiesberg. Known from Sneeukop in the north of the range and collected several times on Rooiberg and its foothills to the south (EOO < 500 km²). Not threatened because of its habitat being inaccessible.

Gladiolus lapereioides Goldblatt
Status: VU D2
P. Goldblatt & K. Naidoo

Distribution: NC. Loeriesfontein.
Habitat: Sparse karoo shrubland, on dry, shale gravel flats.
Rationale: Known from one location. Potentially threatened by agriculture and road works.

Gladiolus leptosiphon F. Bolus
Status: VU C2a(i)
J.H. Vlok, A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Swartberg to Baviaanskloof Mountains.
Habitat: Occurs on stony hills and low mountain slopes in renosterveld or arid fynbos.
Rationale: EOO < 5 000 km². Known from less than 20 subpopulations, all with less than 50 mature individuals. The total population is suspected to have less than 10 000 individuals. It has lost habitat to crop cultivation and is declining because of grazing and trampling by livestock and ostriches.

Gladiolus loteniensis Hilliard & B.L.Burtt
Status: Critically Rare
J.E. Victor & C.R. Scott-Shaw

Distribution: KZN. Southern Drakensberg Mountains.
Habitat: Montane grassland, along streams or on riverbanks in peaty soils below low cliffs and boulders.
Rationale: Known from one site. No threats are known to have an impact on this species.

Gladiolus macneilli Oberm.
Status: CR B1ab(iii)+2ab(iii)
M. Lötter, J.E. Burrows & L. von Staden

Distribution: LM. Abel Erasmus Pass.
Habitat: Grassland and light woodland, in loamy soil on very rocky ground on dolomite outcrops.
Rationale: Confinement to a small area on dolomites at the summit of Abel Erasmus Pass (EOO < 20 km², AOO < 10 km²). The location is communally owned and severely overgrazed and over-utilised for firewood.

Gladiolus malvinus Goldblatt & J.C.Manning
Status: VU B1ab(i,ii,iii,iv,v)
M. Lötter & L. von Staden

Distribution: MP. Dullstroom to Belfast.
Habitat: Dolerite outcrops in grassland, around 2 000 m.
Rationale: Restricted to a small area on the hilly, upper Mpuumalanga Escarpment (EOO 400 km²), known from six locations. It has lost habitat to commercial forestry plantations and most locations are threatened by encroachment from invasive alien species, especially wattles, which prefer rocky areas where they are protected from fire. It is also under development pressure from golf resorts.

Gladiolus meliusculus (G.J.Lewis) Goldblatt & J.C.Manning
Status: VU B1ab(i,ii,iii,iv,v)
R. Koopman & D. Raimondo

Distribution: WC. Hopefield to Cape Peninsula.
Habitat: Damp sandstone and granite slopes and flats.
Rationale: EOO 2 376 km². Of 27 recorded subpopulations, seven (26%) are likely to be extinct because of crop cultivation and urban expansion, especially on the Cape Flats over the past 120 years. Remaining subpopulations are severely fragmented and declines are ongoing as its habitat continues to be transformed and degraded by crop cultivation, urban developments and invasion by alien grasses.

Gladiolus miniatus Eckl.
Status: VU B1ab(ii,iii,iv,v)
P. Goldblatt & D. Raimondo

Distribution: WC. Hawston to Agulhas.
Habitat: Limestone hills, always fairly close to the seashore or within sight of the ocean.
Rationale: EOO < 1 850 km². Probably extinct at three of 13 historically recorded locations because of urban development. Six locations are threatened by severe invasion by alien plants, three are threatened by urban development and three fall within conservation areas. We estimate that it is extant at 10 locations.

Gladiolus monticola G.J.Lewis ex Goldblatt & J.C.Manning
Status: Rare
P. Goldblatt, N.A. Helme & D. Raimondo

Distribution: WC. Cape Peninsula.
Habitat: Rocky sandstone slopes.
Rationale: A range-restricted species (EOO < 270 km²), occurs only within the Table Mountain National Park. Not threatened.
**Gladiolus mostertiae** L. Bolus  
*Status:* VU D2  
*P. Goldblatt, N.A. Helme & D. Raimondo*  
*Distribution:* NC. Bokkeveld Escarpment.  
*Habitat:* Sandy soils in marshy places that remain moist well into the dry season.  
*Rationale:* Known from four locations, within the area currently being cultivated for rooibos tea. Farmers do not tend to plough the seasonally marshy areas where this species grows as rooibos will not grow in such a wet habitat. However, ploughing is a potential threat as some farmers accidentally plough this habitat; one location was lost in 2005 because of accidental ploughing.

**Gladiolus overbergensis** M. de Vos  
*Habitat:* Bushveld, among dolerite outcrops on low hills and plains, altitude 1 200–1 500 m.  
*Rationale:* A habitat specialist known from nine sites and not threatened.

**Gladiolus recurvus** L. Barnard  
*Status:* Rare  
*P. Goldblatt & D. Raimondo*  
*Distribution:* WC. Ceres to Somerset West.  
*Habitat:* rocky outcrops, mainly above 1 000 m.  
*Rationale:* A habitat specialist that occurs within protected areas and is not threatened.

**Gladiolus quadrangulus** P. Goldblatt  
*Status:* Rare  
*P. Goldblatt & D. Raimondo*  
*Distribution:* WC. Ceres to Somerset West.  
*Habitat:* Restricted to rocky outcrops, mainly above 1 000 m.  
*Rationale:* A habitat specialist that occurs within protected areas and is not threatened.

**Gladiolus rodanthenus** J.C. Manning & Goldblatt  
*Status:* Rare  
*D. Raimondo & F. Cholo*  
*Distribution:* WC. Stettynsberg near Villiersdorp.  
*Habitat:* Sandstone cliffs on warm, north-facing slopes, 1 800 m.  
*Rationale:* Known from a single large population (EOO < 5 km²) occurring in an inaccessible habitat. No known threats.
Gladiolus robertsoniae F.Bolus
Status: NT B1ab(ii,iii,v)
M. Lötter, J.E. Burrows, L. von Staden & J.E. Victor

Distribution: FS G MP. Southeastern Gauteng, northern Free State and southwestern Mpumalanga.
Habitat: Moist highveld grasslands, found in wet, rocky sites, mostly dolerite outcrops, wedged in rock crevices.
Rationale: Known from a restricted range (EOO 12 000 km²) and from 12–14 locations. Habitat quality is declining as a result of mining and overgrazing by livestock. Subpopulations are large and not severely fragmented.

Gladiolus salteri J.H. Vlok & D. Raimondo
Status: Rare

Distribution: WC. Outeniqua Mountains.
Habitat: Moist fynbos on sandstone slopes.
Rationale: Endemic to a small area on the southern slopes of the Outeniqua Mountains (EOO < 100 km²), known from four historical subpopulations, one of which was destroyed by afforestation. The three remaining subpopulations are all very small (average 20 plants) and there are less than 200 plants in total. A decline in habitat quality is occurring because of invasion by alien plants.

Gladiolus rufomarginatus G.J.Lewis
Status: Rare
L. von Staden, M. Lötter & J.E. Burrows

Distribution: MP. Lydenburg to Ohrigstad.
Habitat: Grasslands, either in the open or in light shade, on stony shale ground, sometimes in crevices in bare shale outcrops.
Rationale: Narrow endemic of the Lydenburg district in Mpumalanga, through the dry hills and valleys on the western side of the Drakensberg Escarpment as far as Ohrigstad (EOO < 500 km²). The species is locally common and not threatened.

Gladiolus salteri G.J.Lewis
Status: Rare
D. Raimondo & J.E. Victor

Distribution: NC. Springbok.
Habitat: Coarse, gritty, decomposed granite along the edges of drainage lines on stony hillsides.
Rationale: A range-restricted species (EOO 250 km²). Not threatened as it occurs in an arid area in a nonarable habitat.

Gladiolus saxatilis Goldblatt & J.C.Manning
Status: Rare
J.E. Burrows, M. Lötter & L. von Staden

Distribution: MP. Mariepskop to Graskop.
Habitat: Shady places on sandstone rocks and cliffs of black reef quartzite.
Rationale: A narrow endemic to the edge of the Mpumalanga Escarpment between Mariepskop and Graskop (EOO 200 km²). Almost the entire range of this species falls within the Blyde River Canyon Nature Reserve. Its habitat is also quite inaccessible. Not threatened.

Gladiolus sekukunensis P.J.D.Winter
Status: VU D2
P.J.D. Winter & J.E. Victor

Distribution: IM. Leolo and Strydpoort Mountains.
Habitat: Banded ironstone in soil containing lumps of calcrite, or on norite.
Rationale: Suspected to occur at 3–5 locations. Potentially threatened by mining and habitat degradation from grazing and trampling by livestock.

Gladiolus sempervirens G.J.Lewis
Status: Rare
J.E. Victor

Distribution: EC WC. George to Kareedouw.
Habitat: Seeps on sandstone slopes.
Rationale: A rare species that occurs only in favoured habitats in the Outeniqua and Tsitsikamma Mountains. Not threatened.

Gladiolus serpenticola Goldblatt & J.C.Manning
Status: Rare
J.E. Burrows, M. Lötter, B. Mohamed & D.A. Kamundi

Distribution: MP. Barberton and Swaziland.
Habitat: Serpentine soils.
Rationale: Endemic to the Barberton district (Barberton Centre of Endemism). Although a slight potential threat of mining exists, the soils on which this species occurs do not contain very valuable minerals and there are no active mines in the area nor any mining applications under consideration.

Gladiolus stefaniae Oberm.
Status: Critical Rare
P. Goldblatt, J.E. Victor & L. von Staden

Distribution: WC. Caledon to Bredasdorp.
Habitat: Sandy loam and clay soils in renosterveld.
Rationale: EOO 6 300 km². Known from 10–20 locations. It has lost over 80% of its habitat to wheat cultivation. Subpopulations still occur on low slopes along the Riviersonderend and Shaw’s Mountains, where they are threatened by encroachment from invasive alien plants.

Gladiolus subcaeruleus G.J.Lewis
Status: NT B1ab(ii,iii,v)
D. Raimondo & N.A. Helme

Distribution: WC. Caledon to Bredasdorp.
Habitat: Sandy loam and clay soils in renosterveld.
Rationale: EOO 6 300 km². Known from 10–20 locations. It has lost over 80% of its habitat to wheat cultivation. Subpopulations still occur on low slopes along the Riviersonderend and Shaw’s Mountains, where they are threatened by encroachment from invasive alien plants.

Gladiolus sufflavus (G.J.Lewis) Goldblatt & J.C.Manning
Status: VU D2
P. Goldblatt, N.A. Helme & D. Raimondo

Distribution: NC. Bokkeveld Escarpment.
Habitat: Fynbos on seasonally waterlogged, sandy soils and at the edge of streams, marshes and ponds.
Rationale: Known from three locations, occurs within the area currently being cultivated for rooibos tea. Farmers do not tend to plough the seasonally marshy areas where...
this species grows as rooibos will not grow in such a wet habitat. However, ploughing is a potential threat as some farmers accidentally plough this habitat; one location was lost in 2005 as a result of accidental ploughing.

**Gladiolus symonsii F.Bolus**

*Status: Rare*

C.R. Scott-Shaw & D. Pillay

*Distribution:* KZN: Bushman’s Nek to Giant’s Castle.

*Habitat:* Rocky sandstone or basalt in montane and subalpine grassland, on cliffs and steep grassy slopes, 1 900–3 000 m.

*Rationale:* Known from four sites. Highly habitat-specific and occurs at high altitudes within protected areas and is therefore not threatened.

**Gladiolus tautbertianus**

*Schltr.*

*Status: Rare*

D. Raimondo, N.A. Helme & F. Cholo

*Distribution:* WC: Pakhuis Pass to Kouebokeveld.

*Habitat:* Coarse, stony, sandstone-derived ground on well-drained sites in dry montane fynbos.

*Rationale:* Restricted to the eastern Cederberg and the northern edge of the Kouebokeveld. Rare, collected on only five occasions and there have never been more than a few plants recorded at each site. Not threatened.

**Gladiolus teretifolius**

*Goldblatt & M.P.de Vos*

*Status: NT B1ab(ii,iii,iv,v)*

D. Raimondo

*Distribution:* WC: Caledon to Mossel Bay.

*Habitat:* Renosterveld on clay soils.

*Rationale:* EOO 9 500 km². Known from 16 locations. At least 80% of its habitat has been transformed for wheat cultivation in the past. This loss is ongoing at a moderate rate, especially around Mossel Bay and Albertinia.

**Gladiolus trichonemifolius**

*Ker Gawl.*

*Status: VU B1ab(ii,iii,iv,v)+2ab(i,ii,iii,iv,v)*

P. Goldblatt, D. Raimondo & K. Naidoo

*Distribution:* WC: Hopefield and Ceres to Bredasdorp.

*Habitat:* Wet sandy flats.

*Rationale:* EOO < 20 000, AOO < 100 km². Now known from 10 locations. Principally a low-altitude species, it also occurs inland in the Kouebokeveld and Agter-Witzenberg Vlakte. It may still be found in relatively undisturbed vleis, but agriculture with its attendant development of dams, pasture enrichment and wetland drainage has left the species little of its once plentiful habitat. Declines due to agriculture are ongoing.

**Gladiolus uitenhagensis**

*Goldblatt & Vlok*

*Status: VU D2*

D. Raimondo & J.H. Vlok

*Distribution:* EC: Eastern Cape, Groot Winterhoek Mountains, Hankey to Loerie.

*Habitat:* Fynbos, on well-drained, rocky sandstone slopes.

*Rationale:* Known from two locations. Potentially threatened by grazing by livestock and crop cultivation.

**Gladiolus vaginatus**

*F.Bolus*

*Status: VU B1ab(ii)*

J.H. Vlok, D. Raimondo & L. von Staden

*Distribution:* WC: Cape Peninsula to Knysna.

*Habitat:* Limestone and clay loam soil, fynbos and renosterveld on coastal lowlands.

**Gladiolus van der Merwei**

*(L.Bolus) Goldblatt & M.P.de Vos*

*Status: EN B1ab(iii,v)+2ab(iii,v); C2a(i)*

D. Raimondo & P. Goldblatt

*Distribution:* WC: Bot River to Heidelberg.

*Habitat:* Renosterveld, on shale slopes.

*Rationale:* EOO < 5 000 km². Known from 10 severely fragmented subpopulations, it has lost over 80% of its habitat to wheat cultivation, and all subpopulations are small, with less than 250 individuals each. Decline is ongoing as a result of invasion by alien plants and overgrazing by livestock.

**Gladiolus variegatus**

*(G.J.Lewis) Goldblatt & J.C.Manning*

*Status: VU B1ab(iii)*

P. Goldblatt & D. Raimondo

*Distribution:* WC: Gansbaai to Cape Agulhas.

*Habitat:* Renosterveld on clay.

*Rationale:* EOO < 500 km². Known from fewer than 10 locations. Declining as a result of invasion by alien plants.

**Gladiolus vigilans**

*Barnard*

*Status: EN D*

N.A. Helme & D. Raimondo

*Distribution:* WC: Cape Peninsula and potentially in the Kogelberg.

*Habitat:* Sandstone slopes and rocky ridges that are very exposed to salt-laden sea breezes.

*Rationale:* Confirmed to occur at only one site on the southern Cape Peninsula, with a possible second subpopulation on the slopes of the Kogelberg. Known from less than 250 mature individuals. Potentially threatened by invading alien plants.

**Gladiolus watsonius**

*Thunb.*

*Status: NT B1ab(i,iii,iv,v)*

D. Raimondo

*Distribution:* WC: Piketberg to Stellenbosch.

*Habitat:* Renosterveld on clay.

*Rationale:* EOO 5 500 km². Of 60 recorded subpopulations, only 15 are still likely to be extant. It has experienced severe habitat loss to urban expansion and crop cultivation, with at least 95% of its habitat being transformed since 1940. It appears to have been very common in the northern suburbs of Cape Town, but most of these locations have been lost to urban development. Loss to urban and agricultural expansion is ongoing.

**Hesperanthe**

*Ker Gawl.*

**Hesperanthe alborosea**

*Hilliard & B.L.Burtt*

*Status: Rare*

C.R. Scott-Shaw & D. Pillay

*Distribution:* KZN: Cobham Forest Reserve and Upper Polela Cave.

*Habitat:* Drakensberg alpine tundra. In damp sedge mats in streamlines, rock-flushes and wet gravely areas.

*Rationale:* Known from two collections in a restricted range (EOO 50 km²). Not threatened.
**Hesperantha brevicaulis** (Baker) G.J.Lewis  
**Status:** Rare  
J.E. Burrows, M. Lötter, P.A. Manyama & D.A. Kamundi†  
**Distribution:** LM MP. Eastern Mpusalanga Escarpment and the Wolkberg Mountains.  
**Habitat:** In damp moss between rock crevices on steep rocks and cliffs, around 1600 m.  
**Rationale:** A habitat specialist that is not threatened.

**Hesperantha curvula** Hilliard & B.L.Burtt  
**Status:** Rare  
D. Raimondo & F. Cholo  
**Distribution:** KZN. KwaZulu-Natal Drakensberg Mountains.  
**Habitat:** Wet turf ledges above sheets of outcropping cave sandstone or under boulders, 2000–2470 m.  
**Rationale:** Known from a very limited area (EOO 25 km²), from only two collections. Appears to be naturally rare and very habitat-specific. It has no known threats.

**Hesperantha curvula** Hilliard & B.L.Burtt  
**Status:** Critically Rare  
P. Goldblatt, K. Naidoo  
**Distribution:** KZN. Cederberg Mountains.  
**Habitat:** Damp places on south-facing, rocky sandstone slopes.  
**Rationale:** Known from one site in the Krom River Kloof in the Cederberg within a protected area and is therefore not threatened.

**Hesperantha erecta** (Baker) Benth. ex Baker  
**Status:** NT B1ab(ii,iii,iv,v)  
D. Raimondo  
**Distribution:** WC. Caledon to Heidelberg.  
**Habitat:** Renosterveld, on clay slopes.  
**Rationale:** An Overberg endemic (EOO 2600 km²), now known from fewer than 10 locations. It has lost over 80% of its habitat to wheat cultivation and is declining as a result of invasion by alien plants.

**Hesperantha fibrosa** Baker  
**Status:** VU B1ab(iii,v)  
D. Raimondo  
**Distribution:** WC. Caledon to Heidelberg.  
**Habitat:** Renosterveld, on clay slopes.  
**Rationale:** An Overberg endemic (EOO 2600 km²), now known from fewer than 10 locations. It has lost over 80% of its habitat to wheat cultivation and is declining as a result of invasion by alien plants.

**Hesperantha flavia** G.J.Lewis  
**Status:** Rare  
D. Raimondo  
**Distribution:** NC. Steinkopf and Matjiesfontein.  
**Habitat:** Stony soils of decomposing shale.  
**Rationale:** Occurs as small, sparse, disjunct subpopulations. Only four subpopulations have been recorded over a vast range (23 000 km²). Not threatened.

**Hesperantha glabrescens** Goldblatt  
**Status:** Rare  
D. Raimondo, P.A. Manyama & D.A. Kamundi†  
**Distribution:** NC. Roggeveld Escarpment southwest of Sutherland.  
**Habitat:** Moist clay flats along watercourses.  
**Rationale:** A range-restricted habitat specialist (EOO 30 km²), known from two subpopulations. No known threats.

**Hesperantha gracilis** Baker  
**Status:** VU D2  
D. Raimondo  
**Distribution:** KZN. Sandstone plateaus inland from Durban.  
**Habitat:** Scarp forest, hangs from moss cushions or patches of humus on dripping wet cliffs that are mostly inaccessible.  
**Rationale:** EOO < 2 000 km². Known from four locations. This range-restricted habitat specialist is potentially threatened by invading alien plants and urban expansion.

**Hesperantha hantamensis** Schltr. ex R.C.Foster  
**Status:** VU D2  
P. Goldblatt, K. Naidoo & R.C. Turner  
**Distribution:** NC. Hantamsberg Mountain.  
**Habitat:** Renosterveld, on shale flats, favouring soils derived from dolerite.  
**Rationale:** EOO < 10 km². Known from one location. Even though locally common and partly conserved in a nature reserve, it was and remains potentially threatened by dam expansion and road widening.

**Hesperantha hutchingsiae** Hilliard & B.L.Burtt  
**Status:** Rare  
P. Goldblatt & K. Naidoo  
**Distribution:** EC. Mthatha and Naude’s Nek.  
**Habitat:** Marshy areas below dolerite rocks.  
**Rationale:** Known from two sites. Not threatened.

**Hesperantha ingeliensis** Hilliard & B.L.Burtt  
**Status:** Rare  
C.R. Scott-Shaw & D. Pillay  
**Distribution:** EC KZN. Ngele Mountain, Mjika Mountain, hills north of Mthatha and Mhlahlane Forestry Reserve.  
**Habitat:** Marshes in montane grassland, in damp cliff crevices or in flat rocky areas.  
**Rationale:** Known from two sites, this species is a habitat specialist and has no recorded threats.

**Hesperantha juncifolia** Goldblatt  
**Status:** EN B1ab(iii,v)  
D. Raimondo & P. Goldblatt  
**Distribution:** WC. Agulhas Peninsula.  
**Habitat:** Wet depressions on coastal limestone flats.  
**Rationale:** Known from four locations between Quoin Point and Cape Agulhas (EOO 268 km²). Declining as a result of encroachment from invasive alien acacias.
Hesperantha karooica Goldblatt

Status: DDD
P. Goldblatt, D. Raimondo & R.C. Turner

Distribution: NC. Hantamsberg Mountain.
Habitat: Shale flats.
Rationale: This rare species is known from two collections from the same site and was last observed in 1965. No plants resembling this species have been re-collected at the type locality since, nor elsewhere, and the population has probably declined.

Hesperantha latifolia (Klatt) M.P.de Vos

Status: VU D2
R.C. Turner & P. Goldblatt

Distribution: NC.Namaqualand, Kamiesberg.
Habitat: Mountain renosterveld or dry montane fynbos, in shallow seasonal pools, or in damp sand or moss overlying flat or concave granite rock shelves.
Rationale: AOO < 5 km². Known from eight locations. Potentially threatened by overgrazing and trampling by livestock and climate change as it grows in seasonally wet pools.

Hesperantha minima (Baker) R.C.Foster

Status: Critically Rare
J.E. Victor, L. von Staden & R.C. Turner

Distribution: WC. Anysberg.
Habitat: Damp, south-facing sandstone cliffs and rocks.
Rationale: Known from one site. Appears to be very rare and local, occurring on cliffs at a relatively safe habitat.

Hesperantha minima (Klatt) M.P.de Vos

Status: EN D
N.A. Helme & D. Raimondo

Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Granitic soils, growing close to watercourses, 1 400 m.
Rationale: Known from two sites. It has small subpopulations and there are less than 200 mature individuals.

Hesperantha muriiri (L.Bolus) G.J.Lewis

Status: EN B1ab(ii,iii,iv,v)
D. Raimondo & R.C. Turner

Distribution: WC. Bredasdorp to Albertinia.
Habitat: Renosterveld, on clay slopes and flats.
Rationale: EOO 2 534 km². Over 70% of its habitat has been lost to crop cultivation since 1940. It persists in isolated fragments of renosterveld and is declining because of invasion by alien plants and ongoing conversion of habitat for crop cultivation in the Albertinia and Riversdale areas.

Hesperantha namaquana Goldblatt

Status: Rare
P. Goldblatt, K. Naidoo & R.C. Turner

Distribution: NC. Bitterfontein.
Habitat: Streambanks in arid shale hills.
Rationale: Known from a restricted range (EOO 32 km²), from two sites. Rare but not threatened.

Hesperantha oligantha (Diels) Goldblatt

Status: CR B1ab(iii); C2a(ii,iii);
D. Raimondo, P. Goldblatt & R.C. Turner

Distribution: EC NC. Hantamsberg Mountain.
Habitat: Mountain renosterveld, marshy ground in seasonal streams, seeps and shallow pools on moist, south-facing slopes.
Rationale: Known from one location where there are less than 30 mature individuals. Experiencing a decline in habitat quality due to overgrazing by livestock.

Hesperantha pallescens Goldblatt

Status: CR B1ab(iii,iv)+2ab(iii,iv)
P. Goldblatt, D. Raimondo & K. Naidoo

Distribution: WC. Olifants River Mountains.
Habitat: Renosterveld, on clay slopes.
Rationale: Known from two highly fragmented and isolated subpopulations in the northern Swartland (EOO 27 km², AOO 1 km²). Over 98% of its habitat has been transformed for wheat cultivation and the two remaining subpopulations are declining as a result of overgrazing by livestock and the impact of fragmentation.

Hesperantha pubinervia Goldblatt

Status: EN
P. Goldblatt, D. Raimondo & K. Naidoo

Distribution: WC. Bredasdorp to Albertinia.
Habitat: Stony clay slopes.
Rationale: Known from two patches within a restricted range (EOO < 200 km²). Both subpopulations fall within the Ukhahlamba Drakensberg National Park and are not threatened.

Hesperantha purpurea Goldblatt

Status: EN B1ab(ii,iii,iv,v)
P. Goldblatt, K. Naidoo & R.C. Turner

Distribution: NC. Hantamsberg Mountain and Roggeveld Escarpment.
Habitat: Stony clay slopes.
Rationale: Known from two subpopulations (EOO < 100 km²). Occurs on slopes and has no known threats.

Hesperantha quadrangula Goldblatt

Status: Rare
P. Goldblatt, K. Naidoo & R.C. Turner

Distribution: NC. Hantamsberg Mountain.
Habitat: Mountain karoo shrubland or mountain renosterveld, seasonal seeps and streams on tillite soil, growing in, or near, running water.
Rationale: EOO 1 408 km², AOO < 10 km². Historically known from four locations. One location in the town of Nieuwoudtville was destroyed by the municipality’s road and river maintenance activities in 2003. There are ongoing threats to the remaining three subpopulations from overgrazing by livestock and potentially from ploughing.

Hesperantha rupestris N.E.Br. ex R.C.Foster

Status: DDD
J.E. Burrows, M. Lötter & L. von Staden

Distribution: MP. Waterval Boven.
**Hesperantha saldanhae** Goldblatt

**Status:** CR PE

P. Goldblatt & D. Raimondo

**Distribution:** WC. Vredenburg.

**Habitat:** Granite rocks.

**Rationale:** Known from the type locality, growing on granite rocks at Vredenburg. Repeated visits to the presumed type locality (a cluster of granite boulders on the edge of Vredenburg) have failed to relocate it. Moderate disturbance makes it unlikely that the species is extinct as a result of human activity. Nevertheless, it must be considered seriously endangered and possibly extinct.

**Hesperantha saxicola** Goldblatt

**Status:** CR PE

D. Raimondo

**Distribution:** WC. Porterville to Cape Peninsula.

**Habitat:** Clay soils in wet seeps.

**Rationale:** Now known from an area of 70 km², from two severely fragmented subpopulations (Porterville and Joostenberg Vlakte) on remnant renosterveld patches. This taxon has lost over 95% of its habitat to wheat cultivation over the past 80 years. It is threatened by overgrazing by livestock, encroachment from invasive alien grass and acacias and consequent desiccation of its seep habitat.

**Hesperantha spicata** (Burm.f.) N.E.Br. subsp. *fistulosa* (Baker) Goldblatt

**Status:** CR B1ab(iii,v)

D. Raimondo

**Distribution:** WC. Porterville to Cape Peninsula.

**Habitat:** Clay soils in wet seeps.

**Rationale:** Known from 2–4 locations. Potentially threatened by mining.

**Hesperantha spicata** (Burm.f.) N.E.Br. subsp. *spicata*

**Status:** VU B1ab(ii,iii,iv,v)

D. Raimondo

**Distribution:** WC. Porterville to Cape Peninsula.

**Habitat:** Clay soils in wet seeps.

**Rationale:** Now known from an area of 70 km², from two severely fragmented subpopulations (Porterville and Joostenberg Vlakte) on remnant renosterveld patches. This taxon has lost over 95% of its habitat to wheat cultivation over the past 80 years. It is threatened by overgrazing by livestock, encroachment from invasive alien grass and acacias and consequent desiccation of its seep habitat.

**Hesperantha sufflava** Goldblatt

**Status:** CR B1ab(ii,iii,iv,v)

D. Raimondo

**Distribution:** WC. Malmsbury to Durbanville.

**Habitat:** Sandy gravel slopes in renosterveld.

**Rationale:** EOO 60 km². Known from three severely fragmented subpopulations, the largest of which is losing habitat for the development of a housing estate. Loss is ongoing and rapid.

**Hesperantha teretifolia** Goldblatt

**Status:** Rare

J.E. Victor & R.C. Turner

**Distribution:** NC. Roggeveld Escarpment.

**Habitat:** Stony slopes, often growing in rock crevices.

**Rationale:** EOO 31 km². Known from two subpopulations but it is possible that a few more exist along the Roggeveld Escarpment. This species is rare and localised, occurring only at the edge of the Roggeveld Escarpment. No significant threats have been recorded.

**Hesperantha truncatula** Goldblatt

**Status:** Critically Rare

J.C. Manning & Goldblatt

**Distribution:** WC. Villiersdorp to Worcester.

**Habitat:** Renosterveld on clay soils derived from shales of the Bakkeveld series.

**Rationale:** Known from three locations. Potentially threatened by crop cultivation, eutrophication and grazing and trampling by livestock.

**Ixia l.*

**Ixia acaulis** Goldblatt & J.C.Manning

**Status:** VU D2

D. Raimondo & N.A. Helme

**Distribution:** WC. Knersvlakte.

**Habitat:** Succulent karoo shrubland, in rock crevices or wedged between boulders on limestone ridges.

**Rationale:** Known from one location. Potentially threatened by cement mining.

**Ixia amethystina** J.C.Manning & Goldblatt

**Status:** Rare

P.A. Manyama

**Distribution:** WC. Knysnaflats.

**Habitat:** Succulent karoo shrubland, in rock crevices or wedged between boulders on limestone ridges.

**Rationale:** Known from one location. Potentially threatened by cement mining.

**Ixia atrandra** Goldblatt & J.C.Manning

**Status:** EN B1ab(ii,iii)

P.A. Manyama & D. Raimondo

**Distribution:** WC. Villiersdorp to Worcester.

**Habitat:** Renosterveld on clay soils derived from shales of the Bakkeveld series.

**Rationale:** Known from two subpopulations from a restricted range (EOO < 10 km²). No threats known.

**Ixia aurea** J.C.Manning & Goldblatt

**Status:** VU D2

D. Raimondo, J.E. Victor & K. Naidoo

**Distribution:** WC. Darliging to Yzerfontein.

**Habitat:** Granite slopes.

**Rationale:** Known from three locations. Potentially threatened by crop cultivation, eutrophication and grazing and trampling by livestock.

**Ixia brevituba** G.J.Lewis

**Status:** Rare

D. Raimondo

**Distribution:** NC. Sutherland.

**Habitat:** Wet clay flats along watercourses.

**Rationale:** A range-restricted species (EOO < 500 km²), known from fewer than five subpopulations. Not threatened.
**Ixias**

### Ixia brunneobractea G.J.Lewis

**Status:** VU B1ab(ii,iii,iv,v)+2ab(i,ii,iii,iv,v)

**Distribution:** NC WC. Bokkeveld Escarpment.

**Habitat:** Deep acid sands.

**Rationale:** EOO < 100 km², AOO < 10 km². Known from seven locations. Declining because of loss of its habitat to rooibos cultivation.

### Ixia esterhuyseniae

**Distribution:** WC. Tulbagh, Paarl and Worcester.

**Habitat:** Transitions between renosterveld and fynbos at the base of mountain ranges.

**Rationale:** EOO < 510 km². Known from five locations. Experiencing ongoing habitat loss to vineyard cultivation.

### Ixia curta Andrews

**Distribution:** WC. Darling to Malmsbury.

**Habitat:** Flats and slopes.

**Rationale:** EOO < 340 km². Known from six locations. It has lost habitat to wheat cultivation and urban development. Declining as a result of encroachment by invasive alien annual grasses and acacias.

### Ixia dubia Vent.

**Distribution:** WC. Piketberg to Caledon.

**Habitat:** Sandstone and granite flats and slopes.

**Rationale:** EOO 25 000 km². Although this species has lost and continues to lose habitat to wheat and vineyard cultivation, urban development and invasive alien plant infestations, it is still too common to be listed as threatened or Near Threatened. Between 30 and 50 locations have been recorded. A synonym, *I. frederickii* var. *fuscocitrina* (Andrews) B.Nord., was listed as Endangered by Hilton-Taylor (1996a).

### Ixia estehuysenii M.P.de Vos

**Status:** Rare

**Distribution:** WC. Jonkershoek and Hottentots Holland Mountains.

**Habitat:** Sandstone slopes, 900–1200 m.

**Rationale:** EOO < 200 km². Known from fewer than five sites. Occurs on mountain slopes within protected areas. Not threatened.

### Ixia gloriosa G.J.Lewis

**Status:** CR B1ab(ii,iii); D

**Distribution:** WC. Montagu to Swellendam.

**Habitat:** Renosterveld on shale.

**Rationale:** EOO < 50 km². Known from one subpopulation of less than 50 plants. Threatened by expanding vineyards and road construction.

### Ixia leipoldtii G.J.Lewis

**Status:** EN B1(ab)(ii,iii,iv,v)

**Distribution:** WC. Montagu to Barrydale.

**Habitat:** Lower mountain slopes.

**Rationale:** EOO < 5 000 km². Known from four locations. Declining because of expanding vineyards and road construction.
ANGIOSPERMS: MONOCOTYLEDONS

Ixia metelerkampiae L.Bolus

Status: Rare
J.E. Victor & K. Naidoo

Distribution: WC. Wellington to Worcester.
Habitat: Mountain slopes.
Rationale: A range-restricted mountain species (EOO < 400 km²). Not threatened.

Ixia monadelpha D.Delaroche

Status: EN B1ab(i,ii,iii,iv,v)+2ab(ii,iii,iv,v); C1
P. Goldblatt, J.E. Victor & K. Naidoo

Distribution: WC. Cape Peninsula to Darling and Tulbagh.
Habitat: Wet, sandy flats and lower slopes.
Rationale: EOO < 1 500 km². Known from 10 historical locations but extant at only two of them. The remainder were lost to wheat and vineyard expansion and to urban development. Its habitat is being degraded as a result of invasion by alien plants and fertiliser runoff.

Ixia mostertii M.P.de Vos

Status: EN B1ab(i,ii,iii,iv,v)+2ab(ii,iii,iv,v); C1
P. Goldblatt, J.E. Victor & K. Naidoo

Distribution: WC. Villiersdorp to Worcester.
Habitat: Clay slopes and sandy loams at the base of hills.
Rationale: EOO < 100 km². Known from two locations. Threatened by expansion of vineyards and by infrastructure development.

Ixia patens Aiton var. linearifolia G.J.Lewis

Status: EN B1ab(ii,iii,iv,v)+2ab(i,ii,iii,iv,v);
N.A. Helme & D. Raimondo

Distribution: WC. Clanwilliam to Worcester.
Habitat: Clay slopes in renosterveld.
Rationale: EOO 3 755 km². Known from fewer than five locations. Further declines due to overgrazing by livestock, invasion by alien plants and eutrophication from fertiliser runoff from surrounding wheat fields.

Ixia purpureorosea G.J.Lewis

Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Vredenburg to Saldanha.
Habitat: Clacte and associated sand.
Rationale: EOO 185 km². Known from four locations. Experiencing an ongoing loss of habitat to cement mining and urban development.

Ixia rouxii G.J.Lewis

Status: CR PE
P. Goldblatt, D. Raimondo & I. Ebrahim

Distribution: WC. Tulbagh to Porterville.
Habitat: Renosterveld-fynbos transitions on lower slopes.
Rationale: Last collected in 1987, but despite repeated surveys it has not been relocated since and may have been lost to vineyards and deciduous fruit orchard cultivation.

Ixia splendida G.J.Lewis

Status: VU D2
P. Goldblatt, J.C. Manning & K. Naidoo

Distribution: WC. Langeberg Mountains behind Swellendam.
Habitat: Sandstone slopes and in kloofs.
Rationale: A range-restricted species (EOO 130 km²) known from five sites. Not threatened.

Ixia stoloniifera G.J.Lewis

Status: DDD
P. Goldblatt, J.C. Manning & J.E. Victor

Distribution: WC. Montagu.
Habitat: Unknown.
Rationale: Known from the Kiesiesberg in the Montagu district. Last collected in 1946, no habitat or population data exist.

Ixia tenuifolia Vahl

Status: EN B1ab(ii,iii,iv,v)
D. Raimondo, J.E. Victor & K. Naidoo

Distribution: WC. Breede River Valley.
Habitat: Deep sand on riverbanks.
Rationale: Known from one location. Potentially threatened by invading alien plants and vineyard expansion.

Ixia trinervata (Baker) G.J.Lewis

Status: NT B1ab(ii,iii)
P. Goldblatt, J.C. Manning, N.A. Helme, D. Raimondo & K. Naidoo

Distribution: WC. Elgin to Caledon.
Habitat: Renosterveld on shale.
Rationale: EOO < 1 200 km². Known from 15–20 locations. Threatened by invading alien plants and agricultural expansion.

Ixia trivittata (Baker) G.J.Lewis

Status: NT B1ab(ii,iii)
P. Goldblatt, J.C. Manning, N.A. Helme, D. Raimondo & K. Naidoo

Distribution: WC. Elgin to Caledon.
Habitat: Renosterveld on shale.
Rationale: EOO < 1 200 km². Known from 15–20 locations. Threatened by invading alien plants and agricultural expansion.

Ixia linearifolia Aiton var. linearifolia G.J.Lewis

Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Vredenburg to Saldanha.
Habitat: Clacte and associated sand.
Rationale: EOO 185 km². Known from four locations. Experiencing an ongoing loss of habitat to cement mining and urban development.

Ixia longiflora Aiton var. linearifolia G.J.Lewis

Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Vredenburg to Saldanha.
Habitat: Clacte and associated sand.
Rationale: EOO 185 km². Known from four locations. Experiencing an ongoing loss of habitat to cement mining and urban development.
**Ixia vanzijliae** Lam. ex Baker

*Status:* **VU B1ab(ii,iii,iv,v)**

*D. Raimondo, J.E. Victor & P. Goldblatt*

*Distribution:* WC, Bonnievale to Worcester.

*Habitat:* Arid shale soils.

*Rationale:* EOO < 1 200 km². Known from 5–10 locations. It has lost over 50% of its habitat to vineyards over the past 15 years, loss is ongoing.

**Ixia viridiflora** Lam. var. *minor* M.P.de Vos

*Status:* **CR A2ac; B1ab(i,ii,iii,iv,w)+2ab(i,ii,iii,iv,w)**

*P. Goldblatt, J.C. Manning, K. Naidoo, D. Raimondo & J.E. Victor*

*Distribution:* WC. Stellenbosch to Somerset West.

*Habitat:* Seasonally wet clay flats.

*Rationale:* EOO < 100 km², AOO < 1 km². It has lost > 80% of locations and habitat over the past 15 years to the development of Gordon’s Bay and Somerset West; only two small, severely fragmented subpopulations remain. A large subpopulation at Disa Road, Gordon’s Bay, was lost in 2005. Both remaining extant subpopulations are declining because of invasion by alien grasses. Also, one is being mowed annually by the council, preventing seed set.

**Ixia vinacea** Lam. ex Baker

*Status:* **CR A2ac; B1ab(i,ii,iii,iv,w)+2ab(i,ii,iii,iv,w)**

*P. Goldblatt, J.C. Manning & I. Ebrahim*

*Distribution:* WC. Tulbagh.

*Habitat:* Shale clay flats.

*Rationale:* A range-restricted species (EOO 80 km², AOO < 10 km²), known from three or four locations. It has lost at least 80% of its habitat to vineyard and deciduous fruit cultivation over the past 100 years, a time period longer than three generations (15 years). Decline because of crop cultivation and invasion by alien plants.

**Ixia viridiflora** Lam. var. *viridiflora*

*Status:* **EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)**

*D. Raimondo, P. Goldblatt & J.C. Manning*

*Distribution:* WC. Northern Tulbagh Valley.

*Habitat:* The ecotone between sandstone and shale soils.

*Rationale:* EOO < 230 km², AOO < 5 km². Known from three locations. This taxon has lost over 70% of its habitat to vineyard and orchard expansion over the past 100 years, more than three generations (15 years). It now occurs in remnant patches between fruit orchards and is threatened by invasive alien plants, lack of fire, harvesting for horticultural purposes and ongoing habitat loss for crop cultivation.

**Klattia Baker**

**Klattia flava** (G.J.Lewis) Goldblatt

*Status:* **VU D1+2**

*A.L. Schutte-Vlok, J.C. Manning, N.A. Helme & D. Raimondo*

*Distribution:* WC. Hottentots Holland Mountains to Bain’s Kloof.

*Habitat:* Restricted to seeps and gullies or near perennial streams above 800 m where summer cloud and precipitation are frequent.

*Rationale:* A range-restricted habitat specialist (EOO 400 km², AOO < 20 km²). Occurs as very small stands and is estimated to have less than 1 000 mature individuals. Potentially threatened by extraction of groundwater.

**Klattia partita** Baker

*Status:* **NT D2**

*A.L. Schutte-Vlok & D. Raimondo*

*Distribution:* WC. Cape Peninsula, Hottentots Holland and Langeberg Mountains.

*Habitat:* Restricted to cooler, south-facing slopes in seeps and marsh margins above 600 m.

*Rationale:* EOO 7 500 km². Known from fewer than 10 locations. Subpopulations in the Hottentots Holland Mountains are potentially threatened by extraction of groundwater.

**Lapeirousia** Pourr.

**Lapeirousia azurea** (Eckl. ex Baker) Goldblatt

*Status:* **EN B1ab(i,ii,iii,iv,v)**

*N.A. Helme, P. Goldblatt & J.C. Manning*

*Distribution:* WC. Gouda to Paarl.

*Habitat:* Granite soils, on clay flats and slopes.

*Rationale:* This Swartland endemic (EOO 4 050 km²) has lost over 50% of its historical locations to crop cultivation and urban development. Loss is ongoing, with locations around Paarl and Malmesbury recently being lost. All remaining subpopulations are severely fragmented, with many occurring on road verges or in remnant renosterveld patches between agricultural fields.

**Lapeirousia corymbosa** (L.) Ker Gawl.

*Status:* **Declining**

*D. Raimondo & N.A. Helme*

*Distribution:* WC. Piketberg to Agulhas.

*Habitat:* Sandy and granite slopes.

*Rationale:* At least 30% of known locations and habitat have been lost to crop cultivation and urban expansion over the past 50 years. Generation length unknown, so it cannot be listed under Criterion A. It persists in at least 40 sites. Determining generation length is a priority conservation action.
Lapeirousia dolomitica Dinter subsp. lewisiana (B.Nord.) Goldblatt

Status: Rare
D. Raimondo & N.A. Helme

Distribution: NC WC. Kamiesberg to Bitterfontein.
Habitat: Quartzite patches over saline clays in succulent karoo shrubland.
Rationale: Known from four collections. A rare and localised taxon. Not threatened.

Lapeirousia fastigiata (Lam.) Ker Gawl.
Status: VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Piketberg to Malmesbury.
Habitat: Clay slopes and flats in renosterveld.
Rationale: A northern Swartland endemic (EOO 3 240 km²), now known from nine locations. It has lost 45% of historical locations and most of the flat areas where it once occurred to wheat cultivation (over 94% of habitat). Experiencing continuing declines due to expanding olive and rooibos tea cultivation and degradation from annual grass invasions and overgrazing by livestock.

Lapeirousia simulans Goldblatt & J.C. Manning
Status: VU B1ab(ii,iii,iv,v)
N.A. Helme

Distribution: NC. Kleinsee to the escarpment west of Springbok.
Habitat: Sandy coastal plain.
Rationale: Poorly known and evidently rare. Appears to be restricted to central coastal Namaqualand, occurring as small, localised subpopulations. Known from fewer than 10 sites.

Lapeirousia tenuis (Goldblatt) Goldblatt & J.C. Manning
Status: Rare
N.A. Helme

Distribution: NC. Kleinsee to the escarpment west of Springbok.
Habitat: Sandy coastal plain.
Rationale: Known from five locations in the Spektakelberg area. Potentially threatened by road works, quarrying and crop cultivation.

Lapeirousia verecunda (Goldblatt) Goldblatt
Status: VU D2
N.A. Helme, P. Goldblatt, J.C. Manning & K. Naidoo

Distribution: NC. Escarpment west of Springbok.
Habitat: Rocky granite soils.
Rationale: Known from five locations in the Spektakelberg area. Potentially threatened by road works, quarrying and crop cultivation.

Lapeirousia violacea Goldblatt
Status: NT B1ab(ii,iii)
D. Raimondo

Distribution: NC. Bokkeveld Escarpment to Biedouw Valley.
Habitat: Loamy sands and on arid shales.
Rationale: Restricted to the southern Bokkeveld and Biedouw Valley, known from nine locations but a few more are likely to exist. Occurs in areas and in habitat that are being converted for rooibos tea cultivation.

Moraea Mill.

Moraea amissa Goldblatt
Status: CR B1ab(iii)+2ab(iii)
D. Raimondo, I. Ebrahim & C. von Witt

Distribution: WC. Malmesbury.
Habitat: Course granitic soils amongst rocky outcrops in renosterveld.
Rationale: Known from one location (EOO and AOO < 1 km²), 56 mature individuals of this species were recorded in 2005. Its habitat is being degraded by grazing cattle and invasion by alien plants.

Moraea angulata Goldblatt
Status: CR B2ab(ii,iii,iv,v)
P. Goldblatt, J.C. Manning & D. Raimondo

Distribution: WC. Malmesbury to Gordon’s Bay.
Habitat: Wet sandy flats.
Rationale: Less than 10 km² of suitable habitat remains. Probably extant at four severely fragmented subpopulations. It has suffered severe declines over the past century; we estimate that there has been a 90% decline over the past 20 years. All four remaining subpopulations are threatened by invading alien plants and the associated drying up of seasonal wetlands.

Moraea aristata (D.Delaroche) Asch. & Graebn.
Status: CR D

Distribution: WC. Cape Peninsula.
Habitat: Clay slopes and flats in the northern Cape Peninsula.
Rationale: This Cape Flats endemic has lost all of its habitat to urban expansion of the city of Cape Town. It persists in one subpopulation, where there are less than 50 plants growing in a completely transformed habitat in Observatory.

Moraea aspera Goldblatt
Status: VU D2
P. Goldblatt, D. Raimondo & K. Naidoo

Distribution: WC. Bokkeveld Escarpment.
Habitat: Tillite clay soils in renosterveld.
Rationale: AOO < 20 km². Known from three locations. Potentially threatened by agricultural expansion.

Moraea atropunctata Goldblatt
Status: CR B1ab(iii,iv)+2ab(iii,v)
P. Goldblatt & D. Raimondo

Distribution: WC. Ezeljagberg near Villiersdorp.
Habitat: Gentle clay slopes in renosterveld.
Rationale: EOO and AOO < 1 km². Known from one location. Declining because of overgrazing by livestock and flower-picking; 320 mature individuals were counted in 2003.

Moraea autumnalis (Goldblatt) Goldblatt
Status: Rare
P. Goldblatt, L. von Staden & R.C. Turner

Distribution: WC. Kouebokkeveld, Elandskloof.
Habitat: Well-drained, sandy, stony soil on sandstone.
Rationale: It has no imminent threats but is known from two sites (EOO < 500 km²). It flowers only after fire.
Moraea barnardiella Goldblatt

Status: EN B1ab(ii,iii,iv,v); C2a(ii)
P. Goldblatt, R.C. Turner & K. Naidoo

Distribution: WC. Villiersdorp to Caledon.
Habitat: Clay slopes in renosterveld or renosterveld-fynbos transition.

Rationale: EOO 7 100 km². Subpopulations are declining rapidly as a result of crop cultivation and urban development. Remaining subpopulations are severely fragmented and all except the Elandsberg subpopulation are under threat.

Moraea debilis Goldblatt

Status: EN B1ab(ii,iii,iv,v)
P. Goldblatt, J.C. Manning, D. Raimondo & R.C. Turner

Distribution: WC. Bot River to Bredasdorp and Swellendam.
Habitat: Shale flats and gentle slopes in renosterveld.

Rationale: EOO 2 700 km². Known from fewer than five locations. Declining as a result of overgrazing by livestock, road construction, crop cultivation and invasion by alien plants.

Moraea deserticola Goldblatt

Status: Rare
P. Goldblatt, R.C. Turner & K. Naidoo

Distribution: WC. Kneryvlakte.
Habitat: Stony, quartz-covered slopes and flats in succulent karoo shrubland.

Rationale: Known from four subpopulations from a very localised area (EOO < 250 km²). Not threatened.

Moraea elegans Jacq.

Status: EN B1ab(i,ii,iii,iv,v)
P. Goldblatt, R.C. Turner & K. Naidoo

Distribution: WC. Cape Peninsula and Bredasdorp.
Habitat: Clay slopes in renosterveld.

Rationale: EOO < 600 km². It has lost 60–80% of its habitat to crop cultivation and all remaining subpopulations are severely fragmented. Declining as a result of invasion by alien plants, and crop cultivation.

Moraea elsiae Goldblatt

Status: VU B1ab(i,i,iii,iv,v)
D. Raimondo, P. Goldblatt & R.C. Turner

Distribution: WC. Cape Peninsula and Bredasdorp.
Habitat: Deep sandy soils.

Rationale: Although this species is known from 38 herbarium records, it has gone extinct at most of these collecting localities over the past 100 years as a result of urban expansion on the Cape Flats and crop cultivation on the Agulhas Plain. Only two recent collections from the Cape Flats exist, making it difficult to know if areas with intact habitat, such as Cape of Good Hope Nature Reserve and the area around Bredasdorp, have extant subpopulations. From historical records we suspect it is still extant at only seven locations. Loss to crop cultivation, invading alien plants and urban expansion is ongoing.

* Moraea exiliflora Goldblatt

Status: Critically Rare
D.A. Kamundiit & D. Raimondo

Distribution: WC. Klein Swartberg Mountain.
Habitat: Weathered, seasonally wet rock faces, in pockets of soil on narrow ledges, 1 000–1 500 m.

Rationale: EOO < 10 km². Known from one site. Occurs within a protected area and is not threatened.
Moraea fenestralis (Goldblatt & E.G.H.Oliv.) Goldblatt

**Status:** Rare

P. Goldblatt, R.C. Turner & K. Naidoo

**Distribution:** NC WC. Kliprand and Platbakkies east of Leliefontein.

**Habitat:** Sandy seepage areas in cracks or pockets on large granite boulders.

**Rationale:** A range-restricted, habitat specialist (EOO < 500 km²), known from four subpopulations and not suspected to be affected by any threats.

**Status:** Rare

P. Goldblatt, R.C. Turner & K. Naidoo

**Distribution:** NC WC. Tanqua and Doorn River basins.

**Habitat:** Clay slopes in renosterveld.

**Rationale:** A range-restricted species (EOO < 500 km²), known from two subpopulations. Not threatened.

Moraea flexicaulis Goldblatt

**Status:** Critically Rare

P. Goldblatt, L. von Staden & R.C. Turner

**Distribution:** NC. Southern Richtersveld.

**Habitat:** Sandy loams on exposed, arid flats.

**Rationale:** A range-restricted Richtersveld endemic (EOO < 10 km²), known from one site. Not threatened.

Moraea fragrans Goldblatt

**Status:** Rare

P. Goldblatt, D. Raimondo, S. Todd & E. Marinus

**Distribution:** NC. North of Nieuwoudtville.

**Habitat:** Dolerite vertisol soils.

**Rationale:** A range-restricted species (EOO 80 km²), known from seven subpopulations. Not threatened as its habitat is nonarable.

Moraea fuscomontana (Goldblatt) Goldblatt

**Status:** Rare

P. Goldblatt, K. Naidoo & R.C. Turner

**Distribution:** WC. Swartruggens Mountains.

**Habitat:** Rocky sandstone slopes in fynbos.

**Rationale:** A range-restricted species (EOO < 500 km²), known from four subpopulations. Not threatened.

Moraea gigandra L.Bolus

**Status:** EN B1ab(ii,iii,iv,v)

P. Goldblatt, D. Raimondo & I. Ebrahim

**Distribution:** WC. Piketberg to Porterville.

**Habitat:** Steep, stony slopes in heavy clay soils.

**Rationale:** EOO 189 km². Known from six severely fragmented subpopulations. Over 95% of its habitat has been transformed for wheat cultivation. Occurs in small, isolated fragments of renosterveld on south-facing slopes between wheat lands. One subpopulation has experienced severe decline (over 90% of mature individuals lost) as a result of too frequent fires. The remnant is burnt with surrounding wheat stubble annually after the harvest in November. Frequent fires, coupled with grazing by livestock, are causing continuing declines at most of the remaining subpopulations.

Moraea graminicola Oberm. subsp. graminicola

**Status:** NT A2c; B1ab(iii)

C.R. Scott-Shaw, I.M. Johnson, L. von Staden & D. Raimondo

**Distribution:** KZN. KwaZulu-Natal Midlands and Ngome.

**Habitat:** Moist slopes and flats in open mistbelt grasslands, 900–1 500 m.

**Rationale:** EOO 9 500 km². Remaining at 10–20 locations. This taxon has lost 31% of its habitat across its range since the 1950s, but only ± 20% (mainly to forestry plantations) within the last 30–40 years, which corresponds to less than three generations (generation length estimated to be 10–15 years). Habitat loss due to forestry and small-scale farming is continuing. Subpopulations are not severely fragmented.

Moraea hesperantha (Goldblatt) Goldblatt

**Status:** NT D2

D. Raimondo, E. Marinus & S. Todd

**Distribution:** NC. Bokkeveld Plateau.

**Habitat:** Heavy clay dolerite soils in renosterveld.

**Rationale:** EOO 74 km². Known from fewer than 10 locations. Although it has lost some habitat in the past, the heavy dolerite soils on which it occurs are no longer targeted for agriculture and no future decline due to crop cultivation is predicted. One subpopulation is being heavily grazed and future loss to overgrazing is a potential threat.

Moraea hiemalis Goldblatt

**Status:** NT B1ab(ii,iii,v)

C.R. Scott-Shaw & D. Pillay

**Distribution:** NC. Winterhoek Mountains are not threatened, whereas those on the upper slopes of the Groot Winterhoek Mountains are not threatened, whereas those on the lower slopes are potentially threatened by vineyard expansion in the northern parts of the Tulbagh Valley. All subpopulations are small and this species is known from less than 1 000 mature individuals.

Moraea incurva (Goldblatt) Goldblatt

**Status:** NT D1

I. Ebrahim, D. Raimondo & R.C. Turner

**Distribution:** WC. Tulbagh.

**Habitat:** Well-drained, sandy, rocky soil on sandstone slopes.

**Rationale:** EOO 130 km². Known from five locations. Subpopulations that occur on the upper slopes of the Groot Winterhoek Mountains are not threatened, whereas those on the lower slopes are potentially threatened by vineyard expansion in the northern parts of the Tulbagh Valley. All subpopulations are small and this species is known from less than 1 000 mature individuals.

Moraea indecora Goldblatt

**Status:** NT D1

P. Goldblatt, R.C. Turner & D. Raimondo

**Distribution:** NC. Springbok.

**Habitat:** Hard, flat, sandy ground, on course granite-derived soils.

**Rationale:** Known from four sites within an area of < 50 km² and from less than 1 000 mature individuals.
Moraea insolens Goldblatt
Status: CR B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
J.C. Manning, P. Goldblatt & D. Raimondo

*Distribution:* WC. Caledon Swartberg.

*Habitat:* Renosterveld, in gravel-clay soils, with fynbos elements and various geophytes.

*Rationale:* EOO 63 km², AOO < 1 km². Known from three severely fragmented subpopulations, all on small remnants that are not managed and are being steadily encroached by invasive alien plants and becoming moribund because of lack of fire.

Moraea kamiesensis Goldblatt
Plate 27
Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
P. Goldblatt, N.A. Helme & D. Raimondo

*Distribution:* NC. Namaqualand, Kamiesberg.

*Habitat:* Sandy, lower granitic slopes, 1 000 m.

*Rationale:* EOO < 150 km². Known from three locations. It has lost ± 50% of its habitat over the past 70 years to agriculture, and is declining as a result of further crop cultivation and overgrazing and trampling by livestock.

Moraea kamiesmontana (Goldblatt) Goldblatt
Status: VU D2
N.A. Helme & D. Raimondo

*Distribution:* NC. Namaqualand, Kamiesberg.

*Habitat:* Shallow granitic sand over rock.

*Rationale:* EOO 50 km². Known from four locations. Vulnerable to trampling by livestock.

*Moraea lilacin*a Goldblatt & J.C.Manning
Status: EN B1ab(ii,iii,iv,v)
J.H. Vlok & D. Raimondo

*Distribution:* WC. Langeberg Mountains.

*Habitat:* Renosterveld, in loamy clay soils on rocky slopes.

*Rationale:* Known from three locations on the northern lower foothills of the Langeberg (EOO 50 km²). Threatened by overgrazing by livestock and crop cultivation.

Moraea linderi Goldblatt
Status: CR D
P. Goldblatt, J.E. Victor, K. Naidoo & R.C. Turner

*Distribution:* WC. Piketberg Mountains and the Koue-bokkeveld.

*Habitat:* Quartzitic sands.

*Rationale:* Known from two subpopulations with less than 50 mature individuals in total. A third subpopulation was lost during construction of a dam.

Moraea longiaristata Goldblatt
Status: CR B1ab(ii,iii,iv,v) + 2ab(ii,iii,v); C2a(i)
P. Goldblatt, D. Raimondo, N.A. Helme & R.C. Turner

*Distribution:* WC. Caledon Swartberg.

*Habitat:* Lower to medium-altitude slopes in stony, sandstone-derived soil.

*Rationale:* Known from one location, with a severe threat of invasion by alien plants; 80 plants were recorded at two subpopulations in 2005 and 2007.

Moraea longiflora Ker Gawl.
Status: VU D1 + 2
N.A. Helme & D. Raimondo

*Distribution:* NC. Namaqualand, Kamiesberg.

*Habitat:* Open granitic sands at 1 200 m, often in seasonally damp areas.

*Rationale:* EOO < 80 km², AOO < 1 km². Known from two locations from less than 1 000 mature individuals. Potentially threatened by overgrazing by livestock.

Moraea loubseri Goldblatt
Status: CR PE
D.A. Snijman, D. Raimondo & C. van Witt

*Distribution:* WC. Langebaan.

*Habitat:* A granite outcrop on sandy, granite-derived soils.

*Rationale:* Restricted to one outcrop of which over 80% has been destroyed by quarrying that started in the 1970s. During visits to the only known subpopulation in 1995 and 2002, fewer than five plants were found. Subsequent annual searches have not relocated this species. Signs of digging by porcupines were noted in 2002, and 2005 was a year of good rainfall but no plants were found. It is probably extinct in the wild.

Moraea lousabolusiae Goldblatt
Status: Rare
P. Goldblatt, D. Raimondo & R.C. Turner

*Distribution:* NC WC. Namaqualand to Nardous Mountain.

*Habitat:* Rock outcrops.

*Rationale:* A rare geophyte that is restricted to sandstone outcrops. Known from four collections over a large range (EOO 5 100 km²). It is likely that a few more undiscovered subpopulations exist. Not threatened.

Moraea macgregorii Goldblatt
Status: Rare
P. Goldblatt, J.C. Manning, D. Raimondo & R.C. Turner

*Distribution:* WC. Caledon and Bredasdorp.

*Habitat:* Dry, stony slopes on renosterveld-succulent karoo transition.

*Rationale:* Known from one site. Not threatened as it occurs in an arid, nonarable habitat.

*Moraea marginata* J.C.Manning & Goldblatt
Status: Critically Rare
P.A. Manyama

*Distribution:* NC. Sutherland.

*Habitat:* Open, succulent karroid scrub, in fine alluvial sands over shale at the foot of sandstone outcrops at an altitude of 1 550 m.

*Rationale:* Known from a single population. Not threatened.

*Moraea melanops* Goldblatt & J.C.Manning
Status: EN B1ab(iii) + 2ab(iii)
D. Raimondo & D.A. Kamundi

*Distribution:* WC. Caledon and Bredasdorp.

*Habitat:* Clay slopes in renosterveld.

*Rationale:* EOO 482 km², AOO < 482 km². It has lost habitat to agriculture, and all three remaining locations continue to decline as a result of ongoing habitat degradation caused by invading alien plants.

Moraea minima Goldblatt
Status: CR PE
P. Goldblatt, J.C. Manning, D. Raimondo & R.C. Turner

*Distribution:* WC. Bredasdorp.

*Habitat:* Clay flats in renosterveld.

*Rationale:* Known from one location that is heavily invaded by alien acacias and overgrazed by livestock. It has not been collected recently (last collected in 1981) despite botanical surveys work by a number of botanists in the area.
Moraea monticola Goldblatt
Status: VU D1
P. Goldblatt, K. Naidoo & R.C. Turner
Distribution: WC. Kamiesberg to Swartberg Mountains.
Habitat: Rocky lower slopes.
Rationale: Known from two highly disjunct subpopulations. Subpopulations are small (less than 200 plants) and less than 1 000 mature individuals of this species are known.

Moraea pendula (Goldblatt) Goldblatt
Status: Rare
P. Goldblatt & D. Raimondo
Distribution: NC. Richtersveld, Stinkfontein Mountains.
Habitat: Stony ground in full sun, on south-facing slopes, at altitudes above 1 000 m.
Rationale: Occurs on one mountain range (EOO 87 km²). Flowers only after good rains and it is not under any threat.

Moraea patens (Goldblatt) Goldblatt
Status: Critically Rare
P. Goldblatt & L. von Staden
Distribution: NC. Spektakel Mountains.
Habitat: Hard, stony, clay soil, sometimes covered with white quartzite.
Rationale: Known from one subpopulation. Not threatened.

Moraea nubigena Goldblatt
Status: Critically Rare
P. Goldblatt, L. von Staden & R.C. Turner
Distribution: WC. Fonteintjiesberg.
Habitat: Wet, moss-covered Table Mountain Sandstone rocks at 1 400 m.
Rationale: Known from one subpopulation. Not threatened.

Moraea namibensis Goldblatt
Status: VU D2
L. von Staden
Distribution: NC. Southern Namibia to Port Nolloth.
Habitat: Sandy flats in succulent karoo.
Rationale: Known only from two locations and potentially threatened by mining.

Moraea radians (Goldblatt) Goldblatt
Status: CR B1ab(ii,iii,iv,v)
P. Goldblatt, D. Raimondo & R.C. Turner
Distribution: WC. McGregor.
Habitat: Clay soils in renosterveld.
Rationale: EOO 80 km². Known from two severely fragmented subpopulations. It has already lost over 60% of its habitat to vineyards and now persists in renosterveld fragments between vineyards. Conversion of its habitat is ongoing and severe. The most recent count of one of the subpopulations recorded only eight mature individuals.

Moraea regalis Goldblatt & J.C.Manning
Status: CR B1ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: NC. Richtersveld, Stinkfontein Mountains.
Habitat: Pebbly, loamy soils on south-facing slopes.
Rationale: Known from one population, 50% of which was lost to infrastructure development. Declining because of habitat degradation by collecting of firewood and overgrazing by livestock. There are less than 1 000 mature individuals.

Moraea rivulicola Goldblatt & J.C.Manning
Status: Rare
D. Raimondo, B. Mohamed & D.A. Kamundij
Distribution: NC WC. Northern Cederberg, Nieuwoudtville, Nardous Mountain and northwards to Garies.
Habitat: Moist sites on granite bedrock.
Rationale: A habitat specialist known from six subpopulations. Not threatened as it occurs on unploughable granite bedrock. Moraeas are also not susceptible to grazing by livestock, the main land use within its range.

Moraea stagnalis (Goldblatt) Goldblatt
Status: VU CR B1ab(ii,iii,iv,v)
P. Goldblatt & J.C.Manning
Distribution: NC. Spektakel Mountains west of Springbok southward to the Kamiesberg.
Habitat: Seasonal pools, seeps and in seasonal streams on sandstone soils, 400–800 m.
Rationale: EOO 8 700 km². Known from 7–10 locations. Experiencing an ongoing degradation of its habitat due to surrounding areas being converted to rooibos tea cultivation which is disturbing seasonal water flow patterns.

Moraea tricolor Andrews
Status: EN B1ab(i,ii,iii,iv,v)
J.C. Manning, P. Goldblatt & D. Raimondo
Distribution: WC. Hopefield to Napier.
Habitat: Clay soils in renosterveld, in wet, sandy flats.
Rationale: The range of this species has been reduced from 8 000 km² to 1 200 km² over the past 80 years as a result of wheat and vineyard expansion and urban development on the Cape Flats. Once common in damp places in the Swartland and Overberg, it is now reduced to four locations. Declines are continuing because of invasion by alien plants, crop cultivation and urban development.

Moraea tubthagensis L.Bolus
Status: EN B1ab(ii,iii,iv,v)
P. Goldblatt, J.C. Manning & D. Raimondo
Distribution: WC. Piketberg to Paarl.
Habitat: Stony, sandy clay flats in renosterveld.

Known from 5–10 locations. Threatened by habitat loss due mainly to crop cultivation but also to infrastructure development around Lelefontein.
**Moraea unibracteata** Goldblatt

**Status:** NT B1ab(ii,iii,iv,v)

C.R. Scott-Shaw, D. Pillay & R.C. Turner

**Distribution:** KZN. Mooi River and Giant’s Castle Game Reserve to Inanda.

**Habitat:** Mistbelt and montane grassland, usually on steep slopes, 600–2 000 m.

**Rationale:** EOO 5 000 km². Estimated to occur at 15 locations. It has lost over 40% of its habitat to afforestation, crop cultivation and urban development. There is ongoing degradation of its habitat because of overgrazing by livestock and invasion by alien plants. Habitat loss to urban expansion is also continuing.

**Moraea verrucosa** Goldblatt

**Status:** Rare

P. Goldblatt, D. Raimondo & K. Naidoo

**Distribution:** WC. Foot of the Elandskloof Mountains.

**Habitat:** Stony granite and clay soils and flats.

**Rationale:** This taxon is likely to have lost habitat to wheat cultivation. It is known from one site where there are less than 350 mature individuals. It is not currently threatened as it occurs in a well-managed private nature reserve.

**Moraea vespertina** Goldblatt & J.C. Manning

**Status:** Rare

D. Raimondo, S. Todd & E. Marinus

**Distribution:** NC. Bokkeveld Escarpment.

**Habitat:** Heavy red dolerite clay soil in low rocky outcrops of dolerite, restricted to seasonally moist soils.

**Rationale:** A range-restricted species (EOO 24 km²), known from four subpopulations. Occurs amongst dolerite boulders that cannot be ploughed.

**Moraea vlokii** Goldblatt

**Status:** VU B1ab(ii,iii,iv,v)

R. Koopman & D. Raimondo

**Distribution:** WC. Tulbagh to Cape Peninsula and Houwhoek.

**Habitat:** Clay and granite flats and slopes, often in seasonally damp depressions, below 300 m.

**Rationale:** EOO 7 400 km². Known from 11–20 severely fragmented subpopulations. It has lost over 80% of its habitat to urban expansion and crop cultivation; losses due to these factors and invasion by alien plants are ongoing.

**Moraea versicolor** (Salisb. ex Klatt) Goldblatt

**Status:** VU B1ab(ii,iii,iv,v)

R. Koopman & D. Raimondo

**Distribution:** WC. Tulbagh to Cape Peninsula and Houwhoek.

**Habitat:** Clay and granite flats and slopes, often in seasonally damp depressions, below 300 m.

**Rationale:** EOO 7 400 km². Known from 11–20 severely fragmented subpopulations. It has lost over 80% of its habitat to urban expansion and crop cultivation; losses due to these factors and invasion by alien plants are ongoing.

**Moraea villosa** (Ker Gawl.) Ker Gawl. subsp. villosa

**Moraea villosa** (Ker Gawl.) Ker Gawl. subsp. villosa

**Status:** VU D1

P. Goldblatt & D. Raimondo

**Distribution:** WC. Foot of the Elandskloof Mountains.

**Habitat:** Stony granite and clay soils and flats.

**Rationale:** This taxon is likely to have lost habitat to wheat cultivation. It is known from one site where there are less than 350 mature individuals. It is not currently threatened as it occurs in a well-managed private nature reserve.

**Moraea viridiflora** Goldblatt

**Status:** Rare

P. Goldblatt & D. Raimondo

**Distribution:** WC. Piketberg to Gordon’s Bay and Ceres.

**Habitat:** Clay flats and lower slopes.

**Rationale:** EOO 11 650 km². This taxon was once a common lowland endemic, but crop cultivation and urban expansion have reduced its range. Over 80% of its habitat has been lost. It is probably extant at 16 of the 62 historical locations. Large colonies still exist below Gydo Pass and on the Piketberg where hundreds of thousands of plants occur. All other extant subpopulations are severely fragmented (occurring between wheat fields that are seldom burnt), small (typically less than 20 plants) and declining as a result of habitat degradation caused by eutrophication and invasion by alien plants.

**Moraea virgata** Jacq. subsp. karooica (Goldblatt)

**Goldblatt**

**Status:** Rare

P. Goldblatt, J.C. Manning & K. Naidoo

**Distribution:** NC. Roggeveld Escarpment.

**Habitat:** Moist sites, among large rocks near seepage zones.

**Rationale:** A Roggeveld Escarpment endemic (EOO 140 km²), known from two subpopulations and not threatened.

**Moraea vlokii** Goldblatt

**Status:** Rare

P. Goldblatt, D. Raimondo & K. Naidoo

**Distribution:** WC. Montagu to Swartberg Mountains.
**Angiosperms: Monocotyledons**

**Iridaceae**

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Distribution</th>
<th>Habitat</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nivenia fruticosa</td>
<td>Rare</td>
<td>WC, Groenland Mountains.</td>
<td>Rocky soil with root stocks wedged into weathered Cape sandstone.</td>
<td>Not threatened.</td>
</tr>
<tr>
<td>Nivenia concinna N.E.Br.</td>
<td>Rare</td>
<td>WC, Riviersonderend Mountains.</td>
<td>Open fynbos in shallow stony soil in exposed situations above 1 000 m.</td>
<td>Not threatened.</td>
</tr>
<tr>
<td>Nivenia dispar N.E.Br.</td>
<td>Rare</td>
<td>WC, Langeberg Mountains, Swellendam to Grootvadersbosch.</td>
<td>Endemic to South Langeberg Sandstone Fynbos. (EOO &lt; 385 km²). Known from fewer than 10 sites.</td>
<td>Not threatened.</td>
</tr>
<tr>
<td>Nivenia levynsiae Weim.</td>
<td>Rare</td>
<td>WC, Kogelberg.</td>
<td>Dry, exposed rocky outcrops above 500 m.</td>
<td>Not threatened.</td>
</tr>
<tr>
<td>Nivenia parviflora Goldblatt</td>
<td>Rare</td>
<td>WC, Lower southern slopes of the Klein Swartberg Mountains near Ladismith.</td>
<td>Rock outcrops on sandstone slopes.</td>
<td>Not threatened.</td>
</tr>
<tr>
<td>Nivenia stenosiphon Goldblatt</td>
<td>Rare</td>
<td>WC, Klein Swartberg Mountains west of Ladismith and on the adjacent Touwsberg.</td>
<td>South-facing slopes on open, level sites in rocky places, 1 000–1 500 m.</td>
<td>Not threatened.</td>
</tr>
<tr>
<td>Romulea Maratti</td>
<td>Rare</td>
<td>NC, Roggeveld Escarpment.</td>
<td>Shale flats on edge of escarpment.</td>
<td>Not threatened.</td>
</tr>
<tr>
<td>Romulea albiflora J.C.Manning &amp; Goldblatt</td>
<td>Rare</td>
<td>WC, Koueboekkeveld and Hex River Mountains.</td>
<td>Shale bands and loam soils associated with river systems.</td>
<td>Not threatened.</td>
</tr>
<tr>
<td>Romulea albomarginata M.P.de Vos</td>
<td>Rare</td>
<td>WC, Koueboekkeveld and Hex River Mountains.</td>
<td>From five collections, four are from the Koueboekkeveld and are likely to be lost to deciduous fruit cultivation. A recent collection from the Hex River Valley indicates that it may also occur on shale bands in mountainous habitats. We assume that more subpopulations exist in the Hex River Mountains (estimate 5–10 locations). Decline of habitat due to agriculture is ongoing in the Koueboekkeveld.</td>
<td></td>
</tr>
<tr>
<td>Romulea amoena Schltr. ex Bég.</td>
<td>Rare</td>
<td>WC, Koueboekkeveld and Hex River Mountains.</td>
<td>Stony, red, clay soils derived from Dwyka tillite and dolerite on sandy soils derived from sandstone.</td>
<td>Not threatened.</td>
</tr>
</tbody>
</table>
Romulea aquatica G.J.Lewis
Status: EN B1ab(iii)+2ab(iii)
J.C. Manning & D. Raimondo
Distribution: WC, Piketberg to Malmesbury.
Habitat: Seasonal pools on clay flats.
Rationale: EOO < 2 400 km², AOO < 2 km². Endemic to vernal pools. It has lost much habitat to wheat cultivation in the past. There are fewer than five locations (possibly only two), all of which are severely threatened by further expansion of wheat cultivation and by trampling by livestock.

Romulea barkerae M.P.de Vos
Status: EN B1ab(i,ii,iii,iv,v)+2ab(ii,iii,iv,v)
J.C. Manning, K. Naidoo & N.A. Helme
Distribution: WC, Paternoster to Saldanha Bay.
Habitat: Shallow, wet, sandy soil on sandstone pavements, 1 500 m.
Rationale: High-altitude species from the Cederberg (EOO < 170 km²), known from four subpopulations. Not threatened.

Romulea cedarbergensis M.P.de Vos
Status: Rare
J.C. Manning & D. Raimondo
Distribution: WC, Cederberg.
Habitat: Shallow, wet, sandy soil on sandstone pavements, 1 500 m.
Rationale: High-altitude species from the Cederberg (EOO < 170 km²), known from four subpopulations. Not threatened.

Romulea collina J.C.Manning & Goldblatt
Status: VU D2
P. Goldblatt, J.C. Manning & K. Naidoo
Distribution: NC. Nieuwoudtville.
Habitat: Seasonally moist, dolerite clays in open renosterveld.
Rationale: Known from one location. Potentially threatened by grazing and trampling by livestock and by road works.

Romulea discifera J.C.Manning & Goldblatt
Status: CR B1ab(iii,v)+2ab(ii,iii,v)
P. Goldblatt, J.C. Manning & D. Raimondo
Distribution: NC. Nieuwoudtville.
Habitat: Renosterveld, sandy clay that may become waterlogged in particularly wet years.
Rationale: Known from one location (EOO and AOO < 10 km²). It has lost most of its habitat to wheat cultivation and road construction in the past. The single remaining subpopulation is on a tiny roadside fragment and is being continually degraded by livestock and invasive alien grasses; it is also declining because of low numbers of individuals.

Romulea eburnea J.C.Manning & Goldblatt
Status: VU D2
P. Goldblatt, J.C. Manning & K. Naidoo
Distribution: NC. Klein Roggeveld.
Habitat: Shale soils.
Rationale: Recently described, known from one location. It has lost habitat to road construction in the past and is potentially threatened by grazing by livestock.

Romulea elliptica M.P.de Vos
Status: EN B1ab(iii)+2ab(iii)
J.C. Manning & D. Raimondo
Distribution: WC, Vredenburg to Saldanha Bay.
Habitat: White sandy flats.
Rationale: Once common between Mamre, Darling and Malmesbury (EOO < 650 km²) and frequently collected by early collectors. It has declined significantly and is now known from five subpopulations that are severely fragmented as a result of wheat cultivation and dense invasions of alien plants.

Romulea eximia M.P.de Vos
Status: EN CR B1ab(iii,v)+2ab(ii,iii,v); C2a(ii,iii); D1
J.C. Manning & D. Raimondo
Distribution: WC. Paternoster to Saldanha Bay.
Habitat: White sandy flats.
Rationale: Known from one location and less than 50 plants. Declining because of crop cultivation and a potential threat of housing development.

Romulea hantamensis (Diels) Goldblatt
Status: Rare
N.A. Helme & J.C. Manning
Distribution: NC. Hantamsberg Mountain.
Habitat: Damp dolerite flats, 1 500 m.
Rationale: Known from the type locality (EOO < 20 km²). Potentially threatened by road works and agriculture.

Romulea judicola M.P.de Vos
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: WC. Roggeveld Plateau southwest of Sutherland.
Habitat: Shale soils, 1 500 m.
Rationale: Known from the type locality (EOO < 20 km²). Potentially threatened by road works and agriculture.

Romulea komsbergensis M.P.de Vos
Status: NT B1ab(iii,iv,v)
J.C. Manning, D. Raimondo & N.A. Helme
Distribution: NC. Komberg Pass to Middelpos.
Habitat: Seasonally damp clay flats, 1 400 m.
Rationale: Known from fewer than 10 locations. Declining because of crop cultivation. Large areas of renosterveld in the Little Karoo have been ploughed since 1996.

Romulea kytalindia J.C.Manning & Goldblatt
Status: VU B1ab(iii,iv,v)
J.C. Manning, D. Raimondo & N.A. Helme
Distribution: WC. Komsberg Pass to Middelpos.
Habitat: Seasonally damp clay flats, 1 400 m.
Rationale: Known from fewer than 10 locations. Declining because of crop cultivation. Large areas of renosterveld in the Little Karoo have been ploughed since 1996.

Romulea lilacina J.C.Manning & Goldblatt
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: WC. Kouebokkeveld.
Habitat: Deep, sandy soils along riverbanks.
**Romulea lilacina**

Status: EN D

**Distribution:** Known from the type locality from the banks of the Riet River, where it occurs on deep sands. Some 40% of this habitat within the immediate area of the type locality has been transformed by crop cultivation. This is a potential threat to the only known subpopulation. 

**Romulea multisulcata**

**Distribution:** WC. Knysna, and Komagga. 

**Habitat:** Stony quartzite slopes with underlying shales.

**Rationale:** Known from two subpopulations, one with less than 20 mature individuals. The other subpopulation was last recorded in the 1980s and the exact site and population size are unknown, but it probably consists of less than 100 plants.

**Romulea monticola**

**Distribution:** NC. Matroosberg to Koo. 

**Habitat:** Sandy pockets at the foot of a stony ridge.

**Rationale:** Known from one location. Not currently declining, although a large portion of its habitat is under cultivation. Crop cultivation, grazing and trampling by livestock remain potential threats.

**Romulea membranacea**

**Distribution:** NC. Hottentots Holland and Roggeveld Escarpments. 

**Habitat:** Sandy flats.

**Rationale:** EOO 4 650 km². Known from six locations, five of which are threatened by rapidly expanding rooibos tea cultivation.

**Romulea multifida**

**Distribution:** NC. Roggeveld Plateau. 

**Habitat:** Damp clay flats, 1 500 m.

**Rationale:** AOO < 10 km². Known from three locations. Potentially threatened by crop cultivation.

**Romulea multisulcata**

**Distribution:** EC. WC. Bokeveld, Gifberg, southern Bokeveld and Roggeveld Escarpments. 

**Habitat:** Sandy loam in fynbos, 700–800 m.

**Rationale:** EOO 800 km². Known from eight locations. Experiencing an ongoing habitat loss to rapidly expanding rooibos tea cultivation.

**Romulea namaquensis**

**Status:** NT B1ab(ii,iii,v)

**Habitat:** Sandy or stony soil, in succulent karoo shrubland.

**Rationale:** Known from nine locations, of which five occur in areas where crop cultivation takes place. A continuing decline is therefore inferred. As there is still habitat available within the range of this species, it is likely that there are around 15 locations.

**Romulea neglecta**

**Status:** VU D2

**Habitat:** Moist granitic sands at ± 1 200 m.

**Rationale:** Known from one location. Potentially threatened by crop cultivation.

**Romulea pearsonii**

**Status:** VU D2

**Habitat:** Sandy loams derived from granite, upper slopes.

**Rationale:** Known from three subpopulations, one with less than 15 plants. It is likely that other subpopulations are equally small. We estimate that there are less than 250 mature individuals.

**Romulea rupestris**

**Status:** EN D

**Habitat:** Sandy loams derived from granite, upper slopes.

**Rationale:** Known from one location. Potentially threatened by crop cultivation.

**Romulea sabulosa**

**Status:** VU D2

**Habitat:** Tillite clays in renosterveld.

**Rationale:** AOO 15 km². Known from five locations. It has lost 80% of its habitat to wheat cultivation over the past 60 years, but is not currently declining. Potentially threatened by further crop cultivation and encroachment from invasive alien grasses.

**Romulea saldanhensis**

**Status:** EN B1ab(ii,iii,iv,v)

**Habitat:** NC. Richtersveld and Kamiesberg.

**Rationale:** Known from three subpopulations, one with less than 15 plants. It is likely that other subpopulations are equally small. We estimate that there are less than 250 mature individuals.

**Romulea sanguinalis**

**Status:** VU D2

**Habitat:** Sandy loams derived from granite, upper slopes.

**Rationale:** Known from one location. Potentially threatened by crop cultivation.

**Romulea sanguinalis**

**Status:** EN B1ab(ii,iii,iv,v)

**Habitat:** NC. Richtersveld and Kamiesberg.

**Rationale:** Known from three subpopulations, one with less than 15 plants. It is likely that other subpopulations are equally small. We estimate that there are less than 250 mature individuals.

**Romulea sanguinalis**

**Status:** VU D2

**Habitat:** Sandy loams derived from granite, upper slopes.

**Rationale:** Known from one location. Potentially threatened by crop cultivation.

**Romulea sanguinalis**

**Status:** VU D2

**Habitat:** Sandy loams derived from granite, upper slopes.

**Rationale:** Known from one location. Potentially threatened by crop cultivation.
Romulea singularis J.C.Manning & Goldblatt

Status: VU D1
N.A. Helme & D. Raimondo

Distribution: NC. Bokkeveld Escarpment.
Habitat: Seasonally wet, shallow sands and moss, in semishade.

Rationale: An extremely narrow endemic, known from a single population that occurs in an area smaller than 1 ha. There are 300 mature individuals known.

Romulea sinispinosensis M.P.de Vos

Status: EN B1ab(iii,v)
J.C. Manning, P. Goldblatt & K. Naidoo

Distribution: WC. Doringbaai and Velddrif.
Habitat: Deep sands on the coastal plain.

Rationale: EOO 760 km². Known from two locations. Threatened by diamond and heavy-metal mining. It is also threatened by proposed plans for the development of tourist facilities along the Doringbaai stretch of coast.

Romulea stellata M.P.de Vos

Status: VU D2
N.A. Helme & D. Raimondo

Distribution: WC. Gifberg plateau.
Habitat: Moist areas on rocky sandstone pavement.

Rationale: EOO < 200 km². Known from two locations. Potentially threatened by expansion of rooibos cultivation on the Gifberg.

Romulea subfistulosa M.P.de Vos

Status: NT B1ab(ii,iii)
N.A. Helme

Distribution: NC. Calvinia to Roggeveld Escarpment at Sutherland.
Habitat: Dolerite flats.

Rationale: A poorly known taxon, last collected in 1897.

Romulea sulphurea Bég.

Status: VU D2
N.A. Helme & D. Raimondo

Distribution: WC. Pakhuis Mountains.
Habitat: Sandstone pavement.

Rationale: Known from one location. Potentially threatened by road works or road expansion projects.

Romulea syringodeoflora M.P.de Vos

Status: VU D2
J.C. Manning, P. Goldblatt & D. Raimondo

Distribution: NC. Roggeveld Plateau.
Habitat: Stony shale flats and slopes.

Rationale: A range-restricted species (EOO < 300 km²), known from four locations. Potentially threatened by soil erosion and overgrazing and trampling by livestock.

Romulea tortilis Baker var. tortilis

Status: DDD
J.C. Manning, P. Goldblatt & K. Naidoo

Distribution: WC. Porterville.
Habitat: Sandstone slopes.

Rationale: A poorly known taxon, last collected in 1897.

Romulea toximontana M.P.de Vos

Status: VU B1ab(ii,iv,v)
N.A. Helme & D. Raimondo

Distribution: NC. WC. Bokkeveld Mountains to Gifberg.
Habitat: Deep sands, usually on seasonally moist alluvial sediments.

Rationale: EOO 850 km². Known from six locations. A few more subpopulations are likely to occur in the mountains between the Gifberg and the Bokkeveld Escarpment. Experiencing rapid and ongoing loss of its habitat to rooibos tea cultivation. Two subpopulations were lost on the Bokkeveld to rooibos between 2001 and 2006.

Romulea unifolia M.P.de Vos

Status: NT B1ab(ii,iii)
J.C. Manning, P. Goldblatt & N.A. Helme

Distribution: NC. Roggeveld.
Habitat: Dolerite flats.

Rationale: EOO < 2 500 km². Known from seven locations, but at least five more are likely as this is a poorly explored area with much intact habitat. We estimate that less than 15 locations exist. Subpopulations are declining in some areas as a result of trampling by livestock and habitat loss to wheat cultivation.

Romulea vinacea M.P.de Vos

Status: Rare
J.C. Manning & N.A. Helme

Distribution: WC. Pakhuis Pass and Oorlogskloof.
Habitat: Sandy soils on upper plateaus.

Rationale: A range-restricted species (EOO < 500 km²) with no known threats. At present only two disjunct subpopulations are known, but it is likely to occur in intervening mountainous areas.

Romulea viridibracteata M.P.de Vos

Status: Rare
D. Raimondo & J.C. Manning

Distribution: WC. Bokkeveld Mountains to Pakhuis Pass.
Habitat: Shale band on sandstone slopes.

Rationale: All collections, except an old one from Nieuwoudtville, come from Pakhuis Pass (EOO < 500 km²). Pakhuis Pass occurs within a conservation area, hence this species is not currently threatened. It lost 50% of its habitat to cultivation before the protected area was declared.

Romulea vlokii M.P.de Vos

Status: VU D1 + 2
J.H. Vlok & D. Raimondo

Distribution: WC. Kammanassie, Swartberg, Gamkaberg and Langeberg Mountains.
Habitat: Moist sandy soils.

Rationale: Known from five locations and a total of 650 mature individuals. It has lost subpopulations to crop cultivation in the past and remains potentially threatened by invading alien plants.
Sparaxis Ker Gawl.

Sparaxis auriculata Goldblatt & J.C.Manning
Status: EN B1ab(iii,iv,v)
D. Raimondo & N.A. Helme
Distribution: WC. Gifberg.
Habitat: Transition soils between clay and sandstone.
Rationale: EOO <100 km². Known from three locations and threatened by the expansion of rooibos tea and tomato cultivation.

Sparaxis caryophyllacea Goldblatt
Status: CR B1ab(iii)+2ab(iii); C2a(i)
P. Goldblatt & D. Raimondo
Distribution: WC. Nardous Mountain.
Habitat: Rocky slopes, western aspect.
Rationale: EOO and AOO <10 km². A very localised species, known from one subpopulation with less than 200 mature individuals on the western slopes of the Nardous Mountain along the Olifants River Valley. Declining in habitat quality as a result of overgrazing and trampling by livestock and resulting soil erosion.

Sparaxis elegans (Sweet) Goldblatt
Plate 29
Status: VU D2
D. Raimondo
Distribution: NC. Bokkeveld plateau and Koeebee Valley.
Habitat: Bokkeveld shale, on clay soils derived from Dwyka tillite and dolerite.
Rationale: AOO 16 km². Although it has lost 77% of its habitat over the past 70 years, most of this loss occurred in the 1950s, which is longer than three generations (generation length ±10 years). Agricultural expansion remains a potential threat.

Sparaxis fragrans (Jacq.) Ker Gawl.
Plate 29
Status: VU C2a(i)
D. Raimondo & I. Ebrahim
Distribution: WC. Bot River to Napier.
Habitat: Clay flats and slopes, usually waterlogged in the winter months.
Rationale: Less than 20 subpopulations of this species are known. Many herbarium collections note that it is uncommon, and recent observations suggest there are often less than 20 plants in a subpopulation. Hence we estimate conservatively that the total population is less than 10 000 individuals and on average each population has less than 1 000 individuals. It has lost over 80% of its habitat to wheat cultivation. Experiencing continuous habitat degradation because of invasion by alien plants and grazing by livestock.

Sparaxis galeata Ker Gawl.
Status: VU B1ab(iii,iv,v)
D. Raimondo & N.A. Helme
Distribution: NC WC. Bokkeveld Mountains to lower Olifants River Mountains.
Habitat: Dry, stony clay flats and slopes and on seasonally moist sands.
Rationale: EOO 2 000 km². Known from fewer than 10 locations. Experiencing ongoing habitat loss because of ploughing for rooibos tea and tomato cultivation.

Sparaxis grandiflora (D.Delaroche) Ker Gawl.
subsp. grandiflora
Plate 29
Status: EN B1ab(iii,v)
D. Raimondo & I. Ebrahim
Distribution: WC. Tulbagh Valley.

Habitat: Clay flats and slopes.
Rationale: EOO <1 000 km². Now known from eight severely fragmented subpopulations. This taxon has lost over 50% of its habitat to wheat and vineyard expansion over the past 100 years. Declining in occupancy, habitat quality and number of mature individuals as a result of expanding viticulture and invasion by alien plants.

Sparaxis maculosa Goldblatt
Plate 29
Status: CR B1ab(iii)+2ab(iii)
P. Goldblatt, C. von Witt, D. Raimondo & J.E. Victor
Distribution: WC. Villiersdorp.
Habitat: Wet clay flats.
Rationale: EOO <33 km², AOO <5 km². Known from two severely fragmented subpopulations where it is declining as a result of invasive annual grasses.

Sparaxis parviflora (G.J.Lewis) Goldblatt
Status: NT B1ab(ii,iii,iv,v)
D. Raimondo & J.S. Donaldson
Distribution: WC. Saldanha to Darling.
Habitat: Occurs in sandy, granite-derived soils, often in rock outcrops.
Rationale: EOO 874 km². Extant at 15–20 locations. Over 80% of its habitat has been lost to wheat and vineyard expansion. Loss to viticulture and urban development around Langebaan and Darling is continuing.

Sparaxis pillansii L.Bolus
Plate 29
Status: Rare
D. Raimondo & J.S. Donaldson
Distribution: NC. Nieuwoudtville to Calvinia.
Habitat: Dolerite-derived clay that is waterlogged for most of the growing season, often in standing pools.
Rationale: EOO 1 375 km². Known from 15 sites. It has lost a small proportion (15%) of its habitat to wheat cultivation in the past, but dolerite clays are no longer cultivated and this species is not declining.

Sparaxis roxburghii (Baker) Goldblatt
Status: CR B1ab(iii,v)+2ab(iii,v); C2a(ii)
P. Goldblatt & D. Raimondo
Distribution: WC. Citrusdal to Clanwilliam.
Habitat: Shale-derived, stony clay soils.
Rationale: EOO, AOO <1 km². Known from one location where there are less than 250 mature individuals. It has lost habitat to crop cultivation and decline is ongoing as the only remaining population is in the middle of fruit orchards. Plants are not recruiting as their seeds are being eaten by antelope.

Sparaxis tricolor (Schneev.) Ker Gawl.
Plate 29
Status: VU D2
P. Goldblatt & D. Raimondo
Distribution: NC. Bokkeveld Plateau.
Habitat: Tillite-sandstone transition soils in seasonally moist sites.
Rationale: AOO <5 km². Known from three locations. It has lost habitat to wheat cultivation in the past. Although not currently declining, it remains potentially threatened by crop cultivation.
Syringodea Hook.f.

Syringodea derustensis M.P.de Vos

Status: VU B1ab(ii,iii,iv,v)

J.H. Vlok & D. Raimondo

Distribution: WC. Dysseldorp to De Rust.

Habitat: Stony hills in succulent karoo vegetation.

Rationale: A range-restricted species (EOO 400 km²) known from fewer than 10 locations. It has experienced past loss to urban expansion and crop cultivation around De Rust and to dam construction in Dysseldorp. Decline is ongoing as a result of informal housing expansion around De Rust. This species is also potentially threatened by ostrich farming.

Syringodea flanaganii Baker

Status: DDD

J.E. Victor

Distribution: EC. Gonubie Hill and Komga.

Habitat: Unknown.

Rationale: Poorly known; all collections made before 1933. Its distribution, habitat and population status are all unknown.

Syringodea pulchella Hook.f.

Status: Rare

J.E. Victor

Distribution: EC. Sneeuwberg Mountains.

Habitat: Karoo Escarpment Grassland.

Rationale: A range-restricted species (EOO < 200 km²), known from one extended subpopulation. It has lost part of the subpopulation to road construction in the past. It is not currently declining.

Syringodea saxatilis M.P.de Vos

Status: VU B1ab(ii,iii,iv,v)

J.H. Vlok, R.C. Turner & D. Raimondo

Distribution: WC. Ladismith.

Habitat: Low rocky hills on shale.

Rationale: EOO 300 km². Known from a collection on Ladismith commonage which is declining and currently has less than 50 plants, and from a second collection from the foothills of Anysberg in an area that is not threatened. It is likely that quite a few more subpopulations exist as this is a small, cryptic, autumn-flowering species. We suspect that there are 5–10 locations. Habitat is being lost to crop cultivation and urban and industrial development.

Thereianthus G.J.Lewis

Thereianthus longicollis (Schltr.) G.J.Lewis

Status: Rare

N.A. Helme & D. Raimondo

Distribution: WC. Winterhoek Mountains to Tulbagh Waterfall and possibly Wemmershoek.

Habitat: Rocky sandstone slopes.

Rationale: A range-restricted species (EOO < 450 km²) known from five subpopulations. Occurs within protected areas and is not threatened.

Thereianthus montanus J.C.Manning & Goldblatt

Status: Critically Rare

N.A. Helme & D. Raimondo

Distribution: WC. Rivieronderend Mountains.

Habitat: Steep, south-facing slopes at 1 500 m, in short, grassy fynbos.

Rationale: Known from one subpopulation within a reserve. Not threatened.

Thereianthus racemosus (Klatt) G.J.Lewis

Status: Rare

N.A. Helme & D. Raimondo

Distribution: WC. Piketberg to Porterville Mountains.

Habitat: Rocky sandstone slopes.

Rationale: A range-restricted species (EOO < 258 km²) known from two subpopulations. Not threatened because of the inaccessibility of its habitat.

Tritonia Ker Gawl.

Tritonia atrorubens (N.E.Br.) L.Bolus

Status: DDD

D. Raimondo

Distribution: EC. Komga to Kei Mouth.

Habitat: Low-altitude grasslands.

Rationale: A poorly known species last collected in 1903. Old herbarium records indicate that it occurred in heavily populated areas of the former Transkei in the Eastern Cape. It is highly likely to be threatened by afforestation, overgrazing by livestock and associated soil erosion.

Tritonia delpierrei M.P.de Vos

Status: VU D2

P. Goldblatt, J.C. Manning, J.E. Victor & R.C. Turner

Distribution: NC. Richtersveld.

Habitat: Loamy slopes with scattered quartzite.

Rationale: Known from fewer than five locations and potentially threatened by overgrazing by livestock.

Tritonia dubia Eckl. ex Klatt

Status: NT B1ab(ii,iii,iv,v)

D. Raimondo

Distribution: EC. Humansdorp to Port Elizabeth.

Habitat: Clay slopes in renosterveld.

Rationale: Known from 12 locations in a restricted area of 770 km² between Port Elizabeth, Uitenhage and Jeffreys Bay. It has lost > 50% of its habitat to urban expansion and crop cultivation over the past 150 years and these threats are ongoing. In addition, invasion by alien plants is causing ongoing degradation to remaining habitat.

Tritonia flabellifolia (D.Delaroche) G.J.Lewis var. thomasiae M.P.de Vos

Status: CR PE

P. Goldblatt, J.C. Manning, K. Naidoo & R.C. Turner

Distribution: WC. Roggeveld to Prince Albert and NC WC. Roggeveld to Prince Albert and NC WC. Roggeveld to Prince Albert and NC WC. Roggeveld to Prince Albert and NC WC. Roggeveld to Prince Albert.

Habitat: Aeolian sands.

Rationale: Known from one site in the Bot River vicinity that has been transformed by invasive alien plants and crop cultivation, this taxon has not been collected since 1968 and is possibly extinct.

Tritonia florentiae (Marloth) Goldblatt

Status: Rare

P. Goldblatt, J.C. Manning, K. Naidoo & R.C. Turner

Distribution: NC WC. Roggeveld to Prince Albert and NC WC. Roggeveld to Prince Albert.

Habitat: In a variety of vegetation types on dry stony clay flats.

Rationale: Known from nine sites, this species occurs as small subpopulations and is always scarce where found.
**Tritonia kamisbergensis** Klatt

**Status:** Rare

J.E. Victor, K. Naidoo & R.C. Turner

**Distribution:** NC. Namaqualand, Kamiesberg.

**Habitat:** Rock fissures in granite outcrops.

**Rationale:** A range-restricted species (EOO < 50 km²), known from three sites but it flowers at an unusual time of year, so more subpopulations are likely to exist. Its habitat is not threatened.

**Tritonia lancea** (Thunb.) N.E.Br.

**Status:** EN B1ab(iii)

R.C. Turner, P.A. Manyama & D.A. Kamundi

**Distribution:** WC. Piketberg.

**Habitat:** Sandstone slopes and plateaus.

**Rationale:** A Piketberg endemic (EOO < 75 km²) known from two locations where it is threatened by fruit and protea orchards on the plateau and by invasive alien pines on the slopes.

**Tritonia pallida** Ker Gawl. subsp. taylorae (L.Bolus) M.de Vos

**Status:** VU B1ab(ii,iii,iv,v)

R.C. Turner & D. Raimondo

**Distribution:** WC. Montagu to Ladismith and Caledon to Riversdale.

**Habitat:** Gentle hill slopes.

**Rationale:** EOO 6 300 km². Known from seven locations. It is potentially extinct at three locations as a result of ongoing expansion of orchards and vineyards. It is likely that a few more subpopulations exist, but we estimate that there are fewer than 10 locations.

**Tritonia securigera** (Aiton) Ker Gawl. subsp. watermeyeri (L.Bolus) J.C.Manning & Goldblatt

**Status:** Rare

P. Goldblatt, J.C. Manning, K. Naidoo & R.C. Turner

**Distribution:** WC. Montagu to Barrydale to Anysberg.

**Habitat:** Stony clay flats and lower slopes in succulent karoo.

**Rationale:** EOO 2 070 km². Known from fewer than 10 sites. A naturally rare taxon that occurs as localised subpopulations with few individuals. A small proportion of habitat (less than 10%) has been lost to crop cultivation, but most of the habitat is not threatened.

**Tritonia squalida** (Aiton) Ker Gawl.

**Status:** NT B1ab(ii,iii,v)

D. Raimondo

**Distribution:** WC. Riversdale to Albertinia and Still Bay.

**Habitat:** Limestone outcrops and calcareous sands.

**Rationale:** EOO < 500 km². Known from less than 20 locations. Declining as a result of agricultural activities around Albertinia and dense encroachment from invasive alien acacias throughout its range. There is also a slow but continuing decline as a result of urban expansion around Albertinia and Still Bay.

**Trioniopsis L. Bolus**

**T. bicolor** J.C.Manning & Goldblatt

**Status:** VU B1ab(ii,iii)

P. Goldblatt, J.C. Manning, D. Raimondo & R.C. Turner

**Distribution:** WC. Bredasdorp Mountains.

**Habitat:** Mountain plateaus in seasonally waterlogged flats, growing in deep, humic clay.

**Rationale:** EOO 120 km². Known from fewer than 10 locations. Threatened by expanding vineyards and invasive alien plants.

**Trioniopsis caledonensis** (R.C.Foster) G.J.Lewis

**Status:** VU B1ab(iii)

D. Raimondo & R.C. Turner

**Distribution:** WC. Houwhoek to Shaw’s Mountain.

**Habitat:** Rocky sandstone slopes.

**Rationale:** EOO 1 051 km². Known from six locations. It has lost habitat to afforestation in the past and occurs mostly at low to medium altitudes in areas threatened by invasive alien plants.

**Trioniopsis elongata** (L.Bolus) G.J.Lewis

**Status:** VU B1ab(ii,iii,iv,v); C2a(i)

D. Raimondo, P. Goldblatt & J.C. Manning

**Distribution:** WC. Elandsberg Mountains to Caledon.

**Habitat:** Sandy loam at low elevations.

**Rationale:** EOO 3 613 km². Known from 10 severely fragmented subpopulations. All subpopulations are small and most occur on tiny, isolated fragments. No subpopulation has more than 100 plants. Declining as a result of crop cultivation and urban expansion around Paarl and Wellington.

**Trioniopsis flava** J.C.Manning & Goldblatt

**Status:** Critically Rare

P. Goldblatt, J.C. Manning, L. von Staden & D. Raimondo

**Distribution:** WC. Kogelberg.

**Habitat:** Seasonally damp soils along a stream.

**Rationale:** This enigmatic species is known from a single collection made during a survey of the flora of the Kogelberg Biosphere Reserve in 1999. The plants appeared along a small tributary of the Palmiet River following a fire and have not been recorded since. The vegetation across the Palmiet River burnt in the summer of 2000 but several visits to apparently similar streams opposite the original site failed to locate it.

**Trioniopsis flexuosa** (L.f.) G.J.Lewis

**Status:** EN B1ab(ii,iii,iv,v)

P. Goldblatt, J.C. Manning, K. Naidoo & R.C. Turner

**Distribution:** WC. Shaw’s Mountain to Agulhas Plain.

**Habitat:** Hard, ferruginous, gravelly soil with clay in renosterveld.

**Rationale:** EOO 434 km². Known from three locations at the base of Shaw’s and Bredasdorp Mountains. Declining as a result of crop cultivation and invasion by alien plants.

**Trioniopsis latifolia** G.J.Lewis

**Status:** Rare

J.C. Manning, K. Naidoo & R.C. Turner

**Distribution:** WC. Northern Cederberg Mountains.

**Habitat:** Rocky sandstone slopes.

**Rationale:** A range-restricted species (EOO 20 km²) known from two subpopulations. Not threatened as it occurs within a protected area.

**Trioniopsis leslei** L.Bolus

**Status:** Rare

D. Raimondo, R.C. Turner & P.A. Manyama

**Distribution:** WC. Skurweberg.

**Habitat:** Marshy ground near streams on lower mountain slopes.

**Rationale:** Known from two sites on the lower slopes of the mountains northwest of Ceres (EOO 24 km²). Not threatened as it occurs in a nonarable habitat.
**Watsonia amabilis** Goldblatt

**Status:** Rare

**D. Raimondo & R.C. Turner**

**Distribution:** WC. Kleinrivier Mountains, near Hermanus.

**Habitat:** Seepage zones on peaty sandstone soil, 425 m.

**Rationale:** Known from the Vogelgat Nature Reserve (EOO < 2 km²). It blooms only after fire. Not threatened.

**Watsonia dubia** Eckl. ex Klatt

**Status:** EN D

**L. Potter, J.E. Victor & R.C. Turner**

**Distribution:** WC. Citrusdal to Wellington.

**Habitat:** Granite and clay on lowland slopes in renosterveld.

**Rationale:** This Northern Swartland endemic has lost over 80% of its habitat to crop cultivation, dam construction and afforestation. The remaining site, discovered in 1997, is on the top of the Stettynsberg where we estimate there are less than 250 mature individuals.

**Watsonia dubia** Eckl. ex Klatt

**Status:** EN D

**L. Potter, J.E. Victor & R.C. Turner**

**Distribution:** WC. Citrusdal to Wellington.

**Habitat:** Granite and clay on lowland slopes in renosterveld.

**Rationale:** This Northern Swartland endemic has lost over 80% of its habitat to crop cultivation, dam construction and afforestation. The remaining site, discovered in 1997, is on the top of the Stettynsberg where we estimate there are less than 250 mature individuals.

**Watsonia elsiae** Goldblatt

**Status:** VU D2

**L. Potter, J.E. Victor & R.C. Turner**

**Distribution:** WC. Uniondale to Joubertina.

**Habitat:** Arid fynbos slopes.

**Rationale:** Three known locations are potentially threatened by invading alien plants.

**Watsonia elatroides** (Burm.f.) Ker Gawl.

**Status:** NT A2cb

**N.A. Helme & D. Raimondo**

**Distribution:** WC. Bot River to Knysna and Uniondale.

**Habitat:** Clay flats.

**Rationale:** A widely distributed species (EOO 21 600 km²) occurring on clay soils throughout the Overberg, the Riversdale Plain, the Little Karoo and Upper Breede River Valley. It has lost habitat throughout its range to crop cultivation (> 70% over the past 80 years). At least 50% of the 112 known subpopulations has been lost to crop cultivation. It is still found on renosterveld fragments in the Overberg. We suspect that at least 25% of its habitat has been lost over the past 30 years, corresponding to three generations (generation length 10–15 years). There is a linear relationship between habitat availability and the number of subpopulations of this species.

**Watsonia amatolae** Goldblatt

**Status:** Rare

**F. Cholo & D. Raimondo**

**Distribution:** EC. Amathole Mountains.

**Habitat:** Wet, sometimes rocky sites and in montane grassland.

**Rationale:** A range-restricted species (EOO 417 km²) from the Amathole Mountains of the Eastern Cape, extends from the Katberg and Gaika’s Kop in the west to Hogshack and Dohne Mountains in the east. Known from five collections and not threatened.

**Watsonia amabilis** Goldblatt

**Status:** Rare

**D. Raimondo & R.C. Turner**

**Distribution:** WC. Kleinrivier Mountains, near Hermanus.

**Habitat:** Seepage zones on peaty sandstone soil, 425 m.

**Rationale:** Known from the Vogelgat Nature Reserve (EOO < 2 km²). It blooms only after fire. Not threatened.

**Watsonia dubia** Eckl. ex Klatt

**Status:** EN D

**L. Potter, J.E. Victor & R.C. Turner**

**Distribution:** WC. Citrusdal to Wellington.

**Habitat:** Granite and clay on lowland slopes in renosterveld.

**Rationale:** This Northern Swartland endemic has lost over 80% of its habitat to crop cultivation, dam construction and afforestation. The remaining site, discovered in 1997, is on the top of the Stettynsberg where we estimate there are less than 250 mature individuals.

**Watsonia dubia** Eckl. ex Klatt

**Status:** EN D

**L. Potter, J.E. Victor & R.C. Turner**

**Distribution:** WC. Citrusdal to Wellington.

**Habitat:** Granite and clay on lowland slopes in renosterveld.

**Rationale:** This Northern Swartland endemic has lost over 80% of its habitat to crop cultivation, dam construction and afforestation. The remaining site, discovered in 1997, is on the top of the Stettynsberg where we estimate there are less than 250 mature individuals.

**Watsonia elatroides** (Burm.f.) Ker Gawl.

**Status:** NT A2cb

**N.A. Helme & D. Raimondo**

**Distribution:** WC. Bot River to Knysna and Uniondale.

**Habitat:** Clay flats.

**Rationale:** A widely distributed species (EOO 21 600 km²) occurring on clay soils throughout the Overberg, the Riversdale Plain, the Little Karoo and Upper Breede River Valley. It has lost habitat throughout its range to crop cultivation (> 70% over the past 80 years). At least 50% of the 112 known subpopulations has been lost to crop cultivation. It is still found on renosterveld fragments in the Overberg. We suspect that at least 25% of its habitat has been lost over the past 30 years, corresponding to three generations (generation length 10–15 years). There is a linear relationship between habitat availability and the number of subpopulations of this species.

**Watsonia amabilis** Goldblatt

**Status:** Rare

**D. Raimondo & R.C. Turner**

**Distribution:** WC. Kleinrivier Mountains, near Hermanus.

**Habitat:** Seepage zones on peaty sandstone soil, 425 m.

**Rationale:** Known from the Vogelgat Nature Reserve (EOO < 2 km²). It blooms only after fire. Not threatened.

**Watsonia dubia** Eckl. ex Klatt

**Status:** EN D

**L. Potter, J.E. Victor & R.C. Turner**

**Distribution:** WC. Citrusdal to Wellington.

**Habitat:** Granite and clay on lowland slopes in renosterveld.

**Rationale:** This Northern Swartland endemic has lost over 80% of its habitat to crop cultivation, dam construction and afforestation. The remaining site, discovered in 1997, is on the top of the Stettynsberg where we estimate there are less than 250 mature individuals.

**Watsonia amabilis** Goldblatt

**Status:** Rare

**D. Raimondo & R.C. Turner**

**Distribution:** WC. Kleinrivier Mountains, near Hermanus.

**Habitat:** Seepage zones on peaty sandstone soil, 425 m.

**Rationale:** Known from the Vogelgat Nature Reserve (EOO < 2 km²). It blooms only after fire. Not threatened.

**Watsonia dubia** Eckl. ex Klatt

**Status:** EN D

**L. Potter, J.E. Victor & R.C. Turner**

**Distribution:** WC. Citrusdal to Wellington.

**Habitat:** Granite and clay on lowland slopes in renosterveld.

**Rationale:** This Northern Swartland endemic has lost over 80% of its habitat to crop cultivation, dam construction and afforestation. The remaining site, discovered in 1997, is on the top of the Stettynsberg where we estimate there are less than 250 mature individuals.

**Watsonia elsiae** Goldblatt

**Status:** VU D2

**L. Potter, J.E. Victor & R.C. Turner**

**Distribution:** WC. Uniondale to Joubertina.

**Habitat:** Arid fynbos slopes.

**Rationale:** Three known locations are potentially threatened by invading alien plants.
Watsonia emiliae L. Bolus
Status: Rare
J.E. Victor, P. Goldblatt & K. Naidoo
Distribution: WC. Swartberg and Langeberg Mountains.
Habitat: Rocky sandstone slopes at high altitudes.
Rationale: A range-restricted (EOO 400 km²), relatively poorly known species that flowers only after fire. It is currently known from only two sites. Both fall within protected areas and this species is not suspected to be threatened.

Watsonia fergusoniae L. Bolus Plate 25
Status: VU B1ab(ii,iii,iv)
P. Goldblatt, J.C. Manning, K. Naidoo & R.C. Turner
Distribution: WC. Agulhas Plain to Gourits River.
Habitat: Shallow pockets of sandy soil between limestone boulders.
Rationale: EOO 2 498 km². Known from fewer than 10 locations. Declining as a result of crop cultivation and invasion by alien plants.

Watsonia humilis Mill.
Status: CR B1ab(iii,v); C2a(i,ii); D
P. Goldblatt, J.C. Manning & D. Raimondo
Distribution: WC. Malmsbury to Gordon’s Bay.
Habitat: Seasonally wet sandy flats and slopes.
Rationale: Only one subpopulation remains in an area of 9 ha. It has experienced severe declines as a result of crop cultivation and the urban expansion of Cape Town, Stellenbosch, Somerset West and Gordon’s Bay. This last remaining location is being severely degraded by invasive alien grasses and acacias and too frequent fires. There are less than 50 extant mature individuals.

Watsonia hysterantha J.W. Mathews & L. Bolus Plate 25
Status: NT D2
P. Goldblatt, J.C. Manning & D. Raimondo
Distribution: WC. Saldanha to Langebaan.
Habitat: Coastal granite outcrops.
Rationale: This species is known from eight locations and is potentially threatened by urban and industrial development.

Watsonia inclinata Goldblatt
Status: VU D2
D. Raimondo
Distribution: EC KZN. Umtamvuna River to Mkweni River. Old herbarium records may indicate occurrence near Kokstad.
Habitat: Low, open and often stony grassland on Mskaba Formation Sandstone.
Rationale: Known from fewer than five locations and potentially threatened by crop cultivation and overgrazing by livestock at locations outside reserves.

Watsonia minima Goldblatt
Status: VU D2
N.A. Helme
Distribution: WC. Riviersonderend Mountains.
Habitat: Marshy montane fynbos slopes.
Rationale: Known from one location. Potentially threatened by encroachment from invasive alien pines.

Watsonia mtamvunae Goldblatt Plate 25
Status: VU D2
D. Raimondo & L. von Staden
Habitat: Pondoland coastal grassland, Mskaba Formation Sandstone, near, but not in seepage sites.
Rationale: EOO 190 km². Known from 3–6 subpopulations. A rare species that occurs as single or scattered individuals within a specialised habitat. AOO estimated < 20 km². Known from within the Umtamvuna Nature Reserve, but quite likely occurred at least within the immediate surrounding areas in the past, now extensively transformed by agriculture and timber plantations. The former range and timing of declines are unknown and this species cannot be listed using Criterion A. Although the population is protected from further habitat destruction, a potential threat stems from excessive extraction of water by gum plantations outside the reserve boundaries affecting its moist seepage habitats.

Watsonia pondoensis Goldblatt
Status: EN B1ab(iii)
C.R. Scott-Shaw, J.E. Victor & L. von Staden
Habitat: Pondoland coastal grassland, Mskaba Formation Sandstone, in standing water of permanent vleis.
Rationale: EOO 129 km². Known from two subpopulations. One subpopulation is protected in the Umtamvuna Nature Reserve, the other from a herbarium collection made in 1956. Although the Pondoland region south of the Umtamvuna River is quite poorly explored, this species has not been recorded at some well-collected sites such as Mkambati Nature Reserve and around Port St Johns, and it is therefore considered extremely rare and appears to be restricted to a rare, specialised habitat. Although there may be other unknown subpopulations, it is estimated that there are no more than five. There is ongoing decline in the quality of habitat outside protected areas as a result of overgrazing by livestock, too frequent fires and crop cultivation.

Watsonia rogersii L. Bolus Plate 25
Status: NT B1ab(ii,iii)
D. Raimondo & R.C. Turner
Habitat: Lower slopes or flats at the foot of mountains in rocky sand or clay.
Rationale: EOO 4 700 km². Known from 10 locations but suspected to occur at a few more. Four of the 10 known locations are within reserves, but subpopulations outside the reserves are still declining as a result of invasion by alien plants and urban and agricultural development. This species occurs only on shale bands, a habitat that is particularly threatened by aliens and agriculture.

Watsonia rourkei Goldblatt
Status: Critically Rare
P. Goldblatt, J.C. Manning, L. von Staden & R.C. Turner
Distribution: NC.Namaqualand, Kamiesberg.
Habitat: Seasonal watercourses in montane renosterveld, 600 m.
Rationale: Known from one subpopulation that has no current threats.
Watsonia strictiflora Ker Gawl.  
Status: CR B1ab(iii)+2ab(iii)  
D. Raimondo & R.C. Turner  
Distribution: WC. Klipmuts to Joostenberg and Paarl.  
Habitat: Clay flats.  
Rationale: EOO 20 km², AOO < 2 km². Known from two severely fragmented subpopulations. It has lost 98% of its habitat to vineyard and wheat cultivation and urban expansion over the past 200 years. Declining in habitat quality owing to invasion by alien plants and potentially threatened by urban expansion.

Watsonia versfeldii J.W.Mathews & L.Bolus  
Status: NT B1ab(ii,iii)  
P. Goldblatt, J.C. Manning, K. Naidoo & R.C. Turner  
Distribution: WC. Piketberg and Porterville Mountains.  
Habitat: Open, stony slopes and plateaus.  
Rationale: EOO 1 250 km². Known from less than 15 locations. Some Piketberg subpopulations are experiencing ongoing habitat loss to protea and fruit cultivation.

Witsenia Thunb.  
Witsenia maura Thunb.  
Status: Declining  
J.C. Manning, D. Raimondo & K. Naidoo  
Distribution: WC. Southern Cape Peninsula through the Hottentots Holland and Kogelberg to the eastern end of the Riviersonderend Mountains.  
Habitat: Marshy fynbos, occurring mostly at low elevations.  
Rationale: EOO 3 500 km² known from more than 35 sites. Decline due to coastal development, incorrect fire regime and invasive alien plants is ongoing.

Xenoscapa (Goldblatt) Goldblatt & J.C.Manning  
Xenoscapa uliginosa Goldblatt & J.C.Manning  
Status: Critically Rare  
P. Goldblatt & L. von Staden  
Distribution: NC. Namaqualand, Kamiesberg.  
Habitat: Wet crevices of huge granite boulders, wedged between damp, shady overhangs.  
Rationale: Known from one subpopulation. Occurs in a very specific habitat that is nonarable and inaccessible to livestock and therefore not threatened.

JUNCACEAE

Juncus L.  
Juncus obliquus Adamson  
Status: DDD  
J.E. Victor  
Distribution: WC. Kouebokkeveld Mountains.  
Habitat: Streamsides.  
Rationale: A poorly known species recorded from one site in 1940. Not enough is known about the range and population size of this species to determine its conservation status.

LEMNACEAE

Wolffiella (Hegelm.) Hegelm.  
Wolffiella denticulata (Hegelm.) Hegelm.  
Status: VU D2  
C.R. Scott-Shaw & L. von Staden  
Distribution: KZN. Northern KwaZulu-Natal between Mtunzini and Kosi Bay and in Mozambique.

Habitat: Floating in coastal freshwater marshes, lakes or slow-moving streams.  
Rationale: Known from four locations. Potentially threatened by habitat degradation caused by extraction of water, pollution and urban development.

ORCHIDACEAE

Acrolophia (Lindl.) Pfister  
Acrolophia barbata (Thunb.) H.P.Linder  
Status: EN B1ab(ii,iii,v); D  
J.H. Vlok & D. Raimondo  
Distribution: WC. Swellendam to Kouga Mountains.  
Habitat: Mesic fynbos from sea level to 750 m.  
Rationale: EOO 4 260 km². Extant at fewer than five locations. Declining because of invasive alien plant encroachment. Subpopulations are typically small and the total population is suspected to consist of less than 250 mature individuals.

Acrolophia bolusii Rolfe  
Status: VU B1ab(ii,iii,v)  
H. Kurzweil & D. Raimondo  
Distribution: WC. Hopefield to Bredasdorp.  
Habitat: Coastal sandy flats, usually below 50 m.  
Rationale: EOO < 18 200 km². Fewer than 10 known locations continue to decline owing to invasion by alien plants.

Acrolophia ustulata (Bolus) Schlr. & Bolus  
Plate 31  
Status: VU D1+2  
J.H. Vlok & D. Raimondo  
Distribution: WC. Cape Peninsula to Robinson Pass.  
Habitat: Arid fynbos on rocky acidic sandstone-derived soil.  
Rationale: This species appears to be highly sensitive to fire intensity and has been lost from a number of known sites owing to incorrect fire intensity. It is known from five locations, which all have small subpopulations. The total population is estimated to be 1 000 mature individuals. Although not currently declining, it remains potentially threatened by a deleterious fire regime and harvesting for horticultural purposes.

Angraecum Bory  
Angraecum stella-africana P.J.Cribb  
Plate 34  
Status: Rare  
H. Kurzweil & J.E. Victor  
Distribution: LM. Rare in South Africa, where it is known from the Wolkeberg Mountains. Also occurs in Malawi and Zimbabwe.  
Habitat: woodland, rarely riverine forest 1 250–1 500 m.  
Rationale: This species is extremely rare throughout its known range in southern Africa. In South Africa the known sites are inaccessible in a protected wilderness area and not threatened.

Ansellia Lindl.  
Ansellia africana Lindl.  
Status: Declining  
Distribution: KZN LM MP. Widespread in tropical Africa, in South Africa confined to northern KwaZulu-Natal and Mpumalanga and Limpopo lowveld.
**ANGIOSPERMS: MONOCOTYLEDONS**

**Ceratandra venosa** (Lindl.) Schltr.
- **Status:** NT D2
- **Habitat:** Known from six locations. Potentially threatened by crop cultivation, invasive alien plants and loss of specialist pollinators.

**Bonatea Willd.**

**Bonatea lamprophylly J.L.Stewart**
- **Status:** VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
- **Distribution:** KZN. Northern Kwazulu-Natal, from Richards Bay northwards. Also occurs in southern Mozambique.

**Corycium Sw.**

**Corycium bifidum** Sond.
- **Status:** CR C2a(ii,iii,iv,v)
- **Distribution:** WC. Kogelberg to Pearly Beach.

**Corycium microglossum** Lindl.
- **Status:** CR A3c; B1ab(iv,v)+2ab(iv,v); C2a(i,ii); D L. von Staden, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

**Corycium tricuspidatum** Bolus
- **Status:** DDD
- **Distribution:** EC KZN. Montane grasslands of the Eastern Cape, Lesotho and KwaZulu-Natal.

**Cynorkis Thouars**

**Cynorkis compacta** (Rchb.f.) Rolfe
- **Status:** VU B1ab(ii,iii,iv,v)
- **Distribution:** KZN. Karkloof to the sandstone plateau between Pietermaritzburg and Durban.

**Rationale:** Like most lowland Cape species, it has declined owing to habitat destruction in the past. It is hard to quantify the extent of the decline as this species is extremely rare and flowers only sporadically after fire. There are currently only two known subpopulations, one with 10 mature individuals, the other with around 30. Declining as a result of alien plant infestation at one of the sites.
**Diaphananthe** Schltr.

**Diaphananthe millarii** (Bolus) H.P.Linder

*Status: VU B1ab(iii,v)*


*Distribution:* EC KZN. East London and Durban.

**Habitat:** Scarps and cliffs. It is a low-level epiphyte in kloof forests and dry scrub, usually in light shade on the underside of branches, 300–700 m.

**Rationale:** Known from one location. Potentially threatened by mining.

**Disa** P.J.Bergius

**Disa alticola** H.P.Linder

*Status: VU D2*

J.E. Victor, D. McMurtry, L. Grobler & S. Burns

*Distribution:* KZN. Mtunzini.

**Habitat:** Coastal dune forest, grows in leaf litter on forest floor.

**Rationale:** Known from five locations in high mountains around Sabie and Lydenburg. Potentially threatened by overgrazing and trampling.

**Disa amoena** H.P.Linder

*Status: VU D2*

D. McMurtry, L. Grobler, S. Burns & L. von Staden

*Distribution:* MP. Lydenburg, between Mauchsburg and Mount Anderson.

**Habitat:** Well-drained gravelly soil, gentle to moderate slopes, in fairly short grassland, and on mountain plateaus.

**Rationale:** Known from a very small area (EOO 34.3 km², AOO < 20 km²) where it is quite abundant. Potentially threatened by afforestation, infrastructure development and invasion by alien plants.

**Disa arida** Vlok

*Status: EN B1ab(ii,iii,v)*

L. von Staden, D. Raimondo, W.R. Liltved & S.D. Johnson

*Distribution:* WC. Outeniqua, Rooiberg and Gamka Mountains.

**Habitat:** Soil pockets or crevices in rocky outcrops of Table Mountain Sandstone on steep south-facing slopes, in arid fynbos.

**Rationale:** EOO 1 295 km². Known from four locations, one of which has been lost as a result of severe infestations of alien species of *Hakea*. The remaining three locations are declining because of a deleterious fire regime and spreading dense stands of hakeas.

**Disa aristata** H.P.Linder

*Status: VU D2*

D. McMurtry, L. Grobler, J. Grobler, S. Burns & L. von Staden

*Distribution:* LM. Wolkberg Mountain and The Downs.

**Habitat:** Rock crevices on cliffs in mistbelt grassland, 1 500 m.

**Rationale:** EOO 25 km², AOO 1 km². Occurs on cliffs amidst extensive pine plantations. Although the habitat is unsuitable for the establishment of pine plantations and this species is therefore unlikely to have lost much habitat, cliffs are prone to invasion by escaping pine seedlings from surrounding plantations which may potentially threaten the two or three known existing locations.

**Disa atrorubens** Schltr.

*Status: VU B1ab(iii)*

L. von Staden, B. Bytebier, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

*Distribution:* WC. Cape Peninsula and Cape Hangklip to Nieuwoudtville.

**Habitat:** Seasonally wet areas on sandy flats, sea level to 1 000 m.

**Rationale:** Known from between six and ten locations. There is a continuing decline as a result of crop cultivation, urban expansion and encroachment by invasive alien plants.

**Disa aurata** (Bolus) L.Parker & Koop.

*Status: Rare*

B. Bytebier & J.E. Victor

*Distribution:* WC. Langeberg Mountains.

**Habitat:** Restricted to southern slopes and perennial watercourses along plateaus, 500–1 000 m.

**Rationale:** A Langeberg endemic (EOO < 500 km²) restricted to a specific habitat, perennial streams, this species has no significant threats.

**Disa barbata** (L.f.) Sw.

*Status: CR C2a(ii)*

L. von Staden, B. Bytebier, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

*Distribution:* WC. Malmesbury.

**Habitat:** Marshy areas on acid sand flats below 200 m.

**Rationale:** This species used to occur on the Cape Flats and on the Peninsula around Cape Town but has been lost as a result of urban development. It is now reduced to a single surviving subpopulation in the Malmesbury area. Annual monitoring between 2001 and 2006 indicated that there are ± 15 extant mature individuals of this species. Continuing decline is occurring because of invasion by alien acacias and loss of pollinators as a result of incorrect fire management.

**Disa begleyi** L.Bolus

*Status: Rare*

H. Kurzweil, B. Bytebier, W.R. Liltved & J.E. Victor

*Distribution:* WC. Jonkershoek and Elgin.

**Habitat:** Bare stony slopes at 1 200 m. Substrate consists of varying mixture of sand and peaty material.

**Rationale:** A range-restricted species (EOO < 500 km²), known from three subpopulations, this species has no recorded threats.
**Disa bodkinii** Bolus

**Status:** Rare

H. Kurzweil, B. Bytebier & J.E. Victor

**Distribution:** WC. Cape Peninsula to Riversdale.

**Habitat:** Rocky south-facing slopes and mountain summits on well-drained peaty sandstone soils.

**Rationale:** This montane species has been recorded only eight times. Its apparent scarcity may be due to its flowering only after fire. All herbarium records refer to subpopulations being small, consisting of a handful of plants. This indicates that the species is naturally scarce and has a low density of individuals.

**Disa brachyceras** Lindl.

**Status:** EN B1ab(i,iii,iv)

L. von Staden

**Distribution:** WC. Hex River to Riviersonderend Mountains.

**Habitat:** Fynbos and renosterveld, on mountain foothills, gravelly plains and alluvial flats, sandy and clay soils.

**Rationale:** EOO < 1 000 km². This lowland species has lost six of the nine recorded locations due to urban and agricultural development. It is known from three small locations in remnant vegetation. As this species is dependent on fire for flowering, it is declining because of lack of fire on remnants and habitat loss due to further crop cultivation.

**Disa cardinalis** H.P. Linder

**Status:** Rare

H. Kurzweil & J.E. Victor

**Distribution:** WC. Langeberg between Barrydale and Gourits River Gorge.

**Habitat:** Banks of perennial streams, north-facing mountain slopes, up to 600 m.

**Rationale:** A Langeberg endemic restricted to a specific habitat, perennial streams. No known threats.

**Disa cedarbergensis** H.P. Linder

**Status:** Critically Rare

L. von Staden & D. Raimondo

**Distribution:** WC. Cederberg.

**Habitat:** Black peaty soil, on the banks of a small stream, 2 000 m.

**Rationale:** A single plant was collected in 1987 on Sneeukop in the Cederberg, two years after a fire. It is thought that the species probably flowers only after fire and that more populations could be found once the habitat is burnt again; it has not been recorded again but is probably a naturally very rare species.

**Disa cephalotes** Rchb.f. subsp. frigida (Schltr.) H.P. Linder

**Status:** Rare

J.E. Victor

**Distribution:** KZN. Selhlabathebe to Mont-aux-Sources.

**Habitat:** Coarse basalt sand, in boggy soils, either in alpine grassland or high-altitude ericoid vegetation above 2 500 m.

**Rationale:** A high-altitude habitat specialist known from six subpopulations. No recorded threats.

**Disa cernua** (Thunb.) Sw.

**Status:** VU B2ab(ii,iii,iv,v)

L. von Staden, W.R. Liltved & H. Kurzweil

**Distribution:** EC WC. Cape Peninsula to Humansdorp.

**Disa clavicornis** H.P. Linder

**Status:** EN D

L. Grobler, D. McMurtry, S. Burns, J. Grobler & L. von Staden

**Distribution:** MP. Mount Anderson.

**Habitat:** Grasslands above 2 000 m, in well-drained soils between rocks and in marshy areas.

**Rationale:** Occurs as very small, scattered individuals within a limited area centred around Mount Anderson (EOO < 100 km²). Less than 250 mature individuals exist. It is potentially threatened by invasive alien plants and mining.

**Disa cochlearis** S.D. Johnson & Liltved

**Status:** Critically Rare

L. von Staden, W.R. Liltved & J.E. Victor

**Distribution:** WC. Elandsberg Mountain.

**Habitat:** South-facing slope, at interface between shale and quartzite. Soil sandy, rocky, in arid fynbos dominated by grasses, restios and ericoid shrubs.

**Rationale:** Discovered in 1997. Occurs in remote mountain range in the Little Karoo, only one site known. It has no recorded threats.

**Disa draconis** (L.f.) Sw.

**Status:** EN A3ce; B1ab(i,iii,iv,v)+2ab(ii,iii,iv,v)

L. von Staden, B. Bytebier & S.D. Johnson

**Distribution:** WC. Yzerfontein to Cape Peninsula.

**Habitat:** Well-drained, deep sandy soils up to 150 m in strandveld coastal scrub.

**Rationale:** EOO < 1 000 km², AOO < 100 km². A lowland West Coast species, known from five subpopulations. More than 80% of its habitat has been transformed over the past 100 years as a result of urban and agricultural development. Only two subpopulations are in reserves. The largest subpopulation, which constitutes over 50% of the individuals in the total population, is highly likely to be lost to urban development in the near future (eight years, three generations). Loss to coastal development and invading alien plants is ongoing.

**Disa ecalcarata** (G.J. Lewis) H.P. Linder

**Status:** DDD

L. von Staden

**Distribution:** WC. Cape Peninsula.

**Habitat:** Damp, rocky, north-facing slope, 450–600 m.

**Rationale:** Known from one plant collected in 1947 and never recorded again. It is not known whether this is a good species, an incidental aberrant form or a hybrid.

**Disa esterhuyseniae** Schelpe ex H.P. Linder

**Status:** Rare

L. von Staden, B. Bytebier, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

**Distribution:** WC. Franschhoek to the Cederberg.

**Habitat:** Damp, stony or gravelly slopes, 1 000–1 200 m.
**Disa extinctoria** Rchb.f.  
*Plate 33*

**Status:** NT B1ab(iii,iv)
J.E. Victor, D. McMurtry, L. Grobler & S. Burns

**Distribution:** LM MP, Swaziland to Tzaneen.

**Habitat:** Crest of the escarpment in damp grassland and swamps, 1 000–1 300 m.

**Rationale:** Known from seven subpopulations, this montane species has no recorded threats.

### Disa introrsa Kurzweil, Liltved & H.P. Linder

**Status:** Rare
L. von Staden, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

**Distribution:** WC. Skurweberge.

**Habitat:** Mountain slopes, near running water, 1 000–1 190 m.

**Rationale:** Recently described, rarely seen and dependent on fire for flowering, known from two subpopulations. It is very small and seems to occur only in very small subpopulations and so can easily be overlooked. More populations may exist, and the full extent of its distribution and total population size are unknown. Not threatened.

### Disa karooica S.D. Johnson & H.P. Linder

**Status:** VU D2
L. von Staden, B. Bytebier, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

**Distribution:** NC. Roggeveld Plateau to Kamiesberg.

**Habitat:** Granite and shale substrates in arid areas, up to 1 200 m.

**Rationale:** Known from five locations. Potentially threatened by overgrazing.

### Disa lineata Bolus

**Status:** Rare
J.E. Victor

**Distribution:** WC. Cederberg to Kleinrivier Mountains.

**Habitat:** Drier parts of southern mountain slopes and rock ledges that do not receive direct water runoff.

**Rationale:** A rare species growing as isolated plants and occasionally in small subpopulations, this species has no recorded threats.

### Disa longicornu L.f.

**Status:** VU B1ab(v)
L. von Staden

**Distribution:** WC. Table Mountain and Hottentots Holland Mountains.

**Habitat:** Grows among moist mosses on rock ledges and cliffs in partly shaded areas, near waterfalls or other permanent water sources, 600–1 000 m.

**Rationale:** Endemic to two mountains, EOO 895 km², AOO < 421 km². Known from seven locations. Declining as a result of harvesting for horticultural purposes at all locations.

### Disa longifolia Lindl.

**Status:** VU D2
L. von Staden

**Distribution:** WC. Piketberg to Outeniqua Mountains.

**Habitat:** Typically peaty margins of seasonal streams, but also occurs on well-drained, gravelly sandy soils on south-facing slopes, 450 to 1 520 m.

**Rationale:** A rare species known from fewer than five locations. It has experienced losses of subpopulations as a result of dam construction and agriculture in the past. Although not currently declining, this species is potentially threatened by invasive alien plants and wetland drainage.
Disa lugens Bolus var. lugens
Status: EN C2a(i)
L. von Staden, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

Distribution: EC WC. Cape Peninsula to Albertinia, Groot Swartberg, Kammanassie and Kouga Mountains, Caledon Valley, Humansdorp, Suurberg Mountains, Grahamstown, Somerset East and Cathcart.

Habitat: Variable, in acidic an alkaline sands, on coastal lowlands and mountain slopes and plateaus. Near coast often in association with restios.

Rationale: A wide distribution along the southeastern coastline. Subpopulations are scattered and typically small. The largest subpopulation (at Humansdorp) consists of only 100 plants. Others are generally less than 50 plants. Known from no more than 25 subpopulations, the population size is therefore estimated to be under 2 500 mature individuals. Undergoing a rapid decline along the Cape coast as a result of urban and coastal development and invasion by alien plants.

Disa lugens Bolus var. nigrescens (H.P. Linder)
H. P. Linder

Status: CR B1ab(ii,iii)+2ab(iii, v)
L. von Staden & W.R. Liltved

Distribution: EC. Oyster Bay near Humansdorp.
Habitat: Coastal dunes, in grassy fynbos.
Rationale: EOO and AOO < 5 km². Known from one location. Declining in habitat quality because of invasion by alien plants, and in the number of mature individuals because of illegal harvesting for the specialist horticultural trade.

Disa macrostachya (Lindl.) Bolus
Status: CR B1ab(ii,iii)+2ab(iii); C2a(i,ii); D
W.R. Liltved, N.A. Helme & J.E. Victor

Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Shallow, moist soils, on granitic ledges beside ephemeral streams, northeast-facing slopes.
Rationale: EOO, AOO < 1 km². A very rare species known from one subpopulation of 40–50 mature individuals. There is an ongoing degradation of its habitat because of overgrazing. It is also potentially threatened by drought events and soil erosion.

Disa maculomarronina McMurtry

Status: NT B2ab(iii)
J.E. Victor, D. McMurtry, L. Grobler & S. Burns

Distribution: KZN MP. KwaZulu-Natal Midlands and Graskop.
Habitat: Swamps, montane grassland on the edges of Black Reef Quartzite, 1 500–1 700 m.
Rationale: Specific to a specialised habitat (AOO < 10 km²), known from fewer than 10 locations, but suspected to occur at 10–15 locations. Declining as a result of afforestation and trampling and harvesting by tourists.

Disa marlothii Bolus
Status: Rare
W.R. Liltved, B. Byebier & J.E. Victor

Distribution: WC. Hex River Valley, Kouebokkeveld, central Cederberg and Tsitsikamma Mountains.
Habitat: Rocky places along streams, 600–1 300 m.
Rationale: Specific to stream sides, known from six widely disjunct subpopulations. Subpopulations are typically small, consisting of less than 20 plants. It has no recorded threats.

Disa minor (Sond.) Rchb.f.
Status: Rare
H. Kurzweil & J.E. Victor

Distribution: WC. Worcester, Ceres and Tulbagh.
Habitat: Margins of ephemeral watercourses, swampy mountain slopes, 1 000–2 000 m.
Rationale: A naturally rare, high-altitude, fire-dependent habitat specialist known from five subpopulations. Subpopulations are typically small, consisting of less than 20 plants. It has no known threats.

Disa montana Sond.
Status: VU D2
D. Raimondo & C.R. Scott-Shaw

Distribution: EC KZN. Ramatsiliso Gate to Elliot.
Habitat: Dry rocky grassland slopes, 1 000–2 400 m.
Rationale: A high-altitude species known from four disjunct locations. Potentially threatened by habitat degradation because of overgrazing and by future afforestation in the Eastern Cape.

Disa newdigateae L. Bolus
Status: CR PE
L. von Staden

Distribution: WC. Plettenberg Bay.
Habitat: Stony slopes near the coast, in short fynbos.
Rationale: Known from one subpopulation near the Crags, Plettenberg Bay, where six plants were collected between 1895 and 1931. It has not been recorded since. The area around the Crags is threatened by housing development and encroachment from invasive alien species, but since information on the precise site is not known, it is hard to say whether or not habitat destruction has led to the extinction of this species.

Disa nigribulboidea H.P. Linder
Status: CR D
B. Byebier, W.R. Liltved & J.E. Victor

Distribution: WC. Cape Peninsula.
Habitat: Peninsula Sandstone Fynbos, 1 000 m.
Rationale: Discovered by Peter Linder (Orchidaceae systematist) on the summit of a peak of Table Mountain, after a fire in 1997. In 2002 and 2003, the area was searched for more individuals after fire, but none were found. Less than 50 mature individuals were recorded after the 1997 fire. The biology of this species is still poorly understood.

Disa ocellata Bolus
Status: Rare
L. von Staden & H. Kurzweil

Distribution: WC. Table Mountain to Kammanassie.
Habitat: In moss banks or stony soil in the zone of the southeaster clouds 1 000–1 500 m.
Rationale: A rare species that occurs as small, disjunct subpopulations on mountain summits. No threats are known.

Disa oligantha Rchb.f.
Status: Rare
L. von Staden, B. Byebier, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

Distribution: WC. Table Mountain and Hottentots Holland Mountains.
Habitat: Stony soil, on sandstone slopes in montane fynbos, above 1 000 m.
**Rationale:** Restricted to the summits of the highest peaks on Table Mountain and the Hottentots Holland Mountains, east of Stellenbosch (EOO < 10 800 km²). Known from five subpopulations and has no known threats.

**Disa oreophila** Bolus subsp. *erecta* H.P.Linder  
**Status:** Rare  
J.E. Victor  
**Distribution:** EC KZN. Eastern Cape, KwaZulu-Natal and Lesotho Drakensberg mountain range.  
**Habitat:** Mostly grassland, rarely among rocks or on rocky ledges, on sandstone and basalt substrates, generally on or near seepages, 2 250–700 m.  
**Rationale:** A high-altitude habitat specialist, known from six widely scattered subpopulations. No known threats.

**Disa ovalifolia** Sond.  
**Status:** NT A4c; B1ab(iii)  
B. Bytebier, L. von Staden & J.E. Victor  
**Distribution:** WC. Montagu to Clanwilliam and Darling.  
**Habitat:** Seasonally wet, deep sandy soils, 400–1 300 m.  
**Rationale:** EOO 9 264 km². Known from 10–15 locations. Rooibos tea cultivation threatens the northern populations around the Nardous Pass, and 10% of its habitat has been transformed over the last 10 years. If this decline continues, it could reach 30% within three generations. However, rooibos tea cultivation only affects the northern parts of the range, where most collections have been made. We therefore predict an overall 25–30% decline in the total population over a moving time frame of three generations (30 years).

**Disa physodes** Sw.  
**Status:** CR C2a(ii)  
L. von Staden, B. Bytebier, W.R. Liltved, E.G.H. Oliver & T.A. Oliver  
**Distribution:** WC. Sir Lowry’s Pass to Cape Peninsula to Piketberg.  
**Habitat:** Well-drained soils at the interface between fynbos and renosterveld, on shales as well as sandstone, 0–1 000 m. Most records from below 200 m.  
**Rationale:** A predominantly lowland species that has lost most of its recorded sites to urban and agricultural development. Known from four subpopulations, all with less than 50 mature individuals. The total population is estimated to be under 250 mature individuals. Continuing declines due to habitat fragmentation as a result of agricultural transformation and associated decline in fire frequency (this species requires fire to flower), and invasion by alien plants.

**Disa procer a** H.P.Linder  
**Status:** CR D  
W.R. Liltved & J.E. Victor  
**Distribution:** WC. Sedgefield.  
**Habitat:** Fynbos, sand dunes.  
**Rationale:** A very rare species, known from a single subpopulation near Sedgefield with less than 50 mature individuals.

**Disa purpurascens** Bolus  
**Status:** NT B1ab(ii,iii,iv,y)  
L. von Staden, B. Bytebier, W.R. Liltved, E.G.H. Oliver & T.A. Oliver  
**Distribution:** WC. Cape Point to Still Bay.  
**Habitat:** Well-drained, sandy or rocky flats, 0–300 m. Occasionally on south-facing slopes.

**Disa pygmaea** Bolus  
**Status:** Rare  
L. von Staden, B. Bytebier, W.R. Liltved, E.G.H. Oliver & T.A. Oliver  
**Distribution:** WC. Cape Peninsula to Elim and Pilaarkop.  
**Habitat:** Sandy areas, flats and mountain slopes, up to 1 000 m.  
**Rationale:** Although lowland subpopulations of this species have declined in the past, it is now known from seven subpopulations. Enough subpopulations remain in protected mountain habitats and it is not expected to decline further. Subpopulations are typically small.

**Disa sabulosa** Bolus  
**Status:** CR B1ab(i,i,ii,iii,iv,y) + 2ab(i,i,ii,iii,iv,y)  
H. Kurzweil, J.E. Victor & B. Bytebier  
**Distribution:** EC KZN. Amathole and Winterberg Mountains and Sani Pass.  
**Habitat:** Montane grasslands, in seasonally damp sites.  
**Rationale:** A rare, high-altitude species known from six disjunct subpopulations. Subpopulations consist of a few mature individuals each. It has no known threats.

**Disa sankeyi** Rolfe  
**Status:** Rare  
H. Kurzweil & J.E. Victor  
**Distribution:** EC KZN. Drakensberg mountain range, from the Eastern Cape through Lesotho and KwaZulu-Natal to Swaziland.  
**Habitat:** Damp to dry grassland on basalt or sandstone, from 2 400–3 000 m.  
**Rationale:** Known from five widely distributed subpopulations. No known threats.

**Disa schizodioides** Sond.  
**Status:** Rare  
L. von Staden, B. Bytebier & D. Raimondo  
**Distribution:** WC. Langeberg near Riversdale.  
**Habitat:** Tall proteoid fynbos, on well-drained sandstone slopes, 300–1 000 m.  
**Rationale:** EOO < 10 800 km². Known from 10–13 locations. There is a continuing decline due to agriculture, coastal development and invasion by alien plants.
ANGIOSPERMS: MONOCOTYLEDONS

**Disa scullyi** Bolus

Status: EN A2ac; B2ab(i,ii,iii,iv,v); C2a(i)
L. von Staden, D. Raimondo, S.D. Johnson & B. Bytebier

**Distribution:** EC KZN. Amathole Mountains to KwaZulu-Natal Drakensberg foothills.

**Habitat:** Wetlands, seepages or stream edges in high-altitude grassland, 1 500–2 000 m.

**Rationale:** One of the rarest southern African orchids, recorded from only seven subpopulations, most (over 50%) of which have been extirpated by overgrazing and trampling by livestock over the past 20 years (generation length 7–10 years). AOO less than 100 km². We suspect that there are less than 1 000 mature individuals and that no extant subpopulation has more than 250 individuals. Decline due to overgrazing is continuing.

**Disa spathulata** (L.f.) Sw. subsp. **spathulata** Plate 32

**Status:** DDD
L. von Staden, B. Bytebier & D. Raimondo

**Distribution:** NC WC. From Nieuwoudtville southwards to Bredasdorp, eastwards to Touwsrivier.

**Habitat:** Fynbos and renosterveld, sandstone or shale soil. Subpopulations on clay soils occur on cooler south-facing slopes; sandstone habitats vary from well-drained to vlei margins.

**Rationale:** Surveys are urgently needed to determine how many subpopulations of this taxon remain. Herbarium collections indicate that it was quite common in the past, but it is rarely recorded nowadays because its renosterveld habitat has been extensively transformed for wheat cultivation. There are, however, no data to support a threatened assessment as this is a very wide-ranging taxon and very little population data are available. It is also a very variable taxon that may represent a species complex.

**Disa spathulata** (L.f.) Sw. subsp. **tripartita** (Lindl.) H.P.Linder

**Status:** EN A2c
J.H. Vlok & D. Raimondo

**Distribution:** EC WC. Uniondale and Worcester.

**Habitat:** Renosterveld on shale, 1 000 m.

**Rationale:** AOO 9 000 km². Only three of the seven recorded subpopulations are still extant, three have been lost to crop cultivation, and one for unknown reasons, possibly because of overgrazing by livestock. Loss has taken place over the past 60 years (generation length 20 years).

**Disa subtenuicornis** H.P.Linder

**Status:** Rare
B. Bytebier, W.R. Liltved, S.D. Johnson & J.E. Victor

**Distribution:** WC. Langeberg, near Riversdale.

**Habitat:** Damp, peaty soil, 700–1 200 m.

**Rationale:** A range-restricted species (EOO < 100 km²), known from two subpopulations. No recorded threats.

**Disa tenella** (L.f.) Sw. subsp. **pusilla** H.P.Linder

**Status:** Rare
L. von Staden

**Distribution:** WC. Mountains from Ceres to the Gifberg.

**Habitat:** Shady, damp areas in clay or sandy soils, 300–1 200 m.

**Rationale:** A habitat specialist, known from 10 subpopulations. No significant threats.

**Disa tenella** (L.f.) Sw. subsp. **tenella** Plate 33

**Status:** EN B1ab(iii,iv,v) + 2ab(iii,iv,v)
L. von Staden, I. Ebrahim, C. von Witt, B. Bytebier & W.R. Liltved

**Distribution:** WC. Cape Town, Stellenbosch and Hopfield.

**Habitat:** Damp, seasonally wet depressions in sand or clay, 0–200 m.

**Rationale:** AOO 2 300 km². Known from 3–5 locations. More than 50% of historical records (1950s and earlier) are from locations that have been lost to urban development. Declining as a result of agriculture and invasion by alien plants.

**Disa tenuis** Lindl.

**Status:** Rare
D. Raimondo & H. Kurzweil

**Distribution:** WC. Cape Peninsula and Betty’s Bay to Tulbagh and Franschhoek.

**Habitat:** Stony soil, well drained, occasionally on sandy flats, 0–1 000 m.

**Rationale:** Fairly widespread, occurs singly or in small subpopulations.

**Disa tysonii** Bolus

**Status:** Rare
J.E. Victor & C.R. Scott-Shaw

**Distribution:** EC KZN. Underberg, Tsehlanyana Valley (Lesotho), Hogsback, Dohne Peak and Port St Johns.

**Habitat:** Damp, rocky grasslands, 100–3 000 m.

**Rationale:** Although widespread (EOO > 20 000 km²), it is known from only six subpopulations. Two are in an area affected by afforestation but are not currently losing habitat. Monitored subpopulations are small, consisting of less than 50 individuals.

**Disa venusta** Bolus

**Status:** EN B1ab(ii,iii,iv,v)
L. von Staden & D. Raimondo

**Distribution:** WC. Cape Peninsula to Bredasdorp.

**Habitat:** Damp, sandy areas mostly below 450 m.

**Rationale:** EOO 2 000 km². Six of 11 recorded locations have been lost to urban development on the Cape Flats. Development of suburbs, and rapid coastal development around Betty’s Bay, Kleinmond and Hermanus are causing ongoing decline. This species is also threatened by invasive alien acacias.

**Disa vigilans** McMurtry, T.J.Edwards & B. Bytebier Plate 33

**Status:** EN D
D. McMurtry, S. Burns, L. Grobler & L. von Staden

**Distribution:** MP. Lydenburg.

**Habitat:** Northeastern mountain sourveld between Black Reef Quartzite boulders, at the edge of the escarpment in exposed, wind swept sites, 2 100–2 150 m.

**Rationale:** A recently described species, known from two subpopulations on the Drakensberg Escarpment near Lydenburg. Its habitat is extensively transformed by pine plantations, and both subpopulations occur in small, remnant grassland fragments in firebreaks between plantations. It has probably declined in the past, but since its discovery in 2000, it has not declined. Less than 120 mature individuals of this species are known.
Disa virginalis H.P.Linder
Status: Rare
J.E. Victor & B. Bytebier
Distribution: WC, Piketberg, Limietberg and Groot Winterhoek Mountains.
Habitat: South-facing rock ledges, 1 000 m.
Rationale: A habitat specialist known from three subpopulations. No recorded threats.

Disa zuluensis Rolfe
Plate 33
Status: EN B1ab(i,ii,iii,iv,v) + 2ab(i,ii,iii,iv,v)
L. von Staden, D. McMurtry, L. Grobler, S. Burns & J.E. Victor
Distribution: KZN MP, Dundee, Roossenekal and Dullstroom.
Habitat: Swammy areas, vleis in grassland, 1 500–2 000 m.
Rationale: EOO < 100 km², AOO < 10 km². Known from two locations. Mining is causing a continuing decline in habitat availability and quality as it affects the water table and therefore the quality of wetland habitats.

Disperis bolusiana Schltr. ex Bolus subsp. macrocorys (Rolfe) J.C.Manning
Status: Rare
J.E. Victor
Distribution: WC, Cederberg, Koudeberg and Pakhuis Mountains.
Habitat: Low renosterveld scrub, heavy, gravelly clay soil probably derived from shale.
Rationale: A range-restricted taxon (EOO 454 km²), known from six subpopulations. No recorded threats.

Disperis cucullata Sw.
Status: NT B1ab(i,ii,iii,iv,v)
L. von Staden
Distribution: WC. Western Cape lowlands from Citrusdal to Sir Lowry’s Pass.
Habitat: Sand Plain Fynbos and renosterveld, in seasonally damp areas on flats, 30–350 m.
Rationale: A formerly widespread and relatively common species that has suffered extensive habitat loss. Locally extinct on the Cape Peninsula. Only ± eight extant subpopulations have been recorded in the last 10 years, but there may be as many as 15 remaining, based on historical collections. Current EOO 7 800–11 780 km². Continuing to decline because of urban and agricultural expansion and invasion by alien plants.

Disperis johnstonii Rchb.f. ex Rolfe
Status: NT* D2
H. Kurzweil & J.E. Victor
Distribution: KZN. KwaZulu-Natal coast, also widespread in tropical Africa.
Habitat: Brachystegia woodland, forest patches, usually in shelter of rocks, 1 050–1 350 m.
Rationale: Known from fewer than five locations on the KwaZulu-Natal coast. Potentially threatened by coastal development, subsistence agriculture, informal settlements and invasion by alien plants. Downgraded to NT as orchids have effective long-distance dispersal, allowing colonisation from subpopulations that occur outside South Africa’s borders.

Disperis purpurata Rchb.f. subsp. pallescens Bruyns
Status: VU D2
L. von Staden, W.R. Liltved, E.G.H. Oliver & T.A. Oliver
Distribution: NC. Richtersveld.
Habitat: High altitudes in enclaves of Stinkfonteinberge Quartzite Fynbos. Often found alongside or under bushes of small Pteronia species.
Rationale: A range-restricted taxon (EOO 10 km²), known from two locations. Potentially threatened by grazing and trampling by livestock.

Disperis woodii Bolus
Status: Declining
H. Kurzweil & J.E. Victor
Distribution: EC KZN. Coastal Eastern Cape and KwaZulu-Natal.
Habitat: Damp grassland, usually sandy soils, sometimes within grass tussocks, from sea level to 800 m.
Rationale: EOO 42 700 km². Although widespread, its habitat in KwaZulu-Natal is threatened by urban expansion and sugarcane cultivation. This is a tiny orchid, plants are ± 15 cm high, and it is likely to be under-collected.

Eulophia R.Br. ex Lindl.

Eulophia chlorantha Schltr.
Status: DDD
J.E. Victor, D. McMurtry, L. Grobler & S. Burns
Distribution: MP. Northwestern Swaziland and adjacent area in Mpumalanga.
Habitat: Grassy places in bushveld.
Rationale: All herbarium records from Mpumalanga predate 1950. Not enough is known about the distribution, specific habitat or population status of this species within South Africa to determine its status.

Eulophia coddii A.V.Hall
Plate 34
Status: VU B1ab(ii); D1
M.F. Pfab & J.E. Victor
Distribution: G.L.M. Heidelberg, Magaliesberg and Waterberg.
Habitat: Steep slopes, growing on sandstone-derived soils in grassland or bushveld.
Rationale: Known from a restricted range (EOO 7 000–9 000 km²) and only five locations. Declining as a result of urban expansion in Gauteng. Total population size estimated to be 240–1 000 mature individuals.

Eulophia litoralis Schltr.
Status: EN B1ab(iii)
L. von Staden, W.R. Liltved, E.G.H. Oliver & T.A. Oliver
Distribution: WC. Kleinemond to Plettenberg Bay, Jonkershoek and Langeberg Mountains.
Habitat: Well-drained, coarse sandy soils or coastal dunes, typically near sea level, with inland populations occurring at altitudes of ± 360 m.
Rationale: EOO ± 2 000 km². Destruction of coastal fynbos habitats by urban expansion and invasion by the alien acacias along its entire distribution have resulted in the decline of subpopulations; it is now known from 3–5 locations. Decline is continuing.

Eulophia platypetala Lindl.
Status: VU A2c
J.H. Vlok & D. Raimondo
Distribution: EC WC. Riversdale to Port St Johns.
Plate 34

Habenaria culveri Rare

Eulophia coddii VU

Angraecum stella-africanae Rare

Schizochilus crenulatus VU

Holothrix randii NT

Hatteronia oreophila Rare

Habenaria kraenzliniana NT
Habenaria speciosa (R.Br. ex Lindl.) Bolus
Status: Declining
Distribution: EC KZN LM MP WC. Western Cape to tropical East Africa and Sudan.
Habitat: Occupies various habitats such as sand dunes, bushveld, thornveld and montane grasslands.
Rationale: Declines in wild subpopulations have been observed as a result of harvesting for the medicinal trade. It is common on muthi markets and we suspect an overall, continuing decline. It is still too common to list as NT.

Evotella Kurzweil & H.P.Linder
Evotella rubiginosa (Sond. ex Bolus) Kurzweil & H.P.Linder
Status: Rare
Distribution: WC. Groot Winterhoek to Soetansyberg.
Habitat: Seepages, marsh edges and ephemeral streambanks, in shallow peaty deposits on Table Mountain Sandstone, 20–1 300 m.
Rationale: A habitat specialist with a natural low density of individuals. All subpopulations that have been recorded consist of only a handful of individuals. This species flowers only after fire.

Habenaria Wild.
Habenaria barbertoni Kraenzl. & Schltr.
Status: NT B1ab(ii,iii,iv,v)
Distribution: G MP.
Habitat: Rocky hillsides, in bushveld in association with acacias, 1 000–1 500 m.
Rationale: EOO 46 300 km². Known from nine locations. Declining as a result of urban expansion in Gauteng.

Habenaria bicolor Conrath & Kraenzl.
Status: NT B1ab(iii)+2ab(iii)
Distribution: G MP. Gauteng and near Middelburg in Mpumalanga. Also known from two records from Zimbabwe.
Habitat: Well-drained grasslands at around 1 600 m in South Africa.
Rationale: It has a restricted range within South Africa (EOO < 1 200 km², AOO < 500 km²). There are 10–20 locations, with a continuing decline in habitat due to rapid urban expansion in Gauteng.

Habenaria culveri Schltr.
Status: Rare
Distribution: NW. Rare in KwaZulu-Natal, extending inland to Swaziland, Mpumalanga and North West.
Habitat: Deep shade in subtropical forest, 150–1 000 m.
Rationale: Although very widespread, this species is known from only four highly disjoint subpopulations (EOO 112 000 km²). It has no recorded threats.

Habenaria kraenzliniana Schltr.
Status: NT B1ab(iii)
Distribution: G MP. Gauteng and near Middelburg in Mpumalanga and North West.
Habitat: Deep shade in subtropical forest, 150–1 000 m.
Rationale: Although very widespread, this species is known from only four highly disjoint subpopulations (EOO 112 000 km²). It has no recorded threats.

Holothrix Rich. ex Lindl.
Holothrix culveri Bolus
Status: CR D
Distribution: MP. Barberton.
Habitat: Rocky slopes at ± 650 m.
Rationale: Known from the type collection, collected in 1890. Although the type locality is now transformed (a road was built right across the site) and the habitat is generally degraded as a result of the spread of informal settlements, members of the Mpumalanga Plant Specialist Group believe that this species is not extinct. It was searched for repeatedly between 2002 and 2006, and a single plant was found of what could possibly be this species, but confirmation is dependent on flowering.

Holothrix grandiflora (Sond.) Rchb.f.
Status: DDD
Distribution: EC WC. Mouth of the Olifants River, Lambert’s Bay, Ladismith and Port Elizabeth.
Habitat: Cracks and crevices on sandstone quartz
conglomerate outcrops along the coast in strandveld vegetation.

**Rationale:** There is too much uncertainty to make a proper assessment. Misidentifications of the similar *H. schlechteriana* may have led to inaccurate descriptions of its distribution.

**Holothrix longicornu** C.J.Lewis

**Status:** CR D
L. von Staden, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

**Distribution:** EC WC. Port Elizabeth and Cape Peninsula.  
**Habitat:** Lower sandstone slopes.  
**Rationale:** Known from the type locality, collected near Port Elizabeth in 1937, and thought extinct for a long time. Bill Liltved (Cape Orchidaceae expert) recently discovered a subpopulation on the Cape Peninsula where there are fewer than 10 mature individuals.

**Holothrix macowaniana** Rchb.f.

**Status:** DDD
L. von Staden & J.E. Victor

**Distribution:** EC. Grahamstown, Stockenström, Bedford, Katberg and Zimbabwe.  
**Habitat:** Forest ravines.  
**Rationale:** Known from three collections in South Africa, all made before 1900. Some sites are now under pine plantations. Not enough is known about the distribution, specific habitat or population status of this species within South Africa to make a national assessment.

**Holothrix majubensis** C. & R.H.Archer

**Status:** VU D2
C.R. Scott-Shaw & J.E. Victor

**Distribution:** KZN. Amajuba Mountains.  
**Habitat:** Montane grassland, cracks in sandstone cliffs, 2 200 m.  
**Rationale:** A high-altitude habitat specialist, known from one location where it is potentially threatened by soil erosion.

**Holothrix micrantha** Schltr.

**Status:** EN B1ab(iii)
J.E. Victor

**Distribution:** G. Gauteng.  
**Habitat:** Grassy cliffs, 1 500–1 800 m.  
**Rationale:** It has a restricted range (EOO 300 km²), known from 1–3 locations. Declining as a result of urban development and encroachment from invasive alien vegetation.

**Holothrix pilosa** (Burch. ex Lindl.) Rchb.f.

**Status:** NT B1ab(ii,iii)
D. Raimondo & L. von Staden

**Distribution:** EC WC. Bredasdorp to Port Elizabeth.  
**Habitat:** Semi-arid, stony habitats, 35–600 m.  
**Rationale:** EOO 9 000–36 000 km². Known from four locations but may still occur at up to 14 locations. Crop cultivation has caused declines around Albertrina, Swellendam, Montagu and Bonnievale; loss is ongoing. Coastal subpopulations are also threatened by coastal development and invasion by alien plants.

**Holothrix randii** Rendle

**Status:** NT B1ab(iii)+2ab(iii); C2a(i)
M.F. Pfähl & J.E. Victor

**Distribution:** G LM. Also in Zimbabwe, Tanzania and Kenya.
**Nervilia renchiana** (Rchb.f.) Schltr.

**Status:** DDD

L. von Staden & J.E. Victor

**Distribution:** KZN. Widespread in central and eastern tropical Africa, known from Malawi, Mozambique, Zambia, Zimbabwe, Burundi, Tanzania, DRC and also in Madagascar. In South Africa known from one site on the KwaZulu-Natal coast.

**Habitat:** Brachystegia woodland and riverine forest fringes, often on termite mounds, 100–900 m.

**Rationale:** Last collected in 1909 at Dumisa Station, not recorded since. Not enough is known about the distribution, specific habitat or population status of this species within South Africa to determine its status nationally. It is widespread in tropical Africa.

**Oberonia disticha** (Lam.) Schltr.

**Status:** CR B1ab(i,ii,iii,iv,v) + 2ab(ii,iii,iv,v)

J.E. Victor, S. Krynauw, P.J.H. Hurter & L. von Staden

**Distribution:** LM MP. Isolated sites in South Africa including the Wolkberg Mountains and near Nelspruit. Widespread in tropical Africa and also occurs on Indian Ocean Islands (Madagascar, Reunion, Mauritius and Maldives). In South Africa known from one site on the KwaZulu-Natal coast.

**Habitat:** Epiphytic, on tree trunks in evergreen forest or high-rainfall Brachystegia woodland.

**Rationale:** Known historically from three locations in South Africa, with a disjunct distribution in Limpopo and Mpumalanga Provinces. Subpopulations in Mpumalanga went locally extinct when the habitat was transformed for agriculture. Now possibly confined to only a small area in Limpopo Province (EOO estimated 95 km²). Recent searches have failed to locate individuals at one of the two remaining locations. Searches for and monitoring of remaining suitable habitat are required to establish the population status. However, since there is still habitat available in fairly inaccessible areas around the known locations in Limpopo Province, it is likely that at least one location still exists, and this species is not yet listed as extinct in South Africa.

**Pachites appressa** Lindl.

**Status:** Rare

H. Kurzweil & J.E. Victor

**Distribution:** WC. Langeberg between Swellendam and Riversdale.

**Habitat:** Fynbos, on mountain slopes and summits, in seasonally damp, acidic, peaty Table Mountain Sandstone soils, 450–1 400 m.

**Rationale:** A range-restricted habitat specialist (EOO 360 km²), known from five subpopulations. No known threats.

**Pachites bodkinii** Bolus

**Status:** Rare

L. von Staden & W.R. Liltved

**Distribution:** WC. Cape Peninsula and Groot Winterhoek to as far east as the Outeniqua Mountains near Mossel Bay.

**Habitat:** Fynbos, on mountain summits and moist south-facing slopes along marsh edges, on fibrous peaty acidic sandstone soils, 275–1 300 m.

**Rationale:** EOO 40 235 km². Widespread, occurs as highly disjunct subpopulations in a specialised marshy habitat. This species has no recorded threats.

**Platycoryne Rchb.f.**

**Platycoryne mediocris** Summerh.

**Status:** EN **B2ab(iii); C2a(ii); D**

M. Lötter, J.E. Burrows & J.E. Victor

**Distribution:** MP. Nelspruit and widespread in tropical Africa.

**Habitat:** Mixed deciduous woodland, in shallow peaty soils over granite sheet rock, growing in a seasonally wet drainage line. Elsewhere it occurs in poorly drained grassland, 700–1 750 m.

**Rationale:** Known from one location in South Africa where there are ≥ 20 mature individuals. Urban expansion has disrupted the drainage of its seasonally moist habitat, causing continuing decline. This species is downgraded from CR to EN as per the regional guidelines, because orchids have tiny seeds that are able to disperse over long distances.

**Polystachya Hook.**

**Polystachya zuluensis** L.Bolus

**Status:** DDD

J.E. Victor

**Distribution:** KZN. Lebombo Mountains.

**Habitat:** Thicket and woodland, lithophyte or epiphyte on Xerophyta retinervis, 1 200 m.

**Rationale:** The type collection was made in 1967 in the Lebombo Mountains, on the border between Swaziland and KwaZulu-Natal, but the exact site was not given. Not enough is known about the distribution or population status of this species within South Africa to determine its status nationally.

**Pterygodium Sw.**

**Pterygodium connivens** Schelpe

**Status:** CR PE

L. von Staden, A. Pauw, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

**Distribution:** WC. Cape Peninsula.

**Habitat:** Seepage in fynbos, on peaty Table Mountain Sandstone soils, 60 m.

**Rationale:** Discovered at a site in the Cape Point Nature Reserve, but disappeared the following year, has not been recorded for over 30 years despite regular searches.

**Pterygodium cruciferum** Sond.

**Status:** EN **B1ab(i,ii,iii,iv,v); D**

A. Pauw, I. Ebrahim, L. von Staden & J.E. Victor

**Distribution:** WC. Darling to Bredasdorp.

**Habitat:** Edges of lowland wetlands, in clay or sandy soils, renosterveld or fynbos, 10–240 m.

**Rationale:** EOO 2 005–6 604 km². Known from four sites. It has lost most of its habitat to urban expansion on the Cape Flats and to crop cultivation around Darling and Bredasdorp. Declining because of eutrophication and invasion by alien plants. There is a complete lack of reproduction at one of the locations as a result of the loss of its pollinator.
**Pterygodium inversum** (Thunb.) Sw.  
*Plate 31*

**Status:** EN C2a(i)  
L. von Staden

**Distribution:** WC. Gilberg to Bot River and Montagu Pass in the Outeniqua Mountains.

**Habitat:** Renosterveld. Well-drained clay, loam soils on lower slopes and hills, sometimes in rocky areas, 90–1 000 m.

**Rationale:** This renosterveld species has lost over 80% of its habitat in the past and is still declining across its range owing to habitat loss to crop cultivation. Loss of pollinators and natural fire cycles as a result of habitat fragmentation also threaten this species. Subpopulations are generally small (largest known subpopulation ± 50 mature individuals), and the total population is estimated to be between 300 and 1 000 mature individuals.

**Pterygodium newdigateae** Bolus var. newdigateae

**Status:** DDD  
L. von Staden

**Distribution:** WC. Plettenberg Bay.

**Habitat:** Stony slopes near sea level.

**Rationale:** Known only from collections made before 1923. Not enough is known about the distribution, specific habitat or population status of this taxon to determine its status.

**Satyrium** Sw.

**Satyrium carneum** (Dryand.) Sims  
*Plate 35*

**Status:** NT B1ab(ii,iii,iv,y)  
H. Kurzweil & J.E. Victor

**Distribution:** WC. Cape Peninsula to Still Bay.

**Habitat:** In dune bush vegetation, in fynbos on coastal hills and on ridges on moist to dry sands and limestone, 10–300 m.

**Rationale:** EOO 15 538 km². Known from 15–20 locations. More than 40% of habitat and subpopulations have been lost as a result of urban and coastal development. Loss due to harvesting for horticultural purposes, urban development, invasion by alien plants and crop cultivation, is ongoing.

**Satyrium foliosum** Sw.  
*Plate 35*

**Status:** VU D1 + 2  
L. von Staden, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

**Distribution:** WC. Table Mountain, Hottentots Holland Mountains and Kogelberg.

**Habitat:** Black peaty soil, 900–1 300 m.

**Rationale:** Known from three locations, its population is estimated to be less than 1 000 mature individuals. Potentially threatened by invading alien plants, flower-picking and collecting of plants and a deleterious fire regime.

**Satyrium hallackii** Bolus subsp. *hallackii*  
*Plate 35*

**Status:** EN A2c; B2ab(i,ii,iii,iv,y)  
L. von Staden, W.R. Liltved & T.A. Oliver

**Distribution:** EC WC. Betty’s Bay, Pearly Beach, Cape St Francis, Komga and Kentani.

**Habitat:** Moist, sometimes brackish soils, in dune slacks immediately inland from the shoreline.

**Rationale:** EOO 14 000 km², AOO < 50 km². Confined to coastal flats, with a disjunct distribution in the Western and Eastern Cape as far as Kei Mouth/Kentani district. A 600 km distance separates the Western and Eastern Cape subpopulations. The taxon is extinct or endangered throughout its range as a result of coastal and urban development. In the Western Cape, subpopulations at Hout Bay, Zeekoevlei, Muizenberg and the Cape Flats are now extinct. We suspect that there has been a 50% habitat loss over the past 15 years (three generations). Currently extant at only three sites. Those surviving at Betty’s Bay and southeast of Pearly Beach are severely threatened by urban expansion and encroachment from invasive alien vegetation.

**Satyrium microrrhynchum** Schltr.  
*Plate 35*

**Status:** Rare  
J.E. Victor, D. McMurtry, L. Grobler & S. Burns

**Distribution:** EC KZN MP. Drakensberg mountain range from Mpumalanga through Lesotho and KwaZulu-Natal to the Eastern Cape.

**Habitat:** Montane and subalpine grassland, 1 600–3 000 m, on grassy and sometimes stony or mossy slopes.

**Rationale:** A high-altitude habitat specialist, known from fewer than 10 subpopulations and has no significant threats.

**Satyrium muticum** Lindl.  
*Plate 35*

**Status:** CR C2a(ii)  

**Distribution:** WC. Riversdale to Knysna and northern slopes of Langeberg Mountains.

**Habitat:** Relatively dry to moist slopes, up to 200 m.

**Rationale:** EOO < 5 000 km². A naturally very rare species known from three locations. Extinct at one site as a result of coastal development. Loss to urban development and agriculture is ongoing. There are less than 250 mature individuals, and one subpopulation has 90% of the total population.

**Satyrium princeps** Bolus  
*Plate 35*

**Status:** VU B1ab(i,ii,iii,iv,y)  
L. von Staden, W.R. Liltved, E.G.H. Oliver & T.A. Oliver

**Distribution:** EC WC. Wilderness to Port Alfred.

**Habitat:** Among bushes in open places on fixed dunes close to the shoreline, 0–150 m.

**Rationale:** EOO 3 400 km². Known from 3–6 locations. It has lost ± 50% of its habitat to coastal development, crop cultivation and infestations of alien plants. This loss is ongoing, but the decline has happened over a period of more than 10 years or three generations (generation length is probably ± five years). Coastal development threatens remaining subpopulations around Wilderness, Knysna and Cape St Francis.

**Satyrium pulchrum** S.D. Johnson & Kurzweil  
*Plate 35*

**Status:** VU D2  
H. Kurzweil, W.R. Liltved, S.D. Johnson & J.E. Victor

**Distribution:** NC. Knersvlakte, north of Vanrhynsdorp.
ANGIOSPERMS: MONOCOTYLEDONS

ORCHIDACEAE Satyrium pulchrum

Habitat: Described among granite slabs and boulders, 750 m.
Rationale: Described in 1998 and known from the type locality. Potentially threatened by trampling and grazing by livestock.

Satyrium rhodanthum Schltr.
Status: CR B1ab(i,ii,iii)
C.R. Scott-Shaw & J.E. Victor
Distribution: KZN. 1xopo and Dumisa.
Habitat: Mistbelt, damp grassland.
Rationale: A very rare species that has lost most of its habitat to forestry plantations, afforestation has probably led to the demise of the subpopulation at the type locality, sometime between 1980–1994. It is currently known from one location where it is threatened by housing development.

Satyrium striatum Thunb.
Status: VU B1ab(iii,v)
L. von Staden
Distribution: WC. Cape Peninsula to Cederberg.
Habitat: Moist flats and slopes in coarse, often stony, sandstone-derived soils, 400–800 m.
Rationale: EOO 9 863 km². Known from 7–9 locations. Declining as a result of invading alien plants, crop cultivation and harvesting for horticultural purposes.

Schizochilus Sond.

Schizochilus cecilii Rolfe subsp. culveri (Schltr.) H.P.Linder
Status: Rare
L. von Staden, D. McMurtry, L. Grobler & S. Burns
Distribution: EC. KZN. Griqualand East and southern Drakensberg Mountains including Leesothe.
Habitat: Montane and alpine grassland, on shallow soil over rock, 1 500–2 500 m.
Rationale: A habitat specialist that occurs in mountainous areas and has no known threats.

Schizochilus bulbillica (Rchb.f.) Bolus
Status: Rare
J.E. Victor
Distribution: EC KZN. Griqualand East and southern Drakensberg Mountains including Lesotho.
Habitat: Montane and alpine grassland, on shallow soil over rock, 1 500–2 500 m.
Rationale: A habitat specialist that occurs in mountainous areas and has no known threats.

Schizochilus crenulatus H.P.Linder
Status: Rare
L. von Staden, D. McMurtry, L. Grobler & S. Burns
Distribution: EC. Graskop.
Habitat: Damp rock ledges on steep slopes, grassland.
Rationale: EOO 1 885 km². The 9–11 small, scattered subpopulations of this taxon have no recorded threats.

Schizochilus gerrardii (Rchb.f.) Bolus
Status: EN B1ab(iii)+2ab(iii)
C.R. Scott-Shaw & J.E. Victor
Distribution: KZN. Ngome, KwaCeza Highlands and Louwsburg Plateau.
Habitat: Mistbelt grassland, around margins of rock outcrops in shallow soil, frequently in slight seepages, 1 200 m.
Rationale: EOO 850 km². Known from four locations. Pine plantations have destroyed much of its habitat, only very small grassland fragments remain. Declining because of frequent fires and severe overgrazing by cattle.

Schizodium lilacinus Schelpe ex H.P.Linder
Status: Rare
D. McMurtry, L. Grobler, S. Burns & L. von Staden
Distribution: MP. Between Lydenburg and Graskop.
Habitat: Occurs among rocks or on narrow ledges on steep rocky slopes in damp areas, 1 600–2 300 m.
Rationale: A range-restricted species (EOO 130 km²) that is locally abundant. It occurs on shallow rocky soils unsuitable for plantations and is therefore not threatened.

Schizodium longipetalum Lindl.

Schizodium flexuosum (L.) Lindl.
Status: NT B1ab(i,ii,iii,v)
L. von Staden
Distribution: NC WC. Western Cape lowlands, from Nieuwoudtville southwards to Caledon and eastwards to Hex River Valley. Extinct on the Cape Peninsula.
Habitat: Seasonally moist, sandy flats, sometimes along streams.
Rationale: Of the 36 collecting localities recorded in herbbaria, 10 are old and have locality descriptions that are too vague for determining whether subpopulations are still extant. Of the 16 precise locations, 50% have been lost to urban development and agriculture over the past 70 years. The generation length of this species is unfortunately not known. EOO is between 9 065–34 970 km². There are between three and 16 extant locations. Decline due to further crop cultivation, invasive alien plants and eutrophication of wetlands is continuing.

Schizodium satyrioides (L.) Garay
Status: Declining
L. von Staden, W.R. Liltved, E.G.H. Oliver & T.A. Oliver
Distribution: NC WC. From Hangklip to Nieuwoudtville. Extinct on the Cape Peninsula.
Habitat: Lowland, sand plains and alluvial sand derived from Table Mountain Sandstone. Mostly found below 900 m, but on drier edges of the range it has also been collected at up to 1 500 m.
Rationale: EOO 24 138 km². It has probably declined extensively across its range owing to crop cultivation. Urban expansion has led to this species going extinct on the Cape Peninsula. In the northern parts of the range, there is ongoing expansion of rooibos tea cultivation on sandy areas. The timing and extent of decline and generation length are not known.
Solenangis Schltr.

*Solenangis aphylla* (Thouars) Summerh.

Status: DDD

J.E. Victor

Distribution: KZN. Maputaland, Mozambique and Zimbabwe to East Africa and Madagascar.

Habitat: Low altitude, evergreen riverine and coastal forests, also on shrubs and low trees in riverine and acacia thickets, 0–300 m.

Rationale: Widespread in eastern tropical Africa, with one unconfirmed record from northern KwaZulu-Natal.

Vanilla Mill.

*Vanilla rosceri* Rchb.f.

Status: NT* D2

L. von Staden & J.E. Victor

Distribution: KZN. Widespread in eastern tropical Africa, from Kenya, Tanzania and Mozambique. One record from South Africa from Maputaland, near Lake Sibaya.

Habitat: Coastal bush and forest, and in grassy fields with scattered trees 1–100 m.

Rationale: Known from one location in South Africa. Potentially threatened by subsistence agriculture, expanding informal settlements and invasion by alien plants. The national assessment is downgraded from VU to NT as other subpopulations just across the border in Mozambique could serve as sources of propagules to South African locations.

Zeuxine Lindl.

Zeuxine africana Rchb.f.

Status: EN* D

J.E. Victor & L. von Staden

Distribution: KZN. Nigeria, Angola, Botswana and Durban, mouth of the Umgeni River.

Habitat: Moist sand in grassland or mud in shade, prefers to colonise recently disturbed habitats.

Rationale: Although very little is known about the global distribution and status of this species, it seems that the single known subpopulation in South Africa (with less than 50 mature individuals) was established as a result of immigration from another subpopulation outside the borders of South Africa. This species favours disturbed areas and the site where it occurs was bulldozed ± eight years before the discovery of the South African subpopulation. From this we infer immigration has taken place. The species is therefore downgraded from CR to EN based on the regional criteria.

POACEAE

Colpodium Trin.

Colpodium drakensbergense Hedberg & I.Hedberg

Status: VU B2ab(iii)

E. Sieben & L. Fish

Distribution: KZN. Drakensberg and Maluti Mountains (mainly in Lesotho).

Habitat: Wet places, in streams and moors at high altitudes, 2 000–3 500 m.

Rationale: AOO < 2 000 km². Known from fewer than 10 locations. Most locations are from Lesotho, where overgrazing and trampling by livestock is a serious threat to wetlands and a cause of habitat erosion.

Dregeochloa Conert

Dregeochloa calviniensis Conert

Status: Rare

J.E. Victor, R.P. Ellis & L. Fish

Distribution: NC. Loeriesfontein and Van Wyksvlei.

Habitat: Limestone outcrops in arid succulent karoo shrubland.

Rationale: A habitat specialist, occurring as localised subpopulations. No known threats.

Ehrharta Thunb.

Ehrharta eburnea Gibbs Russ.

Status: VT D2

G.A. Verboom, D. Raimondo, J.E. Victor & L. Fish

Distribution: NC. Calvinia, Sutherland and Montagu.

Habitat: Rocky places in mountain renosterveld.

Rationale: Known from six locations from two disjunct areas: from the Calvinia, Sutherland and Montagu districts. Subpopulations are highly localised. Potentially declining as a result of grazing by livestock.

Ehrharta setacea Nees subsp. uniflora (Burch. ex Stapf) Gibbs Russ.

Status: VU B1ab(ii,iii,iv,v)

G.A. Verboom & D. Raimondo

Distribution: WC. Betty’s Bay to Simon’s Town.

Habitat: Seepe areas and marshy places and along watercourses, mostly at low altitudes.

Rationale: EOO < 2 000 km². Known from nine locations, many of which occur at low altitudes and are experiencing ongoing decline owing to coastal development.

Elytrophorus P.Beauv.

Elytrophorus globularis Hack.

Status: VU D2

J.E. Victor & L. Fish

Distribution: LM. Nyilsley in South Africa. Also in tropical Africa, extending south to Namibia and Botswana and east to Tanzania.

Habitat: Wet depressions and vleis, seasonally submerged. Bottom-rooted or floating at edge of vleis and pans.

Rationale: A highly disjunct distribution that might not easily be recolonised from non-South African subpopulations. Potentially threatened in South Africa by invading alien plants and changes in hydrology associated with upstream extraction of water for agriculture as well as by application for mining.

Eulalia Kunth

*Eulalia aurea* (Bory) Kunth

Status: NT* D2

P.A. Manyama & D. Raimondo

Distribution: LM. Waterberg in Limpopo, widespread in southern and eastern Africa, from Botswana to Kenya.

Habitat: In water, along rivers and in occasionally inundated soils.

Rationale: Known from two locations in South Africa. Potentially threatened by agriculture and the associated extraction of water. There are over 30 specimens in South African herbaria collected from other wetlands throughout southern and eastern Africa. As it has effective long-distance dispersal, the national assessment is downgraded from VU to NT.
Festuca L.

**Festuca dracomontana** H.P.Linder

**Status:** VU D2

**Distribution:** L.M. Haenertsburg and in Lesotho.

**Habitat:** Known from two disjunct locations. The one that occurs in South Africa is potentially threatened by afforestation.

**Rationale:**

**Habitat:** Damp sites, especially sedge meadows.

**Distribution:** EC. Eastern Cape Drakensberg Mountains, near Barkly East.

**Merxmuellera**

**Helictotrichon quinquesetum**

**Status:** VU B1ab(ii,iii,iv,v)

**Distribution:** EC. Uitenhage and Baviaanskloof.

**Habitat:** Transition between mountain renosterveld and fynbos on alluvial soils and along streams in flat, well-drained, pebbly river washes.

**Rationale:** A range-restricted habitat specialist (EOO < 400 km²), known from two subpopulations. No known threats.

**Oryza L.**

**Oryza longistaminata** A.Chev. & Roehr.

**Status:** VU D1ab(ii,iii,iv,v)

**Distribution:** J.E. Victor, L. Fish & P.A. Manyama

**Habitat:** Coastal dunes, in sandy seeps underlain by rock shelf.

**Rationale:** EOO < 700 km². Known from fewer than 10 locations. Declining as a result of invasion by alien plants and coastal housing developments.

**Oxyrhachis Pilg.**

**Oxyrhachis gracillima** (Baker) C.E.Hubb.

**Status:** NT* D2

**Distribution:** EC. KZN. Port Edward and Mkambati Game Reserve, Tanzania, Sierra Leone, Cameroon, Zambia and Madagascar.

**Habitat:** Along streams and in wet grassland.

**Rationale:** In South Africa, known from fewer than five locations. Potentially threatened by mining and changing hydrodynamics caused by the removal of vegetation. However, its range extends throughout Africa, and since it is a highly mobile species the regional assessment is downgraded from VU to NT.

**Panicoideae**

**Panicum dewinteri** J.G.Anderson

**Status:** NT B1ab(iii)

**Distribution:** J.E. Victor & L. Fish

**Habitat:** Rocky outcrops and rock crevices, 1 070–1 830 m.
POACEAE Panicum dewinteri

**Pentameris** P.Beauv.

- **Pentameris glacialis** N.P.Barker
  - Status: Rare
  - Distribution: WC. Swartberg Mountains.
  - Habitat: South-facing gullies at high altitudes.
  - Rationale: A range-restricted species (EOO < 100 km²), known from one subpopulation but likely to occur at a few more undiscovered sites. No known threats.

- **Pentameris hirtiglumis** N.P.Barker
  - Status: Rare
  - Distribution: WC. Klein Swartberg Mountains.
  - Habitat: Deep shade at foot of cliffs or rock walls.
  - Rationale: A range-restricted species (EOO < 50 km²), known from three subpopulations. No recorded threats.

- **Pentameris longiglumis** (Nees) Stapf subsp. gymnocola N.P.Barker
  - Status: Rare
  - Distribution: WC. Cape Peninsula, Table Mountain.
  - Habitat: Seepage areas on gentle slopes.
  - Rationale: A range-restricted species (EOO < 20 km²), known from fewer than five subpopulations. No recorded threats.

- **Pentameris longiglumis** (Nees) Stapf subsp. longiglumis
  - Status: VU D2
  - Distribution: WC. Cape Peninsula, Table Mountain.
  - Habitat: Seepage areas on gentle slopes.
  - Rationale: EOO and AOO < 10 km². Known from one location. Potentially threatened by a deleterious fire regime and invasion by alien plants.

- **Pentameris swartbergensis** N.P.Barker
  - Status: Rare
  - Distribution: WC. Klein Swartberg Mountains.
  - Habitat: Deep shade at foot of cliffs or rock walls.
  - Rationale: A habitat specialist known from three subpopulations. Not threatened.

- **Pentameris uniflora** N.P.Barker
  - Status: Rare
  - Distribution: WC. Riviersonderend Mountains to Robinson Pass.
  - Habitat: Damp, rocky, south-facing mountain slopes.
  - Rationale: A habitat specialist known from three subpopulations. Not threatened.

**Pentaschistis** (Nees) Spach

- **Pentaschistis aspera** (Thunb.) Stapf
  - Status: NT B1ab(iii)+2ab(iii)
  - Distribution: WC. Gansbaai to Mossel Bay.
  - Habitat: Limestone pavements.
  - Rationale: EOO 3 250 km², AOO < 825 km². Habitat quality at six known locations continues to decline as a result of invading alien acacias.

- **Pentaschistis calcicola** H.P.Linder var. calcicola
  - Status: NT B1ab(iii)+2ab(iii)
  - Distribution: WC. Bredasdorp to Riversdale.
  - Habitat: Limestone outcrops.
  - Rationale: EOO 826 km², AOO < 825 km². Habitat quality at six known locations continues to decline as a result of invading alien acacias.

- **Pentaschistis caulescens** H.P.Linder
  - Status: Rare
  - Distribution: WC. Mountains around Ceres.
  - Habitat: High-altitude shale bands and dry stony slopes.
  - Rationale: Known from two subpopulations (EOO < 300 km²). This alpine habitat specialist has no recorded threats.

- **Pentaschistis clavata** C.A.Galley
  - Status: Rare
  - Distribution: WC. Hopefield to Cape Flats and Wolseley.
  - Habitat: Damp sand derived from Table Mountain Sandstone as well as streambanks in wet moss, 1 270 m.
  - Rationale: This recently described species is known from a single site above the farm De Boom in the Kouebokkeveld (EOO < 1 km²). Known from three subpopulations in the Knysna area. The subpopulation inside the Goukamma Reserve disappeared over the past 10 years, most likely as a result of incorrect fire management. The second subpopulation (outside the reserve) is severely threatened by invasive alien plants and urban development. There are less than 50 extant mature individuals of this taxon.

- **Pentaschistis ecklonii** (Nees) McClean
  - Status: EN B1ab(i,ii,iii,iv,vy)+2ab(i,ii,iii,iv,vy)
  - Habitat: Coastal dunes.
  - Rationale: A highly range-restricted taxon (EOO < 6 km², AOO < 1 km²), known from two subpopulations in the Knysna area. The subpopulation inside the Goukamma Reserve disappeared over the past 10 years, most likely as a result of incorrect fire management. The second subpopulation (outside the reserve) is severely threatened by invasive alien plants and urban development. There are less than 50 extant mature individuals of this taxon.
land species that occurs only on seasonally waterlogged areas. Some 75% of known locations have gone extinct as a result of urban development and crop cultivation. This species remains extant at only five locations where it is threatened by invasive alien plants and continuing urban and agricultural expansion.

**Pentaschistis elegans** (Nees) Stapf
Status: CR B1ab[i,ii,iii,iv]+2ab[i,ii,iii,iv]
J.E. Victor, L. Fish & D. Raimondo

**Distribution:** WC. Bredasdorp.
Habitat: Sand over laterite.
Rationale: EOO 41 km², AOO < 5 km². Known from a collection in 1943 and another in 1989, both from the Ratel River area on the Agulhas Plain. Much of its habitat has been transformed to crop cultivation and is infested by invasive alien acacias. A recent search at the 1989 location failed to relocate it. However, there is still suitable habitat at Ratel River and it is not yet considered CR PE.

**Pentaschistis holciformis** (Nees) H.P.Linder
Status: Rare
N.A. Helme

**Distribution:** WC. Hottentots Holland and Kogelberg Mountains.
Habitat: Sandstone mountain slopes, favouring lightly disturbed areas.
Rationale: A range-restricted species (EOO < 500 km²), known from fewer than 10 subpopulations, not threatened.

**Pentaschistis horrida** C.A.Galley
Status: Rare
P.A. Manyama

**Distribution:** WC. Baviaansberg to Waboomsberg.
Habitat: Mountain summit plateaus and sometimes on steep slopes.
Rationale: A recently described species, known from a restricted range (EOO < 240 km²), from two subpopulations. Not threatened.

**Pentaschistis lima** (Nees) Stapf
Status: NT D2
N.A. Helme, J.E. Victor & L. Fish

**Distribution:** NC.Namaqualand, Kamiesberg.
Habitat: South-facing slopes in shallow soils at the base of granitic domes.
Rationale: Known from six locations in the Kamiesberg. Potentially threatened by crop cultivation and by grazing by livestock.

**Pentaschistis longipes** Stapf
Status: VU D2
D. Raimondo, J.E. Victor & L. Fish

**Distribution:** EC. Humansdorp.
Habitat: Stable dunes in association with thicket.
Rationale: EOO < 60 km², AOO < 20 km². Known from one location. Potentially threatened by coastal development, crop cultivation and invasive alien acacias.

**Pentaschistis scandens** H.P.Linder
Status: EN B1ab(ii,iii,iv,v)
D. Raimondo & N.A. Helme

**Distribution:** WC. Ratel River to Potberg.
Habitat: Sandy soils on coastal flats.
Rationale: EOO 683 km². Occurring only on coastal sands in the Bredasdorp district. It has lost 40% of subpopula-

**Pentaschistis trifida** C.A.Galley
Status: VU D2
P.A. Manyama

**Distribution:** WC. Ceres district, Baviaansberg.
Habitat: Deep, sandy soil derived from Table Mountain Sandstone.
Rationale: A recently described species, EOO < 10 km². Known from one location along a disturbed pathway. Potentially threatened by trampling.

**Prionanthium Desv.**

**Prionanthium dentatum** (L.f.) Henrard
Status: EN B1ab(ii,iii,iv,v)
J.E. Victor & R.P. Ellis

**Distribution:** NC. Bokkeveld Escarpment, Nieuwoudtville.
Habitat: Clay soils derived from Dwyka tillite in renosterveld.
Rationale: EOO 80 km², AOO 20 km². Known from fewer than five locations. This range-restricted species has lost 85% of its habitat to wheat cultivation. Its habitat is being degraded because of alien grass invasions and overgrazing by livestock. Olive cultivation and road construction projects are potential threats.

**Prionanthium ecklonii** (Nees) Stapf
Status: EN B1ab(ii,iii,iv,v)
J.E. Victor & L. Fish

**Distribution:** WC. Oliephants River Mountains and Piketberg.
Habitat: Sandy soils in arid fynbos.
Rationale: EOO 1 500 km². Most of its habitat has been lost to wheat and citrus cultivation and to the construction of the Clanwilliam Dam. Three remaining locations continue to decline as a result of ongoing habitat loss to road construction projects and the cultivation of rooibos tea.

**Prionanthium pholiuroides** Stapf
Status: EN B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

**Distribution:** WC. Malmesbury to Struisbaai.
Habitat: Sands overlying shales, seasonally waterlogged.
Rationale: EOO 4 000 km². This species has lost over 80% of its habitat to wheat and vineyard cultivation over the past 100 years. Extant at only four locations, it is declining as a result of invasive alien plants, crop cultivation and urban development.

**Sartidia De Winter**

**Sartidia jucunda** (Schweick.) De Winter
Status: VU D2
P.A. Manyama & D. Raimondo

**Distribution:** LM. Blouberg.
Habitat: Stony slopes, 1 300–2 000 m.
Rationale: A range-restricted species, EOO 35 km², AOO < 20 km². Recorded from only one location. Potentially threatened by overgrazing by livestock.
**Schismus** P.Beauv.

† *Schismus pleuropongon* Stapf
   
   Status: CR B1ab(iii)
   
   D. Raimondo & R.C. Turner
   
   Distribution: WC. Riversdale district, Garcia’s Pass.
   
   Habitat: Dam places at low altitudes.
   
   Rationale: EOO < 10 km². Recorded from two locations, one destroyed for crop cultivation, the remaining one declining because of invasive pines.

**Secale** L.

**Secale strictum** (J.Presl) J.Presl subsp. africanaum (Stapf) K.Hammer

Status: CR D

D. Raimondo, J.C. Manning & L. Fish

Distribution: NC. Roggeveld.

Habitat: Riverbanks.

Rationale: A range-restricted taxon that was once common on the Roggeveld, but is now known from only one subpopulation on a farm, where there are less than 50 mature individuals. This taxon has experienced severe declines due to overgrazing and poor veld management. It is cultivated and several attempts are being made to reintroduce it to other properties on the Roggeveld.

**Sporobolus** R.Br.

† *Sporobolus oxyphyllus* L.Fish

Status: NT B2ab(ii,iii,iv,v)

P.A. Manyama

Distribution: EC FS NC NW. Southern North West Province, western Free State and Eastern and Northern Cape Provinces bordering the Free State.

Habitat: Grows in areas of high ‘sodic’ soils, especially at the edge of salt pans and in saline vleis.

Rationale: A species with a restricted occupancy because of its specificity to sodic pans (AOO < 20 km²). Known from 11 locations but likely to occur at a few more. Experiencing an ongoing degradation and alteration of its habitat as a result of crop cultivation.

**Stipagrostis** Nees

**Stipagrostis proxima** (Steud.) De Winter

Status: Rare

J.E. Victor & L. Fish

Distribution: EC FS. Bethulie and Aliwal North.

Habitat: Sandy soils in disturbed areas.

Rationale: A range-restricted species (EOO < 500 km²), known from two subpopulations. This species has no recorded threats.

**Tribolium** Desv.

† *Tribolium ciliare* (Stapf) Renvoise

Status: VU B1ab(ii,iii,iv,v)

D. Raimondo & L. Fish

Distribution: WC. Agulhas Peninsula to De Hoop.

Habitat: Limestone slopes and flats.

Rationale: A coastal limestone endemic (EOO < 1 400 km²) known from 5–10 locations. Subpopulations occurring outside De Hoop Nature Reserve are threatened by encroachment from invasive alien acacias, coastal housing developments, protea orchards and grazing by livestock.

**Tribolium ciliare** (Stapf) Renvoise

Status: VU B1ab(ii,iii,iv,v)

D. Raimondo & L. Fish

Distribution: WC. Agulhas Peninsula to De Hoop.

Habitat: Limestone slopes and flats.

Rationale: A coastal limestone endemic (EOO < 1 400 km²) known from 5–10 locations. Subpopulations occurring outside De Hoop Nature Reserve are threatened by encroachment from invasive alien acacias, coastal housing developments, protea orchards and grazing by livestock.

**PRIONIACEAE**

**Prionium** E.Mey.

**Prionium serratum** (L.f.) Drège ex E.Mey.

Status: Declining

J.E. Victor

Distribution: EC KZN WC. Western and Eastern Cape as far as Grahamstown and from Port St Johns to southern KwaZulu-Natal.

Habitat: An aquatic or semi-aquatic plant growing in marshy coastal areas, and along rivers.

Rationale: Declining in KwaZulu-Natal as a result of harvesting for medicinal purposes. Its wetland habitat is being degraded by overgrazing and frequent fires. The decline across its range is insufficient for listing as NT.

**RESTIONACEAE**

**Anthochortus** Nees

† *Anthochortus capensis* Esterh.

Status: Rare

H.P. Linder & D. Raimondo

Distribution: WC. Cape Peninsula to Betty’s Bay.

Habitat: Permanent seeps.

Rationale: A habitat specialist known from two sites on the Cape Peninsula (both protected) and one at Betty’s Bay. It has no known threats.

† *Anthochortus graminifolius* (Kunth) H.P.Linder

Status: VU D2

H.P. Linder, N.A. Helme & D. Raimondo

Distribution: WC. Mountains around Ceres.

Habitat: High-energy permanent streams.

Rationale: AOO < 20 km². Restricted to the lower reaches of a few streams and in some marshes in the Ceres basin. Potentially threatened by modification of water flow caused by damming and weir construction upstream of subpopulations.

† *Anthochortus insignis* (Mast.) H.P.Linder

Status: VU D2

H.P. Linder, N.A. Helme & D. Raimondo

Distribution: WC. Southern Cederberg to Groot Winterhoek Mountains.

Habitat: Well-drained sandy plains, possibly waterlogged in winter, very dry in summer.

Rationale: Known from two or three widely separated subpopulations, one of which is potentially threatened by pine plantations.

**Askidiosperma** Steud.

† *Askidiosperma alticolum* (Esterh.) H.P.Linder

Status: Rare

D. Raimondo, P.A. Manyama & D.A. Kamundi†

Distribution: WC. Hex River Mountains, Mostertsboom Twins to Milner Peak and Jan Du Toit’s Pinnacles.

**ANGIOSPERMS: MONOCOTYLEDONS**

**POACEAE** Schismus
Habitat: Among rocks, on ledges with trickling water, on steep, south-facing, rocky slopes and along streams.

**Rationale:** A range-restricted species (EOO 112 km²) known from three subpopulations. Occurs as localised patches among rocks in moist sites and has no known threats.

**Askidiosperma delicatulum** H.P.Linder

**Status:** Critically Rare

L. von Staden, N.A. Helme & H.P. Linder

**Distribution:** WC. Kouebokkeveld, Vleiberg.

**Habitat:** Fynbos, quartzite slopes, 1 300–1 600 m.

**Rationale:** Known from only one site in a remote mountainous area where it is not threatened.

**Askidiosperma longiflorum** (Pillans) H.P.Linder

**Status:** NT D2

H.P. Linder & D. Raimondo

**Distribution:** WC. Kouebokkeveld and Hex River Mountains.

**Habitat:** Marshes or in shallow sand over rock, 10–1 000 m.

**Rationale:** Known from fewer than 10 locations. Potentially threatened by fires that are too frequent and in the wrong season and by invasive alien plants.

**Calopsis** P.Beauv. ex Desv.

**Calopsis clandestina** Esterh.

**Status:** Rare

D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution:** WC. Southern Cederberg to Op-die-Berg.

**Habitat:** Sand on suurvlaktes, under well-drained conditions, or in stony, well-drained habitats, 1 000–1 500 m.

**Rationale:** It has a restricted range (EOO 353 km²), known from three subpopulations. No known threats.

**Calopsis dura** Esterh.

**Status:** Rare

D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution:** WC. Cape Town to Leipoldtville.

**Habitat:** Leached, acid coastal sands, 50–200 m.

**Rationale:** EOO < 7 000 km². This species has lost most of its habitat to wheat cultivation over the past 100 years and is now known from 13 severely fragmented subpopulations. Continuing to decline as a result of vineyard, potato and rooibos tea cultivation and infestations of invasive alien plants.

**Calopsis impolita** (Kunth) H.P.Linder

**Status:** VU B1ab(ii,iii,iv,v)

H.P. Linder & J.E. Victor

**Distribution:** WC. Cape Town to Leipoldtville.

**Habitat:** Leached, acid coastal sands, 50–200 m.

**Rationale:** EOO < 7 000 km². This species has lost most of its habitat to wheat cultivation over the past 100 years and is now known from 13 severely fragmented subpopulations. Continuing to decline as a result of vineyard, potato and rooibos tea cultivation and infestations of invasive alien plants.

**Calopsis levynsiae** (Pillans) H.P.Linder

**Status:** Rare

H.P. Linder & D. Pillay

**Distribution:** WC. Kouebokkeveld, Swartruggens and Watervalberg.

**Habitat:** Among rocks on sandy plains, prefers the shelter of large sandstone boulders or outcrops, but grows in deep sands, 1 000–1 400 m.

**Rationale:** A range-restricted species (EOO < 500 km²), known from three sites. No known threats.

**Calopsis monostylis** (Pillans) H.P.Linder

**Status:** Rare

J.E. Victor

**Distribution:** WC. Langeberg Mountains, between Misty Point and García’s Pass.

**Habitat:** Damp, peaty soil, on seeps and somewhat marshy places, 900–1 700 m.

**Rationale:** A range-restricted species (EOO < 500 km²). Can be locally common in suitable habitat, it has no known threats.

**Calopsis sparsa** Esterh.

**Status:** VU D2

N.A. Helme & D. Raimondo

**Distribution:** WC. Cederberg and Kouebokkeveld Mountains.

**Habitat:** Rocky sandstone slopes.

**Rationale:** EOO < 35 km², AOO < 10 km². Known from two locations. One location is potentially threatened by encroachment from invasive alien pines and hakeas.

**Cannomois** P.Beauv. ex Desv.

**Cannomois aristata** Mast.

**Status:** Rare

H.P. Linder & D. Pillay

**Distribution:** WC. Cederberg and Kouebokkeveld Mountains.

**Habitat:** Well-drained slopes on sandstones, generally between rock outcrops on deeper sands.

**Rationale:** EOO 2 500 km². Known from three sites: Wolfberg and the adjacent slopes to Eselsbank in the Cederberg, Baviaansberg, and the Bonteberg. Subpopulations are very localised, and have no known threats.

**Ceratocaryum** Nees

**Ceratocaryum fistulosum** Mast.

**Status:** Rare

H.P. Linder & D. Pillay

**Distribution:** WC. Langeberg Mountains between Swellendam and Riversdale.

**Habitat:** Steep, upper, south-facing slopes, sometimes near rock outcrops, 600–1 300 m.

**Rationale:** A range-restricted species (EOO < 60 km²), known from three subpopulations. No known threats.

**Ceratocaryum persistens** H.P.Linder

**Status:** Rare

D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution:** WC. Langeberg Mountains between Cederberg and Kouebokkeveld Mountains.

**Habitat:** Dry, well-drained slopes on sandstones, generally between rock outcrops on deeper sands.

**Rationale:** EOO 2 500 km². Known from three sites: Wolfberg and the adjacent slopes to Eselsbank in the Cederberg, Baviaansberg, and the Bonteberg. Subpopulations are very localised, and have no known threats.

**Ceratocaryum pulchrum** H.P.Linder

**Status:** CR A2a; B1ab(v) + 2ab(v)

H.P. Linder, D. Raimondo & J.E. Victor

**Distribution:** WC. Elim.

**Habitat:** On a sandstone ridge in well-drained sandy soils, in restio/protetoid fynbos, 200 m.

**Rationale:** EOO and AOO < 2 km². Known from one subpopulation. Between 1995 and 2002 over 80% of the plants died. This decline took place in less than one generation. Generation length of this rhizomatous species is estimated to be 20 years. The reason for the death of individuals is unknown.
Elegia L.

Elegia acockii (Pillans) Moline & H.P.Linder
Status: EN B1ab(ii,iii,v)
J.E. Victor & R.C. Turner
Distribution: WC. Cape Flats to Malmesbury.
Habitat: Sandstone slopes, 1 800 m.
Rationale: Known from one location, (EOO 8 km²). Potentially threatened by too frequent fires.

Elegia altigena Pillans
Status: NT B1ab(ii,iii,v)
J.E. Victor & D. Raimondo
Distribution: WC. Cape Flats to Malmesbury.
Habitat: Seasonally waterlogged habitats, over a wide range of soils including shale or acid coastal sands.
Rationale: Known from less than 20 locations. Declining as a result of crop cultivation, coastal and urban development, invasion by alien plants and overgrazing by livestock.

Elegia amoena Pillans
Status: Rare
N.A. Helme
Distribution: WC. Kommetjie to Kommetjie.
Habitat: Shallow soils along sandstone ridges.
Rationale: Known from one extremely localised subpopulation. Potentially threatened by too frequent fires.

Elegia extensa Pillans
Status: EN B1ab(ii,iii)
J.E. Victor, N.A. Helme, D. Raimondo & R.C. Turner
Distribution: WC. Kogelberg Mountains.
Habitat: Coastal marshy areas, and along the banks of small streams.
Rationale: EOO < 8,500 km². Known from nine locations. Its coastal habitat is threatened by invasive alien plants and coastal development.

Elegia fenestrata Pillans
Status: VU B1ab(i,ii,iii,iv)
H.P. Linder, D. Raimondo & R.C. Turner
Distribution: WC. Kleinmond to Elgin.
Habitat: Coastal marshy areas, and along the banks of small streams.
Rationale: EOO < 8,500 km². Known from nine locations. Its coastal habitat is threatened by invasive alien plants and coastal development.

Elegia fucata Esterh.
Status: Rare
D. Raimondo, PA. Manyama & D.A. Kamundi
Distribution: WC. Northern slopes of the Kogelberg Mountains.

Elegia prominens Pillans
Status: NT B1ab(ii,iii,v)
J.E. Victor & D. Raimondo
Distribution: WC. Cape Flats to Malmesbury.
Habitat: Sandstone slopes, 1 800 m.
Rationale: Known from one location, (EOO 8 km²). Potentially threatened by too frequent fires.

Hypodiscus Nees

Hypodiscus alternans Pillans
Status: VU B1ab(i,ii,iii,iv)
H.P. Linder, D. Raimondo & R.C. Turner
Distribution: WC. Kleinmond to Elgin.
Habitat: Coastal marshy areas, and along the banks of small streams.
Rationale: EOO < 8,500 km². Known from nine locations. Its coastal habitat is threatened by invasive alien plants and coastal development.

Hypodiscus montanus Esterh.
Status: EN D
R.C. Turner, PA. Manyama & D.A. Kamundi
Distribution: WC. Langeberg, Goedelveelof Peak.
Habitat: Shallow soils along sandstone ridges.
Rationale: Known from one extremely localised subpopulation of less than 250 plants. Potentially threatened by too frequent fires.

Hypodiscus procurens Esterh.
Status: EN B1ab(ii,iii,iv)
N.A. Helme
Distribution: WC. Stanford to Mossel Bay.

Habitat: In seeps and along streams, often in deeper soil, 1 500–1 600 m.
Rationale: Restricted to Jonaskop and the Wildendberg, known from a single subpopulation (EOO 10 km²). No known threats.
Habitat: Deep sand associated with coastal limestone outcrops.
**Rationale:** EOO 4 663 km². Known from seven locations. Occurs as small, naturally fragmented subpopulations, with most of them declining as a result of either coastal development or invasion by alien plants.

**Ischyrolepis** Steud.

**Ischyrolepis affinis** Esterh.

**Status:** Rare
H.P. Linder, D. Raimondo & D.A. Kamundi

**Distribution:** WC. Witteberg and Bontebok Mountains.

**Habitat:** Heavy loamy soils, with renosterbos, absent from sandstone-derived soils.

**Rationale:** Known from two locations, potentially threatened by protea cultivation, encroachment from invasive alien pines and housing developments.

**Ischyrolepis arida** (Pillans) H.P.Linder

**Status:** EN B1ab(ii,iii,iv,v)
R.C. Turner

**Distribution:** NC WC. Witteberg at Laingsburg, Touwsrivier at the western end of the Great Karoo.

**Habitat:** Sandstone slopes.

**Rationale:** A range-restricted species (EOO < 20 km²), known from two collections from high-altitude slopes. It has no known threats.

**Ischyrolepis carpospila** (Mast.) H.P.Linder

**Status:** VU D2
H.P. Linder & D. Pillay

**Distribution:** WC. Citrusdal to Bredasdorp and Agulhas.

**Habitat:** Well-drained, dry stony slopes, 900–1 100 m.

**Rationale:** A range-restricted species (EOO < 50 km²), known from one subpopulation. No known threats.

**Ischyrolepis fuscidula** (Pillans) H.P.Linder

**Status:** Rare
H.P. Linder & D. Pillay

**Distribution:** WC. Audensberg.

**Habitat:** Coastal marshes, 5–15 m.

**Rationale:** A highly range-restricted coastal endemic (EOO < 20 km², AOO < 5 km²), known from two locations. Declining as a result of coastal housing development and draining of seasonal wetlands.

**Ischyrolepis karoica** Esterh.

**Status:** Rare
H.P. Linder & D. Pillay

**Distribution:** WC. Karooport and Bontebok Mountains.

**Habitat:** Low slopes, sandstone rubble overlying shale.

**Rationale:** Known from a restricted range (EOO < 500 km²), from fewer than five subpopulations. No recorded threats.

**Ischyrolepis longiaristata** H.P.Linder

**Status:** Rare
N.A. Helme & D. Raimondo

**Distribution:** NC WC. Matsikamma and Bokkeveld Escarpment.

**Habitat:** South- or east-facing shallow sands overlying sandstone ledges in semishade, often seasonally damp.

**Rationale:** A habitat specialist known from three subpopulations with no recorded threats.

**Ischyrolepis paludosa** (Pillans) H.P.Linder

**Status:** VU A2bc; B1ab(i,ii,iii,iv,v)
R.C. Turner, H.P. Linder & D. Raimondo

**Distribution:** WC. Citrusdal to Bredasdorp and Agulhas.

**Habitat:** Seasonally wet sands.

**Rationale:** EOO 14 851 km². Most subpopulations of this predominantly lowland, habitat-specific species are threatened by urban development and encroachment from invasive alien acacias. Only sites in the Cape of Good Hope section of the Table Mountain National Park are well conserved. It has lost over 30% of its habitat to crops and urban expansion over the past three generations (generation length 30 years).
Ischyrolepis papillosa Esterh.

Status: VU A2abce
R.C. Turner

Distribution: EC WC. Malmsbury to Bredasdorp and Humansdorp.
Habitat: Coastal flats and slopes on recent sands or clays.
Rationale: This species resprouts after fire and the generation length is likely to exceed 30 years. It has lost over 30% of its habitat and subpopulation over the past 90 years to urban development, crop cultivation, afforestation and invasion by alien plants.

Ischyrolepis pratensis Esterh.

Status: EN A2ace; B1ab(ii,iii,iv,v) R.C. Turner & H.P. Linder

Distribution: WC. Cape Peninsula, Worcester and Malmsbury.
Habitat: Seasonally waterlogged habitats on loamy sand, usually over an impervious laterite layer, in lowlands.
Rationale: EOO < 251 km². Four of the seven historically recorded subpopulations (71%) are on coastal lowlands between Cape Town and Gordon’s Bay and are likely to be extinct as a result of urban development. This species coppices after fire, hence generation length is over 30 years. Currently extant at three locations and declining because of invasive alien plants and crop cultivation.

Ischyrolepis sabulosa (Pillans) H.P.Linder

Status: EN A2a; B1ab(ii,iii,iv,v) D. Raimondo & J.E. Victor

Distribution: WC. Cape Peninsula and Bredasdorp.
Habitat: Restricted to habitats that are waterlogged in winter, often growing partially submerged in water, 5–20 m.
Rationale: EOO 720 km². Known from the Cape Flats and a few subpopulations on the Agulhas Plain (a 140 km disjunction). Severely threatened by dense invasive alien plant infestations at all subpopulations. More than half of historical sites have been lost since 1965 as a result of urban expansion (generation length 20 years).

Ischyrolepis saxatilis Esterh.

Status: Rare
D. Raimondo, P.A. Manyama & D.A. Kamundij

Distribution: WC. Franschhoek and Hottentots Holland Mountains.
Habitat: Rock ledges and in seeps, often in the vicinity of waterfalls, 300–1 200 m.
Rationale: A range-restricted species (EOO 20 km²), known from five subpopulations with no recorded threats.

Ischyrolepis setiger (Kunth) H.P.Linder

Status: Rare
H.P. Linder & D. Raimondo

Distribution: WC. Brandewyn River, near Clanwilliam.
Habitat: Shallow sand over sandstone outcrops and among sandstone ridges.
Rationale: EOO < 1 000 km². Occurring in areas not suitable for cultivation. Not threatened.

Ischyrolepis sp. nov.

Voucher: Esterhuysen 32998 BOL
Status: EN B1ab(ii,iii,iv,v) H.P. Linder & R.C. Turner

Distribution: WC. Southern Agulhas Plain between Elim, Viljoenshof and the Soetansyberg.

Habitat: Gravelly soils or damp sand, often with impeded drainage, on low coastal plains.
Rationale: Although locally common, it occurs in a highly transformed area and is known from only three localised subpopulations. Threats from crop cultivation and invasion by alien plants are ongoing.

Ischyrolepis sp. nov.

Voucher: Linder, Harding & Moline 7523 BOL
Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv) R.C. Turner

Distribution: WC. Kouebokkeveld, from the Suurvlakte in the north to the summit of the Skurweberg Pass in the south.
Habitat: Quartzitic, acidic, montane sandy flats.
Rationale: A recently discovered new taxon known from two locations (EOO ± 248 km², AOO ± 9 km²), but could occur elsewhere in the Skurweberg range. Habitat destruction on the Skurweberg Pass is causing continuing decline. It is also potentially threatened by forestry on the Suurvlakte and because it is only known from female plants.

Ischyrolepis tenuis H.P.Linder

Status: VU D2
R.C. Turner

Distribution: WC. Bloukop, north of the Kouebokkeveld Sneeukop, to Gabriel’s Pass in the central Cederberg.
Habitat: Well-drained, sometimes rocky soils, also on shale bands in ecotones between renosterveld and fynbos, 900–1 500 m.
Rationale: Although locally common, this taxon is known from only five locations (EOO 200 km²). It is potentially threatened by too frequent fires.

Ischyrolepis vilis (Kunth) H.P.Linder

Status: Rare
H.P. Linder, N.A. Helme & D. Raimondo

Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Granitic rocks, in well-drained loams, 1 450 m.
Rationale: A range-restricted species (EOO 500 km²), known from several peaks, suggesting that there are several subpopulations. There is no formal protection for any of these subpopulations, but no severe threats are known.

Ischyrolepis wittebergensis Esterh.

Status: Rare
H.P. Linder & D. Pillay

Distribution: WC. Witteberg above Laingsburg.
Habitat: Well-drained stony slopes, 1 350–1 900 m.
Rationale: Locally common but with a restricted range (EOO 110 km²). There is no formal protection for this area, but it is not suitable for cultivation and it is not threatened.

Nevillea Esterh. & H.P.Linder

Nevillea singularis Esterh.

Status: VU D2
N.A. Helme & D. Raimondo

Distribution: WC. Rivieronderent Mountains above Genadendal.
Habitat: Marsh on a shale band, and on the rocky slope directly below the shale band, possibly very wet in winter.
Rationale: Known from one location. Potentially threatened by invading alien plants.

Restionaceae Ischyrolepis papillosa

Angiosperms: Monocotyledons
**Restio coliculosperrmus** H.P.Linder  
**Status:** VU D2  
H.P. Linder, D. Raimondo, P.A. Manyama & D.A. Kamundi†  
**Distribution:** WC. Riviersondern and Swellendam.  
Habitat: Steep, south-facing slopes on black organic soils, usually in shady places.  
Rationale: Known from two locations. The fire sensitivity of this species is not known, and it therefore remains possible that a series of inappropriate fires could result in extinction.

**Restio communis** Pillans  
**Status:** VU D2  
H.P. Linder, N.A. Helme, D. Raimondo & R.C. Turner  
**Distribution:** WC. Cape Peninsula.  
Habitat: Seepages and damp sand localities, often forming an extensive groundcover, 300–500 m.  
Rationale: A range-restricted species (EOO < 20 km²). Most of its range falls within the Table Mountain National Park, but its sensitivity to fire is not known and it might be driven to extinction by a set of inappropriate fires.

**Restio distans** Pillans  
**Status:** Rare  
H.P. Linder, R.C. Turner & D. Pillay  
**Distribution:** WC. Cape Peninsula.  
Habitat: Rock outcrops and ledges, often on steep broken cliffs below shale bands.  
Rationale: A range-restricted species (EOO and AOO < 20 km²). No threats have been recorded to have an impact on this species.

**Restio dodii** Pillans var. **dodii**  
**Status:** VU D2  
H.P. Linder, R.C. Turner & D. Pillay  
**Distribution:** WC. Hottentots Holland Nature Reserve, Nuweberg between Landdroskop and Emerald Dome.  
Habitat: Rock outcrops and ledges, often on steep broken cliffs below shale bands.  
Rationale: A range-restricted species (EOO < 20 km²). Known from two locations, of which only one occurs within a reserve. Declining at all other locations owing to invasive alien plants, drainage of its seasonally wet habitat for crop cultivation, and aseasonal fires.

**Restio fusiformis** Pillans  
**Status:** Rare  
R.C. Turner  
**Distribution:** WC. Hottentots Holland Mountains.  
Habitat: Marshes, wetlands and along streambeds.  
Rationale: A range-restricted species (EOO < 20 km²). Known from three subpopulations, all of which fall within the Kogelberg Biosphere Reserve or the Hottentots Holland Nature Reserve.

**Restio fusiformis** Pillans var. **purpureus**  
**Status:** VU B1ab(ii,iii,y)  
N.A. Helme & D. Raimondo  
**Distribution:** WC. Agulhas Plain to De Hoop.  
Habitat: Seasonally wet sands over limestone.  
Rationale: EOO 2 900 km². Known from fewer than 10 locations, of which only one occurs within a reserve. Declining at all other locations owing to invasive alien plants, drainage of its seasonally wet habitat for crop cultivation, and aseasonal fires.

**Restio brunneus** Pillans  
**Status:** Rare  
H.P. Linder, D. Pillay & R.C. Turner  
**Distribution:** WC. Cederberg.  
Habitat: Sandstone slopes, along seeps and streamlines, 1 600–1 800 m.  
Rationale: Endemic to Cederberg Sandstone Fynbos (EOO < 150 km²). No significant threats.

**Restio acockii** Pillans  
**Status:** Rare  
H.P. Linder, D. Pillay & R.C. Turner  
**Distribution:** WC. Hottentots Holland Mountains.  
Habitat: Marshes, wetlands and along streambeds.  
Rationale: A range-restricted species (EOO < 180 km²), known from two locations. Potentially threatened by road construction through seepage areas, flower-picking and encroachment from invasive alien pines.

**Platycaulos subcompressus** (Pillans) H.P.Linder  
**Status:** Rare  
H.P. Linder, D. Raimondo & J.E. Victor  
**Distribution:** WC. Landdroskop in the Hottentots Holland Mountains to Bain’s Kloof.  
Habitat: Marshy habitats, seepages along streambanks, rarely on rock ledges, 750–1 500 m.  
Rationale: A range-restricted species (EOO < 266 km²), known from three subpopulations. No recorded threats.

**Restio fusiformis** Pillans var. **purpureus**  
**Status:** VU B1ab(ii,iii,y)  
N.A. Helme & D. Raimondo  
**Distribution:** WC. Agulhas Plain to De Hoop.  
Habitat: Seasonally wet sands over limestone.  
Rationale: EOO 2 900 km². Known from fewer than 10 locations, of which only one occurs within a reserve. Declining at all other locations owing to invasive alien plants, drainage of its seasonally wet habitat for crop cultivation, and aseasonal fires.

**Restio fusiformis** Pillans var. **purpureus**  
**Status:** VU B1ab(ii,iii,y)  
N.A. Helme & D. Raimondo  
**Distribution:** WC. Agulhas Plain to De Hoop.  
Habitat: Seasonally wet sands over limestone.  
Rationale: EOO 2 900 km². Known from fewer than 10 locations, of which only one occurs within a reserve. Declining at all other locations owing to invasive alien plants, drainage of its seasonally wet habitat for crop cultivation, and aseasonal fires.

**Restio fusiformis** Pillans  
**Status:** Rare  
R.C. Turner  
**Distribution:** WC. Hottentots Holland Mountains.  
Habitat: Marshes, wetlands and along streambeds.  
Rationale: A range-restricted species (EOO < 180 km²), known from two locations. Potentially threatened by road construction through seepage areas, flower-picking and encroachment from invasive alien pines.

**Restio fusiformis** Pillans var. **purpureus**  
**Status:** VU B1ab(ii,iii,y)  
N.A. Helme & D. Raimondo  
**Distribution:** WC. Agulhas Plain to De Hoop.  
Habitat: Seasonally wet sands over limestone.  
Rationale: EOO 2 900 km². Known from fewer than 10 locations, of which only one occurs within a reserve. Declining at all other locations owing to invasive alien plants, drainage of its seasonally wet habitat for crop cultivation, and aseasonal fires.

**Restio distans** Pillans  
**Status:** Rare  
H.P. Linder, R.C. Turner & D. Pillay  
**Distribution:** WC. Cape Peninsula.  
Habitat: Rock outcrops and ledges, often on steep broken cliffs below shale bands.  
Rationale: A range-restricted species (EOO and AOO < 20 km²). No threats have been recorded to have an impact on this species.

**Restio distans** Pillans  
**Status:** Rare  
H.P. Linder, R.C. Turner & D. Pillay  
**Distribution:** WC. Cape Peninsula.  
Habitat: Rock outcrops and ledges, often on steep broken cliffs below shale bands.  
Rationale: A range-restricted species (EOO < 180 km²). No recorded threats have been recorded to have an impact on this species.
**Restio harveyi** Mast.

**Status**: EN B1ab(ii,iii,v)

H.P. Linder, R.C. Turner & D. Raimondo

**Distribution**: WC. Cape Peninsula, Somerset West, Bot River to Onrus, and Elim.

**Habitat**: Granitic soils, and sandstone rubble, or pebbly slopes, in renosterveld, 50–200 m.

**Rationale**: EOO 2 200 km². This lowland species has lost 50% of known locations to urban expansion and crop cultivation. Extant at only four locations and threatened by invasive alien plants at all four.

**Restio implicatus** Esterh.

**Status**: Critically Rare

H.P. Linder, D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution**: WC. Langeberg Mountains.

**Habitat**: Upper south-facing slopes, where the plants receive rain and fog throughout the year.

**Rationale**: A range-restricted species (EOO < 10 km²), known from one site at high altitude. It has no recorded threats.

**Restio micans** Nees

**Status**: EN B1ab(ii,iii)

N.A. Helme, D. Raimondo & R.C. Turner

**Distribution**: WC. Malmsbury to False Bay.

**Habitat**: Acid coastal sand, often near streams or seepages.

**Rationale**: EOO 110 km². Herbarium specimens indicate that this species was once widespread and common, especially on the Cape Flats. It has lost over 95% of its habitat to urban development, crop cultivation and severe infestations of invasive alien plants. It is now extant at only four locations and loss is continuing as a result of invasion by alien plants and draining of wetlands.

**Restio montanus** Esterh.

**Status**: Critically Rare

H.P. Linder, D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution**: WC. Slanghoek Mountains.

**Habitat**: In seepage cracks below high cliffs, 1 200–1 350 m.

**Rationale**: Known from one subpopulation (EOO, AOO < 5 km²). Occurs in a safe, permanently moist habitat.

**Restio nodosus** Pillans

**Status**: Rare

D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution**: WC. Hex River Mountains, from Brandwacht Peak in the south to Milner Peak in the northeast, and to the Mostertshoek Twins to the northwest.

**Habitat**: Seasonally wet flushes over bedrock, 1 500–1 920 m.

**Rationale**: A range-restricted species (EOO < 200 km²), known from fewer than 10 subpopulations. No recorded threats.

**Restio nuwebergensis** Esterh.

**Status**: VU D2

H.P. Linder, D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution**: WC. Hottentots Holland Mountains.

**Habitat**: In marshy places where the growth is low and the more aggressive marsh restios are absent.

**Rationale**: Known from one location in the Nuweveld forest station, on the eastern slopes of Landdraskop. Potentially threatened by a deleterious fire regime and invasive alien plants.

**Restio paludicola** H.P. Linder

**Status**: Rare

H.P. Linder, D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution**: WC. Klein Swartberg Mountains.

**Habitat**: Wet habitats, in seepages and along stream margins.

**Rationale**: Restricted to one mountain range (EOO < 75 km²), falls within the Maanskynkop Nature Reserve. Not threatened.

**Restio papyraceus** Pillans

**Status**: VU D2

D. Raimondo, J.H. Vlok, H.P. Linder & R.C. Turner

**Distribution**: WC. Klein Swartberg Mountains.

**Habitat**: On rocky ledges at base of cliffs, on damp, south-facing ledges.

**Rationale**: Known from one mountain range within the Klein Swartberg Reserve (EOO 7.5 km², AOO < 1 km²). This reseeding species is potentially threatened by too frequent fires.

**Restio peculiaris** Esterh.

**Status**: Critically Rare

H.P. Linder, D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution**: WC. Kleinmond to Jonaskop in the Rivier-Sonderend Mountains.

**Habitat**: Among rocks and on ledges on cool, somewhat sheltered, south-facing slopes.

**Rationale**: A range-restricted species (EOO < 300 km²), known from six subpopulations. No recorded threats.

**Restio pumilis** Esterh.

**Status**: Rare

D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution**: WC. Klein Swartberg Mountains.

**Habitat**: Marshy or seepage spots, as well as on rock flushes.

**Rationale**: A range-restricted species (EOO < 10 km²) known from a single subpopulation. Locally abundant, within a well protected area.

**Restio ripulica** Esterh.

**Status**: Critically Rare

H.P. Linder, D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution**: WC. Matroosberg.

**Habitat**: Crevices and cracks in rugged rocks on the southern flanks of the mountain, 1 200–1 300 m.

**Rationale**: EOO < 10 km². Known from a single site in a rather rugged and inaccessible area. There appear to be no immediate threats to this species.

**Restio scaber** Mast.

**Status**: VU D2

N.A. Helme & D. Raimondo

**Distribution**: WC. Caledon Swartberg.

**Habitat**: Mountain slopes, 600 m.
Angiosperms: Monocotyledons

Restionaceae

*Restio singularis* Esterh.

**Status:** Rare

**Distribution:** WC. Du Toit's Kloof.

**Habitat:** On ledges, in gullies, at base of rocks, and in recesses in rocks on the very rugged summits of these peaks, and generally on south-facing slopes.

**Rationale:** EOO 14 km². A high-alpine species known from three mountain peaks. It has no threats as it occurs in fire refuges.

*Restio subtilis* Mast.

**Status:** Rare

**Distribution:** WC. Hottentots Holland Mountains.

**Habitat:** Very wet marshes on level areas, or marshy stream sides, 800–2 100 m.

**Rationale:** A range-restricted species (EOO 120 km²), known from two subpopulations that fall within protected areas and therefore not threatened.

*Restio vallis-simius* H.P.Linder

**Status:** Rare

**Distribution:** EC. Baviaanskloof.

**Habitat:** Among rocks in fire-protected habitats, but also on open slopes.

**Rationale:** Known from three collections (EOO < 20 km²). The area is poorly explored, and it is possible that the species is more widespread. It has no recorded threats.

*Restio zuluensis* H.P.Linder

**Status:** VU B1ab(iii)+2ab(iii)

L. von Staden & C.R. Scott-Shaw

**Distribution:** KZN. Northern KwaZulu-Natal and southern Mozambique.

**Habitat:** Grows on the margins of wetlands in short coastal grassland.

**Rationale:** Restricted to a highly specialised habitat (AOO estimated < 200 km²) and has a restricted range (EOO 2 300 km²) in northern KwaZulu-Natal. There are nine known locations, and although much of the habitat is well protected within the extensive Greater St Lucia Wetland Park, there is continuing decline in the quality and extent of the habitat outside reserve areas. Subpopulations are large and the habitat is mostly intact within reserve systems, and therefore not considered severely fragmented. This species also occurs in southern Mozambique, but the extent of its range, its habitat and threats are not known.

**Staberoha** Kunth

*Staberoha multispicula* Pillans

**Status:** VU B1ab(iii,iii,iv,v)

H.P. Linder & D. Raimondo

**Distribution:** WC. Baardskeerdersbos to Soetansyberg.

**Habitat:** Well-drained, sandy slopes, 50–200 m.

**Rationale:** EOO > 500 km². Known from fewer than 10 locations from the hills around Villiersdorp. Threatened by protea, vineyard and wheat cultivation.

*Staberoha stokoei* Pillans

**Status:** Rare

H.P. Linder & D. Pillay

**Distribution:** WC. Groot Swartberg Mountains.

**Habitat:** Summits of ridges and north-facing slopes, restricted to south-facing ledges on upper rocky peaks, 1 800–2 200 m.

**Rationale:** EOO 73 km². Known from three subpopulations. It has no recorded threats.

Thamnochortus P.J.Bergius

*Thamnochortus amoena* H.P.Linder

**Status:** Rare

**Distribution:** WC. Langeberg Mountains.

**Habitat:** Rocky, north-facing slopes, on well-drained, gravelly slopes and alluvial fans.

**Rationale:** A range-restricted species (EOO < 20 km²), known from two subpopulations, with no recorded threats.

*Thamnochortus dumosus* Mast.

**Status:** VU B1ab(iii,v)

H.P. Linder, R.C. Turner & D. Raimondo

**Distribution:** WC. Caledon to Bredasdorp.

**Habitat:** Lowland sandy areas often seasonally wet, 100–300 m.

**Rationale:** EOO < 1 250 km². Known from 5–10 locations, all of which are threatened by either too frequent fires or invasive alien plants.

*Thamnochortus ellipticus* Pillans

**Status:** VU D2

J.H. Vlok & D. Raimondo

**Distribution:** WC. Northern Langeberg Mountains.

**Habitat:** Well-drained gravelly soils on dry, north-facing sandstone slopes.

**Rationale:** EOO < 25 km², AOO < 10 km². Has declined in the past because of crop cultivation and afforestation and is now potentially threatened by pine invasions.

*Thamnochortus fraternus* Pillans

**Status:** Plate 37

NT B1ab(iii)

H.P. Linder, R.C. Turner & D. Raimondo

**Distribution:** WC. Cape Peninsula to Bredasdorp.

**Habitat:** Well-drained limestone slopes and pavements, 50–200 m.

**Rationale:** EOO < 2 000 km². Known from 10–15 locations. Most of which are highly threatened by invading alien acacias.

*Thamnochortus karooica* H.P.Linder

**Status:** VU D2

D. Raimondo

**Distribution:** WC. Northern slopes of the Langeberg and the Warmwatersberg Mountains.

**Habitat:** Sandstone slopes.

**Rationale:** A range-restricted species (EOO < 250 km²), known from four subpopulations. Potentially threatened by harvesting and habitat degradation due to overgrazing by livestock.
**Thamnochortus levynsiae** Pillans
Status: Rare
D. Raimondo, P.A. Manyama & D.A. Kamundii

*Distribution:* WC. Cape Peninsula, Table Mountain to Kalk Bay Mountain.

*Habitat:* Steep, rocky slopes or on ledges, restricted to moist, south-facing slopes, 450–900 m.

*Rationale:* A Cape Peninsula endemic (EOO 190 km²), known from fewer than 10 subpopulations, with no recorded threats.

**Thamnochortus muirii** Pillans

Status: VU B1ab(i,ii,iii,iv,v)
J.E. Victor & R.C. Turner

*Distribution:* WC. Potberg to Mossel Bay.

*Habitat:* Deep sandy habitats associated with limestone, 30–200 m.

*Rationale:* EOO < 5 700 km². Known from eight locations. Declining because of crop cultivation, urban development and invasive alien plants.

**Thamnochortus nutans** (Thunb.) Pillans

Status: VU D2
H.P. Linder, R.C. Turner & D. Pillay

*Distribution:* WC. Cape Peninsula.

*Habitat:* Shallow soil over sandstone bedrock, often in waterlogged habitats, with moss beds often at the base of plants.

*Rationale:* Known from two locations (Constantiaberg and Table Mountain). Potentially threatened by trampling as both locations are heavily frequented by hikers. The Constantiaberg subpopulation is fragmented by a radio tower and a tar road.

**Thamnochortus paniculatus** Mast.

Status: NT B1ab(i,ii,iii,iv,v)
H.P. Linder, D. Raimondo & R.C. Turner

*Distribution:* WC. Cape Agulhas to Still Bay.

*Habitat:* Well-drained slopes, usually over limestone pavements, 10–200 m.

*Rationale:* EOO < 3 000 km². Known from 13 locations. Occurring on coastal limestone patches that are heavily infested by invasive alien plants.

**Thamnochortus papyraceus** Pillans

Status: VU D2
D. Raimondo, J.H. Vlok, H.P. Linder & R.C. Turner

*Distribution:* WC. Klein Swartberg Mountains.

*Habitat:* High-altitude, well-drained habitats in stony places, or in shallow, stony soil over rock.

*Rationale:* Known from four high peaks in an area currently experiencing frequent fire events. This reseedier is potentially threatened by too frequent fires.

**Thamnochortus pellucidus** Pillans

Status: VU B1ab(i,ii,iii,iv,v)
J.E. Victor & R.C. Turner

*Distribution:* WC. Betty’s Bay to Soetansyberg.

*Habitat:* Well-drained acid coastal sand, occasionally under slightly peaty conditions.

*Rationale:* EOO 500 km². Known from seven locations and experiencing ongoing habitat loss as a result of invasive alien plants, protea cultivation and coastal development.

**Thamnochortus pluristachyus** Mast.

Status: VU B1ab(iii,v)
H.P. Linder, D. Raimondo & R.C. Turner

*Distribution:* WC. Agulhas coast.

*Habitat:* Limestone pavements, in cracks in the limestone bedrock.

*Rationale:* EOO < 4 000 km². Known from fewer than 10 locations. Threatened by invading alien plants throughout its range.

**Thamnochortus punctatus** Pillans

Status: Declining
H.P. Linder, R.C. Turner & D. Raimondo

*Distribution:* NC WC. Bokkeveld Mountains to Cape Peninsula.

*Habitat:* Acidic coastal sand plains, often spreading into disturbed areas, particularly common along roads and avoids wetter areas.

*Rationale:* EOO < 15 000 km². Known from 20–40 locations with many large subpopulations. It is predominantly a lowland species and has lost at least 40% of its range and locations to crop cultivation. Currently declining as a result of housing development, invasion by alien plants, harvesting for thatch and crop cultivation.

**Wildenowia Thunb.**

**Wildenowia affinis** Pillans

Status: EX
H.P. Linder, R.C. Turner & D. Pillay

*Distribution:* WC. Table Mountain.

*Habitat:* Well-drained slopes on granite or Table Mountain Sandstone bedrock.

*Rationale:* Collected once, in 1918, from the northern slopes of Table Mountain near Kloof Corner. This area has been under forestry plantations for at least 85 years. In addition, the area where Table Mountain road and the Lower Cable Station were built has been invaded by alien plants (especially pine and *Acacia mearnsii*), and these slopes have been subject to frequent fires in places. These combined factors have led to the extinction of this species.

**Wildenowia purpurea** Pillans

Status: VU D2
H.P. Linder & D. Pillay

*Distribution:* WC. Franschhoek Mountains to Viljoen’s Pass.

*Habitat:* Sandy flats, possibly somewhat damp in winter, at the base of the sandstone slopes, 350–600 m.

*Rationale:* Known from two locations, one of which was lost as a result of dam construction and a pine plantation. The second location falls within a reserve where it is potentially threatened by invasive alien plants.

**Wildenowia rugosa** Esterh.

Status: VU D2
H.P. Linder, D. Raimondo & P.A. Manyama

*Distribution:* WC. Kogelberg.

*Habitat:* Coarse sands that are seasonally damp, 300–600 m.

*Rationale:* A very narrow endemic (EOO 180 km²), known from three locations. Although the area is well protected, the species might be vulnerable to an inappropriate fire regime and extraction of groundwater.
**STRELITZIACEAE**

*Strelitzia* Aiton

**Strelitzia juncea** Link

- **Status:** VU B1ab(ii,iii,v)
- **Distribution:** EC. Port Elizabeth, Uitenhage and Patensie.
- **Habitat:** Succulent thicket.
- **Rationale:** EOO 1 300 km². Known from six locations. Declining as a result of quarrying and illegal collecting for the horticultural trade; it is also threatened by invasive alien plants.

**TECOPHILAEACEAE**

*Cyanella* L.

**Cyanella aquatica** Oberm. ex G.Scott

- **Status:** VU D1 + 2
- **Distribution:** NC. Bokkeveld Escarpment.
- **Habitat:** Grows in seasonally waterlogged Dwyka tillite soils wedged between large dolerite rocks.
- **Rationale:** A range-restricted species (EOO 56 km²), known from six subpopulations. Less than 500 mature individuals have been recorded. Potentially threatened by overgrazing by livestock and by climate change.

**Cyanella cygnea** G.Scott

- **Status:** Rare
- **Distribution:** NC. Namaqualand and Richtersveld.
- **Habitat:** Moist granitic soils.
- **Rationale:** A habitat specialist, recorded from five subpopulations, but likely to occur at more. No known threats.

**Walleria** Kirk

**Walleria gracilis** (Salisb.) S.Carter

- **Status:** Rare
- **Distribution:** WC. Cederberg, Klawer and Richtersveld.
- **Habitat:** Sandy, windblown soils, often between rocks.
- **Rationale:** Known from three disjunct subpopulations. No threats have been recorded to have an impact on this species.

**VELLOZIACEAE**

*Xerophyta* Juss.

**Xerophyta longicaulis** Hilliard

- **Status:** Critically Rare
- **Distribution:** KZN. KwaZulu-Natal Drakensberg, Montaux-Sources.
- **Habitat:** Montane grassland, in scrub at the edge of moist sandstone cliffs, 1 700 m.
- **Rationale:** Known from the type locality, which is protected within the Ukhahlamba Drakensberg National Park.

**ZANNICHELLIACEAE**

*Pseudalthenia* Nakai

**Pseudalthenia aschersoniana** (Graebn.) Hartog

- **Status:** CR B2ab(iii)
- **Distribution:** WC. Cape Peninsula.

Habitat: Brackish pools near the sea.

**Rationale:** AOO < 10 km². Known from two locations. This species has lost habitat to urban development in the past. Remaining subpopulations are severely fragmented and threatened by degradation of wetlands as a result of urban expansion and invasion by alien plants.

**ZINGIBERACEAE**

*Siphonochilus* J.M.Wood & Franks

**Siphonochilus aethiopicus** (Schweinf.) B.L.Burtt

- **Status:** CR A4acd
- **Distribution:** LM MP. Sporadically from the Letaba catchment in the Limpopo lowveld to Swaziland. Extinct in KwaZulu-Natal. Widespread elsewhere in Africa.
- **Habitat:** Tall open or closed woodland, wooded grassland or bushveld.
- **Rationale:** The most highly sought-after medicinal plant on South African muthi markets. It is now extinct over most of its former range, with a 90% reduction in EOO over the last 100 years. Numbers remaining in the wild are critically low: subpopulations numbering 4 000 individuals or more were common in the past, but at present over 60% of remaining subpopulations consist of less than 100 mature individuals. Monitoring of subpopulations in Mpumalanga recorded an 84% decline in only four years. All indications are that harvesting is unsustainable and that this species is rapidly heading towards extinction.
5.4 ANGIOSPERMS: DICOTYLEDONS

ACANTHACEAE

Acanthopsis Harv.

\*Acanthopsis glauca\* (E.Mey.) Schinz  
**Status:** DDD  
**Distribution:** NC. Namaqualand, Kookfontein.  
**Habitat:** Unknown.  
**Rationale:** Known only from the type, collected in the early 1800s. Not enough is known about the distribution, habitat or population status of this species to determine its status.

\*Acanthopsis spathularis\* (E.Mey.) Schinz  
**Status:** Rare  
**Distribution:** NC. Kamieskroon to Springbok.  
**Habitat:** Namaqualand Klipkoppie Shrubland.  
**Rationale:** A range-restricted species (EOO < 100 km²), known from two subpopulations. No recorded threats.

Barleria L.

Barleria argillicola Oberm.  
**Status:** CR  
**Distribution:** KZN. Between Weenen and Estcourt.  
**Habitat:** Savanna, in eroded doleritic soils or among dolerite boulders, 900–1 200 m.  
**Rationale:** Known from seven small, severely fragmented subpopulations, scattered over three farms. All known subpopulations are threatened by illegal informal settlements and land claims and there is currently continuing decline as a result of overgrazing by livestock in at least one subpopulation and expected future declines in all others. We predict that the total population is likely to decline by 80% over the next 60 years.

Barleria dolomiticola M. & K. Balkwill  
**Status:** VU D1  
**Distribution:** L. von Staden  
**Habitat:** Grassland or low, open woodland, restricted to rocky dolomite slopes, 1 360–1 950 m.  
**Rationale:** A rare, range-restricted habitat specialist known from nine subpopulations of ± 20–30 mature individuals within an area of ± 230 km². These subpopulations all occur in an extensive chain of private and provincial nature conservancies, but remain vulnerable because of the small total population, estimated to be no more than 500 mature individuals.

Barleria greenii M. & K. Balkwill  
**Status:** CR  
**Distribution:** KZN. Between Weenen and Estcourt.  
**Habitat:** Savanna, on moderately sloping, north-facing aspects in open, rocky areas with heavy, dense, black clay soils strewn with doleritic rock. It occurs at the interface of grassland and valley bushveld, mostly in, or along the borders of seasonal or perennial streams, drainage lines or boggy areas, 1 200–1 260 m.  
**Rationale:** Restricted to a very small range (EOO 23.3 km²) and highly habitat specific (AOO 1.5 km²). All known populations are threatened by illegal informal settlements and land claims and there is currently continuing decline in at least one population and expected future declines in all others. Populations are severely fragmented owing to very short dispersal distances. There are two or three locations.

Barleria natalensis Lindau  
**Status:** CR  
**Distribution:** KZN. Verulam.  
**Habitat:** Coastal grassland, 100 m.  
**Rationale:** Known from type, last collected in 1890. The type locality and surrounds have been completely transformed for commercial sugarcane cultivation. It has not been found again at the type locality or elsewhere and is presumed to be extinct.

Barleria oxyphylla Lindau  
**Status:** Rare  
**Distribution:** J.E. Victor  
**Habitat:** Granite lowveld bushveld.  
**Rationale:** Known from three sites in South Africa, and one in Swaziland. Known only from conservation areas within South Africa, therefore not threatened.

Blepharis Juss.

\*Blepharis dilatata\* C.B.Clarke  
**Status:** Rare  
**Distribution:** L. von Staden & D.A. Kamundi†  
**Habitat:** Riverine and valley thicket on sandy soils, 150–650 m.  
**Rationale:** An apparently rare species known from five collections within a very small area (EOO 390 km²). Likely to be overlooked.

\*Blepharis fenestralis\* Vollesen  
**Status:** Critically Rare  
**Distribution:** L. von Staden & D.A. Kamundi†  
**Habitat:** Grasslands on stony, serpentine soil, 1 000 m.  
**Rationale:** Known from one site, occurs within a provincial nature reserve and has no recorded threats.

Blepharis inermis (Nees) C.B.Clarke  
**Status:** VU D2  
**Distribution:** D. Raimondo & R.C. Turner  
**Habitat:** Open karoo shrubland in dry, sandy riverbeds.  
**Rationale:** Known from three locations. Its alluvial habitat is potentially threatened as it is targeted for crop cultivation.

\*Blepharis sericea\* Vollesen  
**Status:** Critically Rare  
**Distribution:** L. von Staden & D.A. Kamundi†  
**Habitat:** Open karoo shrubland in dry, sandy riverbeds.  
**Rationale:** Known from three locations. Its alluvial habitat is potentially threatened as it is targeted for crop cultivation.
Habitat: Open, coastal bushveld on sand or mud flats at the edge of a lake, near sea level.
Rationale: Known from one site within a provincial conservation area. No recorded threats.

**Blepharis spinipes** Vollesen
Status: DDD
D.A. Kamundi

Distribution: LM. Soutpansberg Mountains.
Habitat: Unknown.
Rationale: Known from only one collection, not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Blepharis subglabra** Vollesen
Status: VU D2
D.A. Kamundi & J.E. Victor

Distribution: KZN. Paulpietersburg.
Habitat: Grassland, on steep rocky slopes, 1 050 m.
Rationale: Known from one location where it is potentially threatened by grazing by livestock.

**Blepharis uniflora** C.B.Clarke
Status: Rare
J.E. Victor & M.F. Pfaf

Distribution: LM. Widespread but rare between Cullinan and the Makgabeng Mountain.
Habitat: Dry acacia woodland on sandy soil, 1 000–1 250 m.
Rationale: An extremely rare and poorly known species, collected from only four widely separated sites in Gauteng and Limpopo Provinces.

**Dicliptera** Juss.

**Dicliptera fionae** K.Balkwill
Status: Critically Rare
P.J.D. Winter & J.E. Victor

Distribution: LM. Bewaarkloof Nature Reserve, Polokwane district.
Habitat: Mistbelt grassland, occurs at the edges of dolomite terraces on steep slopes.
Rationale: Only one known site that is protected in a nature reserve. Not threatened or declining.

**Dyschoriste** Nees

**Dyschoriste perrottetii** (Nees) Kuntze
Status: VU D2
M. Lötter, J.E. Burrows & D. Raimondo

Distribution: MP. Roossenekal to Lydenburg.
Habitat: Sekhukhune Mountain Grassland.
Rationale: Only two locations known. Potentially threatened by mining.

**Isoglossa** Oerst.

**Isoglossa sylvatica** C.B.Clarke
Status: DDD
D.A. Kamundi

Distribution: WC. Knysna.
Habitat: Unknown.
Rationale: Known only from the type, collected in the 1700s. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Justicia L.**

**Justicia bolusii** C.B.Clarke
Status: Rare
J.E. Victor & A.P. Dold

Distribution: EC. Kentani and Komga to East London.
Habitat: Coastal forest.
Rationale: A habitat specialist known from 10 sites. No recorded threats.

**Justicia minima** A.Meeuse
Status: Rare
D. Raimondo

Distribution: LM. Waterberg district.
Habitat: Rocky riverbeds.
Rationale: A habitat specialist that is not threatened.

**Justicia montis-salinarum** A.Meeuse
Status: Rare
J.E. Victor & L. von Staden

Distribution: LM. Western Soutpansberg Mountains and northern foothills of eastern Blouberg.
Habitat: Dry, extremely rocky areas in sandy soils in rock crevices on lower, north-facing slopes, restricted to quartzite.
Rationale: Known from a restricted range (EOO 300 km²), from only six subpopulations. Its extremely rocky habitat is unlikely to be threatened.

**Metarungia** Baden

**Metarungia galpinii** (Baden) Baden
Status: EN A4ac; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
J.E. Victor & A.P. Dold

Distribution: EC. East London.
Habitat: Buffels Thicket.
Rationale: Known from two locations, one of which is declining as a result of expansion of informal settlements. By 2030, an estimated 50% of the population will be lost.

**Monechma** Hochst.

**Monechma saxatile** Munday
Status: Rare
D. Raimondo

Distribution: NC. Pofadder.
Habitat: South-facing slopes of rocky gneiss hills.
Rationale: A range-restricted species (EOO 300 km²), known from four collections. Not threatened.

**Peristrophe** Nees

**Peristrophe cliffordii** K.Balkwill
Status: Rare
J.E. Victor & L. von Staden

Distribution: LM. Limpopo River Valley between Messina and Pontdrif. Possibly also on the northern bank in Zimbabwe.
Habitat: Kalahari sand in mopane bushveld.
Rationale: EOO 170 km². Known from only three subpopulations, two of which are protected within the Vhembe-Dongola National Park.

Peristrophe gillilandiorum K.Balkwill
Status: Rare
J.E. Victor & L. von Staden
Distribution: LM. Limpopo River Valley, in Zimbabwe and Limpopo Province between Beit Bridge and the confluence of the Limpopo and Shashe Rivers.
Habitat: Various habitats within mopane bushveld, including rocky hillsides and clay flats.
Rationale: Known from a restricted range (EOO 270 km²), but locally more common and not as habitat-specific as P. cliffordii from the same area.

Plinthus Fenzl
Plinthus rehmannii G.Schellenb.
Status: EN B1ab(ii,iii)
J.E. Victor & S.J. Siebert
Distribution: LM MP. Northern Sekhukhuneland, Strydpoort Mountains.
Habitat: Sand dunes in dry regions.
Rationale: EOO < 1 250 km². Recorded from only three locations and experiencing an ongoing loss and degradation of habitat caused by overgrazing and urban expansion.

Sclerochiton Harv.
Sclerochiton triacanthus A.Meeuse
Status: VU D2
M. Lötter, J.E. Burrows & L. von Staden
Distribution: MP. Barberton to Ngodwana.
Habitat: Open bushveld, in shallow, serpentine soils on shale outcrops and rocky slopes but not in dense, closed woodland, 900–1 200 m.
Rationale: A serpentine endemic from the Barberton region, known from three locations with a potential threat of mining.

Tetragonia L.
Tetragonia caesia Adamson
Status: DD
N.A. Helme
Distribution: WC. Cape Flats to Gansbaai.
Habitat: Alkaline sand flats.
Rationale: Known from fewer than five locations and declining primarily as a result of urban expansion, but also because of invasion by alien plants and quarrying.

Thunbergia Retz.
Thunbergia venosa C.B.Clarke
Status: Rare
C.R. Scott-Shaw & L. von Staden
Distribution: KZN. Richmond to Inanda, northwards to Weenen and Estcourt.
Habitat: Grassland or wooded grassland.
Rationale: A sparsely distributed species, known from 12 herbarium collections. No recorded threats.

AIZOACEAE

Plinthus Fenzl
Plinthus rehmannii G.Schellenb.
Status: EN B1ab(ii,iii)
J.E. Victor & S.J. Siebert
Distribution: LM MP. Northern Sekhukhuneland, Strydpoort Mountains.
Habitat: Sand dunes in dry regions.
Rationale: EOO < 1 250 km². Recorded from only three locations and experiencing an ongoing loss and degradation of habitat caused by overgrazing and urban expansion.

Tetragonia L.
Tetragonia caesia Adamson
Status: DD
N.A. Helme
Distribution: WC. Clanwilliam.
Habitat: Unkown.
Rationale: Known from two specimens cited by Adamson in 1955, but not enough is known about its distribution, specific habitat or population status to determine its status.

Tetragonia halimoides Fenzl
Status: DD
N.A. Helme
Distribution: WC. Piketberg to Paarl.
Habitat: Sandy or clay flats.
Rationale: Recorded from only two old specimens in the Compton Herbarium. A very poorly known species. It is likely to be threatened as it is confined to lowland habitats.

Siphonoglossa Oerst.
Siphonoglossa nkandlaensis Immelman
Status: Rare
J.E. Victor & A.P. Dold
Distribution: EC KZN. Zululand and Eastern Cape.
Habitat: Scarp or mistbelt forest.
Rationale: A habitat specialist, recorded from two disjunct areas. Possibly overlooked, and no known threats.

Siphonoglossa nkandlaensis Immelman
Status: Rare
J.E. Victor & A.P. Dold
Distribution: EC KZN. Zululand and Eastern Cape.
Habitat: Scarp or mistbelt forest.
Rationale: A habitat specialist, recorded from two disjunct areas. Possibly overlooked, and no known threats.

Siphonoglossa Oerst.
Siphonoglossa nkandlaensis Immelman
Status: Rare
J.E. Victor & A.P. Dold
Distribution: EC KZN. Zululand and Eastern Cape.
Habitat: Scarp or mistbelt forest.
Rationale: A habitat specialist, recorded from two disjunct areas. Possibly overlooked, and no known threats.

Ruellia L.
Ruellia pilosa L.f.
Status: VU B1ab(i,ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Swellendam to Mossel Bay.
Habitat: Renosterveld slopes.
Rationale: Eastern Overberg endemic, known from 10 locations. Declining as a result of coastal development and crop cultivation.

Sclerochiton Harv.
Sclerochiton triacanthus A.Meeuse
Status: VU D2
M. Lötter, J.E. Burrows & L. von Staden
Distribution: MP. Barberton to Ngodwana.
Habitat: Open bushveld, in shallow, serpentine soils on shale outcrops and rocky slopes but not in dense, closed woodland, 900–1 200 m.
Rationale: A serpentine endemic from the Barberton region, known from three locations with a potential threat of mining.

Tetragonia L.
Tetragonia halimoides Fenzl
Status: DD
N.A. Helme
Distribution: WC. Piketberg to Paarl.
Habitat: Sandy or clay flats.
Rationale: Recorded from only two old specimens in the Compton Herbarium. A very poorly known species. It is likely to be threatened as it is confined to lowland habitats.

Tetragonia sphaerocarpa Adamson
Status: VU D2
N.A. Helme & D.A. Kamundi†
Distribution: WC. Hondeklip Bay to Wallekraal.
Habitat: Shale and sand flats.
Rationale: Localised species in northern Namaqualand coastal areas, known from fewer than five locations. Potentially threatened by mining and crop cultivation.

ANGIOSPERMS: DICOTYLEDONS

ACANTHACEAE Peristrophe cliffordii

Rationale: A sparsely distributed species, known from 12 herbarium collections. No recorded threats.
ANACARDIACEAE

Loxostylis A.Spreng. ex Rchb.

\*Loxostylis alata A.Spreng. ex Rchb.

Status: Declining
A.T.D. Abbott, V.L. Williams & D. Raimondo

Distribution: EC KZN WC. Western Cape to southern KwaZulu-Natal.
Habitat: Forest margins.
Rationale: This species is widespread (EOO 106 300 km\(^2\)). Its bark is traded for medicinal use. There has been no observed decline in the Western Cape or Eastern Cape but it is being affected in Pondoland and in areas of KwaZulu-Natal. In certain areas of Pondoland a decline of 5–10% of mature individuals per year has been estimated. It regenerates well from seed and the decline is not sufficient to merit listing as Near Threatened or Threatened.

Ozoroa Delile

Ozoroa barbertonensis Retief

Status: VU D2
J.E. Victor, E. Retief & A.E. van Wyk

Distribution: MP. Barberton.
Habitat: Grassland, on rocky hillsides between rocks on white-green band of serpentine soil, 1 000 m.
Rationale: Known from five locations in a restricted area west of Barberton (EOO < 200 km\(^2\)). Potentially threatened by mining.

Ozoroa namaquensis (Sprague) Von Teichman & A.E. van Wyk

Status: Rare
J.E. Victor, R.H. Archer & A.E. van Wyk

Distribution: NC. Namibia and north into Angola, occurs only in a small area of the Northern Cape around Augrabies Falls National Park.
Habitat: Among rocks and on gravel flats.
Rationale: Although fairly widespread, it has a restricted range in South Africa (EOO < 500 km\(^2\)) and is known from two subpopulations. It has no known threats.

Searsia F.A.Barkley

\*Searsia acocksii (Moffett) Moffett

Status: NT B1ab(iii)+2ab(iii)
L. von Staden & A.T.D. Abbott

Distribution: EC KZN. Oribi Gorge to Isicetsha Forest.
Habitat: Pondoland scarp forest, understorey shrub in forest margins or rocky outcrops above river gorges, restricted to Msikaba Formation Sandstone, 200–600 m.
Rationale: A range-restricted species (EOO 1 700 km\(^2\), AOO 200 km\(^2\)). Declining in extent and habitat quality outside formal reserves because of too frequent and intense grassland fires having an impact on forest margins. Subpopulations not severely fragmented and occurs in 10–20 locations.

Searsia albomarginata (Sond.) Moffett

Status: CR D
J.E. Victor & A.P. Dold

Distribution: EC. Albany, west of Grahamstown.
Habitat: Grassy fynbos in rocky, red sandstone soils.
Rationale: Known from less than 50 mature individuals from an EOO of 27 km\(^2\).

Searsia batophylla (Codd) Moffett

Status: VU A2c
M. Lötter, J.E. Burrows & L. von Staden

Distribution: LM. Sekukhuneland.
Habitat: Dry bushveld, in low-lying areas and along watercourses, 650–975 m.
Rationale: It has a restricted range (EOO 945 km\(^2\)), but is locally common (at least 26 known subpopulations). There has been extensive transformation of its habitat by mining, human settlements and land degradation caused by overgrazing. We estimate a 30% decline of the population over the last three generations (90–150 years) based on a 32% loss of habitat.

Searsia dracomontana (Moffett) Moffett

Status: Rare
C.R. Scott-Shaw & D. Pillay

Distribution: FS KZN MP. Lower Drakensberg Escarpment around Charlestown and Wakkerstroom in southern Mpumalanga and at Van Reenen on the Free State-KwaZulu-Natal border.
Habitat: Dolerite grasslands at the edge of scrub forest, 1 700–2 100 m.
Rationale: A habitat specialist, known from at least five sites from the foothills of the Drakensberg. No known threats.

\*Searsia gracillima (Engl.) Moffett var. gracillima

Status: NT D2
L. von Staden

Distribution: G. Restricted to a small area to the north-east of Pretoria.
Habitat: Rocky quartzitic outcrops in bushveld.
Rationale: EOO 227 km\(^2\). Known from 7–10 locations. Most subpopulations are in still relatively undisturbed sites outside the urban edge of Pretoria, but owing to its proximity to the urban centre, it is potentially threatened by future development. One known subpopulation in Pretoria East has declined as a result of habitat loss caused by development.

Searsia harveyi (Moffett) Moffett

Status: NT D2
C.R. Scott-Shaw & J.E. Victor

Distribution: KZN. Ithala Nature Reserve and Mbabane (Swaziland).
Habitat: Grasslands, rocky sites, among sandstone rocks and quartzitic soils.
Rationale: A range-restricted species known from fewer than 10 locations. Potentially threatened by crop cultivation and afforestation.

Searsia kwazuluana (Moffett) Moffett

Status: Rare
C.R. Scott-Shaw & L. von Staden

Distribution: KZN. Mkuzo to St Lucia to Tembe, probably also southern Mozambique.
Habitat: Sandy coastal grasslands as well as stony hilltop grasslands and woodlands.
Rationale: EOO 4 800 km\(^2\). Occurs as scattered individuals. No significant threats. The sandy, nutrient-poor soils in which it grows are not suitable for crop cultivation and most subpopulations are protected within three large nature reserves.
Searsia maricoana (Baker f.) Moffett
Status: VU D2
J.E. Victor & R.H. Archer

Distribution: NW. Zeerust district.
Habitat: Grassland, at the transition from bushveld, in dark soil among igneous rocks.
Rationale: Known from one location, which is potentially threatened by mining.

Searsia pygmaea (Moffett) Moffett
Status: VU D2
M. Lötter, J.E. Burrows & L. von Staden

Distribution: MP. Barberton.
Habitat: Grassland, restricted to amphibolite serpentine soils, 1 950 m.
Rationale: One of the rarest members of the genus, known from a very small area (E0O 32.5 km²), from three locations. Potentially threatened by dam construction, mining and urban expansion.

Searsia rudatisii (Engl.) Moffett
Status: EN A2ac

Habitat: Open grasslands, in gently sloping or flat areas with well-drained loamy soils, 300–1 300 m.
Rationale: This long-lived resprouter has lost 70–80% of its habitat to crop cultivation within the last 80 years (generation length 30 years). Three of six subpopulations are now extinct, and there is continuing decline in the habitat due to afforestation, subsistence farming and invasion by alien wattles.

Searsia sekhukhunensis (Moffett) Moffett
Status: Rare
J.E. Victor & A.E. van Wyk

Distribution: L.M. Sekhukhuneland, Roossenekal to Steelpoort.
Habitat: Rocky hillsides in bushveld, on pyroxenitic substrates of the eastern rim of the Bushveld Igneous Complex.
Rationale: A habitat specialist restricted to the Sekhukhuneland Centre of Endemism. No known threats.

Searsia stenophylla (Eckl. & Zeyh.) Moffett
Status: NT D2
D. Raimondo, J.E. Victor & R.H. Archer

Distribution: WC. Cape Peninsula and Paarl to Gordon’s Bay.
Habitat: Sandstone slopes.
Rationale: Known from fewer than 10 locations and potentially threatened by invading alien plants.

Aplepidea F. Delaroche

Aplepidea amatymbica Eckl. & Zeyh.
Status: VU A2d

Distribution: EC FS KZN LM MP. Eastern Cape Drakensberg Mountains to Wolkberg Mountains in Limpopo Province. Also occurs in Lesotho, Swaziland and Zimbabwe.
Habitat: On boulder-strewn slopes and in grassland, near streams, moist areas or drainage lines up to 2 500 m.

Aplepidea attenuata Weim.
Status: NT B2ab(i.i,ii,iii,iv,v)
L. von Staden & P.J.D. Winter

Distribution: G LM MP. Dullstroom, Lydenburg, Machadodorp, Swaziland, Gauteng, Wolkberg Mountains and Sasolburg.
Habitat: Wetlands in grassland up to 2 200 m.
Rationale: AOO < 800 km², 7–12 locations. This rare but widespread species is confined to a restricted and highly threatened habitat type that is declining because of damming, drainage for crop cultivation, trampling by cattle, disturbance as a result of fragmentation by pine plantations and invasion by alien plants.

Aplepidea basinuda Pott var. subnuda Weim.
Status: EN B1ab(iii)+2ab(iii)
P.J.D. Winter, M. Lötter, J.E. Burrows & L. von Staden

Distribution: MP. Graskop to Witklip.
Habitat: Grassland, probably confined to Northern Escarpment Quartzite Sourveld, 1 400 m.
Rationale: A range-restricted taxon known from four locations (E0O < 160 km²). This taxon has lost 72% of its habitat to commercial forestry plantations over the past 50 years and is declining in habitat quality as a result of habitat fragmentation due to plantations, invasion by alien plants and a deleterious fire regime. It is a small herbs with a short generation length.

Aplepidea delicatula Weim.

Aplepidea insculpta Hilliard & B.L.Burtt
Status: Rare
P.J.D. Winter & J.E. Victor

Distribution: KZN. Southern Drakensberg Mountains.
Habitat: Short subalpine grassland on high basalt ridges, 2 200–2 600 m.
Rationale: Known from two sites. Not threatened.

Aplepidea macowanii Dummer

Aplepidea stenophylla (Eckl. & Zeyh.) Pott var. subnuda Weim.
Status: NT B2ab(i.i,ii,iii,iv,v)
L. von Staden & P.J.D. Winter

Distribution: G LM MP. Dullstroom, Lydenburg, Machadodorp, Swaziland, Gauteng, Wolkberg Mountains and Sasolburg.
Habitat: Wetlands in grassland up to 2 200 m.
Rationale: AOO < 800 km², 7–12 locations. This rare but widespread species is confined to a restricted and highly threatened habitat type that is declining because of damming, drainage for crop cultivation, trampling by cattle, disturbance as a result of fragmentation by pine plantations and invasion by alien plants.

Rationale: The population is estimated to have declined at least 30% over the last three generations (60 years) as a result of persistent and consistent harvesting pressures for the medicinal plant trade and some loss of suitable habitat for afforestation and crop cultivation. It is a high-density sought-after medicinal plant that has been exploited over much of its KwaZulu-Natal range, especially at lower altitudes, and local extinctions have been observed at several sites. Two studies have shown that subpopulation density of mature individuals within protected areas is at least twice that of plants within communal areas accessible to commercial harvesters.

Apl.epidea attenuata Weim.
Status: NT B2ab(i.i,ii,iii,iv,v)
L. von Staden & P.J.D. Winter

Distribution: G LM MP. Dullstroom, Lydenburg, Machadodorp, Swaziland, Gauteng, Wolkberg Mountains and Sasolburg.
Habitat: Wetlands in grassland up to 2 200 m.
Rationale: AOO < 800 km², 7–12 locations. This rare but widespread species is confined to a restricted and highly threatened habitat type that is declining because of damming, drainage for crop cultivation, trampling by cattle, disturbance as a result of fragmentation by pine plantations and invasion by alien plants.

Aplepidea basinuda Pott var. subnuda Weim.
Status: EN B1ab(iii)+2ab(iii)
P.J.D. Winter, M. Lötter, J.E. Burrows & L. von Staden

Distribution: MP. Graskop to Witklip.
Habitat: Grassland, probably confined to Northern Escarpment Quartzite Sourveld, 1 400 m.
Rationale: A range-restricted taxon known from four locations (E0O < 160 km²). This taxon has lost 72% of its habitat to commercial forestry plantations over the past 50 years and is declining in habitat quality as a result of habitat fragmentation due to plantations, invasion by alien plants and a deleterious fire regime. It is a small herbs with a short generation length.

Aplepidea delicatula Weim.

Aplepidea insculpta Hilliard & B.L.Burtt
Status: Rare
P.J.D. Winter & J.E. Victor

Distribution: KZN. Southern Drakensberg Mountains.
Habitat: Short subalpine grassland on high basalt ridges, 2 200–2 600 m.
Rationale: Known from two sites. Not threatened.

Aplepidea macowanii Dummer

Aplepidea stenophylla (Eckl. & Zeyh.) Pott var. subnuda Weim.
Status: NT B2ab(i.i,ii,iii,iv,v)
L. von Staden & P.J.D. Winter

Distribution: G LM MP. Dullstroom, Lydenburg, Machadodorp, Swaziland, Gauteng, Wolkberg Mountains and Sasolburg.
Habitat: Wetlands in grassland up to 2 200 m.
Rationale: AOO < 800 km², 7–12 locations. This rare but widespread species is confined to a restricted and highly threatened habitat type that is declining because of damming, drainage for crop cultivation, trampling by cattle, disturbance as a result of fragmentation by pine plantations and invasion by alien plants.

Rationale: The population is estimated to have declined at least 30% over the last three generations (60 years) as a result of persistent and consistent harvesting pressures for the medicinal plant trade and some loss of suitable habitat for afforestation and crop cultivation. It is a high-density sought-after medicinal plant that has been exploited over much of its KwaZulu-Natal range, especially at lower altitudes, and local extinctions have been observed at several sites. Two studies have shown that subpopulation density of mature individuals within protected areas is at least twice that of plants within communal areas accessible to commercial harvesters.
43% of the total population). The tubers are not easily distinguishable from those of *A. amatymbica*, a species which is also heavily harvested and in high demand.

**Alepidea multisecta** B.L.Burtt

- **Status**: CR PE
- **J.E. Victor & A.P. Dold**
- **Distribution**: EC. Hogsback.
- **Habitat**: Grasslands on mountain slopes.
- **Rationale**: Known from the type collection on Gaika’s Kop, collected in 1910. Numerous searches for this species recently have failed to relocate it. It is therefore possibly extinct.

**Anginon Raf.**

**Anginon jaarsveldii** B.L.Burtt

- **Status**: EN D
- **E.J. van Jaarsveld, N.A. Helme & D. Raimondo**
- **Distribution**: NC. Pellaberg, near Pofadder.
- **Habitat**: Broken veld, on mountain tops.
- **Rationale**: Known from one very isolated mountain. The subpopulation is small, totalling less than 200 plants. This species is unlikely to be more widespread.

**Anginon pumilum** I.Allison & B.-E.van Wyk

- **Status**: Rare
- **D.A. Kamundi† & J.E. Victor**
- **Distribution**: WC. Bredasdorp to De Hoop.
- **Habitat**: Limestone.
- **Rationale**: A range-restricted species (EOO 319 km²). Most subpopulations fall within the De Hoop Nature Reserve. This species has no recorded threats.

**Anginon tenuior** I.Allison & B.-E.van Wyk

- **Status**: VU D2
- **J.E. Victor**
- **Distribution**: WC. Montagu.
- **Habitat**: Stony slopes.
- **Rationale**: A range-restricted species, known from two locations. Potentially threatened by vineyard cultivation.

**Anginon ternatum** I.Allison & B.-E.van Wyk

- **Status**: Rare
- **F. Daniels, N.A. Helme & D. Raimondo**
- **Distribution**: NC WC. Bokkeveld Escarpment, Gifberg and Matsikamma Mountains, and Heerenlegements Mountain.
- **Habitat**: Steep south-facing sandstone and shale slopes amongst rocks.
- **Rationale**: A habitat specialist known from six sites. Its rocky habitat affords it protection from ploughing for rooibos tea, the predominant threat in the region. Not threatened.

**Annesorhiza Cham. & Schltdl.**

**Annesorhiza fibrosa** B.-E.van Wyk

- **Status**: EN B1ab(ii,iii)
- **D. Raimondo**
- **Distribution**: NC. Nieuwoudtville Escarpment.
- **Habitat**: Sandy soil in fynbos vegetation.
- **Rationale**: EOO 30 km². Known from three locations. Its habitat (sandy soils) is currently being converted for rooibos tea cultivation.

**Annesorhiza lateriflora** (Eckl. & Zeyh.) B.-E.van Wyk

- **Status**: Rare
- **P.J.D. Winter & D. Raimondo**
- **Distribution**: NC. Kamiesberg and Vanrhynsdorp district.
- **Habitat**: Rocky outcrops.
- **Rationale**: Known from three highly disjunct sites, but apparently a naturally rare species that occurs as small, sparsely distributed subpopulations. No known threats.

**Arctopus L.**

**Arctopus dregei** Sond.

- **Status**: VU B1ab(i,ii,iii,iv,v)
- **N.A. Helme, A. Magee & D. Raimondo**
- **Distribution**: WC. Koekenaap to Paarl.
- **Habitat**: Renosterveld-fynbos transition on loamy sands and clays, often seasonally moist.
- **Rationale**: EOO 12 388 km². It has lost significant portions of its habitat as a result of crop cultivation (cereals and vineyards). More than half the subpopulations are severely fragmented. Habitat loss to crop cultivation and invading alien plants continues.

**Capnophyllum Gaertn.**

**Capnophyllum africanum** (L.) Gaertn.

- **Status**: NT B1ab(ii,iii,iv,v)
- **N.A. Helme & D. Raimondo**
- **Distribution**: WC. Saldanha to Gansbaai.
- **Habitat**: Coastal sand dunes.
- **Rationale**: EOO < 4 000 km². Known from 15 locations. Losing habitat and subpopulations across its range as a result of coastal housing developments and the spread of invasive alien plants.

**Capnophyllum leiocarpum** (Sond.) Manning & Goldblatt

- **Status**: Declining
- **N.A. Helme & D. Raimondo**
- **Distribution**: NC WC. Port Nolloth to Rocher Pan.
- **Habitat**: Deep coastal sands.
- **Rationale**: This annual species is widespread in sandveld along the West Coast, but it is losing habitat to crop cultivation (+ 30% of its range falls within the area currently being farmed for potatoes and rooibos) and its remaining habitat is threatened by heavy-mineral and diamond mining.

**Centella L.**

**Centella caespitosa** Adamson

- **Status**: VU D2
- **N.A. Helme**
- **Distribution**: WC. Table Mountain and Hottentots Holland Mountains.
- **Habitat**: Above sandstone slopes.
- **Rationale**: Known from four locations. Two subpopulations that occur in the Hottentots Holland Mountains are potentially threatened by invasive alien plants.

**Centella calcaria** M.T.R.Schub. & B.-E.van Wyk

- **Status**: NT B1ab(ii,iii,iv,v)
- **N.A. Helme & D. Raimondo**
- **Distribution**: WC. Bredasdorp to Gouritsmond.
- **Habitat**: Coastal limestone flats.
Centella pottebergensis Adanson  
Status: VU D2  
N.A. Helme & D. Raimondo  
Distribution: WC. Potberg in the Bredasdorp district.  
Habitat: Sandstone slopes.  
Rationale: A range-restricted species (EOO 50 km²) known from one location. Potentially threatened by invading alien plants.

Centella rupestris (Eckl. & Zeyh.) Adamson  
Status: VU D2  
N.A. Helme & D. Raimondo  
Distribution: WC. Babilonstoring and Kleinrivier Mountains.  
Habitat: Sandstone rocks above 250 m.  
Rationale: A range-restricted species known from four locations. Potentially threatened by invading alien plants.

Centella sp. nov.  
Voucher: Esterhuysen 36426 BOL  
Status: EN B1ab(iii)  
N.A. Helme & D. Raimondo  
Distribution: WC. Bredasdorp to Agulhas.  
Habitat: Seasonally wet acid sand flats.  
Rationale: Known from fewer than five locations (EOO < 300 km²). A newly discovered species threatened primarily by ongoing invasion by alien acacias and, to a lesser extent, by coastal development and agricultural expansion.

Centella ternata M.T.R.Schub. & B.-E.van Wyk  
Status: Rare  
J.E. Victor & P.J.D. Winter  
Distribution: WC. Cederberg, Wolfberg.  
Habitat: Rock crevices at high altitudes.  
Rationale: Known only from the type, collected in 1962. Likely to be in a few other sites in the Cederberg. Not threatened because of the inaccessibility of its habitat.

Centella thesioides M.T.R.Schub. & B.-E.van Wyk  
Status: VU D2  
N.A. Helme & D. Raimondo  
Distribution: WC. Riviersonderend Mountains.  
Habitat: Sandstone slopes at medium elevation.  
Rationale: Known from fewer than five locations and potentially threatened by invasive alien plants.

Centella tridentata (L.f.) Drude ex Domin var. dregeana (Sond.) M.T.R.Schub. & B.-E.van Wyk  
Status: EN D  
N.A. Helme & D. Raimondo  
Distribution: NC. Namaqualand, Kamiesberg.  
Habitat: Renosterveld, in open areas with well-drained, loamy soil on northeast-facing mountain slopes.  
Rationale: Known from one subpopulation with less than 200 mature individuals. Potentially threatened by grazing by wild donkeys (this taxon occurs within a communally owned area).

Centella tridentata (L.f.) Drude ex Domin var. hermanniifolia (Eckl. & Zeyh.) M.T.R.Schub. & B.-E.van Wyk  
Status: Rare  
J.E. Victor  
Distribution: EC. Humansdorp to Port Elizabeth, including Gamtoos River Valley and the Van Stadens River Mountains.  
Habitat: Sandstone slopes.  
Rationale: Recorded from only five sites, most of which are mountain slopes that are not threatened.
Habitat: Sandstone rock crevices at high altitude.
**Rationale:** A range-restricted habitat specialist (EOO < 500 km²) that has no recorded threats.

**Chamarea Eкл. & Zeyh.**

\textbf{Chamarea esterhuesiana B.L.Burtt}

- **Status:** Critically Rare
- **Distribution:** WC. Waaihoek Mountains in the Worcester district.  
  **Habitat:** High alpine peak.  
  **Rationale:** Known from only one collection from the top of Waaihoek Peak. Not threatened.

**Chamarea snijmaniae B.L.Burtt**

- **Status:** Rare
- **Distribution:** WC. Bot River to Greyton.  
  **Habitat:** Low-altitude shale slopes.  
  **Rationale:** Known from two locations and potentially threatened by overgrazing by livestock and frequent fires.

**Peucedanum L.**

**Peucedanum camdebooense B.L.Burtt**

- **Status:** Rare
- **Distribution:** WC. Camdeboo to Beaufort West Mountains.  
  **Habitat:** Rocky soil on mountain slopes.  
  **Rationale:** Known from fewer than 10 collecting sites, subpopulations sparsely distributed over the central Karoo. Not threatened because of the inaccessibility of its habitat.

**Peucedanum khamiesbergense B.L.Burtt**

- **Status:** VU D1 + 2
- **Distribution:** NC. Namaqualand, Kamiesberg.  
  **Habitat:** Rocky granite slopes, 1 000–1 300 m.  
  **Rationale:** Known from two locations and potentially threatened by overgrazing by livestock and frequent fires.

**Peucedanum pearsonii Adamson**

- **Status:** VU D2
- **Distribution:** NC. Namaqualand, Kamiesberg.  
  **Habitat:** Rocky granite slopes, 1 000–1 300 m.  
  **Rationale:** Known from two locations and potentially threatened by overgrazing by livestock and frequent fires.

**Peucedanum pungens E.Mey. ex Sond.**

- **Status:** EN A2c; B1ab(ii,iii,v)
- **Distribution:** WC. Bot River to Greyton.  
  **Habitat:** Low-altitude shale slopes.  
  **Rationale:** Known from the western Overberg in the upper parts of the Bot River Valley (EOO 400 km²), recorded from six small, severely fragmented subpopulations. This long-lived resprouter (generation length 50 years) has lost > 50% of its habitat to wheat over the past 70 years. Declining in habitat quality and number of mature individuals because of overgrazing by livestock.

**Peucedanum striatum (Thunb.) Sond.**

- **Status:** NT B1ab(iii,v)
- **Distribution:** WC. Overberg, Protem to Riversdale.  
  **Habitat:** Shale slopes, confined to renosterveld associated with silcrete outcrops.  
  **Rationale:** A Lower Breede River Valley endemic (EOO 1 600 km²). Recorded from fewer than 20 locations and declining because of overgrazing and encroachment by invasive alien plants.
**APIOCEAE**

_**Peucedanum wilmsianum** H.Wolff_

Status: **VU B1ab(iii,iv,v)**  
P.J.D. Winter & J.E. Victor  
 **Distribution:** EC KZN. Ngome to Umzimkulu.  
Habitat: Mistbelt and coastal scarp grasslands.  
**Rationale:** Known from five small, severely fragmented subpopulations (EOO 11 000 km²). Declining as a result of grassland conversion to agricultural crops and commercial forestry plantations and ongoing degradation due to overgrazing and trampling by livestock.

**APOCYNACEAE**

_Adrenium Roem. & Schultz._

_A. swazicum_ Stapf  
Status: **CR A4acd**  
 **Distribution:** MP. Kruger National Park, Swaziland and Lebombo Mountains.  
Habitat: Deep clay soils predominantly derived from basalt and rhyolite, in short mixed thornveld, 200–400 m.  
**Rationale:** Based on aerial photographs, 50% of its habitat has been transformed by sugarcane agriculture over the past two generations (60 years). It is currently declining as a result of harvesting for horticultural and medicinal purposes. Extrapolating to include a future generation (i.e. another 30 years), we estimate an overall decline of 80% over three generations.

**Asclepias L.**

_A. bicuspis_ N.E.Br.  
Status: **CR B1ab(ii,iii,iv)**  
A. Nicholas, C.R. Scott-Shaw, L. von Staden & J.E. Victor  
 **Distribution:** KZN. KwaZulu-Natal Midlands.  
Habitat: Mistbelt grassland, in well-drained soil in annually burnt grasslands, including firebreaks, 1 200–1 500 m.  
**Rationale:** Currently known from only one farm south-west of Howick (EOO 6 km²). Occurs in an area that has been heavily affected by agriculture, afforestation, the construction of the Midmar Dam and urban expansion. Despite repeated collecting trips, Ashley Nicholas (Asclepias systematist) has not found this species at most of its former collecting locations or at other locations within its known range. There are very few natural areas left and the future survival of this species is doubtful. There is a strong likelihood that the known subpopulation is the only one remaining.

_A. compressidens_ (N.E.Br.) Nicholas  
Status: **Rare**  
D. Raimondo, J.E. Victor & A. Nicholas  
 **Distribution:** EC. Albany, Cradock and Queenstown.  
Habitat: Grasslands in sparsely wooded thornveld.  
**Rationale:** EOO 4 000 km². Recorded from only four collections. This species is naturally rare, occurring as single individuals distributed sparsely over its range.

_A. concinna_ (Schltr.) Schltr.  
Status: **VU D2**  
A. Nicholas, C.R. Scott-Shaw, L. von Staden & J.E. Victor  
 **Distribution:** EC KZN. KwaZulu-Natal Midlands to Maclear.  
Habitat: Montane grassland, in annually burnt grassland, 900–1 500 m.  
**Rationale:** Known from three collections. Schlechter referred to two specimens in his description, one collected in grasslands somewhere near the Tina River. This area has been searched in recent times but we suspect that the plant is locally extinct as the habitat is highly degraded through transformation for rural settlement, erosion and overgrazing. A second specimen, collected by John Medley Wood, came from an unknown location in the KwaZulu-Natal interior. Ashley Nicholas (Asclepias systematist) discovered a population at Nkonzo State Forest in the KwaZulu-Natal Midlands in 1981. This remains the only known extant subpopulation. It is potentially threatened by afforestation and rural settlement.

_A. cooperi_ N.E.Br.  
Status: **VU B1ab(iii,iv)**  
A. Nicholas, C.R. Scott-Shaw & J.E. Victor  
 **Distribution:** EC KZN. Creighton to Umntamvuna Nature Reserve.  
Habitat: Mistbelt and coastal grassland, 900 m.  
**Rationale:** EOO < 2 000 km². Recorded from seven locations. One, in the Eastern Cape near Clydesdale, has been transformed and is extinct. The six remaining locations are declining as a result of habitat loss to crop cultivation and commercial forestry plantations; there is also ongoing degradation of habitat as a result of overgrazing by livestock.

_A. disparilis_ N.E.Br.  
Status: **VU B1ab(ii,iii)+2ab(ii,iii)**  
A. Nicholas & J.E. Victor  
 **Distribution:** MP. Carolina and Machadodorp.  
Habitat: Montane grassland.  
**Rationale:** Suspected to occur in fewer than 10 locations (EOO 8 000 km²). Declining as a result of habitat loss to crop cultivation and commercial forestry plantations.

_A. gordon-grayae_ Nicholas  
Status: **EN B1ab(iii)**  
A. Nicholas, L. von Staden & J.E. Victor  
 **Distribution:** KZN. Ngoye to St Lucia.  
Habitat: Tall, unburnt coastal grassland, in black peat soils in marshy areas, 10–100 m.  
**Rationale:** A range-restricted species (EOO 1 400 km²), recorded from five locations, with continuing decline as a result of afforestation, subsistence and commercial crop cultivation and opencast mining. Coastal grasslands between Ngoye and St Lucia are 64% transformed.

_A. monticola_ N.E.Br.  
Status: **Critically Rare**  
J.E. Victor & A. Nicholas  
 **Distribution:** EC. Queenstown, Andriesberg.  
Habitat: Tarkastad Montane Shrubland.  
**Rationale:** No threats but very restricted, currently known from only one site.
Plate 39

Schizoglossum bidens subsp. gracile VU

Asclepias disparilis VU

Raphionacme lucens NT

Schizoglossum peglerae EN

Riocreuxia flanaganii Rare
Asclepias nana (Verd.)

**Status:** DDD
A. Nicholas & J.E. Victor

**Distribution:** EC KZN. Kamberg to Ramatsiliso Gate.
**Habitat:** Montane grassland, 1 800–2 200 m.
**Rationale:** Occurs as sparsely distributed subpopulations, fewer than 10 subpopulations known (EOO 6 000 km²). Not threatened because of the inaccessibility of its high-altitude habitat.

Asclepias oreophila (Nicholas)

**Status:** Rare
A. Nicholas & J.E. Victor

**Distribution:** EC. Eastern Cape Wild Coast between Port St Johns and Kentani.
**Habitat:** Coastal grasslands, on the margins of riverine forests.
**Rationale:** EOO 310 km². Eight subpopulations are known from historical collections, but there are likely to be more as this species occurs in a poorly explored area. Threats to the habitat include overgrazing, frequent and intense fires, habitat degradation through harvesting of firewood and invasion by alien plants. Recent collections indicate that some subpopulations are still intact. Too little is known about its population dynamics to say whether it is declining.

Asclepias rara (N.E.Br.)

**Status:** DDD
J.E. Victor & A. Nicholas

**Distribution:** EC. Albany, Coombs Valley east of Grahamstown.
**Habitat:** Unknown.
**Rationale:** Recorded only from the type collection, although parts of the valley where it occurs have been transformed for crop cultivation; other parts are still natural. The site description on the type specimen is too vague to determine whether or not this species is threatened.

Asclepias schlechteri (K.Schum.) (N.E.Br.)

**Status:** EN B2ab(iii,iii,iv,v)
A. Nicholas & L. von Staden

**Distribution:** EC KZN. Harding and surrounding areas on the border between KwaZulu-Natal and the Eastern Cape, possibly also in Swaziland.
**Habitat:** Ngongoni Veld, sandy soils in tall grasslands.
**Rationale:** Although this species is very poorly known, there is good reason to believe that it is rare and declining as a result of habitat destruction through afforestation, agriculture and overgrazing. It is currently known from one location, but was collected from up to six historical locations. Although it has a large EOO (7 500–37 500 km²), the species is extremely rare within its range and its area of occupancy is probably very low (estimated < 250 km²). Subpopulations are isolated and severely fragmented as a result of habitat destruction.

Asclepias velutina (Schltr.) (Schltr.)

**Status:** VU D2
A. Nicholas & J.E. Victor

**Distribution:** MP. Barberton, Pigg’s Peak.
**Habitat:** Serpentine soils.
**Rationale:** A serpentine endemic (EOO 650 km²) recorded from fewer than five locations. Potentially threatened by afforestation.

Asclepias woodii (Schltr.) (Schltr.)

**Status:** VU B1ab(ii,iii)+2ab(ii,iii)
A. Nicholas, C.R. Scott-Shaw, L. von Staden & J.E. Victor

**Distribution:** KZN. KwaZulu-Natal Midlands.
**Habitat:** Montane Mistbelt Grassland, in unburnt areas, 600–1 400 m.
**Rationale:** Recorded from fewer than 10 locations. Declining in habitat as a result of crop cultivation, afforestation, urban expansion and a deleterious fire regime.

Asclepias xysmalobioides (Hiilliard & B.L.Burtt)

**Status:** Rare
J.E. Victor & A. Nicholas

**Distribution:** KZN. Utrecht district.
**Habitat:** Granite plains.
**Rationale:** Known from two old collecting sites. Lack of status of this species to determine its status.

Aspidoglossum E.Mey.

Aspidoglossum demissum (Kupicha)

**Status:** DDD
A. Nicholas & J.E. Victor

**Distribution:** KZN MP. Utrecht district.
**Habitat:** Montane grassland. In rock crevices on mountain summits, 2 040 m.
**Rationale:** Known only from the type, collected in 1961 on the farm Naauhoek in northern KwaZulu-Natal. Not enough is known about the distribution and population status of this species to determine its status.

Aspidoglossum flanaganii (Schltr.) (Kupicha)

**Status:** DDD
D. Raimondo & A. Nicholas

**Distribution:** EC. Kei Mouth and Chalumna River.
**Habitat:** Habitat unknown, possibly riverbanks in coastal belt vegetation.
**Rationale:** Known from two old collecting sites. Lack of collecting over the past 100 years may indicate that it has declined as a result of overgrazing and trampling by livestock, but as the site descriptions are vague and the habitat is unknown, the species is considered DD.

Aspidoglossum uncinatum (N.E.Br.) (Kupicha)

**Status:** VU B1ab(ii,iii)
J.E. Victor, A.P. Dold & A. Nicholas

**Distribution:** EC. Katberg to Stutterheim.
**Habitat:** Grassland.
**Rationale:** EOO 700 km². Two known locations continue to decline because of ongoing habitat loss to commercial forestry plantations.
Aspidoglossum xanthosphaerum Hilliard
Status: VU D2
A. Nicholas & J.E. Victor
Distribution: KZN MP. Groenvlei and Ermelo.
Habitat: Montane grassland, marshy sites, 1 800 m.
Rationale: Recorded from four locations from a restricted range (EOO < 500 km²). Potentially threatened by wetland drainage for crop cultivation and by trampling and grazing by livestock.

Aspidonepsis Nicholas & Goyder
Aspidonepsis cognata (N.E.Br.) Nicholas & Goyder
Status: Rare
A. Nicholas & J.E. Victor
Distribution: KZN. Nottingham Road to south of Kokstad.
Habitat: Montane grassland, 1 200–2 100 m.
Rationale: Recorded from only six sites. Occurs on high mountain slopes and is not threatened.

Aspidonepsis shebae Nicholas & Goyder
Status: VU D2
A. Nicholas & J.E. Victor
Distribution: MP. Mount Anderson and Mount Sheba.
Habitat: Montane grassland.
Rationale: Known from four locations, potentially threatened by afforestation and invasion by alien plants.

Brachystelma R.Br.
Brachystelma caffrum (Schltr.) N.E.Br.
Status: VU B1ab(ii,i,iii,v)
A.P. Dold & J.E. Victor
Distribution: EC. Stutterheim to Engcobo and Mthatha.
Habitat: Dolerite outcrops.
Rationale: EOO 11 300 km². Known from fewer than 10 locations. Declines as a result of rooting and predation by invasive pigs have been observed at three of the known subpopulations.

Brachystelma campanulatum N.E.Br.
Status: NT D2
R. Peckover & J.E. Victor
Distribution: EC. Fish River to Kariega River.
Habitat: Open grassland, only on sand.
Rationale: EOO 3 000 km². Recorded from seven locations. It has lost habitat to pineapple and other crop cultivation in the past. It is not declining currently but is potentially threatened by livestock farming.

Brachystelma canum R.A.Dyer
Status: CR B1ab(ii,i,iii,v)
P.A. Manyama
Distribution: NW. Between Setlagoli and Mafikeng.
Habitat: Sandy Terminalia veld.
Rationale: Known from the type collected in 1956. It has an estimated EOO of 50 km² and its habitat is being degraded as it occurs in communal land that is severely overgrazed. Brachystelma species are particularly sensitive to overgrazing.

Brachystelma cathcartense R.A.Dyer
Status: VU D1
J.E. Victor & A.P. Dold
Distribution: EC. Cathcart district.
Habitat: Open, moist grassland, often near or on sandstone outcrops.
Rationale: Known from only one location. The total population consists of less than 1 000 mature individuals.

Brachystelma chlorozonum E.A.Bruce
Status: NT B1ab(iii,v)
J.E. Burrows, M. Lötter & L. von Staden
Distribution: KZN MP. Barberton, northern KwaZulu-Natal and Ozwatinini. Unconfirmed records from near Tzaneen.
Habitat: A wide range of habitats and altitudes, from sea level in northern Zululand to above 1 000 m in Songimvelo Game Reserve.
Rationale: Known from a few, scattered and isolated records across a large range (EOO 50 000 km²) but it is thought to be very rare within its range. There are three known locations, two of which are severely threatened and declining because of severe overgrazing, rural development and sugarcane cultivation. It is possible that other subpopulations exist.

Brachystelma christianeae Peckover
Status: VU D2
J.E. Victor
Distribution: KZN MP. Vryheid to Nkandla.
Habitat: Between sandstone rocks in poor, greyish, sandy soil.
Rationale: Known from five locations. Potentially threatened by invasive alien plants, crop cultivation and urban expansion.

Brachystelma cummingii A.P.Dold
Status: EN B1ab(ii,iii)
D. Raimondo & A.P. Dold
Distribution: EC. Grahamstown and Uitenhage.
Habitat: Grassy quartzite ridges surrounded by dense thicket.
Rationale: Known from a few, scattered and isolated records across a large range (EOO 2 100 km²). Three known locations. Some 25% of the population was destroyed in 2006 as part of the Coega harbour development and there is continuing decline in habitat quality as a result of overgrazing by livestock.

Brachystelma delicatum R.A.Dyer
Status: VU B1ab(ii,iii,iv,v)
J.E. Victor & A.P. Dold
Distribution: EC. Grahamstown to Bathurst.
Habitat: Coastal grassland, in sand and on rocky ridges.
Rationale: EOO 2 200 km². Three known locations. It has declined in the past as a result of pineapple cultivation and is currently likely to be declining at a slow rate because of overgrazing by livestock.

Brachystelma dimorphum R.A.Dyer subsp. gratum R.A.Dyer
Status: Rare
R. Peckover & J.E. Victor
Distribution: FS NW. Vryburg to Bloemfontein.
Brachystelma discoideum R.A.Dyer
Status: EN B2ab(ii,iii,iv) J.E. Victor & R. Peckover
Distribution: G NW. Soutpan, KwaMhlanga, Thabazimbi and Botsvana.
Habitat: Alluvial pans.
Rationale: Known from fewer than five locations within South Africa (estimated AOO 12 km²), declining as a result of habitat destruction caused by crop cultivation and urban expansion.

Brachystelma duplicatum R.A.Dyer
Status: Critically Rare J.E. Victor
Distribution: FS. Fauresmith.
Habitat: Arid karoo vegetation on shale soils.
Rationale: A range-restricted species recorded from one site (EOO < 10 km²). Not known to be threatened.

Brachystelma dyeri K. & M.Balkwill
Status: VU D2 J.E. Victor & R. Peckover
Distribution: MP. Barberton.
Habitat: Serpentine and quartzitic soils.
Rationale: Known from only one location above Barberton, potentially threatened by afforestation and mining.

Brachystelma franksiae N.E.Br. subsp. franksiae
Status: VU B1ab(iii,iv, v) D. Styles & L. von Staden
Distribution: KZN. Camperdown to Pietermaritzburg.
Habitat: Grassland.
Rationale: This taxon was previously thought to have a restricted range, occurring in a highly transformed area between Pietermaritzburg and Camperdown. However, recent collections have enlarged its range to 16 000 km². It is now known from four to eight locations and remains severely threatened by urban expansion and invasion by alien plants at most of its locations.

Brachystelma franksiae N.E.Br. subsp. grandiflorum A.P.Dold & Bruyns
Status: VU D2 J.E. Victor & A.P. Dold
Distribution: EC. East London district.
Habitat: Coastal grassland, within 200 m of the sea on steep, sea-facing slopes, 50 m.
Rationale: Known from one location, potentially threatened by urban expansion and crop cultivation.

Brachystelma gerrardii Harv.
Status: EN C2a(i) D. Styles & L. von Staden
Distribution: KZN LM. KwaZulu-Natal, Waterberg and Swaziland.
Habitat: Open grassland, 400–1 800 m.
Rationale: This widespread species is exceptionally rare, with subpopulations usually consisting of no more than 10 mature individuals. Currently recorded from 20 locations. We conservatively estimate that the total population consists of less than 2 500 mature individuals. It is severely threatened and declining as a result of habitat destruction in KwaZulu-Natal where most of the known subpopulations occur. Decline is as a result of urban and rural housing development, overgrazing by livestock and a deleterious fire regime. Possibly also threatened by crop cultivation, afforestation, invasion by alien plants and harvesting for food.

Brachystelma gracillimum R.A.Dyer
Status: CR B1ab(iii,v) P.A. Manyama
Distribution: NW. Marico district, east of Ramotswa.
Habitat: Dwaalboom Thornveld.
Rationale: Known only from the type specimen, collected in 1940. Severely threatened by habitat degradation as a result of overgrazing by livestock as it occurs in a communal area. Species in this genus are particularly sensitive to overgrazing.

Brachystelma hirtellum Weim.
Status: NT A2c P.A. Manyama
Distribution: LM. Waterberg, Bela-Bela to Mookgophong and Zimbabwe.
Habitat: Bushveld.
Rationale: An estimated 20% of the population has been lost over the last three generations (30 years) as a result of habitat loss to tobacco and peanut cultivation.

Brachystelma huttonii (Harv.) N.E.Br.
Status: Rare P.F. Matlame & D.A. Kamundil
Distribution: EC. North of Grahamstown in the Fish River catchment.
Habitat: Karroid scrub, 400–1 200 m.
Rationale: A range-restricted species (EOO 10 km²), known from only one subpopulation, this species has no recorded threats.

Brachystelma inanum R.A.Dyer
Status: VU A2a R. Peckover & J.E. Victor
Distribution: NW. Coligny, Lichtenburg and Wolmaransstad.
Habitat: Sandy loam soils in bushveld.
Rationale: Known from three locations, one of which has suffered a severe decline because of collecting for the horticultural trade. We predict that at least a 30% population decline has occurred over the past three generations (60 years) as a result of collecting.

Brachystelma inconspicuum S.Venter
Status: Rare R. Peckover & J.E. Victor
Distribution: LM. Waterberg.
Habitat: Open, grassy areas with well-drained, grey-brown, sandy loam derived from the Waterberg quartzite and conglomerates on gentle slopes.
Rationale: A range-restricted species (EOO < 100 km²), known from fewer than five subpopulations. Not threatened.

Brachystelma kerzneri Peckover
Status: VU D2 J.E. Victor & R. Peckover
Distribution: EC. KZN. Mouth of the Umtamvuna River.
Habitat: Coastal grassland, 50 m.
Rationale: Known from one location, potentially threatened by a deleterious fire regime and urban construction.
Brachystelma longifolium (Schltr.) N.E.Br.
Status: VU D2
R. Peckover & J.E. Victor
Distribution: MP. Elandspruit, Morgenzon and Amersfoort.
Habitat: Granite domes, between rocks.
Rationale: Known from three locations, potentially threatened by crop cultivation.

Brachystelma minimum
Status: VU D2
R. Peckover & J.E. Victor
Distribution: EC. Grahamstown district.
Habitat: Rocky grassland.
Rationale: Known from five locations from a restricted range (EOO < 100 km²). Potentially threatened by overgrazing and trampling by livestock and rural settlement.

Brachystelma micranthum E.Mey.
Status: DDD
R. Peckover, A.P. Dold & J.E. Victor
Distribution: EC. Queenstown.
Habitat: Sandstone outcrops.
Rationale: A poorly known species, known only from the type material that has been damaged by insects, making it difficult to determine its characteristics.

Brachystelma meyerianum Schltr.
Status: Rare
J.E. Victor & A.P. Dold
Distribution: EC. Katberg and Amathole Mountains and King William’s Town to Komga.
Habitat: Damp margins of exposed dolerite rock sheets.
Rationale: A habitat specialist with no known threats.

Brachystelma micranthum
Status: Rare
J.E. Victor & A.P. Dold
Distribution: EC. Grahamstown.
Habitat: Sandstone outcrops.
Rationale: A range-restricted species (EOO < 500 km²), known from six sites. Not threatened as it occurs in rocky habitats not suitable for agriculture.

Brachystelma minor E.A.Bruce
Status: Rare
R. Peckover & J.E. Victor
Distribution: LM. Wolkberg Mountains.
Habitat: Shallow pockets of dolomite, tolerating both open and shady conditions.
Rationale: A habitat specialist, known from fewer than five sites and currently not threatened.

Brachystelma modestum R.A.Dyer
Status: NT B1a(b(ii,iii,v)
C.R. Scott-Shaw, D. Styles & L. von Staden
Distribution: KZN. Nkandla to Noodsberg, and a disjunct record from Umzinto.
Habitat: Grassland, grows in shallow soils among rocks, Natal Group Sandstone, 900–1 200 m.
Rationale: EOO 3 300 km². Known from very few records, but may be under-collected. We estimate there are 10–15 locations. There is a continuing decline in habitat quality and number of mature individuals due to severe overgrazing and trampling by cattle.

Brachystelma molaventi Peckover & A.E.van Wyk
Status: VU D2
J.E. Victor, R. Peckover & A.E. van Wyk
Distribution: EC KZN. Ngele Forest Reserve to Mzimkulu in the Eastern Cape.
Habitat: Moist, short grassland, in shallow, dark-brown loamy soil along outcrops of volcanic rock.
Rationale: Known from two locations, both protected within reserves and not seriously threatened. However, this species was only recently discovered and is still poorly known, and it quite likely occurs at least in the areas surrounding the reserves and possibly elsewhere in the Eastern Cape. Outside the reserves the habitat is extensively transformed by forestry plantations and there is much ongoing illegal afforestation, especially in the Eastern Cape, which could potentially threaten subpopulations.

Brachystelma montanum R.A.Dyer
Status: Critically Rare
R. Peckover, A.P. Dold & J.E. Victor
Distribution: EC. Queenstown.
Habitat: Rocky mountain summit.
Rationale: Known from one site, occurs in a habitat that has not been transformed.

Brachystelma natalense (Schltr.) N.E.Br.
Status: Critical
J.E. Victor, R. Peckover & A.E. van Wyk
Distribution: KZN. Pinetown.
Habitat: Ngongoni grassland, Natal Group Sandstone, 450–500 m.
Rationale: EOO < 10 km², AOO < 0.12 km². The habitat of this rare species has been extensively destroyed and fragmented by urban expansion, crop cultivation and overgrazing. It now remains as two small, nonviable subpopulations occurring on isolated grassland fragments. Although the largest subpopulation (of ± 50 individuals) is protected in a reserve, monitoring has shown continuing declines in the number of mature individuals and a complete lack of recruitment. The habitat of a second, smaller subpopulation of six individuals is severely threatened by unmanaged invasive wattles.

Brachystelma ngomense R.A.Dyer
Status: CR B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(i)
L. von Staden & D. Styles
Distribution: KZN. Ngome.
Habitat: Mistbelt grassland, restricted to seepage aprons at the edge of dolerite rock sheets, not found in open grassland, 1 100–1 200 m.
Rationale: EOO < 10 km², AOO < 0.12 km². The habitat of this rare species has been extensively destroyed and fragmented by urban expansion, crop cultivation and overgrazing. It now remains as two small, nonviable subpopulations occurring on isolated grassland fragments. Although the largest subpopulation (of ± 50 individuals) is protected in a reserve, monitoring has shown continuing declines in the number of mature individuals and a complete lack of recruitment. The habitat of a second, smaller subpopulation of six individuals is severely threatened by unmanaged invasive wattles.

Brachystelma occidentale Schltr.
Status: CR D
J.E. Victor & R. Peckover
Distribution: EC. Grahamstown.
Habitat: Weathered quartzite.
Rationale: Originally thought to occur only at Smitswinkel Bay on the Cape Peninsula, where it went extinct as a result of dense infestations of alien plants and expansion of houses. Recently, a small subpopulation (less than 50 mature individuals) was discovered near Bredasdorp.

Brachystelma parvulum R.A.Dyer
Status: VU D2
J.E. Burrows, M. Lötter & J.E. Victor
Distribution: MP. Bourke’s Luck Potholes and Abel Erasmus Pass.
Habitat: Dolomite ridges.
Rationale: Known from two locations which are potentially threatened by grazing and trampling by livestock.

Brachystelma perditum R.A.Dyer
Status: Rare
R. Peckover & J.E. Victor
Distribution: EC KZN. Lesotho and Giant’s Castle.
Habitat: Rocky areas of high-altitude grassland.
Rationale: Known from a few records in the Drakensberg range, a habitat specialist that is not threatened.

Brachystelma petraeum R.A.Dyer Plate 40
Status: VU D2
R. Peckover & J.E. Victor
Distribution: KZN. KwaZulu-Natal Midlands and Drakensberg foothills.
Habitat: Moist grassland, in humus pockets on top of large, flat rock surfaces and flat, damp basalt gravel.
Rationale: Known from two locations and potentially threatened by invasive alien pines.

Brachystelma pulchellum (Harv.) Schltr. Plate 41
Status: NT B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) L. von Staden, D. Styles & D. Raimondo
Distribution: KZN. Durban to Pietermaritzburg.
Habitat: Low grassland, in shallow soils on or near sandstone outcrops or sheets of exposed sandstone, often on the edge of sandstone cliffs.
Rationale: EOO 400 km². Although its habitat continues to be severely affected by urban development, overgrazing, and frequent fires, it is still relatively common and easily located in suitable habitat. Currently known from 11 locations.

Brachystelma remotum R.A.Dyer
Status: Rare
L. von Staden & C.R. Scott-Shaw
Habitat: Montane grasslands. Grows in shallow soils on shale outcrops, 1 600–2 200 m.
Rationale: A range-restricted species (EOO 200 km²) known from two collections.

Brachystelma sandersonii (Oliv.) N.E.Br.
Status: VU A4c; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) L. von Staden & D. Styles
Distribution: KZN. Port Shepstone to St Lucia.
Habitat: Coastal grassland, 10–200 m.
Rationale: The coastal habitat of this species has undergone severe and extensive transformation since the early 1800s. Small remaining habitat fragments have become invaded with dense, woody vegetation over the last 10 years and this could lead to a further reduction of around 30% of available habitat within the next 5–10 years (generation length 10 years). Urban and coastal development is a severe, ongoing threat facing the only confirmed existing subpopulation. We suspect that there are up to eight remaining extant subpopulations, EOO is very uncertain, but is 6 000 km² at the largest.

Brachystelma schoenlandianum Schltr.
Status: EX
R. Peckover & R.A.Dyer
Distribution: EC. Uitenhage district.
Habitat: Dry hills.
Rationale: Known only from the type specimen, described in 1893. The area where this species was collected has been transformed as a result of urban development. It has not been found since, despite numerous searches over the past 15 years and it is therefore considered extinct.

Brachystelma stellatum E.A.Bruce & R.A.Dyer
Status: Rare
Distribution: EC KZN. Oribi Flats to the Mnyameni River.
Habitat: Coastal grasslands, in shallow soil pockets in rocky outcrops and on cliffs, restricted to Msiskaba Formation Sandstone.
Rationale: A range-restricted species within Pondoland (EOO 324 km²). It is a rare habitat specialist restricted to rocky outcrops (estimated AOO < 20 km²). Known from five locations and potentially threatened in the southern part of its range by trampling by livestock.

Brachystelma tenellum R.A.Dyer
Status: VU D2
L. von Staden, D. Styles, C.R. Scott-Shaw & J.E. Victor
Distribution: EC KZN. Oribi Flats to the Mnyameni River.
Habitat: Coastal grasslands, in shallow soils on or near sandstone outcrops and sheets of exposed sandstone, often on the edge of sandstone cliffs.
Rationale: EOO 500 km². Although its habitat continues to be declined owing to ongoing habitat loss and degradation as a result of subsistence agriculture and overgrazing. In addition, a population reduction of at least 50% is estimated based on habitat loss to forestry plantations over the past 30 years (less than three generations).

Brachystelma vahrmeijeri R.A.Dyer
Status: EN A2ac; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) J.E. Victor, D. Raimondo & R. Peckover
Distribution: KZN. Makatini Flats.
Habitat: Grassland, sandy soils.
Rationale: EOO 500 km², AOO < 500 km². Three known locations continue to decline owing to ongoing habitat loss and degradation as a result of subsistence agriculture and overgrazing. In addition, a population reduction of at least 50% is estimated based on habitat loss to forestry plantations over the past 30 years (less than three generations).

Brachystelma occidentale ANGIOSPERMS: DICOTYLEDONS

Brachystelma occidentale ANGIOSPERMS: DICOTYLEDONS

APOCYNACEAE Brachystelma occidentale

ANGIOSPERMS: DICOTYLEDONS

APOCYNACEAE Brachystelma occidentale
Ceropegia **cimiciodora**

Status: Rare

P.F. Matlamela & D.A. Kamundi & F. Cholo

**Distribution**: KZN LM MP. Haenertsburg to Swaziland.

**Habitat**: Scattered in grassland at an altitude of 500–1 500 m.

**Rationale**: Occurs at three mountain-top sites on the northern escarpment and not threatened.

Ceropegia L.

**Ceropegia antennifera**, Schltr.

Status: EX

R. Peckover & J.E. Victor

**Distribution**: KZN. Newcastle district.

**Habitat**: Montane grassland, 1 230 m.

**Rationale**: Collected once. Its habitat is not transformed, but many searches have failed to relocate this species it is presumed extinct.

**Ceropegia arenaria**, R.A.Dyer

Status: EN B1ab(iii)

R. Scott-Shaw & D. Raimondo

**Distribution**: KZN. Sodwana Bay to Lake Sibaya.

**Habitat**: Coastal forest, sandy soils near coastal dune forest.

**Rationale**: A range-restricted species (EOO 115 km²) known from fewer than five collections. It occurs in coastal forests, a threatened habitat even within protected areas. There are generally no fences for the reserves in which it occurs and the forests are being degraded by subsistence wood-harvesting. In addition, frequent fires as a result of burning for cattle grazing are causing a severe reduction of forest ecotones where this species occurs.

**Ceropegia barbata**, R.A.Dyer

Status: DDD

R. Peckover & J.E. Victor

**Distribution**: WC. Calitzdorp.

**Habitat**: Not recorded but likely to be shale flats.

**Rationale**: Known from one specimen collected by S. Blackburn in 1939, near Calitzdorp, and not recollected since. Not enough is known about the distribution and population status of this species to determine its status.

**Ceropegia bowkeri**, Harv. subsp. **bowkeri**

Status: EX

A.P. Dold & J.E. Victor

**Distribution**: EC. Mbashe River, near Collywobbles.

**Habitat**: Valley bushveld.

**Rationale**: Last recorded over 100 years ago. Its former habitat is degraded. Both P. Bruyns and A.P. Dold (Ceropegia experts) have looked for it but were unsuccessful. Heavy grazing over the past 100 years is likely to have caused its extinction.

**Ceropegia cimiciodora**, Oberm.

Status: VU B2ab(ii,iii,v)

J.E. Victor & R. Peckover

**Distribution**: KZN LM. Makatini Flats and Venda.

**Habitat**: Savanna, thorn scrub on turf and sandy loam soils.

**Rationale**: Known from six locations (AOO 600 km²). Declining because of expansion of subsistence crop cultivation and overgrazing by livestock.

**Ceropegia craibii**, J.Victor

Status: VU D2

J.E. Victor

**Distribution**: KZN. Vryheid.

**Habitat**: Short, open grassland, in shallow, gravelly soil overlying shale on ridges.

**Rationale**: Known from one location, potentially threatened by harvesting for horticultural purposes.

**Ceropegia cycniflora**, R.A.Dyer

Status: VU D2

D. Raimondo & C.R. Scott-Shaw

**Distribution**: KZN. Muden district in the Mooi River Valley.

**Habitat**: Valley thicket, hot dry valleys and in woody vegetation near watercourses.

**Rationale**: Its only known location falls within communally owned land. Potentially threatened by overgrazing and trampling by livestock.

**Ceropegia decidua**, E.A.Bruce subsp. **pretoriensis**, R.A.Dyer

Status: VU D1 + 2

M.F. Pfab & J.E. Victor

**Distribution**: GNW. Magaliesberg.

**Habitat**: Associated with ridges and quartzitic rocky outcrops in pockets of soil among rocks in direct sunshine or shaded areas.

**Rationale**: The small population (less than 1 000 mature individuals) occupies a very specific habitat type and is restricted to an estimated AOO of between 3.5 and 11 km². The habitat is potentially threatened by urban expansion, erosion and invasion by alien plants.

**Ceropegia distincta**, N.E.Br. subsp. **verruculosa**, R.A.Dyer

Status: DDD

P.A. Manyama & D.A. Kamundi

**Distribution**: MP. Burgersfort.

**Habitat**: Scrub bush, 500–900 m.

**Rationale**: Known only from the type locality near Burgersfort where it was collected by Roux in 1957. Not enough is known about the distribution and population status of this taxon to determine its status. Possibly threatened by crop cultivation and grazing by livestock.

**Ceropegia fimbriflata**, E.Mey. subsp. **fimbriflata**

Status: VU D2

R. Peckover, A.P. Dold & J.E. Victor

**Distribution**: EC. Great Fish River Valley.

**Habitat**: Karoo-type thicket.

**Rationale**: Known from three locations. Potentially threatened by overgrazing and expansion of rural settlements.

**Ceropegia insignis**, R.A.Dyer

Status: Rare

J.E. Victor & R. Peckover

**Distribution**: NW. Marico district.

**Habitat**: Stony grassland.

**Rationale**: Known from two sites, with no serious threats known. A small percentage of its range is cultivated, but this is not considered a serious potential threat as this species grows in rocky areas.
**Cerogepia macmasteri** A.P.Dold

**Status:** VU D2

C. McMaster, A.P. Dold, D. Raimondo & P.A. Manyama

**Distribution:** EC. Cathcart.

**Habitat:** Scevola grassland in exposed sandstone rock sheets, 1.200 m.

**Rationale:** Known only from the type locality near Cathcart (EOO < 10 km²). The farm on which this species occurs is currently well managed but should the land change ownership, this species may become threatened by overgrazing and trampling by livestock.

**Cerogepia occidentalis** R.A.Dyer

**Status:** NT D2

D. Raimondo

**Distribution:** WC. Namaqualand coast from Strandfontein to Kleinsee.

**Habitat:** Rocky outcrops in sandveld close to the coast.

**Rationale:** Known from fewer than 10 locations. Potentially threatened by sand mining.

**Cerogepia radicans** Schltr. subsp. radicans

**Status:** VU D2

R. Peckover & J.E. Victor

**Distribution:** EC. Komga district.

**Habitat:** Thickets.

**Rationale:** Known from fewer than five locations, all in communally owned lands. Potentially threatened by overgrazing and trampling by livestock.

**Cerogepia rudatisii** Schltr.

**Status:** CR PE

C.R. Scott-Shaw, R. Peckover, L. von Staden & J.E. Victor

**Distribution:** KZN. Umzinto.

**Habitat:** Nongoni grassland, Natal Group Sandstone, on rocky outcrops and bush clump margins, 700 m.

**Rationale:** Known from a few collections in an area extensively transformed by agriculture, forestry and invasive alien plants. Searches in the area revealed very little remaining pristine vegetation within the known range of this species and no subpopulations were found. This species is possibly extinct.

**Cerogepia scabriflora** N.E.Br.

**Status:** DDD

C.R. Scott-Shaw, D. Raimondo & L. von Staden

**Distribution:** KZN MP. Durban and Piet Retief.

**Habitat:** Grasslands on quartzite or sandstone.

**Rationale:** Known from two highly disjunct sites, one from KwaZulu-Natal near Verulam, and the second from Piet Retief in Mpuumulanga. It is extinct at the type locality (Verulam) as a result of urban expansion and sugarcane cultivation. Its range is too poorly known to determine its current threat status.

**Cerogepia stentiae** E.A.Bruce

**Status:** VU D2

J.E. Victor

**Distribution:** LM NW. Wolmaransstad to Polokwane.

**Habitat:** Red, sandy loam soil.

**Rationale:** Subpopulations around Wolmaransstad have been lost to crop cultivation. It is currently extant at four locations and is potentially threatened by grazing and urban expansion.

**Cerogepia tomentosa** Schltr.

**Status:** CR PE

J.E. Victor & A.P. Dold

**Distribution:** EC. Fort Bowker, between Butterworth and Mthatha.

**Habitat:** Unknown.

**Rationale:** Known only from the type specimen, collected between Butterworth and Mthatha. A burgeoning human population and high stocking rates make it very unlikely that this species is still extant. Field surveys are required before it can be declared extinct.

**Cerogepia turricula** E.A.Bruce

**Status:** NT A2c

R. Peckover & J.E. Victor

**Distribution:** G LM NW. Lichtenburg to Gravelotte.

**Habitat:** Grassland slopes.

**Rationale:** An estimated 20% of the population has declined over the last three generations (30 years) as a result of habitat destruction (mainly mining and urban development).

**Duvalia Haw.**

**Duvalia angustiloba** N.E.Br.

**Status:** DDD

F. Cholo

**Distribution:** EC WC. Willowvale district.

**Habitat:** Unknown.

**Rationale:** Known only from the type, collected in 1957. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Duvalia elegans** (Masson) Haw.

**Status:** VU B1ab(ii,iii,iv,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Robertson to Riversdale.

**Habitat:** Renosterveld on shales.

**Rationale:** EOO 1 400 km². Known from 10 locations. Experiencing severe, ongoing habitat loss to crop cultivation. It is also threatened by ostrich and horse farming in the Bonnievale and Robertson areas.

**Duvalia immaculata** (C.A.Lückh.) Bayer ex L.C.Leach

**Status:** EN B1ab(ii,iii,iv,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Cape Infanta to Little Brak near Mossel Bay.

**Habitat:** Arid fynbos-renosterveld ecotone vegetation, on shales and limestone.

**Rationale:** EOO < 1 400 km². Known from 3–5 locations. Declining as a result of coastal development, crop cultivation, invasive alien plants and quarrelling.

**Duvalia parviflora** N.E.Br.

**Status:** VU B1ab(iii,iv)

N.A. Helme & D. Raimondo

**Distribution:** WC. Van Wyksdorp to Ladismith to Oudtshoorn.

**Habitat:** Flat, stony to loamy ground, under small karroid bushes.

**Rationale:** EOO 1 400 km². Suspected to occur at 10 locations. Ongoing decline in habitat is currently taking place as a result of ostrich farming and to a lesser extent habitat is being lost for vineyard cultivation.
Duvalia pillansii N.E.Br.

**Status:** Rare

J.E. Victor & A.P. Dold

**Distribution:** EC. Hankey and Kirkwood.

**Habitat:** Stony ground in thicket vegetation.

**Rationale:** Known from five sites, no significant threats recorded.

Ectadium E.Mey.

**Ectadium virgatum** E.Mey.

**Status:** NT D2

J.E. Victor

**Distribution:** NC. Along Orange River from Oranjemund to Sendelingsdrift.

**Habitat:** Gravel plains.

**Rationale:** Known from fewer than 10 locations in South Africa. Potentially threatened by crop cultivation and overgrazing by goats.

Emplectanthus N.E.Br.

Emplectanthus cordatus N.E.Br.

**Status:** Rare

A. Nicholas & J.E. Victor

**Distribution:** KZN. Dhlizna and Entumeni Forest.

**Habitat:** Scarp forest.

**Rationale:** Known from two sites. Not threatened.

Emplectanthus gerrardii N.E.Br.

**Status:** Rare

A. Nicholas & J.E. Victor

**Distribution:** KZN. Qudeni, KwaZulu-Natal.

**Habitat:** Mistbelt forest.

**Rationale:** Known from two sites. Not threatened.

Hoodia Sweet ex Decne.

Hoodia dregei N.E.Br.

**Status:** VU D2

D. Raimondo, J.E. Victor & S.P. Bester

**Distribution:** NC WC. Merweville, Beaufort West and Prince Albert.

**Habitat:** Stony slopes of hills or stony flat areas.

**Rationale:** A rare species known from five locations. Potentially threatened by collecting as it could be mistaken for *H. gordonii*.

Hoodia gordonii (Masson) Sweet ex Decne.

**Status:** DDD

D. Raimondo, R. Wynberg, D. Newton & J.E. Victor

**Distribution:** FS NC WC. Namibia, Botswana, Angola and the dry margins of the summer-rainfall region of South Africa.

**Habitat:** Occurs in a wide variety of arid habitats, from coastal to mountainous, also on gentle to steep shale ridges, found from dry, rocky places to sandy spots in riverbeds.

**Rationale:** A widespread species, EOO 850 000 km² that has undergone decline since 2001 as a result of indiscriminate harvesting for its appetite suppressant properties. International and national demand was particularly high between 2004 and 2006 and as a result of the high economic value of this species, even remote areas of its distribution range are suspected to have been harvested. Unfortunately data do not exist to quantify the degree of decline to the population and as this species is widespread and can be locally common, it is not possible to estimate overall population decline. Research on population recovery after harvesting and the degree of the impact of harvesting over the past 10 years, is required before it can be accurately assessed.

Hoodia officinalis (N.E.Br.) Plowes subsp. officinalis

**Status:** NT B1ab(vy)

J.E. Victor & E. Powell

**Distribution:** FS NC. Southern Namibia (except winter-rainfall areas and deep sands of Kalahari in the east) and from Griqualand West near Douglas to Kimberley and Jacobsdal.

**Habitat:** Inside bushes in flat or gently sloping areas.

**Rationale:** EOO 21 000 km². Occurs as small subpopulations scattered throughout the Northern Cape and the Free State. It is collected from the wild when misidentified as *H. gordonii*.

Hoodia pilifera (L.f.) Plowes subsp. pilifera

**Status:** NT B1ab(iii,v)

D. Raimondo

**Distribution:** WC. Montagu to Uniondale, Matjiesfontein to Laingsburg and Gamka Poort, and Klaarstroom.

**Habitat:** On steep shale slopes or near the foot of sandstone mountains, usually on hotter, northern aspects, occasionally found on flat areas and cooler, southern slopes.

**Rationale:** EOO 15 700 km². Known from 13 locations. This taxon is very rare and difficult to find. Low densities are most likely the result of habitat degradation due to overgrazing throughout its range as well as harvesting for food by local people.

Huernia R.Br.

Huernia echidnopsioides (L.C.Leach) L.C.Leach

**Status:** Rare

J.E. Victor & D. Raimondo

**Distribution:** EC. Southeastern end of the Bavaianskloof and Kouga Mountains.

**Habitat:** Variety of habitats and soils, including clay slopes, exposed rock cliff faces, conglomerate slopes, shale and shallow loamy soil on rock outcrops.

**Rationale:** A range-restricted species (EOO < 500 km²). Not threatened because of the unsuitability of its habitat for ploughing.

Huernia kennedyana Lavranos

**Status:** Rare

J.E. Victor & A.P. Dold

**Distribution:** EC. Cradock and Somerset East.

**Habitat:** Occasionally on flat areas, more usually associated with slightly raised gravelly spots, on low dolerite ridges, also on shale ridges in crevices among rocks.

**Rationale:** Amongst the most localised of all members of the genus, known from five sites from an EOO < 500 km². Not known to be threatened.

Huernia longii Pillans

**Status:** Rare

J.E. Victor & A.P. Dold

**Distribution:** EC. KwaZunga River Valley north of Uitenhage.

**Habitat:** Steep, crumbly slopes between the higher sandstone mountains.
**Rationale:** A range-restricted species (EOO < 330 km²) recorded only from one valley, occurs in a habitat that cannot be ploughed and is safe from the impact of grazing by livestock.

**Huernia nouhuysii** I. Verd.

**Status:** VU D2

**Distribution:** LM. Wylie’s Poort to Vivo.

**Habitat:** On rocky sandstone ridges and outcrops usually in dry, exposed sites near summits, amongst rocks, wedged in crevices or between small grass clumps.

**Rationale:** Known from three locations within a restricted range (EOO < 100 km²). Potentially threatened by harvesting for the specialist succulent horticultural trade, and by drought and disturbance by animals.

**Huernia pendula** E.A. Bruce

**Status:** Rare

**Distribution:** EC. Bolo and along the Mbashe River, and at Collywobbles.

**Habitat:** Pockets of soil and leaf litter that gather on ledges on cliffs, or on rock outcrops, usually on north- or east-facing aspects.

**Rationale:** Restricted to river gorges in the Transkei. It occurs on cliffs and is therefore safe from the impact of trampling and grazing by livestock, the main threat in this area.

**Miraglossum** Kupicha

**Miraglossum davyi** (N.E.Br.) Kupicha

**Status:** VU B1ab(iii,ii,iv,v) + B2ab(iii,ii,iv,v)

**Distribution:** MP. Dullstroom, Middelburg and Standerton.

**Habitat:** Grassland.

**Rationale:** EOO < 15 000 km². Known from five locations but suspected to occur at one or two more. Declining as a result of habitat loss to coal mining and urban expansion.

**Mondia** Skeels

**Mondia whitei** (Hook.f.) Skeels

**Status:** EN A2ad

**Distribution:** KZN. From Guinea-Bissau through tropical Africa to KwaZulu-Natal.

**Habitat:** Mainly swamp forest in South Africa and occasionally in riverine and coastal forest, further north it is found in afro-montane forest. It is currently restricted to lower elevations, although historically it was recorded in higher-altitude midlands forest.

**Rationale:** There are 21 recorded locations from herbarium records, the literature and personal observations. Extinctions are believed to have occurred as a result of habitat loss to coal mining and urban expansion.

**Notechidnopsis** Lavranos & Bleck

**Notechidnopsis columnaris** (Nel) Lavranos & Bleck

**Status:** Rare

**Distribution:** NC. Richtersveld, from Koda’s Peak to Eksteenfontein.

**Habitat:** Steep, rocky slopes or stony summits in short scrub, growing inside bushes or between rocks.

**Rationale:** Restricted to high, westernmost ridges of the Richtersveld. Not threatened because of the inaccessibility of its habitat.

**Optionella** Bruyns

**Ophionella willowmoresensis** Bruyns

**Status:** Rare

**Distribution:** EC. Witteberg and Boesmanspoortberg near Willowmore.

**Habitat:** Crevices on sandstone slabs, 1 000–1 300 m.

**Rationale:** EOO 300 km². Known from three collections. This species has no recorded threats.

**Orbea** Haw.

**Orbea elegans** Plowes

**Status:** CR PE

**Distribution:** KZN. Northern KwaZulu-Natal and adjacent areas in Swaziland.

**Habitat:** Stony places wedged among stones and clumps of grass on hillsides, often on soils derived from dolomite, 900–1 600 m.

**Rationale:** Described in 2004 from a single plant at a site that has subsequently been destroyed by overgrazing by livestock and erosion. Searches in the area have not located any other surviving individuals. The site of another unconfirmed record seen in the 1960s was destroyed by dam construction.

**Orbea gerstneri** (Letty) Bruyns subsp. elongata (R.A.Dyer) Bruyns

**Status:** Rare

**Distribution:** KZN. Northern KwaZulu-Natal and adjacent areas in Swaziland.

**Habitat:** Savanna, in low-lying areas on flat stony ground with a sparse covering of trees.

**Rationale:** Known from only four collections in northern KwaZulu-Natal and Swaziland. Occurs in savannas that are not severely threatened because the many game farms between Nongoma, Mkuze and along the Lebombo Mountains would preserve this habitat.
Orbea hardyi (R.A.Dyer) Bruyns

**Status:** Rare

**Distribution:** L.M. Bewaarkloof to Abel Erasmus Pass to Blyde River Canyon.

**Habitat:** In accumulated litter on the floor of dry forest on south-facing slopes, also on cliffs and rocky outcrops, wedged in crevices.

**Rationale:** A range-restricted species (EOO < 500 km²) known from fewer than five subpopulations. No recorded threats.

Orbea longii (C.A.Lüchh.) Bruyns

**Status:** Rare

**Distribution:** EC. Klein Winterhoek Mountains and Suurb erg.

**Habitat:** Ledges on cliffs, steep areas exclusively on shallow soils of sandstone origin.

**Rationale:** A range-restricted species (EOO < 500 km²). Not threatened because of the inaccessibility of its habitat.

Orbea macloughlinii (I.Verd.) L.C.Leach

**Status:** Rare

**Distribution:** EC KZN. Oribi Gorge and Mthatha district.

**Habitat:** Valley thicket and savanna, open and closed dry woodland, on gently sloping areas of shale with dolerite bedrock close to the surface.

**Rationale:** A habitat specialist known from three sites. Sporadically collected for food by local people but this practice is unlikely to represent a significant threat.

Orbea woodii (N.E.Br.) L.C.Leach

**Status:** VU B1ab(v)

**Distribution:** KZN. Tugela River Valley.

**Habitat:** Valley thicket and savanna, open and closed dry woodland, on gently sloping areas of shale with dolerite rocks, between stones and small tufts of grass in open places, 800–1 200 m.

**Rationale:** EOO < 5 000 km² known from fewer than 10 locations. It is collected for medicinal purposes, causing a continuing decline to the population.

Pachycarpus E.Mey.

Pachycarpus lebomboensis D.M.N.Sm.

**Status:** Rare

**Distribution:** KZN. Southern Lebombo and Ubombo Mountains from Jozini to Mkuzela.

**Habitat:** Open grassy areas in woodland.

**Rationale:** A range-restricted species, EOO 450 km². Known from very few collections. Its habitat is well protected in reserves and private game farms.

Pachycarpus linearis (E.Mey.) N.E.Br.

**Status:** DDD

**Distribution:** EC. Dohne Peak near Stutterheim and Transkei.

**Habitat:** Grassland.

**Rationale:** Known from nine collections, all from the turn of the previous century. Its range is heavily populated and the vegetation is under significant pressure from grazing by livestock. This may have caused declines in the population and resulted in no collections over the past 100 years. However, the Transkei has also not been well explored over the past 80 years, and more field surveys are required before a threat status is assigned.

Pachycarpus mackenii (Harv.) N.E.Br.

**Status:** DDD

**Distribution:** KZN. Zululand.

**Habitat:** Unknown, recorded from grasslands and coastal forests.

**Rationale:** Known from the type collection from Zululand, from a SANBI herbarium record from Kosi Bay and an observation by A. Nicholas (Pachycarpus expert) from the foothills of the Drakensberg. It is still too poorly known to determine distribution and habitat preferences and we are unable to assign a threat status.

Pachycarpus rostratus N.E.Br.

**Status:** CR PE

**Distribution:** KZN. Nkandla.

**Habitat:** Unknown, probably grassland.

**Rationale:** Known from a single record from an unspecified site in the Nkandla district. This area has been extensively transformed and degraded as a result of overgrazing by livestock, a deleterious fire regime, afforestation and crop cultivation. It has not been recorded in more than 100 years and is possibly extinct.

Pachycarpus stenoglossus (E.Mey.) N.E.Br.

**Status:** DDD

**Distribution:** EC. Winterberg and Coombs Valley near Grahamstown.

**Habitat:** Unknown.

**Rationale:** Known from two disjunct collections, both very old. Searches at these sites have failed to relocate it. However, we are unsure if this indicates a decline or merely that the species is highly inconspicuous. The genus Pachycarpus is generally under-collected.

Pachycarpus suaveolens (Schltr.) Nicholas & Goyder

**Status:** VU B1ab(iii)

**Distribution:** MP. Gauteng and Mpumalanga to Swaziland.

**Habitat:** Short or annually burnt grasslands, 1 400–2 000 m.

**Rationale:** A showy plant known from eight historical locations and probably extremely rare. One location, last collected in Gauteng in 1929, has subsequently been lost to urban expansion and this species is likely to be locally extinct in Gauteng. The grassland habitat across its range (EOO 19 900 km²) has been extensively transformed by urban development, crop cultivation, mining and invasive alien plants. Mining is causing a continuing decline in habitat between Witbank and Carolina.

Pectinia Haw.

Pectinia articulata (Ait.) Haw. subsp. articulata

**Status:** Rare

**Distribution:** NC. Between Sutherland and Fraserburg.
Habitat: Under small asteraceous shrubs in flat, slightly gravelly areas.  
Rationale: According to Bruyns (Pectinaria taxonomist and expert field botanist) this taxon is uncommon, occurring in low numbers except in a small area in the eastern part of its range, where it is fairly abundant.

**Quaqua N.E.Br.**

**Quaqua bayeriana** (Bruyns) Plowes
Status: Rare  
J.E. Victor & D. Raimondo  
Distribution: NC. Springbok.  
Habitat: South- or west-facing slopes of gneiss or quartzite.  
Rationale: A range-restricted species known from two sites (EOO 120 km²). It is locally common in suitable habitat.

**Quaqua cincta** (C.A.Lückh.) Bruyns
Status: Rare  
J.E. Victor  
Distribution: NC. Nuwerus and Springbok to Concordia and Okiep.  
Habitat: Usually in clumps under bushes on stony slopes.  
Rationale: Known from fewer than 10 sites. Generally uncommon, occurring as sparsely scattered individuals. No known threats.

**Quaqua framesii** (Pillans) Bruyns
Status: EN B1ab(i,ii,iii,iv,v) + 2ab(i,i,ii,iii,iv,v)  
N.A. Helme & D. Raimondo  
Distribution: WC. Southern Nkxersvlakte.  
Habitat: Red sands and stony ground.  
Rationale: EOO 70 km². Known from fewer than five locations. Its habitat is being rapidly transformed for vineyard and tomato cultivation.

**Quaqua inversa** (N.E.Br.) Bruyns
Status: Rare  
J.E. Victor  
Distribution: NC. Nuwerus and Bitterfontein and Kotzesrus to near Port Nolloth.  
Habitat: Firm, red sand or gneissic ground on low, rolling hills.  
Rationale: A rare species endemic to the centre ofNamaqualand. Known from nine widely scattered sites. Not threatened.

**Quaqua pallens** Bruyns
Status: Rare  
J.E. Victor  
Distribution: NC. Garies.  
Habitat: Succulent karoo, on gneissic slopes inside bushes, 600–900 m.  
Rationale: A range-restricted species (EOO < 200 km²) restricted to the hills north of Garies, where it is locally common and not threatened.

**Quaqua pulchra** (Bruyns) Plowes
Status: EN B1ab(i,ii,iii,iv,v) + 2ab(i,i,ii,iii,iv,v)  
N.A. Helme & D. Raimondo  
Distribution: NC WC. Lutzville to Varnhynsdorp.  
Habitat: Firm, red sands and loams.  
Rationale: EOO < 70 km². Known from fewer than five locations. This species has experienced significant habitat loss to vineyard and tomato cultivation. The red sand habitat close to rivers is targeted for agriculture. Already, 20% of the habitat has been lost over the past 20 years and the type locality at Liebendal has also been lost; decline is continuing.

**Raphionacme Harv.**

**Raphionacme villicorona** Venter  
Status: CR D  
P.A. Manyama & P.J.D. Winter  
Distribution: IM. Sekhukhuneland, northern end of Leolo Mountains.  
Habitat: Dry savanna in well-drained, stony or rocky, dark brown loam soil, 800–1 300 m.  
Rationale: A range-restricted species recorded from three small subpopulations (EOO 54 km²). The smallest subpopulation is possibly extinct but the two remaining ones are not threatened. The known population size is less than 50 mature individuals.

**Raphionacme elsana** Venter & R.L.Verh.  
Status: EN B1ab(iii)  
H.J.T. Venter, L. von Staden & J.E. Victor  
Distribution: KZN. Makatini flats.  
Habitat: Open savanna in Maputaland clay bushveld, in hard, reddish, clay soils on gently sloping hills.  
Rationale: EOO < 800 km². Known from 1–5 locations. It has lost 35% of its habitat, mainly to crop cultivation. It occurs in a communally owned area that is severely overgrazed by goats and cattle; also affected by an altered fire regime and heavy encroachment by Chromolaena.

**Raphionacme lobulata** Venter & R.L.Verh.  
Status: Rare  
J.E. Victor & A.P. Dold  
Distribution: EC. Bathurst.  
Habitat: Banks of the Kap River in dense forest.  
Rationale: Known from two sites from a very restricted range (EOO 90 km²). Not threatened.

**Raphionacme lucens** Venter & R.L.Verh.  
Status: NT* D2  
H.J.T. Venter, A. Nicholas, C.R. Scott-Shaw & J.E. Victor  
Distribution: KZN. Mtunzini to Maputo in Mozambique.  
Habitat: Coastal grassland.  
Rationale: Known from fewer than five locations in South Africa and potentially threatened by pine plantations and urban expansion. Downgraded from VU because of its good dispersal ability and potential to recolonise from subpopulations in Mozambique.

**Riocreuxia Decne.**

**Riocreuxia aberrans** R.A.Dyer  
Status: NT D2  
M. Lötter, J.E. Burrows & J.E. Victor  
Distribution: MP. Dullstroom to Ermelo.  
Habitat: Exposed quartzite ridges.  
Rationale: Known from eight locations. Potentially threatened by urban expansion.

**Riocreuxia alexandrina** (H.Huber) R.A.Dyer  
Status: CR PE  
D. Styles, C.R. Scott-Shaw, I.M. Johnson, D. Raimondo & L. von Staden  
Distribution: KZN. Umzinto district.  
Habitat: Grassland (exact details unknown), either around the edge of bush clumps or in open grassland.
Rationale: The habitat of this species has been almost entirely transformed by sugarcane and forestry plantations and invaded by alien plants. It was last collected before 1930. Efforts to locate individuals over the past 20 years have failed and it is therefore probably extinct. However, systematic searches in all remaining natural habitat in this area have to be conducted before this species is declared extinct.

**Riocreuxia bolusii** N.E.Br.

**Status:** DDD

J.E. Victor

**Distribution:** EC. Mthatha River.

**Habitat:** Unknown.

**Rationale:** Collected only once in 1896 by Bolus. Much of the land around the Mthatha River is degraded and transformed. This species is likely to be threatened.

**Riocreuxia flanaganii** Schltr.  

**Status:** Rare

J.E. Victor & A.P. Dold

**Distribution:** EC. Grahamstown to Komga, and into the Transkei.

**Habitat:** Dolerite outcrops.

**Rationale:** Recorded from four collecting localities, not known to be threatened.

**Riocreuxia woodii** N.E.Br.

**Status:** CR PE

D. Styles, C.R. Scott-Shaw, D. Raimondo & L. von Staden

**Distribution:** KZN. Inanda.

**Habitat:** Unknown, probably in the ectonal area at the edges of bush clumps in grasslands.

**Rationale:** Known from an inexact type locality at Inanda near Durban, where it was collected in 1879. Searches have been unsuccessful, indicating that this species is possibly extinct. However, experts believe that it may still be relocated as intact habitat remains in the area.

**Schizoglossum** E.Mey.

**Schizoglossum amatolicum** Hilliard

**Status:** Critically Rare

J.E. Victor

**Distribution:** EC. Amathole Mountains.

**Habitat:** Montane grasslands.

**Rationale:** Known from one site and not threatened.

**Schizoglossum bidens** E.Mey. subsp. gracile Kupicha

**Status:** VU D2

A. Nicholas & J.E. Victor

**Distribution:** EC. Kentani district.

**Habitat:** Grassland, in marshy or rocky sites, 1 320–2 600 m.

**Rationale:** Known from one location. Potentially threatened by overgrazing by livestock and rural housing developments.

**Schizoglossum bidens** E.Mey. subsp. hirtum Kupicha

**Status:** DDD

C.R. Scott-Shaw, A. Nicholas & J.E. Victor

**Distribution:** KZN. Kwazulu-Natal Midlands and on the Transkei border.

**Habitat:** Mistbelt grassland, 1 050–1 500 m.

**Rationale:** This taxon has not been collected for 50 years. Not enough is known about its distribution and population status to assign a threat category.

**Schizoglossum elingue** N.E.Br. subsp. purpureum Kupicha

**Status:** Rare

P.F. Matlame & D.A. Kamundii

**Distribution:** KZN. Drakensberg Mountains, Thomatuwa Pass in South Africa and Sehlabathebe in Lesotho.

**Habitat:** Rocky grassland on steep slopes, 2 300–2 700 m.

**Rationale:** A range-restricted, high-altitude habitat specialist known from a single site in South Africa (EOO 10 km²). This taxon has no known threats in South Africa. Its status in Lesotho is unknown.

**Schizoglossum montanum** R.A.Dyer

**Status:** Rare

J.E. Victor & A. Nicholas

**Distribution:** FS KZN. Drakensberg summits in Lesotho, Free State and Kwazulu-Natal.

**Habitat:** Subalpine grassland and Drakensberg Afroalpine Heathland, 2 100–2 900 m.

**Rationale:** A high-altitude Drakensberg endemic restricted to grasslands above 2 100 m. This species has no recorded threats.

**Schizoglossum peglerae** N.E.Br.

**Status:** EN B1ab(ii,iii,v)+2ab(ii,iii,v)

P. Wragg & L. von Staden

**Distribution:** EC KZN. Durban, Pietermaritzburg and Ozwatini in the Ndwedwe district.

**Habitat:** Sandstone grasslands, on deeper soils on top of sandstone plateaus.

**Rationale:** EOO 360 km², AOO < 42 km². Known from fewer than five severely fragmented subpopulations. Historically recorded from Kentini in the Eastern Cape, but not recorded there for over 100 years. Declining in Kwazulu-Natal owing to urban expansion and habitat degradation as a result of overgrazing and too frequent fires.

**Schizoglossum quadridens** N.E.Br.

**Status:** DDD

D.A. Kamundi & P.A. Manyama

**Distribution:** KZN. Unknown the type notes Griqualand East.

**Habitat:** Unknown.

**Rationale:** Known from the type collection in 1890. The collecting locality has not been successfully traced. Not enough is currently known about the distribution, specific habitat or population status of this species to assign a threat category.

**Schizoglossum rubiginosum** Hilliard

**Status:** VU D2

A. Nicholas & D. Raimondo

**Distribution:** KZN. Harding district.

**Habitat:** Mistbelt grassland, 1 000 m.

**Rationale:** Known from one location, in an area that has been significantly transformed for afforestation. This taxon is potentially threatened by alien plants invading grasslands between pine plantations, a deleterious fire regime and overgrazing by livestock.
Schizoglossum singulare Kupicha
Status: VU D2
A. Nicholas & D. Raimondo
 Distribution: EC KZN. Ngele Mountain.
 Habitat: Montane grassland on dolerite, 2 100 m.
 Rationale: Known from Ngele Mountain in southern Kwa-Zulu-Natal and likely to occur both within and outside the reserve area. Outside the reserve the habitat has been extensively transformed by forestry plantations and there is a potential threat from habitat degradation due to overgrazing by livestock.

Sisyranthus E.Mey.
1 Sisyranthus aniceps Schltr.
 Status: DDD
 P.F. Matlamela & D.A. Kamundi†
 Distribution: KZN. Inanda, north of Durban.
 Habitat: Unknown.
 Rationale: Known only from the type, collected in 1880 at Inanda. This area is threatened by overgrazing by livestock and expansion of informal settlements. Not enough is known about the habitat or population status of this species to determine its status.

Sisyranthus fanniniae N.E.Br.
 Status: VU B1ab(iii)
 C.R. Scott-Shaw, A. Nicholas, I.M. Johnson & L. von Staden
 Distribution: KZN. Impendele to Dargle, possibly also Underberg and Nsikeni.
 Habitat: Montane grassland, 1 600–1 800 m.
 Rationale: This genus is very poorly known and data for this species are uncertain. However, the estimated range is very restricted (EOO 200–1 400 km²). There are very few records, indicating that it is rare (estimated fewer than 10 locations), and there is evidence of continuing decline in the habitat from afforestation in the vicinity of Komga by Drège in the early 1800s. Not enough is known about the habitat or population status of this species to determine its status.

Sisyranthus macer (E.Mey.) Schltr.
 Status: DDD
 P.F. Matlamela & D.A. Kamundi†
 Distribution: EC. Komga.
 Habitat: Unknown.
 Rationale: A poorly known species, recorded only from the type specimen collected near Komga by Drège in 1880. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Stapelia L.
Stapelia divaricata Masson
 Status: VU D2
 S.P. Bester & D. Raimondo
 Distribution: WC. East of Swellendam.
 Habitat: Grows on steep, north-facing slopes, usually tightly wedged between stones and small bushes on exposed shale outcrops.
 Rationale: Known from two locations. It has lost habitat in the past, and there remains a potential threat of loss due to future crop cultivation and pressure from grazing livestock.

Stapelia glanduliflora Masson
 Status: VU D2
 N.A. Helme & D. Raimondo
 Distribution: WC. Klawer to ± 20 km north of Citrusdal.
 Habitat: Arid, stony slopes among shrubs.
 Rationale: Known from four locations. It has lost habitat to crop cultivation (deciduous fruit, vines, tomatoes and onions) in the past. Although not declining currently, loss to agriculture remains a potential threat, especially as irrigation technologies improve.

3 Stapelia montana L.C.Leach var. grossa L.C.Leach
 Status: Rare
 P.F. Matlamela & D.A. Kamundi†
 Distribution: WC. Witels River, in the Hex River Mountains.
 Habitat: Sandstone slopes.
 Rationale: A range-restricted taxon (EOO < 10 km²) known from one subpopulation. No recorded threats.

Stapelia paniculata Willd. subsp. paniculata
 Status: NT B1ab(iii,iii,iv,v)
 N.A. Helme & D. Raimondo
 Distribution: WC. Doringbaai, south to Aurora and inland to Piekienierskloof Pass.
 Habitat: Sandstone outcrops.
 Rationale: EOO 2 900 km². Known from less than 15 locations. At least part of the Lambert’s Bay subpopulation was lost because of excavations for the Sishen to Saldanha railway line. Other subpopulations are likely to have been lost as a result of quarrying for road material. This loss is predicted to be ongoing.

Stapelia paniculata Willd. subsp. scitula
(L.C.Leach) Bruyns
 Status: VU B1ab(iii,iii,iv,v)
 N.A. Helme & D. Raimondo
 Distribution: WC. Robertson district.
 Habitat: Usually steep shale and dolomite slopes.
 Rationale: Known from a restricted range (EOO < 300 km²) and recorded from three locations but predicted to occur at a few others, possibly up to 10. Declining in habitat as a result of vineyard and fruit orchard expansion and quarrying.

Stapelia rubiginosa Nel
 Status: VU D2
 N.A. Helme & D. Raimondo
 Distribution: NC. Richtersveld.
 Habitat: Inside bushes on stony, typically north-facing, slopes.
 Rationale: Known from three locations. The number of subpopulations has declined since the 1950s as a result of desertification. This species is potentially threatened by climate change.

Stapeliopsis Pillans
Stapeliopsis breviloba (R.A.Dyer) Bruyns
 Status: VU B1ab(iii,iii,iv,v)
 D. Raimondo
 Distribution: WC. Worcester to Robertson, and Swellendam.
 Habitat: Under small bushes on low, stony ridges or in loam flats.
 Rationale: EOO 2 860 km². Recorded from fewer than 10 locations. This species is most common along the
southern banks of the Breede River on loam flats. This habitat has been and continues to be rapidly transformed for viticulture. A number of historical locations have been lost.

**Stapeliopsis neronis** Pillans

- **Status:** Rare
- **Distribution:** NC. Richtersveld.
- **Habitat:** Steep, south-facing quartzite, schist and gneiss slopes, under bushes or between rocks.
- **Rationale:** A habitat specialist known from several scattered subpopulations in the Richtersveld, not threatened because of the inaccessibility of its habitat.

**Stenostelma** Schltr.

- **Stenostelma umbelluliferum** (Schltr.) S.P.Bester & Nicholas
  - **Status:** NT B1ab(ii,iii,iv,v)
  - **Distribution:** G NW. Pretoria North and adjacent areas in North West Province.
  - **Habitat:** Deep black turf in open woodland, mainly in the vicinity of drainage lines.
  - **Rationale:** EOO 9 700 km². Suspected to occur at 13 locations, declining as a result of urban expansion.

**Tridentea** Haw.

- **Tridentea virescens** (N.E.Br.) L.C.Leach
  - **Status:** Rare
  - **Distribution:** EC NC WC. Warmbad in southern Namibia to Kakamas and Prieska in the Northern Cape, stretching east to Prince Albert and Aberdeen.
  - **Habitat:** Stony ground, or hard loam in floodplains.
  - **Rationale:** A widespread species that occurs as sporadic small subpopulations of up to six plants. No threats are known to have an impact on this species.

**Tromotriche** Haw.

- **Tromotriche herrei** (Nel) Bruyns
  - **Status:** Rare
  - **Distribution:** NC. Southern bank of the Orange River in the Richtersveld, from Eksteenfontein to just northeast of Steinkopf.
  - **Habitat:** Gentle gravel slopes on quartz or gneiss.
  - **Rationale:** Occurs as sparsely scattered individuals, in a specific habitat. Known from eight subpopulations; this species has no significant threats.

**Tylophora** R.Br.

- **Tylophora coddi** Bullock
  - **Status:** Rare
  - **Distribution:** LM. Southern end of Wylie’s Poort to Blouberg.
  - **Habitat:** Rock crevices, 1 000–1 600 m.
  - **Rationale:** A habitat specialist recorded from fewer than 10 subpopulations; this species has no known threats.

**Woodia** Schltr.

- **Woodia singularis** N.E.Br.
  - **Status:** Rare
  - **Distribution:** LM MP. Swaziland, Barberton and Punda Maria.
  - **Habitat:** Various habitats in bushveld and grasslands.
  - **Rationale:** Known from three small, disjunct subpopulations and likely to be a paleoendemic species occupying the edges of a former larger range.

**Woodia verruculosa** Schltr.

- **Status:** VU D2
  - **Distribution:** KZN. Howick to Eston.
  - **Habitat:** Mistbelt and Nqongoni grassland, 800–1 300 m.
  - **Rationale:** Known from four locations, it has lost suitable habitat to crop cultivation, urban expansion and forestry in the past. It remains potentially threatened by urban expansion and the impact of habitat fragmentation, including an inappropriate fire regime.

**Xysmalobium** R.Br.

- **Xysmalobium baurii** N.E.Br.
  - **Status:** Ex
  - **Distribution:** EC. Bizana.
  - **Habitat:** Grassland.

- **Xysmalobium fluviale** Bruyns
  - **Status:** Rare
  - **Distribution:** WC. Outshoorn district, Tierberg.
  - **Habitat:** Sandstone slopes often near watercourses, growing in small bushes.
  - **Rationale:** A range-restricted habitat specialist (EOO < 20 km²), known from one subpopulation with no recorded threats.

- **Xysmalobium pearsonii** L.Bolus
  - **Status:** DDD
  - **Distribution:** NC. Kamiesberg Plateau.
  - **Habitat:** Granite outcrops.
  - **Rationale:** Known from the type collection made by Pearson in 1910. Precise locality information and habitat data are not available, making it impossible to list this species. Crop cultivation and overgrazing by livestock could be threatening this taxon.

- **Xysmalobium winterbergense** N.E.Br.
  - **Status:** CR PE
  - **Distribution:** EC. Winterberg Mountains.
  - **Habitat:** Grassland.
  - **Rationale:** Known only from the type collection; A. Nicholas (Xysmalobium expert) has searched for this species.
species and not found it. As members of this genus are very sensitive to grazing by livestock, it is possible that this species has gone extinct. Further fieldwork is required to confirm this.

**Xysmalobium woodii** N.E.Br.
**Status:** Rare
A. Nicholas & J.E. Victor

**Distribution:** KZN. Drakensberg mountain range.

**Habitat:** Montane grassland, 1 800–2 100 m.

**Rationale:** Known from six collecting localities from high-altitude grasslands of KwaZulu-Natal and Lesotho. Not known to be threatened.

### AQUIFOLIACEAE

**Ilex L.**

**Ilex mitis** (L.) Radlk. var. mitis
**Status:** Declining

**Distribution:** EC FS G KZN LM MP NW WC. Widespread from Table Mountain in the Western Cape to Ethiopia and also Madagascar.

**Habitat:** Along rivers and streams in forest and thickets, sometimes in the open. Found from sea level to inland mountain slopes.

**Rationale:** This taxon has experienced notable declines in the Eastern Cape because of bark-stripping for the medicinal plant trade. It is not severely affected in the rest of its South African range.

### ARALIACEAE

**Cussonia Thunb.**

**Cussonia gamtooisensis** Strey
**Status:** Rare
J.E. Victor & A.P. Dold

**Distribution:** EC. Gamtoos River Valley.

**Habitat:** Dry, rocky slopes.

**Rationale:** A range-restricted species (EOO 420 km²). Not threatened because of the inaccessibility of its habitat.

### ASTERACEAE

**Amellus L.**

**Amellus asteroides** (L.) Druce subsp. mollis Rommel
**Status:** VU B1ab(ii,iii,iv,v)
T. Trinder-Smith & D. Raimondo

**Distribution:** WC. Hawston to De Mond.

**Habitat:** Coastal dunes.

**Rationale:** EOO 1 260 km². Known from 7–10 locations. Declining as a result of coastal development and encroachment by invasive alien acacias.

**Amellus capensis** (Walp.) Hutch.
**Status:** VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

**Distribution:** WC. Cape Peninsula to Agulhas.

**Habitat:** Coastal dunes.

**Rationale:** EOO 250 km². Recorded from four locations but suspected to be under-collected and to occur at up to 10 locations. Declining as a result of coastal development and severe infestations of invasive alien plants.

### Amphiglossa DC.

**Amphiglossa callunoides** DC.

**Status:** VU B1ab(ii,iii,iv,v)
D. Raimondo, N.G. Bergh, A.P. Dold & M. Koekemoer

**Distribution:** WC. Uitenhage and Baviaanskloof.

**Habitat:** Sandy pebble-covered riverbanks, common along the rivers where round white boulders occur.

**Rationale:** EOO 5 000 km². Recorded from five locations, but suspected to occur at another five undiscovered locations. Experiencing a severe, continuing decline at one of these locations (the Swartkops River) as a result of gravel mining.

**Amphiglossa celans** Koekemoer

**Status:** Rare
J.E. Victor & M. Koekemoer

**Distribution:** NC. Garies to Kotzesrus.

**Habitat:** Strandveld, deep sand, with sparse vegetation of predominantly mesembryanthemous and asteraceous elements that seldom grow taller than 0.5 m.

**Rationale:** Currently known only from one collection from a small area between Garies and Kotzesrus. This species is likely to be under-collected but, based on existing knowledge, is considered rare.

**Amphiglossa corrudifolia** DC.

**Status:** VU D2
M. Koekemoer & J.E. Victor

**Distribution:** NC. Loeriesfontein and Prince Albert.

**Habitat:** Dry, sandy riverbeds.

**Rationale:** Known from two highly disjunct locations. Potentially threatened by periodic flash floods.

**Amphiglossa susannae** Koekemoer

**Status:** VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

**Distribution:** WC. Ceres Karoo, Swartruggens Mountain.

**Habitat:** Deep red or white sand in level areas between Table Mountain Sandstone outcrops.

**Rationale:** EOO < 1 400 km². Known from fewer than 10 locations. Declining as a result of conversion of its sandy habitat for cash crop and fruit orchard cultivation.

### Anaxeton Gaertn.

**Anaxeton angustifolium** Lundgren

**Status:** Critically Rare
N.A. Helme & D. Raimondo

**Distribution:** WC. Ceres, Milner Peak.

**Habitat:** Sandstone cliffs and steep rocky slopes.

**Rationale:** Known from one collection at the western foot of Milner Peak. Not threatened because of the inaccessibility of its habitat.

**Anaxeton brevipes** Lundgren

**Status:** VU D2
N.A. Helme & D. Raimondo

**Distribution:** WC. Riviersonderend Mountains.

**Habitat:** Rocky slopes.

**Rationale:** Known from two locations on the Riviersonderend Mountains. Potentially threatened by the spread of invasive alien plants.

**ANGIOSPERMS: DICOTYLEDONS**

**APOCYNACEAE**

**Xysmalobium winterbergense**
Anaxeton ellipticum Lundgren  
Status: Rare  
PP.J. Herman & J.E. Victor  
Distribution: WC. Franschhoek Peak to Hottentots Holland Mountains.  
Habitat: Rocky sandstone slopes in montane fynbos.  
Rationale: Known from fewer than five sites, occurs on rocky mountain slopes and is not threatened.

Anaxeton hirsutum (Thunb.) Less.  
Status: VU D2  
N.A. Helme & D. Raimondo  
Distribution: WC. Riviersonderend Mountains and Caledon Swartberg.  
Habitat: Rocky mountain peaks and slopes, 500–1 500 m.  
Rationale: Both mountain ranges on which it occurs are heavily infested with alien plants, posing a significant potential threat to all four known locations.

Anaxeton lundgrenii B.Nord.  
Status: Critically Rare  
P.A. Manyama  
Distribution: WC. Kleinrivier Mountains.  
Habitat: Rock crevices and on large, inaccessible boulders on steep middle slopes, mainly with a southwest aspect.  
Rationale: A range-restricted species (EOO 130 km²), known from one subpopulation. It has no recorded threats.

Anderbergia B.Nord.  

Anderbergia elsiae B.Nord.  
Status: Rare  
N.A. Helme  
Distribution: WC. Langeberg Mountains.  
Habitat: Sandstone mountain peaks, 1 500–2 000 m.  
Rationale: Occurs only on the two highest peaks of the Langeberg Mountains. Not threatened.

Anderbergia epaneata (Hilliard & B.L.Burtt) B.Nord.  
Status: Critically Rare  
N.A. Helme  
Distribution: WC. Klein Swartberg Mountains.  
Habitat: South-facing, upper sandstone slopes.  
Rationale: Known from one mountain slope where it has no recorded threats.

Anderbergia fallax B.Nord.  
Status: Critically Rare  
N.A. Helme  
Distribution: WC. Langeberg Mountains.  
Habitat: Sandstone slopes.  
Rationale: Known from a single collection made on Goedgeloof Peak in the Langeberg near Swellendam. Not threatened.

Anderbergia rooibergensis B.Nord.  
Status: Critically Rare  
N.A. Helme  
Distribution: WC. Ladismith district, Rooiberg.  
Habitat: Sandstone slopes.  
Rationale: Known from one subpopulation, it has no recorded threats.

Anderbergia ustulata B.Nord.  
Status: Critically Rare  
N.A. Helme  
Distribution: WC. Keeromsberg, Saw Edge Peak.  
Habitat: Sandstone slopes.  
Rationale: Known from only one collection. Not threatened.

Anderbergia vlokii (Hilliard) B.Nord.  
Status: Critically Rare  
N.A. Helme  
Distribution: WC. Waboomsberg.  
Habitat: Sandstone slopes.  
Rationale: Known from only one collecting locality. Occurs on mountain slopes and is not threatened.

Anisothrix O.Hoffm.  

Anisothrix integra (Compton) Anderb.  
Status: Rare  
N.A. Helme  
Distribution: WC. Seweweekspoort and Rooiberg Mountains.  
Habitat: Cliffs on arid, lower sandstone slopes.  
Rationale: A habitat specialist recorded from two sites. Not threatened because of the inaccessibility of its habitat.

Anisothrix kunzei O.Hoffm.  
Status: Critically Rare  
N.A. Helme & D. Raimondo  
Distribution: WC. Montagu, Cogmans Kloof.  
Habitat: Cliffs on low sandstone slopes.  
Rationale: Known from one site. Not threatened because of the inaccessibility of its habitat.

Antithrixia DC.  

Antithrixia flavicoma DC.  
Status: VU D2  
N.A. Helme & D. Raimondo  
Distribution: NC. Namaqualand, Kamiesberg.  
Habitat: West-facing medium-altitude granite slopes, 600–1 000 m.  
Rationale: A Kamiesberg endemic, known from three locations. Potentially threatened by grazing by livestock.

Arctotheca J.C.Wendl.  

Arctotheca forbesiana (DC.) K.Lewin  
Status: CR B2ab(ii,iii,iv,v)  
N.A. Helme & D. Raimondo  
Distribution: WC. Durbanville and Somerset West to Caledon and Elim.  
Habitat: Seasonally wet to flooded shale, silty clay lowlands associated with silcrete and ferricrete.  
Rationale: The habitat has mostly been lost to wheat agriculture and the urban expansion of the Cape Flats and the Strand area over the past 80 years. All possible remaining habitat totals < 10 km². It has lost over 50% of known locations to urban expansion and agriculture, and is currently recorded from six small, severely fragmented subpopulations with less than 2 300 mature individuals. All subpopulations are declining as a result of ongoing habitat loss (areas on the outskirts of Cape Town are being developed) and the habitat of the Overberg subpopulations is being degraded as a result of eutrophication from surrounding wheat fields and the related invasion of alien grasses.
Arctotis angustifolia L.

Status: CR C2a(i)
D.A. Kamundi† & D. Raimondo

Distribution: coastal dunes, 0–300 m.
Habitat: Grassland.
Rationale: Known from three old herbarium collections, two from 1835 and one from 1927. All three specimens have very vague site descriptions. Not enough is known about the distribution or the population status of this species to determine its status. Its habitat is declining as a result of coastal development and invasion by alien plants and expanding crop cultivation.

Arctotis debensis R.J.McKenzie

Status: VU A2c; B1ab(iii)+2ab(iii)
L. von Staden

Distribution: EC. King William’s Town to Prarie Forest.
Habitat: Grassland, the species occurs only on the mound-like edges of seasonally inundated hollows or ‘kommetjies’ that are 0.9–1.2 m deep and 1–9 m in diameter.
Rationale: EOO 186 km². Eight known locations. The small range of this species falls entirely within a densely populated area. A 30% decline in the population of this locally common species is estimated based on a 32% decline of natural vegetation within the known range over the last 10 years. Habitat loss is ongoing as a result of expanding human settlements, crop cultivation and severe overgrazing.

Arctotis hispidula (Less.) Beauverd

Status: DDD
D.A. Kamundi† & D. Raimondo

Distribution: EC WC. George to Uitenhage.
Habitat: Coastal dunes, 0–300 m.
Rationale: Known from three old herbarium collections, two from 1835 and one from 1927. All three specimens have very vague site descriptions. Not enough is known about the distribution or the population status of this species to determine its status. Its habitat is declining as a result of coastal development and invasion by alien plants.

Arctotis venidioides DC.

Status: DDD
D.A. Kamundi† & D. Raimondo

Distribution: WC. Clanwilliam.
Habitat: Unknown.
Rationale: Known only from the type, collected in the Olifants River Valley near Clanwilliam in 1835. This area has been transformed for citrus cultivation and this species is likely to be threatened.

Aster L.

Aster bowiei Harv.

Status: VU D2
N.A. Helme & D. Raimondo

Distribution: WC. Swellendam.
Habitat: Grassly fynbos, possibly on shale bands.
Rationale: Known from three collections and potentially threatened by invading alien plants and agriculture, especially at two of its locations at Garcia’s Pass and Strawberry Hill.

Aster confertifolius Hilliard & B.L.Burtt

Status: Rare
D.A. Kamundi† & J.E. Victor

Distribution: EC. Van Stadens Mountains.
Habitat: Montane fynbos on sandstone slopes.
Rationale: A range-restricted species known from one location. This species flowers only after fire. Potentially threatened by invasive alien pines.

Aster laevigatus (Sond.) Kuntze

Status: VU D2
P.P.J. Herman, A.P. Dold & J.E. Victor

Distribution: IM. Wolberg Plateau and Woodbush.
Habitat: Rocky outcrops in mistbelt grassland, above 1 600 m.
Rationale: An estimated 50–70% of its habitat has been lost over the last three generations (60–90 years), mainly as a result of afforestation. At present there are three or four locations in grassland fragments amidst extensive plantations. These fragments are being continually degraded because of unsuitable fire management and invasion by woody alien species, mainly pines and wattle. One location is potentially threatened by mining. Estimated EOO 120 km², AOO < 20 km².

Athanasia L.

Athanasia adenantha (Harv.) Källersjö

Status: EN A2c; B1ab(iii)+2ab(iii)
L. von Staden & P.J.D. Winter

Distribution: NC WC. Wolseley to the southern Bokkeveld.
Habitat: Lowland sands and clays.
Rationale: EOO 4 600 km². Known from five locations and subpopulations. Each subpopulation has less than 100 plants. There is a continuing decline as a result of invasion by alien plants and expanding crop cultivation.

Athanasia alba Källersjö

Status: Critically Rare
N.A. Helme

Habitat: Sandstone slopes.
Rationale: Known from one subpopulation, occurs on mountain slopes and is not threatened.
**Athanasia calophylla** Källersjö
- **Status**: Rare
- **Distribution**: WC. Northern Cederberg Mountains.
- **Habitat**: Sandstone slopes.
- **Rationale**: Known from a very small range (EOO 43 km²), from three sites within the Cederberg Wilderness Area. Not threatened.

**Athanasia capitata** (L.) L.
- **Status**: EN A2abc; B1ab(ii,iii)+2ab(ii,iii)
- **Distribution**: WC. Cape Town to Wellington.
- **Habitat**: Seasonally wet clay flats or gentle slopes.
- **Rationale**: Formerly common on the Cape Peninsula and on the clay flats up the West Coast to Wellington (EOO 250 km²). This long-lived species (generation length 50 years) has lost over 65% of known subpopulations and EOO over the past 120 years, primarily as a result of urban expansion, but also agriculture (vines and wheat) and invasion by alien plants. The decline due to urban expansion is ongoing, especially around Durbanville, and is having an impact on all eight of the remaining severely fragmented subpopulations.

**Athanasia cochlearifolia** Källersjö
- **Status**: EN B1ab(ii,iii,v)
- **Distribution**: WC. Still Bay to Mossel Bay.
- **Habitat**: Lowland fynbos, often associated with limestone outcrops.
- **Rationale**: A Riversdale Plain endemic (EOO 1 600 km²) known from four locations. Declining as a result of crop cultivation and invasion by alien plants.

**Athanasia crenata** (L.) L.
- **Status**: EN B1ab(ii,iii,iv)
- **Distribution**: WC. Piketberg to Drakenstein Mountains.
- **Habitat**: Renosterveld, clay flats and slopes.
- **Rationale**: A Swartland endemic (EOO 3 100 km²) that occurs in habitats not targeted for rooibos tea cultivation.

**Athanasia grandiceps** Hilliard & B.L.Burtt
- **Status**: Rare
- **Distribution**: KZN. Drakensberg Gardens and Cobham Nature Reserve.
- **Habitat**: Montane grasslands in rocky valleys.
- **Rationale**: Recorded from only three sites, this species is a range-restricted Drakensberg endemic (EOO < 100 km²) that has no known threats.

**Athanasia hirsuta** Thunb.
- **Status**: Rare
- **Distribution**: WC. Worcester and Montagu.
- **Habitat**: Arid sandstone slopes.
- **Rationale**: Known from five sites occurring as isolated subpopulations and is not threatened.

**Athanasia humilis** Källersjö
- **Status**: Rare
- **Distribution**: WC. Riviersonderend and Langeberg Mountains, near Montagu.
- **Habitat**: Dry sandstone slopes in karroid vegetation.
- **Rationale**: Known from two sites in the Little Karoo. Not threatened.

**Athanasia imbricata** Harv.
- **Status**: DDD
- **Distribution**: WC. Tradouw Mountains.
- **Habitat**: Acid sands over shale.
- **Rationale**: A rare species (EOO < 50 km²) that occurs in habitats not targeted for rooibos tea cultivation.

**Athanasia inopinata** (Hutch.) Källersjö
- **Status**: VU D2
- **Distribution**: WC. Swellendam, Stormsvlei Kloof.
- **Habitat**: Dry, grassy lower slopes.
- **Rationale**: Known from one location. Potentially threatened by invasive alien plants and agriculture (vineyards and deciduous fruit).

**Athanasia leptocephala** Källersjö
- **Status**: Rare
- **Distribution**: WC. Gifberg and Matsikamma Mountains.
- **Habitat**: Acid sands over shale.
- **Rationale**: A rare species (EOO < 50 km²) that occurs in habitats not targeted for rooibos tea cultivation.

**Athanasia oocephala** (DC.) Källersjö
- **Status**: VU D2
- **Distribution**: WC. Swellendam, Stormsvlei Kloof.
- **Habitat**: Dry, grassy lower slopes.
- **Rationale**: Known from one location. Potentially threatened by invasive alien plants and agriculture (vineyards and deciduous fruit).

**Athanasia quinquadentata** Thunb. subsp. rigens Källersjö
- **Status**: VU B1ab(iii,v)
- **Distribution**: WC. Still Bay.
- **Habitat**: Coastal lowlands, on alkaline sands and occasionally on acid-alkaline ecotones.
- **Rationale**: Known from a limestone ridge that runs parallel to the coast north of Still Bay. Threatened by ongoing habitat loss to alien acacia infestations. Fewer than 10 locations are known from a maximum range of 1 250 km².

**Athanasia rugulosa** E.Mey. ex DC.
- **Status**: EN B1ab(ii,iii,iv)
- **Distribution**: WC. Malmesbury to Dassenberg.
- **Habitat**: Seasonally wet sands.
- **Rationale**: Known from two locations, at Riverlands and at Rondevlei (EOO < 20 km²). It has lost > 70% of its habitat over the past 60 years to invasive alien acacias.
Berkheya angusta Schltr.  
**Status:** VU D1 + 2

N.A. Helme & D. Raimondo

**Distribution:** WC. Riviersonderend Mountains, Silver-streams between Villiersdorp and Genandeland.

Habitat: Sandstone slopes.

Rationale: Recorded from one subpopulation, occurring as sparsely scattered individuals. Known from less than 100 plants and although there are probably more, the population is not likely to exceed 1 000 mature individuals. It is potentially threatened by invasive alien plants (pines and hakeas).

Athanasia scabra Thunb.  
**Plate 43**

**Status:** VU D1 + 2

N.A. Helme & D. Raimondo

**Distribution:** WC. Paleisheuwel.

Habitat: Dry, sandy flats.

Rationale: Only ever collected from three locations from a restricted range (EOO < 100 km²). It occurs in deep sands, a habitat severely threatened by potato cultivation. Some 60% of its habitat has been lost over the past 40 years (generation length is estimated to be 15 years).

Athanasia sertulifera DC.  
**Plate 43**

**Status:** EN A2bc; B1ab(iii,iii,iv,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Nardous Mountain and the southern Bokkeveld.

Habitat: Sandy areas in arid mountains.

Rationale: EOO < 530 km². Known from two locations. Experiencing rapid, ongoing habitat loss due to rooibos tea cultivation.

Berkheya Ehrh.

Berkheya angusta Schltr.

**Status:** VU D2

D. Raimondo & R.C. Turner

**Distribution:** WC. Langeberg and Bredasdorp Mountains.

Habitat: Low slopes, on clays or sandstone.

Rationale: Known from three locations. Potentially threatened by vineyards in the Worcester Valley and invading alien plants at Elandskloof.

Berkheya coddii Roessler

**Status:** Rare

J.E. Victor & G. Goodman

**Distribution:** MP. Barberton.

Habitat: Serpentine soils.

Rationale: Serpentine endemic known from five sites. Its habitat is targeted for pine plantations, but this does not appear to be affecting this species at present.

Berkheya draco Roessler

**Status:** Rare

C.R. Scott-Shaw

**Distribution:** KZN. Drakensberg Mountains, from Mont-aux-Sources to Champagne Castle.

Habitat: Montane grassland, in steep gullies.

Rationale: A rare species with a narrow range (EOO < 500 km²). Occurs only in steep gullies and is not threatened.

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and agriculture. It is still declining at Rondevlei, a private farm that is not well managed. At Riverlands, constant clearing is required to stop aliens from degrading the habitat of this species.

Athanasia scabra Thunb.  
**Plate 43**

**Status:** VU D1 + 2

N.A. Helme & D. Raimondo

**Distribution:** WC. Paleisheuwel.

Habitat: Dry, sandy flats.

Rationale: Only ever collected from three locations from a restricted range (EOO < 100 km²). It occurs in deep sands, a habitat severely threatened by potato cultivation. Some 60% of its habitat has been lost over the past 40 years (generation length is estimated to be 15 years).

Berkheya Francisci Bolus

**Status:** Rare

J.H. Vlok & D. Raimondo

**Distribution:** WC. Swartberg Mountains.

Habitat: High-altitude rocky sandstone slopes.

Rationale: A rare species (EOO < 60 km²) known from four sites. Not threatened.

Berkheya griquana Hilliard & B.L.Burtt

**Status:** VU D2

D.A. Kamundi† & D. Raimondo

**Distribution:** KZN. Drakensberg Mountains, Royal Natal National Park.

Habitat: Montane and subalpine grassland. Marshy depressions and scrub on basalt, 1 800–2 400 m.

Rationale: A habitat specialist known from one site in the Drakensberg. This species is rare but not known to be declining.

Berkheya leucaugeta Hilliard

**Status:** Rare

J.E. Victor

**Distribution:** EC KZN. KwaZulu-Natal Drakensberg Mountains.

Habitat: Montane rocky grassland, 1 525–2 164 m.

Rationale: A range-restricted species (EOO < 500 km²), known from four subpopulations. No recorded threats.

Berkheya radieri Roessler

**Status:** Rare

D.A. Kamundi† & D. Raimondo

**Distribution:** KF. Blouberg.

Habitat: Mistbelt grassland, occurs among rocks near the mountain summit, 1 700–2 000 m.

Rationale: A range-restricted species (EOO < 100 km²), known from the summit of the Blouberg, this species has no recorded threats.

Bolandia Cron

**Bolandia argillacea** (Cron) Cron

**Status:** Rare

J.E. Victor & G. Goodman

**Distribution:** WC. Worcester, Brandwacht Peak.

Habitat: Clay zones, 1 700–1 800 m.

Rationale: A high-altitude, range-restricted endemic (EOO < 10 km²) that has no known threats.
Callilepis DC.

Callilepis leptophylla Harv.

Status: Declining

J.E. Victor

Distribution: Widespread in eastern half of South Africa. Also in Swaziland.

Habitat: Grassland or open woodland, often on rocky outcrops or rocky hill slopes.

Rationale: A widespread species (EOO 156 000 km²) that is declining as a result of over-exploitation for the medicinal plant trade. The extent of the decline is currently unknown.

Calotesta P.O.Karis

Calotesta alba P.O.Karis

Status: Critically Rare

N.A. Helme & D. Raimondo

Distribution: WC. Klein Swartberg Mountains.

Habitat: Steep, south-facing sandstone cliffs and ledges, 1 700–2 000 m.

Rationale: Known from a tiny range (EOO < 6 km²) from one site. This high-altitude mountain endemic is not threatened.

Capelio B.Nord.

Capelio caledonica B.Nord.

Status: Rare

N.A. Helme & D. Raimondo

Distribution: WC. Kogelberg, Palmiet River Mountains.

Habitat: Sandy soil.

Rationale: A range-restricted species, known from one site. Occurs within the Kogelberg Nature Reserve and is not threatened.

Chrysocoma L.

Chrysocoma esterhuyseniae Ehr.Bayer

Status: CR B2ab(i,ii,iii,iv,v)

N.A. Helme & D. Raimondo

Distribution: WC. Eendekuil to Tygerberg.

Habitat: Vernal pools on shale. Juveniles submerged, adults floating, emergent or temporarily terrestrial.

Rationale: AOO < 2 km². This species occurs as small, fragmented subpopulations. It is declining as a result of overgrazing and trampling by livestock, infilling of wetlands, invasion by alien plants and eutrophication. It has declined by > 70% over the past 100 years.

Chrysocoma flavia Ehr.Bayer

Status: DDD

N.A. Helme & D. Raimondo

Distribution: WC. Brak River.

Habitat: Unknown, possibly shale.

Rationale: Not recollected since Muir’s original 1929 collection. This area has been substantially transformed to crop cultivation and this species is likely to be threatened.

Chrysocoma hantamensis J.C.Manning & Goldblatt

Status: VU D2

P.A. Manyama

Distribution: NC. Bokkeveld and northern Roggeveld Escarpment.

Habitat: Succulent Karoo, doleritic clays.

Rationale: Known from two locations. One subpopulation is potentially threatened by crop cultivation.

Cineraria L.

Cineraria volubilis Spreng.f.

Status: DDD

P.A. Manyama

Distribution: Unknown.

Habitat: Unknown.

Rationale: Known only from the type, collected in the late 1800s, which states only Cape Province, South Africa, as the collecting locality. No other information is known about this taxon.

Cineraria lanosa DC.

Status: DDD

P.A. Manyama

Distribution: Unknown.

Habitat: Unknown.

Rationale: Known from the type collection made in 1791, which lists Cape Bonae Spei as the collecting locality. Nothing else is known about this species.

Cineraria alchemilloides DC. subsp. alchemilloides

Status: Rare

P.A. Manyama

Distribution: NC WC. Kouberg to Tulbagh.

Habitat: Steep slopes, below cliffs, usually in shade and sometimes in wet places, rocky soil and on sandstone (often quartzitic sandstone), 800–1 100 m.

Rationale: A habitat specialist known from five subpopulations. Most subpopulations are safe as they occur at high altitudes.

Cineraria angulosa Lam.

Status: EN B1ab(ii,iii,iv)

N.A. Helme, D. Raimondo & G.V. Cron

Distribution: WC. Langebaan and St Helena Bay.

Habitat: Granite and shallow granitic sands on granite outcrops near the sea, 30 m.

Rationale: EOO < 150 km². Known from three locations that are all threatened by ongoing coastal development.

Cineraria atriplicifolia DC.

Status: VU B1ab(iii)

L. von Staden

Distribution: KZN. Between Durban, Pietermaritzburg and Richmond.
**Cineraria austrotransvaalenensis** Cron  
**Status:** NT B1ab(iii)  
**G.V. Cron, M.F. Pfaf & J.E. Victor**  
**Distribution:** G MP NW. Scattered throughout Gauteng and the North West Province and at Standerton in southern Mpumalanga.  
**Habitat:** Amongst rocks on steep hills and ridges, at the edge of thick bush or under trees on a range of rock types (quartzite, dolomite and shale), 1 400–1 700 m.  
**Rationale:** EOO 2 000–7 400 km². Known from 12 locations. There is continuing decline in habitat as a result of urban expansion on ridges within Gauteng.

**Cineraria cyanomontana** Cron  
**Status:** EN D  
**N.A. Helme, D. Raimondo & G.V. Cron**  
**Distribution:** LM. Bloberg.  
**Habitat:** Mistbelt grassland, among rocks and overhangs in ravines near the mountain summit, 1 700–2 000 m.  
**Rationale:** Known from one mountain with less than 250 plants.

**Cineraria dryogeton** Cron  
**Status:** VU D2  
**P.A. Manyama**  
**Distribution:** EC KZN. Umtamvuna Nature Reserve.  
**Habitat:** Grasslands near forest margins, and forest margins near waterfalls, in sandy loam soil on sandstone, 300–400 m.  
**Rationale:** It has a very restricted distribution and is known from one location at present but is likely to be under-collected. We suspect that it occurs at five locations. It is potentially threatened by a deleterious fire regime.

**Cineraria erodioides** DC. var. tomentosa Cron  
**Status:** Critically Rare  
**P.A. Manyama**  
**Distribution:** LM. Googol in Venda.  
**Habitat:** Occurs near the crest of a mountain on the southern or southeastern aspect, amongst rocks and shrubs, 1 100–1 250 m.  
**Rationale:** Known only from the type locality. It is not threatened as it occurs at high altitudes.

**Cineraria glandulosa** Cron  
**Status:** VU D2  
**P.A. Manyama**  
**Distribution:** KZN. Pendle, Umlazi and New Hanover districts, as well as near Murchison.  
**Habitat:** Amongst grass and rocks on slopes of river valleys, or at the base of cliffs above river gorges, 1 400–1 800 m.  
**Rationale:** This species occurs in fewer than five locations and is potentially threatened by afforestation, crop cultivation and land degradation due to overgrazing by livestock and a deleterious fire regime.

**Cineraria lobata** L’Hér. subsp. lasiocaulis Cron  
**Status:** Rare  
**P.A. Manyama**  
**Distribution:** WC. Laingsberg district and in the vicinity of Layton in the Great Karoo.  
**Habitat:** Arid rocky ridges.  
**Rationale:** A habitat specialist that occurs at fewer than five sites and is not threatened.

**Cineraria lobata** L’Hér. subsp. platyptera Cron  
**Status:** NT B1ab(i,iii,iv,v)  
**P.A. Manyama**  
**Distribution:** EC. Albany, Uitenhage and Port Elizabeth.  
**Habitat:** Grassy fynbos and thornveld.  
**Rationale:** As a result of extensive habitat loss over a long period of time, only six subpopulations of this species now remain, occupying an estimated AOO of 5–14 km². Conservation policies are in place to prevent further destruction of the habitat, but it remains potentially threatened.

**Cineraria pinnata** O.Hoffm.  
**Status:** NT* D2  
**C.R. Scott-Shaw, G.V. Cron & J.E. Victor**  
**Distribution:** EC. Amathole Mountains, Katberg Pass and the Elandsberg.  
**Habitat:** Sourveld grassland, in grass or around rocks on slopes, rocky outcrops or ridges, at the foot of sandstone cliffs in damp grass, on steep south-facing slopes, 1 380–1 750 m.  
**Rationale:** There are three locations in South Africa that are potentially threatened by habitat loss for subsistence crop cultivation. Downgraded to NT as a result of the good dispersal ability of this species and the existence of subpopulations in Mozambique.

**Cineraria vagans** Hilliard  
**Status:** EN B1ab(iii)  
**P.A. Manyama**  
**Distribution:** EC. Amathole Mountains, Katberg Pass and the Elandsberg.  
**Habitat:** Sourveld grassland, in grass or around rocks on slopes, rocky outcrops or ridges, at the foot of sandstone cliffs in damp grass, on steep south-facing slopes, 1 380–1 750 m.  
**Rationale:** EOO 180 km². Known from only three locations. Threatened by afforestation and ongoing severe habitat degradation by overgrazing by livestock.

**Comborhiza** Anderb. & K.Bremer  
**Comborhiza longipes** (K.Bremer) Anderb. & K.Bremer  
**Status:** Rare  
**F. Daniels**  
**Distribution:** WC. Groot Winterhoek to Hex River Mountains.  
**Habitat:** Sandstone slopes above 1 500 m.  
**Rationale:** A range-restricted species (EOO < 500 km²) known from fewer than five sites. Occurs on high mountain slopes and is not threatened.
Corymbium L.

*Corymbium elsiæe* Weitz

Status: Rare
N.A. Helme & D. Raimondo

*Distribution*: WC. Ceres to Bain’s Kloof.

Habitat: Steep, rocky slopes, especially in crevices.

**Rationale**: Known from five sites. A high-altitude mountain species that is not threatened.

*Corymbium laxum* Compton subsp. bolusii Weitz

Status: Rare
N.A. Helme & D. Raimondo

*Distribution*: WC. Franschhoek Mountains.

Habitat: Rocky sandstone slopes.

**Rationale**: Known from two sites in a very restricted range (EOO 20 km²). No recorded threats.

*Corymbium theileri* Markötter

Status: Critically Rare
N.A. Helme & D. Raimondo

*Distribution*: WC. Piketberg.

Habitat: Rocky sandstone slopes.

**Rationale**: Known from one site, occurs in rocky areas not suitable for ploughing and is therefore not threatened.

Cotula L.

*Cotula andreae* (E.Phillips) K.Bremer & Humphries

Status: Rare
N.A. Helme

*Distribution*: WC. Hex River Mountains to Klein Swartberg Mountains.

Habitat: Damp, partly shaded sandstone crevices on upper slopes.

**Rationale**: A habitat specialist known from two sites, not threatened.

*Cotula duckitiiæae* (L.Bolus) K.Bremer & Humphries

Status: VU B1ab(ii,iii)
N.A. Helme

*Distribution*: WC. Yzerfontein to Bokbaai.

Habitat: Sandy flats.

**Rationale**: EOO 650 km². Known from 10 locations. Declining in EOO and habitat quality as a result of invasive alien plants, crop cultivation (wheat and vineyards) and urban expansion.

*Cotula eckloniana* (DC.) Levyns var.

Status: EN B1ab(ii,iii)
N.A. Helme & D. Raimondo

*Distribution*: WC. Berg River to Cape Peninsula.

Habitat: Sandy coastal flats.

**Rationale**: EOO 300 km². A lowland species that has lost >95% of its habitat over the past 80 years to crop cultivation and urban development. Possibly extant at three locations. All remaining subpopulations are severely fragmented, occurring on small remnants separated by agricultural lands and by suburbs in the greater Cape Town area. Loss to urban expansion and invasive alien plants is ongoing.

*Cotula filifolia* Thunb.

Status: CR B2ab(ii,iii,v)
N.A. Helme & J.E. Victor

*Distribution*: WC. Darling to Agulhas.

Habitat: Marshy ground, pools and damp places.

**Rationale**: It has a very small area of occupancy (AOO 10 km²), is severely fragmented and is facing a severe decline as a result of agriculture (wheat and vineyards), invasion by alien plants and urban expansion.

*Cotula loganii* Hutch.

Status: DD
P.P. Herman & J.E. Victor

*Distribution*: NC. Unknown.

Habitat: Unknown.

**Rationale**: Known from an old collection by Hutchinson in 1928, with no detailed collecting locality or habitat information.

*Cotula myriophylloides* Harv.

Status: CR B1ab(iii)
N.A. Helme & D. Raimondo

*Distribution*: WC. Cape Peninsula to Kleinmond.

Habitat: Primarily seasonal coastal pools, but also in marshes and on wet sand. Mostly in brackish, but also fresh, still or slowly moving water.

**Rationale**: Most historical collections are from the Cape Peninsula, but all these subpopulations are now extinct as a result of eutrophication, drainage of wetlands and changes in flow dynamics. Extant at only one subpopulation, in a tiny area of 3 ha at the mouth of the Bot River. This species remains threatened by eutrophication and potential future alterations of water flow dynamics.

*Cotula paludosa* Hilliard

Status: NT B1ab(iii)
J.E. Victor

*Distribution*: EC. Lesotho and Eastern Cape Drakensberg Mountains.

Habitat: In shallow standing water, often filling depressions, 2 600–3 230 m.

**Rationale**: EOO 21 000 km². Eleven locations known, likely to occur at a few more. Restricted to high-altitude bogs, its habitat is threatened by overgrazing and peat degradation due to trampling by livestock.

*Cotula pedunculata* (Schltr.) E.Phillips

Status: VU D2
J.E. Victor & P.P. Herman

*Distribution*: WC. Zuurfontein near Brand-se-baai on the West Coast.

Habitat: Succulent karoo shrubland.

**Rationale**: Known from five sites. A habitat specialist known from two sites, not threatened.

*Cotula pusilla* Thunb.

Status: NT B1ab(ii,iii,iv,v)
N.A. Helme

*Distribution*: WC. Paternoster to Milnerton, and Caledon.

Habitat: Edge of seasonal pools in sandy coastal areas.

**Rationale**: EOO 6 000 km². Known from 15 locations. May be locally common but is restricted in its habitat. Experiencing ongoing habitat loss as a result of urban and industrial expansion on the Vredenburg Peninsula as well as invasion by alien plants throughout its range.

*Cotula vulgaris* Levyns var. vulgaris

Status: CR B2ab(ii,iii,v)
G. Jakubowsky, E. Sieben, N.A. Helme & J.E. Victor

*Distribution*: WC. Darling to Cape Peninsula.
Habitat: Pools and damp places, tolerating brackish water, 30 m.
Rationale: A range-restricted taxon (EOO < 2 000 km², AOO < 3 km²) now known from only three severely fragmented subpopulations. A number of subpopulations have been lost because of urban expansion on the Cape Peninsula. Of the subpopulations remaining, one is threatened by extraction of groundwater and the others are declining as a result of invasion by alien plants.

Cullumia R.Br. ex Aiton

Cullumia pectinata

Status: EN A2ac
D. Raimondo

Distribution: Caledon Swartberg.
Habitat: Arid fynbos on low slopes at the transition of shale and sandstone soils.
Rationale: Known from one location. It is a long-lived resprouter (generation length over 50 years) that has lost > 50% of its habitat to wheat cultivation and dense invasions of alien plants over the past 80 years. Not currently declining.

Cullumia selago Roessler

Status: DD D.D.D.
P.F. Matlame & D.A. Kamundi†

Distribution: EC. Mount Insiswa in the Transkei.
Habitat: Moist grassland on rocky slopes.
Rationale: Known from a single location in the northern Transkei (EOO and AOO < 20 km²). Potentially threatened by habitat degradation due to overgrazing.

Dicoma Cass.

Dicoma montana Schweick.

Status: Rare
P.F. Matlame & D.A. Kamundi†

Distribution: LM. Southpansberg and Blouberg Mountains.
Habitat: Crevices in quartzite rocks.
Rationale: A habitat specialist known from fewer than 10 subpopulations. No known threats.

Dicoma prostrata Schweick.

Status: DDD
P.F. Matlame & D.A. Kamundi†

Distribution: LM. Waterberg.
Habitat: Rocky slopes in open woodland.
Rationale: Known from two old collections made in the Waterberg area in 1930. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Dicoma swazilandica S.Ortiz, Rodr.Oubiña & Pulgar

Status: Rare
L. von Staden & D.A. Kamundi†

Distribution: MP. Swaziland and Songimvelo Game Reserve.
Habitat: Stony hillsides, at around 1 685 m.
Rationale: The only known site in South Africa falls within a protected area.
**Dimorphotheca Vaill. ex Moench**

- **Dimorphotheca venusta** (Norl.) Norl. var. venusta
  - **Status**: Rare
  - **N.A. Helme & D. Raimondo**
  - **Distribution**: WC. Wemmershoek, Du Toit’s Kloof and Hex River Mountains.
  - **Habitat**: Rocky slopes and ledges, upper slopes, 600–1 800 m.
  - **Rationale**: Known from four sites from middle and high mountain slopes, not threatened.

**Dimorphotheca walliana** (Norl.) B.Nord.

- **Status**: VU D2
  - **P.P.J. Herman & J.E. Victor**
  - **Distribution**: WC. Gordon’s Bay at the foot of the Hotentots Holland Mountains.
  - **Habitat**: Steep rocky slopes, on sandstone.
  - **Rationale**: Restricted distribution (EOO 20 km²) and known from two locations. Potentially threatened by coastal development.

**Dymondia Compton**

- **Dymondia margaretae** Compton
  - **Status**: EN B1ab(iii)
  - **N.A. Helme & D. Raimondo**
  - **Distribution**: WC. Bredasdorp to Infanta.
  - **Habitat**: Coastal flats, at edges of pans and marshes.
  - **Rationale**: EOO 800 km². Known from three locations. Declining as a result of invasion by alien plants and agricultural expansion. Two subpopulations have lost part of their habitat to road construction.

**Elytropappus Cass.**

- **Elytropappus sp. nov.**
  - **Voucher**: Koekemoer 1135 PRE
  - **Status**: Rare
  - **D.A. Kamundi & J.E. Victor**
  - **Distribution**: WC. Riversdale, Kanetberg.
  - **Habitat**: Sandstone slopes, 600–800 m.
  - **Rationale**: A range-restricted species (EOO < 50 km²), known from one subpopulation. This species has no recorded threats.

**Emilia Cass.**

- **Emilia hantamensis** J.C.Manning & Goldblatt
  - **Status**: NT D2
  - **D. Raimondo & P.A. Manyama**
  - **Distribution**: NC. Nieuwoudtville to Calvinia.
  - **Habitat**: Dolerite outcrops on dolerite-clay soils.
  - **Rationale**: EOO 2 000 km². Known from fewer than 10 locations. Potentially threatened by grazing by livestock and invasive alien annual grasses.

**Eriocephalus L.**

- **Eriocephalus tenuipes** C.A.Sm.
  - **Status**: Rare
  - **R.C. Turner & D. Raimondo**
  - **Distribution**: EC WC. Uniondale to Port Elizabeth.
  - **Habitat**: Rocky slopes.
  - **Rationale**: Known from five sites. Occurs mainly in the mountains of the Langkloof. Its rocky habitat is not targeted for agriculture.

**Euryops (Cass.) Cass.**

- **Euryops brevilobus** Compton
  - **Status**: Rare
  - **R.C. Turner & D. Raimondo**
  - **Distribution**: WC. Cederberg to Swartruggens.
  - **Habitat**: Sandstone slopes.
  - **Rationale**: Known from only five collections, restricted to rocky slopes that are not threatened.

- **Euryops brevipes** B.Nord.
  - **Status**: Rare
  - **D. Raimondo**
  - **Distribution**: KZN. KwaZulu-Natal Drakensberg Mountains, Cathkin Peak.
  - **Habitat**: Drakensberg Alpine Tundra, southwest-facing rock ledges, 3 000 m.
  - **Rationale**: A habitat specialist known only from the type collected at Monk’s Cowl in 1956.

- **Euryops calvescens** DC.
  - **Status**: Rare
  - **D.A. Kamundi & D. Raimondo**
  - **Distribution**: EC. Steynsburg and Stormsberg.
  - **Habitat**: Karroid mountain veld, 1 500–2 000 m.
  - **Rationale**: A range-restricted species (EOO 410 km²), recorded from two sites, this species has no recorded threats.

**Euryops ciliatus** B.Nord.

- **Status**: Rare
  - **D. Raimondo**
  - **Distribution**: EC. Amathole Mountains, Elandsberg.
  - **Habitat**: Alpine habitats above 1 800 m.
  - **Rationale**: A range-restricted species known only from mountain summits (EOO 70 km²), not threatened.

**Euryops decipiens** Schltr.

- **Status**: VU D2
  - **R.C. Turner**
  - **Distribution**: EC. Bankberg, Toorberg and Sneeuberg in the Graaff-Reinet district.
  - **Habitat**: Arid mountain slopes.
  - **Rationale**: Known from one location. Two are potentially threatened by agriculture and frequent fires and the third falls within the Mountain Zebra National Park.

**Euryops decipiens** Schltr.

- **Status**: VU D2
  - **R.C. Turner**
  - **Distribution**: EC. Bankberg, Toorberg and Sneeuberg in the Graaff-Reinet district.
  - **Habitat**: Arid mountain slopes.
  - **Rationale**: Known from three locations. Two are potentially threatened by agriculture and frequent fires and the third falls within the Mountain Zebra National Park.
Euryops discoideus Burtt Davy

Status: DD

Distribution: MP. Kaapsehoop.
Habitat: Unknown, probably grassland on quartzite sourveld if collected on the escarpment.
Rationale: A very poorly known species recorded only from the type specimen. The exact collecting date is unknown, but it was collected before 1935. The habitat has been significantly transformed by commercial forest plantations and it is likely to be threatened.

Euryops dyeri Hutch.

Status: DDD
D.A. Kamundji & D. Raimondo

Distribution: EC. Amathole Mountains and adjacent Katberg.
Habitat: Rocks in highland sourveld above 1 650 m.
Rationale: A range-restricted species (EOO 510 km²), known from four sites. Last collected in 1958. It occurs at altitudes that have been planted with pines and is therefore potentially threatened. Not enough is known about its current population status to assign a threat category.

Euryops ericifolius (Bél.) B.Nord.

Status: EN B1ab(iii)
D. Raimondo & R.C. Turner

Distribution: EC. Uitenhage to Port Elizabeth.
Habitat: Low-altitude flats and slopes.
Rationale: Known from a highly restricted area between Motherwell and Goega (EOO 119 km²). Declining as a result of overgrazing of its habitat by cattle. It is also potentially threatened by the expansion of low-cost housing and further infrastructure development at Kouga.

Euryops glutinosus B.Nord.

Status: Rare
N.A. Helme & D. Raimondo

Distribution: WC. Klein Swartberg Mountains.
Habitat: Steep, rocky, fire-protected slopes, generally on southern aspects.
Rationale: A range-restricted species (EOO 100 km²), known from four sites. Not threatened because of the inaccessibility of its habitat.

Euryops gracilipes B.Nord.

Status: VU D2
P.P.J. Herman & J.E. Victor

Distribution: EC. Fish River Valley.
Habitat: Open scrub.
Rationale: Known from two locations, potentially threatened by grazing livestock and crop cultivation at both locations.

Euryops hebecarpus (DC.) B.Nord.

Status: EN B1ab(iii,v)
J.H. Vilok & D. Raimondo

Distribution: WC. Bredasdorp to Still Bay.
Habitat: Limestone.
Rationale: Known from three locations, this limestone endemic is threatened throughout its range by grazing by livestock and game and by invasive alien plants.

Euryops hypnoides B.Nord.

Status: VU D2
J.E. Victor & A.P. Dold

Distribution: EC. Grahamstown.
Habitat: Moist mountain slopes in grassy fynbos.
Rationale: Known only from one location and potentially threatened by overgrazing by livestock.

Euryops indecorus B.Nord.

Status: CR B1ab(iii,v)
N.A. Helme & D. Raimondo

Distribution: WC. Cape Hangklip.
Habitat: Steep, rocky places, sometimes crevices in cliffs.
Rationale: Known from one site on cliff faces above Rooiels. Not threatened because of the inaccessibility of its habitat.

Euryops integrifolius B.Nord.

Status: DD
D. Raimondo & R.C. Turner

Distribution: EC. Kouga Mountains, east of Smutsberg.
Habitat: Rocky sandstone ridges above 1 200 m.
Rationale: Known only from the type, collected in 1944. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Euryops lasiocladus (DC.) B.Nord.

Status: CR B1ab(iii,v)
N.A. Helme & D. Raimondo

Distribution: WC. Babilonstoring Mountains.
Habitat: Sandstone slopes, shale bands, 300–600 m.
Rationale: Confined to a very specific altitude and habitat. EOO 15 km². This species is known from one location and is experiencing ongoing decline as a result of invasion by Hakea gibbosa.

Euryops latifolius B.Nord.

Status: Rare
J.E. Victor, A.P. Dold & R.C. Turner

Distribution: EC. Kirkwood to Jeffreys Bay.
Habitat: Suurberg Quartzite Fynbos, above thicket vegetation.
Rationale: Known from two collections, but additional sites likely as these mountains are under-explored. Occurs in rocky, inaccessible habitat that is not threatened.

Euryops linearis Harv.

Status: VU B1ab(iii,v)
F. Daniels & R.C. Turner

Distribution: WC. De Hoop to Potberg.
Habitat: Partly shaded limestone ridges and coastal dunes, occasionally on sandstone rocks.
Rationale: A range-restricted species (EOO 200 km²), known from eight locations in and around De Hoop Nature Reserve. Declining as a result of invasion by Acacia cyclops. Despite occurring mostly within De Hoop Nature Reserve, this species is threatened as A. cyclops continues to spread in De Hoop, especially on limestone ridges and coastal dunes, the habitat of this species.

Euryops longipes DC. var. lasiocarpuus B.Nord.

Status: Rare
D.A. Kamundji & D. Raimondo

Distribution: WC. Witzenberg and Kouebokkeveld Mountains.
Habitat: Rocky slopes, 1 000–1 800 m.
Rationale: A range-restricted taxon (EOO < 355 km²) known from three subpopulations. No known threats.
Euryops marlothii B.Nord.

**Status:** Rare

P.P.J. Herman, J.E. Victor & R.C. Turner

**Distribution:** NC. Roggeveld and Hantamsberg Mountains.

**Habitat:** Steep or gentle slopes of a mainly southern aspect in low karroid scrub.

**Rationale:** A range-restricted species (EOO < 500 km²) known from six sites. Grows on slopes that are not threatened by agriculture.

Euryops mirus B.Nord.

**Status:** CR A2bc; B1ab(iii,y)+2ab(iii,y)

D. Raimondo, J.H. Vlok, E. Marinus & N.A. Helme

**Distribution:** NC. Bokkeveld Plateau.

**Habitat:** Transition soil between sandstone and tillite clays, on flat ground.

**Rationale:** Restricted to a 4 km² area on the Bokkeveld Escarpment where 85% of its habitat has been lost to wheat cultivation. Most herbarium records are from roadside fragments. Over the past 45 years, the only collection has been on one small roadside remnant, which is threatened by grazing.

Euryops muirii C.A.Sm.

**Status:** EN B1ab(iii,iv)+2ab(iii,iv,y)

D. Raimondo & R.C. Turner

**Distribution:** WC. Still Bay.

**Habitat:** Limestone ridges.

**Rationale:** Occurs at three locations from a restricted area (EOO 126 km²). Declining as a result of severe infestations of Acacia cyclops. A fourth subpopulation was destroyed for a housing development.

**Euryops namaquensis** Schltr.

**Status:** VU B1ab(iii,y)

J.H. Vlok & D. Raimondo

**Distribution:** WC. Vanrhynsdorp, Knysnvlakte.

**Habitat:** Quartz patches on hills.

**Rationale:** Known from fewer than 10 locations from a restricted area (EOO < 1 500 km²). This slow-growing species is declining as a result of overgrazing by livestock.

Euryops pectinatus (L.) Cass. subsp. lobulatus B.Nord.

**Status:** VU D2

R.C. Turner & D. Raimondo

**Distribution:** WC. Piketberg.

**Habitat:** In rock crevices and among large boulders on mountain summits.

**Rationale:** Known from two locations (EOO 20 km²). Potentially threatened by frequent fires.

**Euryops petraeus** B.Nord.

**Status:** Rare

D.A. Kamundi† & D. Raimondo

**Distribution:** EC. NC. WC. Sneueberge and Winterhoek Mountains in the Graaff-Reinet district, and Nuweveld Mountains south of Fraserburg.

**Habitat:** Rocky mountain summits, 1 650–2 450 m.

**Rationale:** A habitat specialist, known from fewer than five subpopulations. No known threats.

Euryops pleiodontus B.Nord.

**Status:** DDD

P.P.J. Herman, J.E. Victor & R.C. Turner

**Distribution:** NC. Steinkopf.

**Habitat:** Unknown.

**Rationale:** Known only from the type specimen, not collected during the 20th century.

Euryops polytrichoides (Harv.) B.Nord.

**Status:** DDD

P.P.J. Herman, A.P. Dold & J.E. Victor

**Distribution:** EC. Grahamstown.

**Habitat:** Unknown.

**Rationale:** Known only from the type, collected near Grahamstown in the 1800s. It has not been relocated despite targeted searches.

Euryops rosulatus B.Nord.

**Status:** CR PE

D. Raimondo

**Distribution:** NC. Nieuwoudtville.

**Habitat:** Transition soil between sandstone and tillite clays, on flat ground.

**Rationale:** This species occupies the same habitat and localities as E. mirus, but unlike E. mirus it has not been collected since 1960. There has been > 90% conversion of its habitat over the past 70 years to crop cultivation. The only remaining habitat are tiny fragments of renosterveld between wheat and rooibos fields. These fragments are currently grazed by sheep and as Euryops species are highly palatable, this has probably caused a severe decline in individuals. D. Raimondo and J.P. Roux searched the last remaining fragments extensively in August 2007 but found no plants; this species is possibly extinct.

**Euryops serra** DC.

**Status:** Rare

D.A. Kamundi† & D. Raimondo

**Distribution:** WC. Groot Winterhoek Mountains.

**Habitat:** Fynbos on hillsides, 200–1 000 m.

**Rationale:** A range-restricted species (EOO < 100 km²), known from four subpopulations. No recorded threats.

Euryops subcarnosus DC. subsp. minor B.Nord.

**Status:** DDD

D. Raimondo & R.C. Turner

**Distribution:** NC. Namaqualand, Kamiesberg.

**Habitat:** Unknown, likely to be granite hills.

**Rationale:** Known from four early collections in the Kamiesberg. Last collected in 1954, exact habitat not specified. Vulnerability of this taxon to grazing is unknown.

**Euryops tagetoides** (DC.) B.Nord.

**Status:** NT D2

J.H. Vlok & D. Raimondo

**Distribution:** WC. Botterkloof Pass to northern Cederberg.

**Habitat:** Sandy soil between rocks.

**Rationale:** Known from fewer than 10 locations, occurring as small, scattered subpopulations. A slow-growing reseder that is potentially threatened by grazing by livestock.

**Euryops tenuolobus** (DC.) B.Nord.

**Status:** DDD

N.A. Helme & D. Raimondo

**Distribution:** WC. Caledon district.
Habitat: Unknown.

Rationale: Known only from the type, collected from the Caledon district in the late 1890s. The area has been extensively transformed for wheat cultivation and this species may be highly threatened or even extinct. However, as the habitat is unknown, it is considered too poorly known to assign a threat category.

**Euryops ursinooides** B.Nord.

*Plate 45*

**Status:** VU D2

D. Raimondo, W. Berriington & R.C. Turner

*Distribution:* EC. Van Stadens Mountains to Kouga Mountains.

Habitat: Mesic fynbos on steep slopes, mostly on hillsides at low altitudes.

Rationale: Known from four locations. Two are old locations from the Van Stadens Mountains at Longmore and Otterford forest stations, but they have not been relocated and may have been lost as a result of afforestation. A lack of fire at both these locations as well as at Van Stadens Nature Reserve poses a significant potential threat to this fire-dependent recruiter. Without fire, the habitat of this species eventually becomes unsuitable afromontane forest.

**Euryops virgatus** B.Nord.

**Status:** CR A2cb; D

D. Raimondo

*Distribution:* NC. Bokkeveld Escarpment.

Habitat: Rocky, sandy flats on Dwyka tillite clay.

Rationale: EOO 30 km². Within this range it has lost 83% of available habitat to wheat cultivation. This loss has taken place over the past 70 years, less than three generations of this long-lived resprouter (generation length over 50 years). It is known only from roadside fragments; three plants were counted in surveys in 2006 and 2007.

**Euryops zeyheri** B.Nord.

**Status:** CR PE

J.H. Vlok & D. Raimondo

*Distribution:* WC. Gamka River in the Beaufort West district.

Habitat: Clays associated with riverbeds.

Rationale: It has only ever been collected at one site, namely the Gamka River, near Beaufort West. Repeated searches in likely habitat along the Gamka River, often conducted after good rains in the flowering season, have failed to relocate this species. Additionally, several other collections by Zeyher and Burk on the same day that they collected this species, have been located, but not *E. zeyheri*. We assume that this species is highly sensitive to grazing and may now be extinct. (Note: many members of the genus are highly palatable and do not survive grazing.)

**Felicia** Cass.

**Felicia comptonii** Grau

**Status:** Rare

N.A. Helme

*Distribution:* WC. Langeberg Mountains.

Habitat: Damp, rocky slopes at high altitude.

Rationale: Known from two sites, with only a slight potential threat from invading alien plants.

**Felicia cymbalariaoides** (DC.) Grau

**Status:** Rare

N.A. Helme

*Distribution:* WC. Cape Peninsula to Hex River Mountains and the Langeberg.

**Felicia deserti** Schltr. ex Grau

**Status:** DDD

D. Raimondo

*Distribution:* NC. Keimoes near Upington and the Kamiesberg.

Habitat: Unknown.

Rationale: Known from two highly disjunct areas, last collected in 1925. The population status, distribution and habitat of this species are too poorly known to determine its status.

**Felicia diffusa** (DC.) Grau subsp. diffusa

**Status:** Rare

D. Raimondo & D.A. Kamundij

*Distribution:* WC. Cederberg and Drakenstein Mountains.

Habitat: Sandstone slopes.

Rationale: Known from three sites, occurring in rocky places on mountain slopes and summits that are not threatened.

**Felicia diffusa** (DC.) Grau subsp. khamiesbergen-sis Grau

**Status:** Critically Rare

N.A. Helme & D. Raimondo

*Distribution:* NC. Namaqualand, Kamiesberg.

Habitat: Rocky, east-facing granite slopes, in semishade of boulders, 1 300 m.

Rationale: No known threats, but highly restricted taxon known from one site.

**Felicia ebracteata** Grau

**Status:** VU D2

N.A. Helme & D. Raimondo

*Distribution:* WC. De Hoop to Ystervarkpunt.

Habitat: Coastal limestone.

Rationale: Restricted to the limestone patches (AOO < 10 km²). Potentially threatened by invading alien plants and development of tourism infrastructure.

**Felicia elongata** (Thunb.) O.Hoffm.

**Plate 46**

**Status:** VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)

N.A. Helme & D. Raimondo

*Distribution:* WC. Vredenburg Peninsula, Jacobsbaai to Postberg.

Habitat: Coastal sands associated with limestone.

Rationale: Known from fewer than 10 locations (EOO 78 km²). Its habitat is being transformed on an ongoing basis by coastal and industrial development, grazing by livestock and cement mining.

**Felicia esterhuysseniae** Grau

**Status:** Rare

N.A. Helme & J.E. Victor

*Distribution:* WC. Kammanassie and Gamka Mountains.

Habitat: High-altitude sandstone slopes.

Rationale: Known from two sites. Not threatened because of the inaccessibility of its habitat.
Felicia josephinae J.C.Manning & Goldblatt

Plate 46

Status: EN B1ab(iii,iv)+2ab(iii,iv)
N.A. Helme & D. Raimondo

Distribution: WC. Aurora to Leipoldtville.
Habitat: Deep acid sands in sandveld.
Rationale: Known from five locations, all of which are severely threatened by ongoing habitat loss as a result of rooibos and potato cultivation as well as by grazing by livestock that takes place in remnant patches between agricultural fields.

Felicia microcephala Grau

Status: Rare
D.A. Kamundi & J.E. Victor

Distribution: EC WC. Outeniqua Mountains to Humansdorp.
Habitat: Rocky ravines, 300–950 m.
Rationale: Known from three collections but possibly under-collected. It is still considered rare owing to its specialised habitat.

Felicia nigrescens Grau

Status: CR B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Caledon.
Habitat: Shale renosterveld, in seasonally wet, saline clays with little vegetation.
Rationale: Known from two severely fragmented subpopulations in the area immediately surrounding the town of Caledon (EOO 24 km², AOO 0.1 km²). It is severely threatened by agricultural expansion, low-cost housing developments, quarrying and road expansion, and invasion by alien annual grasses caused by eutrophication from fertiliser runoff. One of the two remaining subpopulations is declining rapidly as a result of overgrazing and trampling by livestock.

Felicia nordenstamii Grau

Status: NT B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Agulhas to Potberg.
Habitat: Coastal limestone hills.
Rationale: Known from ± 15 locations from a restricted range (EOO 1 000 km²), this species has lost a substantial part of its habitat over the past 10 years to urban expansion in the Struisbaai area. It occurs on ridges targeted for development. In addition, its habitat is being degraded throughout its range by invasive alien acacias.

Felicia oleosa Grau

Status: Rare
N.A. Helme

Distribution: WC. Witteberg, Klein and Groot Swartberg Mountains.
Habitat: Upper sandstone slopes amongst rocks.
Rationale: Known from fewer than five sites. Not threatened because of the inaccessibility of its habitat.

Felicia serrata (Thunb.) Grau

Status: Rare
N.A. Helme

Distribution: WC. Kouebokkeveld to Saron, and potentially Piketberg.
Habitat: Damp rocky slopes at high altitude in montane fynbos.
Rationale: Known from fewer than five sites. Not threatened because of the inaccessibility of its habitat.

Felicia tsitsikamae Grau

Status: VU D2
P.P.J. Herman, J.E. Victor & N.A. Helme

Distribution: WC. Formosa Peak in the Tsitsikamma Mountains.
Habitat: Rocky slopes at high altitudes.
Rationale: Known from one location, which is potentially threatened by aliens.

Felicia westae (Fourc.) Grau

Status: DDD
D.A. Kamundi & J.E. Victor

Distribution: EC WC. Knysna to Humansdorp.
Habitat: Lowland streambanks, 50–250 m.
Rationale: Last collected in 1944 and likely to be highly threatened by agriculture and urban expansion. Not enough is known about this species to determine its status.

Gerbera L.

Gerbera aurantiaca Sch.Bip.

Status: EN A2ac
C.R. Scott-Shaw, I.M. Johnson & J.E. Victor

Distribution: KZN MP. KwaZulu-Natal Midlands, Carolina and Badplaas.
Habitat: Mistbelt grassland, well-drained doleritic areas.
Rationale: A mistbelt grassland endemic. More than 90% of the habitat of this species has been transformed for commercial forestry plantations and crop and pasture cultivation over the past 120 years. There has also been extensive recent loss of habitat in the KwaZulu-Natal Midlands to urban development. G. aurantiaca is a long-lived colonial species whose generation length is suspected to exceed 100 years. Subpopulations are scattered and there is no linear relationship between mistbelt grasslands and the presence of subpopulations. We therefore extrapolate a 50% loss of subpopulations from the 90% loss of habitat. Recent studies by I. Johnson and S. Johnson show that this species is a poor recruiter and has low seed viability and as a result it is unlikely to be able to recover from the past loss of individuals.

Gerbera wrightii Harv.

Status: Rare
N.A. Helme & D. Raimondo

Distribution: WC. Cape Peninsula.
Habitat: Rocky sandstone mountain slopes.
Rationale: A range-restricted species (EOO 400 km²) with no significant threats.

Gnaphalium L.

Gnaphalium declinatum L.f.

Status: NT B1ab(ii,iii,iv,v)
D. Raimondo & R.C. Turner

Distribution: WC. Sir Lowry’s Pass to Mossel Bay.
Habitat: Seasonal pans on flats or lower slopes.  
Rationale: Although fairly widespread (EOO 11 900 km²) and locally common where it occurs around pans, its habitat is threatened throughout its range by alien species (causing desiccation of pans), trampling by livestock and by crop cultivation. It is known from less than 15 locations.

Gnaphalium griquense Hilliard & B.L.Burtt  
Status: Rare  
J.E. Victor  
Distribution: KZN. Southern KwaZulu-Natal and Seliabathebe (Lesotho).  
Habitat: Damp places.  
Rationale: Known from four sites. No threats have been recorded for this species.

Gnaphalium nelsonii Burtt Davy  
Status: Rare  
J.E. Victor  
Distribution: G NW. Pretoria to Wolmaransstad.  
Habitat: Seasonally wet grasslands.  
Rationale: A poorly collected species known from four herbarium records, suspected to be a naturally rare species.

Gnaphalium simii (Bolus) Hilliard & B.L.Burtt  
Status: CR B1ab(iii)  
D. Raimondo  
Distribution: EC. Hanover.  
Habitat: Calcareaous vleis.  
Rationale: Known from two collections made near Hanover on the outskirts of King William’s Town before 1955. This location is experiencing severe, ongoing habitat decline as a result of overgrazing by cattle and the expansion of informal housing.

Gymnostephiium Less.  

Gymnostephiium corymbosum (Turcz.) Harv.  
Status: EN B1ab(iii,v); D  
N.A. Helme & D. Raimondo  
Distribution: WC. Riviersonderend Mountains.  
Habitat: Damp stream sides and steep, south-facing slopes.  
Rationale: EOO 30 km². Known from three locations, with less than 50 plants at each location. It is severely threatened by invasive alien pines at one of its three known locations.

Gymnostephiium fruticosum DC.  
Status: Rare  
D.A. Kamundj & D. Raimondo  
Distribution: WC. Langeberg Mountains.  
Habitat: Sandstone slopes, along streams, 1 000–1 300 m.  
Rationale: A range-restricted species (EOO 380 km²), known from three subpopulations. No known threats.

Gymnostephiium hirsutum Less.  
Status: CR D  
N.A. Helme & D. Raimondo  
Distribution: WC. Riviersonderend Mountains.  
Habitat: Damp sandstone slopes in broad gullies, 1 300 m.  
Rationale: Known from two collections and confined to a restricted habitat. Only 10 plants were counted from the only recent collection by N.A. Helme in 2006; it is therefore currently known from less than 50 extant mature individuals.

Haplocarpha Less.  

Haplocarpha ocephala (DC.) Beyers  
Status: Rare  
D. Raimondo & R.C. Turner  
Distribution: WC. Kouebokkeveld and Cederberg Mountains.  
Habitat: Rocky sandstone slopes in moist habitats.  
Rationale: A range-restricted habitat specialist (EOO 10 km²) that has no recorded threats.

Haplocarpha parvifolia (Schltr.) Beauverd  
Status: VU B1ab(ii,iii,iv,v)  
D. Raimondo, N.A. Helme & R.C. Turner  
Distribution: WC. Kouebokkeveld and Cederberg Mountains.  
Habitat: Wet areas on sandstone slopes, in valleys and on upper slopes.  
Rationale: Suspected to occur at 10 locations. Subpopulations on lower slopes are experiencing continuing loss and degradation of habitat as a result of cultivation of deciduous fruit.

Helichrysum Mill.  

Helichrysum Albertense  
Status: DDD  
D.A. Kamundj & D. Raimondo  
Distribution: EC WC. Prince Albert to Leeu Gamka.  
Habitat: Unknown.  
Rationale: A Karoo species known from four collections, all predating 1967. Population abundance and sensitivity to grazing are unknown.

Helichrysum album N.E.Br.  
Status: Rare  
D.A. Kamundj & J.E. Victor  
Distribution: KZN. KwaZulu-Natal Drakensberg Mountains.  
Habitat: High-altitude grasslands, 2 000–3 355 m.  
Rationale: A range-restricted species (EOO < 500 km²), known from two subpopulations. No known threats.

Helichrysum alticum Bolus  
Status: NT B1ab(iii,v)  
D. Raimondo  
Distribution: EC KZN. Mont-aux-Sources to Loteni, and Katberg Pass.  
Habitat: Cliff faces, rock platforms or stony ground, 1 900–3 200 m.  
Rationale: This species has a wide range (EOO 28 000 km²) and is known from 11 locations but is suspected to be under-collected. Subpopulations in Lesotho and the Eastern Cape are likely to continue to decline as a result of overgrazing. It is also threatened by invading alien plants in parts of its range.
Helichrysum amplectens Hilliard
Status: Rare
W.G. Welman & J.E. Victor
Distribution: KZN. Cathkin Peak, Cleft Peak and Monk’s Cowl.
Habitat: Subalpine grassland, on rocky ledges and cliffs at the foot of cliffs on steep, rocky, south-facing slopes, 2 400–2 800 m.
Rationale: A Drakensberg endemic known from three sites. Not threatened as it occurs at high altitude.

Helichrysum archeri Compton
Status: DDD
W.G. Welman, J.E. Victor & R.C. Turner
Distribution: WC. Laingsburg.
Habitat: White quartzite patches.
Rationale: Known from Matjiesfontein and Witteberg in the Karoo. Last collected in 1930. Potentially threatened by habitat degradation as a result of overgrazing.

Helichrysum aureofolium Hilliard
Status: VU D2
R.C. Turner
Distribution: WC. Cederberg, Grootrivier Pass and Matjiesfontein.
Habitat: Rocky sandstone slopes.
Rationale: Known from two locations (EOO < 150 km²). Its range is predicted to be strongly affected by climate change, presenting a potential threat from the combined effects of frequent fires and drought.

Helichrysum aureum (Houtt.) Merr. var. argenteum Hilliard
Plate 47
Status: VU D2
Distribution: KZN MP. Wakkerstroom and Steenkampsberg.
Habitat: Montane grassland, 1 800–2 000 m.
Rationale: Until recently this taxon was known only from the type locality near Wakkerstroom on the KwaZulu-Natal–Mpumalanga border. J.E. Burrows (Helichrysum expert) has discovered another subpopulation in the Steenkampsberg near Lydenburg. The Steenkampsberg subpopulation is potentially threatened by invading alien plants and the Steenkampsberg subpopulation by development.

Helichrysum bachmannii Klatt
Status: DDD
N.A. Helme & D. Raimondo
Distribution: WC. Velddrif, Vredenburg and Hopefield.
Habitat: Grows on sand or rock outcrops.
Rationale: Very seldom collected. Not enough is known about the current population status of this species to determine its status, but its EOO is small (800 km²) and it is restricted to threatened vegetation types, with transformation averaging over 50%. This species is likely to be threatened.

Helichrysum calocepalum Klatt Plate 47
Status: Rare
J.E. Burrows, M. Lötter & J.E. Victor
Distribution: MP. Barberton Mountains.
Habitat: Rocky sourveld grassland, 1 065–1 465 m.
Rationale: This is one of the smallest helichrysums and may be overlooked, but it is restricted to a very small area (EOO 225 km²) and is unlikely to occur in many more sites. There is no evidence of current declines. It is legally protected from establishment of more plantations within its range and is therefore unlikely to decline in the near future.

Helichrysum citricephalum Hilliard & B.L.Burtt
Status: CR B1ab(i,ii,iii,iv,v)
C.R. Scott-Shaw, L. von Staden & J.E. Victor
Distribution: KZN. KwaZulu-Natal Midlands, around Ixopo.
Habitat: Mistbelt grassland, coarse herbage in deep soils on steep, shady banks in forest-grassland ecotones, 1 200–1 300 m.
Rationale: A highly range-restricted species (EOO 36 km²) known from one location. Part of the population was destroyed as a result of a road that was widened. It was thought that the entire population had been lost, but some individuals were discovered away from the road. Unfortunately this subpopulation is in the midst of a recently established, illegal informal settlement. The population is therefore expected to decline further because of ongoing development and degradation of the location. Less than 200 individuals of this species remain.

Helichrysum cochleariforme DC.
Status: NT B1ab(ii,iii,iv,v)
D. Raimondo & R.C. Turner
Distribution: WC. Piketberg southwards and then eastwards along the coast to the Gourits River, Mossel Bay district.
Habitat: Sandy places in coastal scrub or sandy hollows between the dunes.
Rationale: EOO < 4 750 km². Known from 15 locations. Many subpopulations have been destroyed by coastal housing development and urban expansion on the Cape Flats. It is also threatened throughout its range by invasive alien acacias.

Helichrysum drakensbergense Killick
Status: Rare
D.A. Kamundji & J.E. Victor
Distribution: KZN. Bergville and Underberg.
Habitat: Alpine grassland, 1 525–2 740 m.
Rationale: A rare Drakensberg endemic known from four sites. Occurs in high-altitude grasslands that are not threatened.

Helichrysum dunense Hilliard
Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: NC WC. Elands Bay to Orange River.
Habitat: Coastal calcareous dunes.
Rationale: EOO 1 500 km². Known from five locations but suspected to be under-collected and to occur at around 10 locations. It continues to decline because of ongoing habitat loss to diamond and heavy-mineral sand mining and urban expansion around Lambert’s Bay, Elands Bay and Port Nolloth.

Helichrysum ephelos Hilliard
Status: Rare
L. von Staden, W.G. Welman & J.E. Victor
Distribution: EC KZN MP. Fort Nottingham, Mount Insizwa, Lions River, Impendle and Mount Aylliff.
Habitat: Restricted to edges of wetlands and marshy areas around the headwaters of streams, 1 675–2 180 m.
Rationale: A rare habitat specialist known from six isolated sites. This species has no recorded threats.
Helichrysum fourcadei Hilliard
Status: DDD
W.G. Welman, J.E. Victor & D. Raimondo
Distribution: EC. Uniondale and Aberdeen. Habitat: Stony slopes. Rationale: Known from two disjunct sites and last collected in 1950. The response of this species to the threat of overgrazing is not known.

Helichrysum fruticans (L.) D.Don
Status: Rare
N.A. Helme & D. Raimondo
Distribution: WC. Cape Peninsula, Table Mountain. Habitat: Sandstone slopes, on moist south- and east-facing cliffs. Rationale: Known from four sites. Its habitat is protected from fire and this species is therefore not threatened.

Helichrysum haygarthii Bolus
Status: Rare
D. Raimondo
Distribution: FS KZN. Rensburgkop and Van Reenen’s Pass. Habitat: Weathered basalt cliffs, 2 225 m. Rationale: Known from two collections from the Drakensberg foothills. Occurs on high-altitude cliffs that are inaccessible to livestock.

Helichrysum homiochrysum S.Moore Plate 47
Status: Rare
J.E. Burrows, M. Lötter & L. von Staden
Distribution: MP. Mpuamalanga Escarpment around Lydenburg, recorded from Marieskploek to Mac Mac between Graskop and Sabie. Habitat: Cliff faces and ledges, 1 350–1 990 m. Rationale: Known from nine sites, mostly along the Mpuamalanga Escarpment. Can be locally common, but very habitat specific (occurs on cliffs) and known from a small range (EOO 3 776 km²).

Helichrysum incarnatum DC.
Status: VU B1ab(ii,iii,iv,v) D. Raimondo
Distribution: WC. Upper Breede River Valley to Albertinia. Habitat: Sandy flats. Rationale: EOO 2 500 km². Known from fewer than 10 locations, most of which are in the Worcester area. It has lost over 70% of its habitat to agriculture (vines, deciduous orchards, olive groves and wheat), and this is ongoing, especially in the Worcester area.

Helichrysum ingomense Hilliard
Status: EN B1ab(iii)
C.R. Scott-Shaw, L. von Staden & J.E. Victor
Distribution: KZN. Ngome. Habitat: Mistbelt grassland, at the edges of dolerite rock sheets where water oozes to the surface, 1 000–1 300 m. Rationale: Known from the type locality at Ngome Forest. Searches for this species around Ngome and the Louwsburg plateau have not located any other subpopulations, although it is suspected that a few more (fewer than five) subpopulations do exist. Its habitat has been severely reduced owing to crop cultivation and afforestation. Remaining fragments continue to decline as a result of overgrazing by livestock.

Helichrysum isolepis Bolus
Status: Rare
W.G. Welman & J.E. Victor

Helichrysum jubilatum Hilliard
Status: Rare
W.G. Welman & J.E. Victor
Distribution: NC. Richtersveld. Habitat: Rocky kloofs on hill slopes. Rationale: Known from two collections, a highly localised species that is not threatened.

Helichrysum junodii Moeser
Status: Rare
D.A. Kamundi† & D. Raimondo
Distribution: LM. Mountains between the Wolkerberg and the Downs. Habitat: Rock outcrops in grasslands, 1 100–1 925 m. Rationale: Known from two disjunct sites and last collected in 1897.

Helichrysum lestorhizum DC.
Status: DDD
W.G. Welman & J.E. Victor

Helichrysum leslei Hilliard Plate 47
Status: EN C2a(i)
J.E. Burrows, M. Lötter & L. von Staden
Distribution: MP. Lydenburg to Nelspruit. Habitat: Grassland, restricted to rocky quartzite outcrops. Rationale: The total population is estimated to be no more than 1 000 individuals. There are two or three known subpopulations, with the largest known subpopulation consisting of less than 200 individuals. This species has lost habitat to commercial pine plantations in the past and its habitat is continually being degraded as a result of a deleterious fire regime and invasive alien plants.

Helichrysum longinquum Hilliard
Status: Rare
D. Raimondo & J.E. Victor
Distribution: KZN. Impendle and Underberg. Habitat: Moist grassland slopes, 2 100–2 300 m. Rationale: Known from fewer than five sites, from a small area (EOO < 2 000 km²). Not threatened because of the inaccessibility of its habitat.

Helichrysum marifolium DC.
Status: Rare
N.A. Helme
Distribution: WC. Riviersonderrand Mountains. Habitat: Steep, south-facing slopes, cliffs and kloofs in montane fynbos.
Helichrysum marmarolepis S.Moore
Status: NT B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: NC WC. Orange River to Heerenlogements Mountain, north of Clanwilliam.
Habitat: Sands in sandveld vegetation.
Rationale: EOO < 6 000 km². The 15 known locations continue to decline because of ongoing habitat loss to diamond and heavy-mineral sand mining.

Helichrysum montis-cati Hilliard
Status: VU D2
D. Raimondo
Distribution: EC. Cata Forest Reserve, Amathole Mountains and Katberg Pass.
Habitat: Montane grasslands.
Rationale: A range-restricted species known from three locations. Potentially threatened by afforestation.

Helichrysum nimbicola Hilliard
Status: Rare
W.G. Welman, C.R. Scott-Shaw & J.E. Victor
Habitat: Stony turf, 2 750 m.
Rationale: Known from four sites. The South African sites are not threatened, but those in Lesotho are potentially threatened by overgrazing and trampling by livestock.

Helichrysum outeniquense Hilliard
Status: EX
J.H. Vlok, J.E. Victor & R.C. Turner
Distribution: WC. Eastern Outeniqua Mountains.
Habitat: Peaty soil.
Rationale: Jan Vlok (expert field botanist in the southern Cape) has searched unsuccessfully near Joubertina in the Outeniqua Mountains for this species over the past five years. A dam has been built at the type locality and apple orchards have been planted in the area surrounding the dam. H. outeniquense is therefore considered extinct.

Helichrysum pagophilum M.D.Hend.
Status: Rare
C.R. Scott-Shaw & J.E. Victor
Distribution: KZN. Drakensberg Mountains, Cathedral Peak to Garden Castle and Black Mountains.
Habitat: Rock pavements and cliff faces of alpine summits, 2 750–3 400 m.
Rationale: A habitat specialist not threatened because of the inaccessibility of its habitat to livestock.

Helichrysum refractum Hilliard
Status: Rare
W.G. Welman & J.E. Victor
Distribution: EC. Addo and Paterson to Atherstone near Grahamstown.
Habitat: In shrub communities and false fynbos on sand flats and inland dunes, 300 m.
Rationale: Recorded from four sites and not known to be threatened.

Helichrysum rotundatum Harv.
Status: Rare
N.A. Helme
Distribution: WC. Western end of the Rivierosonderend Mountains.
Habitat: Upper, shaded, rocky outcrops, or on moist places on south-facing cliffs.
Rationale: EOO < 90 km². Known from fewer than five sites and not threatened.

Helichrysum saxicola Hilliard
Status: Rare
J.H. Vlok & D. Raimondo
Distribution: WC. Groot Swartberg Mountains, between Tierberg Peak in the east to Osberg in the west.
Habitat: South-facing vertical rocks and tops of boulders near the summit.
Rationale: Known from several sites, always occurring as small subpopulations with few mature individuals. Not threatened.

Helichrysum solitarium Hilliard
Status: VU D2
W.G. Welman, J.E. Victor & R.C. Turner
Distribution: WC. Ceres district, Bokkeveld Tafelberg.
Habitat: Sandy flats.
Rationale: This species is known only from one location where it is potentially threatened by too frequent fires.

Helichrysum summo-montanum I.Verd.
Status: EN D
J.E. Burrows, S.M. Burrows, M. Lötter & J.E. Victor
Distribution: MP. Formosa Mountain and Mount Anderson in Lydenburg.
Habitat: Rocks on east-facing cliffs, 2 000–2 450 m.
Rationale: A narrow endemic (EOO 8 km²) known from less than 250 mature individuals and restricted to two mountain peaks.

Helichrysum tenax M.D.Hend. var. pallidum
Hilliard & B.L.Burtt
Status: Rare
D.A. Kamundii & D. Raimondo
Habitat: Steep, rocky terrain, often rooted in rocky crevices, 1 500–1 700 m.
Rationale: A habitat specialist known from fewer than five subpopulations. No known threats.

Helichrysum tricostatum (Thunb.) Less.
Status: NT B1ab(i,ii,iii,iv,v)
D. Raimondo & R.C. Turner
Distribution: NC WC. Namaqualand to Bokbaai.
Habitat: Sandveld, on sandy flats.
Rationale: Occurs in a narrow coastal band on the West Coast (EOO 14 000 km²), suspected to occur at 15–20 locations. It is currently declining because of severe, ongoing habitat loss to potato cultivation and coastal housing developments. In addition, there is a continuing decline in the northern parts of its range as a result of grazing by livestock.
Heterolepis Cass.

Heterolepis mitis (Burm.) DC.

Status: Rare
P.P.J. Herman & J.E. Victor

Distribution: EC. Klein Winterhoek and Suurberg Mountains.

Habitat: Between rocks in valley bushveld.

Rationale: Known from four sites. Not likely to be threatened as the two mountain ranges in which this species occurs have no known threats.

Heterorhachis Sch.Bip. ex Walp.

Heterorhachis aculeata (Burm.f.) Roessler

Status: VU B1ab(i,ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: NC WC. Bokkeveld Escarpment to Koeberg.

Habitat: Normally deep acid sands, but also in granitic loam/acid sand ecotone areas.

Rationale: EOO 7 500 km². Known from fewer than 10 locations. Declining because of crop cultivation (rooibos and cereals), urban expansion and sand quarrying.

Heterorhachis sp. nov.

Voucher: Helme 4284 NBG

Status: CR B1ab(ii,iii,iv,v); D
N.A. Helme & D. Raimondo


Habitat: Deep sands.

Rationale: A highly localised, undescribed species collected in a small remnant between cultivated fields in 2006. The only other collection is by Compton in the 1940s in the same area. There are less than 50 individuals and habitat loss to agriculture is ongoing.

Hippia L.

Hippia hirsuta DC.

Status: Rare
J.E. Victor

Distribution: WC. Langeberg, Franschhoek and Kleinrivier Mountains.

Habitat: Sandstone slopes.

Rationale: Known from three sites. Occurs on mountain slopes that are not threatened.

Hippia hutchinsonii Merxm.

Status: Rare
D. Raimondo & R.C. Turner

Distribution: WC. Langeberg Mountains.

Habitat: Sandstone slopes.

Rationale: A range-restricted species (EOO 50 km²), known from two subpopulations. It has no recorded threats.

Hippia integrifolia Less.

Status: Rare
D. Raimondo & R.C. Turner

Distribution: WC. Langeberg Mountains.

Habitat: Steep south-facing slopes above 1 300 m.

Rationale: EOO 220 km². Known from six high alpine areas. This species has no recorded threats.

Hippia sp. nov.

Voucher: Forsyth 469 NBG

Status: Rare
D. Raimondo & R.C. Turner

Distribution: WC. Worcester to Louwshoek Mountains.

Habitat: Shallow, sandy soil on summit ridges.

Rationale: Known from fewer than five sites (EOO 150 km²) in mountainous areas. Not threatened.

Hippia trilobata Hutch.

Status: Rare
D.A. Kamundi & D. Raimondo

Distribution: WC. Riversdale, Kampscheberg.

Habitat: Sandstone slopes in shady areas, 400–500 m.

Rationale: A range-restricted species (EOO 400 km²), known from two subpopulations. It has no recorded threats.

Hoplophyllum DC.

Hoplophyllum ferox Sond.

Status: DDD
F. Daniels

Distribution: WC. Vanrhynsdorp.

Habitat: Unknown.

Rationale: A poorly known species collected from two sites in the Western Cape portion of the Great Karoo over 110 years ago. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Hydroidea P.O.Karis

Hydroidea elsiae (Hilliard) P.O.Karis Plate 45

Status: Rare
N.A. Helme & D. Raimondo

Distribution: WC. Du Toit’s Mountains

Habitat: Sandstone cliffs.

Rationale: A range-restricted species (EOO 61 km²) known from six subpopulations. Not threatened because of the inaccessibility of its habitat.

Hymenolepis Cass.

Hymenolepis cynopus K.Bremer & Källersjö

Status: Critically Rare
N.A. Helme & D. Raimondo

Distribution: WC. Touwsberg.

Habitat: Arid fynbos on upper slopes.

Rationale: Recorded from one location. This species has no known threats.

Inezia E.Phillips

Inezia speciosa Brusse

Status: EN B1ab(iii)+2ab(iii)
L. von Staden & P.J.D. Winter


Habitat: Mistbelt grassland, mountain slopes above 1 700 m.

Rationale: EOO 5 km², AOO < 3.8 km². Known from two locations. Continuing decline in habitat at one location as a result of unmanaged encroachment from invasive alien pines and wattles. This location is also potentially threatened by mining and expansion of pine plantations. The habitat is continuous between the two locations and the subpopulations are fairly large and therefore not severely fragmented.
Inulanthera Källersjö

\textit{Inulanthera montana} (J.M. Wood) Källersjö

Status: Rare
D.A. Kamundij & D. Raimondo
\textit{Distribution}: KZN. KwaZulu-Natal Drakensberg Mountains, Cathedral Peak to the Giant’s Castle.

\textit{Habitat}: Grassy slopes, 1 500–2 285 m.

\textit{Rationale}: A range-restricted species (EOO 30 km²), known from two subpopulations. This species has no recorded threats.

Laevicarpa (Koekemoer) Koekemoer

Laevicarpa sp. nov.

\textit{Voucher}: Koekemoer 486 PRE

Status: Critically Rare
F. Daniels & N.A. Helme
\textit{Distribution}: WC. Montagu, Moedverlorenberg.

\textit{Habitat}: Well-drained, sandy soil on sandstone slopes.

\textit{Rationale}: Known from one site. Locally common but restricted to one mountain summit. No recorded threats.

Lamprocephalus B.Nord.

\textit{Lamprocephalus montanus} B.Nord.

\textit{Plate 45}

Status: Rare
N.A. Helme & D. Raimondo
\textit{Distribution}: WC. Cederberg to Hex River Mountains.

\textit{Habitat}: Upper sandstone slopes, 1 200–2 100 m.

\textit{Rationale}: EOO 3 300 km². Recorded from fewer than 10 sites restricted to high-altitude areas and therefore not threatened.

Lasiopogon Cass.

Lasiopogon minutus (B.Nord.) Hilliard & B.L.Burtt

Status: VU D2
D. Raimondo, P.P.J. Herman & J.E. Victor
\textit{Distribution}: WC. Koekenaap.

\textit{Habitat}: Quartz patches.

\textit{Rationale}: Recorded from one location. Potentially threatened by expansion of vineyards and mining.

Lasiopogon ponticulus Hilliard

Status: Rare
P.P.J. Herman & J.E. Victor
\textit{Distribution}: NC. Southern Namibia (Lüderitz, Aus), Boegoeberge and Richtersveld.

\textit{Habitat}: Sandy areas.

\textit{Rationale}: Known from three sites. This species has no recorded threats.

Leucoptera B.Nord.

\textit{Leucoptera oppositifolia} B.Nord.

Status: Rare
D.A. Kamundij & D. Raimondo
\textit{Distribution}: WC. Knersvlakte.

\textit{Habitat}: Quartzite outcrops, 0–500 m.

\textit{Rationale}: A range-restricted habitat specialist (EOO 365 km²), known from three subpopulations. This species has no recorded threats.

\textit{Leucoptera subcarnosa} B.Nord.

Status: Rare
D.A. Kamundij & D. Raimondo
\textit{Distribution}: WC. Knersvlakte.

\textit{Habitat}: Quartzite outcrops, 0–500 m.

\textit{Rationale}: A habitat specialist known from five subpopulations. No known threats.

Lidbeckia P.J.Bergius

\textit{Lidbeckia pectinata} P.J.Bergius

\textit{Distribution}: WC. Elands Bay to Hondeklip Bay.

\textit{Habitat}: Alkaline coastal sands.

\textit{Rationale}: Known from fewer than five locations. Potentially threatened by heavy-mineral sand and diamond mining.

\textit{Leucoptera nodosa} (Thunb.) B.Nord.

Status: VU D2
N.A. Helme & D. Raimondo
\textit{Distribution}: NC WC. Southern Namibia (Lüderitz, Aus), Boegoeberge and Richtersveld.

\textit{Habitat}: Sandy areas.

\textit{Rationale}: Known from three sites. This species has no recorded threats.

\textit{Leucoptera subcarnosa} B.Nord.

Status: Rare
D.A. Kamundij & D. Raimondo
\textit{Distribution}: WC. Knersvlakte.

\textit{Habitat}: Quartzite outcrops, 0–500 m.

\textit{Rationale}: A habitat specialist known from five subpopulations. No known threats.

\textit{Lidbeckia sp. nov.}

\textit{Voucher}: Helme 2698 NBG

Status: EN B1ab(ii,iii,v)
N.A. Helme, J.H. Vlok & D. Raimondo
\textit{Distribution}: WC. Robertson to Mossel Bay.

\textit{Habitat}: South-facing granite loams.

\textit{Rationale}: Known from three locations (EOO 600 km²). It is large, showy and difficult to miss, indicating that it is a naturally rare species with disjunct subpopulations. We suspect that much of its habitat has been lost to agriculture and invasion by alien plants in the past. One of the three known subpopulations is threatened by agriculture and quarrying.

Lopholaena DC.

\textit{Lopholaena longipes} (Harv.) Thell.

Status: DDD
N.A. Helme & D. Raimondo
\textit{Distribution}: NC WC. Kamiesberg and Knersvlakte.

\textit{Habitat}: Unknown.

\textit{Rationale}: A poorly known species from Namaqualand, last collected by Compton in the 1940s. Not enough is known about the distribution, specific habitat or population status of this species to determine its status, but it is potentially threatened by overgrazing.

Macledium Cass.

\textit{Macledium pretoriense} (C.A.Sm.) S.Ortíz

Status: EX
J.E. Victor, N.C. Netnou & M.F. Pfab
\textit{Distribution}: G. Pretoria.

\textit{Habitat}: Hillsides.

\textit{Rationale}: The only known locality of this species has been transformed by urban development. It was last collected in 1925.
Macowanía Oliv.

Macowanía conferta (Benth.) E.Phillips
Status: DDD
P.P.J. Herman & J.E. Victor
Distribution: EC KZN. Ngele Mountain.
Habitat: Montane grassland, rock outcrops on steep slopes.
Rationale: A poorly known species not collected for the past 75 years. Potentially threatened by deforestation.

Macowanía deflexa Hilliard & B.L.Burtt
Status: Rare
C.R. Scott-Shaw & J.E. Victor
Habitat: Montane grassland near streams.
Rationale: Known from five sites but suspected to occur at a few more. Not threatened.

Macowanía hamata Hilliard & B.L.Burtt
Status: Rare
C.R. Scott-Shaw & J.E. Victor
Distribution: KZN. Tugela Gorge and Monk’s Cowl Forest Station.
Habitat: Montane grassland.
Rationale: A range-restricted species (EOO 100 km²) known from two sites. This species has no recorded threats.

Macowanía revoluta Oliv.
Status: DDD
D. Raimondo
Distribution: EC. Amathole Mountains.
Habitat: Rocky slopes, 650–1 200 m.
Rationale: Known from old collections made before 1949. Not enough is known about the distribution, specific habitat or population status of this species to determine its status. It is likely to be threatened by deforestation.

Marasmodes DC.

Marasmodes sp. nov.
Voucher: Manning 2747 PRE
Status: CR D
J.C. Manning, D. Raimondo & R.C. Turner
Distribution: WC. Paarl and Malmesbury.
Habitat: Clay flats, often with silcrete.
Rationale: A highly range-restricted species (EOO 20 km²) that occurs on silcrete outcrops in the Swartland. It has lost most of its range (99%) over the past 100 years as a result of wheat and vineyard cultivation and is now known from four small, severely fragmented subpopulations where it is undergoing a continuing decline because of invasive alien acacias and poor land management.

Marasmodes undulata Compton
Status: CR A2a; B1ab(ii,iii,v)+2ab(ii,iii,v);
C2a(i,ii)
D. Raimondo, N.A. Helme & R. Koopman
Distribution: WC. Paarl.
Habitat: Gravelly flats.
Rationale: Only one population is known at the New Orleans campsite east of Paarl. This is the only remaining patch of natural vegetation in this area and we suspect that over 95% of the habitat of this species has been lost to urban expansion over the past 60 years (generation length 20 years). Only 4 ha of its habitat remains. It is experiencing ongoing habitat degradation as a result of invasion by alien plants and poor management. The number of mature individuals has declined from 200 in the 1990s to 17 in 2005. This species may require fire to recruit.

Metalasia R.Br.

Metalasia adunca Less.
Status: NT B1ab(i,ii,iii,iv,v)
N.A. Helme
Distribution: NC WC. Hondekloof Bay to Cape Flats.
Habitat: Lowland acid sand flats.
Rationale: Declining throughout its range as it occurs on sand flats that have been transformed primarily for agriculture but in some areas also for urban development and mining. EOO 17 500 km². Of the 18 recorded locations, five have been lost to urban expansion and crop cultivation.

Metalasia albenscens P.O.Karis
Status: Rare
N.A. Helme
Distribution: WC. Southern Cederberg.
Habitat: Stony and sandy slopes, 700 m.
Rationale: Highly range-restricted endemic from the southern Cederberg (EOO < 90 km²), occurring in the Krom River Peak and Matjies River area and known from five sites. Not threatened as it occurs on rocky slopes.
Metalasia alfredii Pillans
Status: Rare
N.A. Helme
Distribution: WC. Riviersonderend Mountains, Pilaarkop and Bavianskloof above Genadendal.
Habitat: Sandstone slopes above 1 500 m.
Rationale: Restricted to high-altitude ridges (EOO 25 km²), known from two sites and not threatened.

Metalasia bodkinii L.Bolus
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: WC. Caledon Swartberg.
Habitat: Sandstone slopes, peaty soils on north-facing slopes, 700–900 m.
Rationale: This species was previously known from two collections made on the Caledon Swartberg, both in 1894. It was rediscovered there in 2007. It occurs only at high altitudes and is potentially threatened by encroachment from alien pines and hakes.

Metalasia capitata (Lam.) Less.
Status: VU A2c
N.A. Helme & D. Raimondo
Distribution: WC. Piketberg to Paarl.
Habitat: Acid sand flats.
Rationale: EOO < 6 000 km². There are many sites listed in SANBI's electronic database of herbarium specimens and the revision of Metalasia (Karis 1989), but > 70% of the collections are over 30 years old and most of them have been lost to urban expansion, crop cultivation and invasive alien plants. At least 30% of the habitat of this species and recorded subpopulations have been lost over the past 30 years (generation length suspected to be 10 years).

Metalasia distans (Schrank) DC.
Status: CR B1ab(iii)
N.A. Helme & D. Raimondo
Distribution: WC. Malmsbury.
Habitat: Acid sand flats.
Rationale: This species used to occur from Kraaifontein to Malmsbury, but it is now extant at only two locations near Malmsbury, Riverlands and Rooivlei. Most of its habitat has been lost to urban expansion and wheat cultivation. At the remaining two locations, its habitat is severely threatened by invasive alien plants.

Metalasia erectifolia Pillans
Status: NT B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Agulhas to Mossel Bay.
Habitat: Limestone and shale hills in transitional areas with limestone, below 500 m.
Rationale: EOO < 4 000 km². Known from 11 locations. Declining as a result of invasive alien plants and crop cultivation throughout its range and owing to urban expansion around Mossel Bay and Struisbaai.

Metalasia galpinii L.Bolus
Status: VU D2
N.A. Helme, J.H. Vlok & A.L. Schutte-Vlok
Distribution: WC. Langeberg, Garcia’s Pass.
Habitat: North-facing sandstone slopes, 350–750 m.
Rationale: A rare, range-restricted endemic known from five locations in very close proximity to one another (EOO < 150 km²). Potentially threatened by invading alien plants and harvesting for the cut flower industry.

Metalasia humilis P.O.Karis
Status: Critically Rare
N.A. Helme
Distribution: WC. Houwhoek Mountains.
Habitat: Rocky sandstone slopes.
Rationale: Only ever collected from one site on Caledon Houwhoek Mountain peak. It has been collected here a number of times over the past 30 years but has never been found elsewhere. Occurs on the summit of this mountain and is therefore not threatened.

Metalasia juniperoides Pillans
Status: EN B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Northern Kouebokkeveld.
Habitat: Sandy flats, in deep sands, 800–1 200 m.
Rationale: EOO < 700 km². Known from four subpopulations. It has lost one subpopulation to crop cultivation near Keeroms and there is a continuing decline of habitat throughout its range as a result of rooibos and protea cultivation and commercial forestry plantations.

Metalasia lichtensteini Less.
Status: Rare
N.A. Helme & D. Raimondo
Distribution: WC. Swartland endemic (EOO 166 km²), known from four locations on the limestone hills north of Still Bay (EOO < 460 km²). Experiencing ongoing habitat degradation as a result of invasion by alien plants.

Metalasia luteola P.O.Karis
Status: EN B1ab(iii)
N.A. Helme & D. Raimondo
Distribution: WC. Stettynsberg and Wemmershoek Mountains.
Habitat: Limestone hills.
Rationale: Known from four locations on the limestone hills north of Still Bay (EOO < 460 km²). Experiencing ongoing habitat degradation as a result of invasion by alien plants.

Metalasia montana P.O.Karis
Status: Rare
N.A. Helme & D. Raimondo
Distribution: WC. Durbanville to Hopefield and inland to Wolseley.
Habitat: Renosterveld, clay flats.
Rationale: A Swartland endemic (EOO 166 km²), known from four small fragments. It has lost over 90% of its habitat to agriculture and urban expansion over the past 80 years. Remaining subpopulations are declining as a result of invasion by alien plants and overgrazing by livestock. The generation length of this species is not known.

Metalasia octoflora DC.
Status: EN B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Durbanville to Hopefield and inland to Wolseley.
Habitat: Renosterveld, clay flats.
Rationale: A Swartland endemic (EOO 166 km²), known from four small fragments. It has lost over 90% of its habitat to agriculture and urban expansion over the past 80 years. Remaining subpopulations are declining as a result of invasion by alien plants and overgrazing by livestock. The generation length of this species is not known.
Plate 43

Athanasia capitata EN
Athanasia adenantha EN
Athanasia scabra VU

Athanasia spathulata EN
Athanasia oxeophela VU

Athanasia sertelifera EN
Athanasia cochlearisfolia EN
Plate 47

Helichrysum summo-montanum EN

Syncarpha recurvata EN

Helichrysum saxicola Rare

Helichrysum aureum var. argenteum VU

Syncarpha chlorochrysum NT

Helichrysum leslei EN

Helichrysum coloecephalum Rare

Helichrysum homiochrysum Rare

Syncarpha montana Rare
Plate 48

*Metalasia tricolor* Critically Rare

*Metalasia bodkinii* VU

*Metalasia oligocephala* Critically Rare

*Metalasia tenutifolia* VU

*Metalasia octoflora* EN

*Stoebe rosea* Rare

*Stoebe rugulosa* EN

*Stoebe muirii* VU
Metalasia oligocephala P.O.Karis
Status: Critically Rare
N.A. Helme & J.E. Victor
Distribution: WC. Langeberg near Swellendam, between Protea Valley and Nooitgedacht.
Habitat: Sandstone slopes or on shale bands.
Rationale: Known only from the type locality, this species has no recorded threats.

Metalasia phillipsii L.Bolus subsp. phillipsii
Status: Rare
D.A. Kamundi & D. Raimondo
Distribution: WC. Hex River Mountains.
Habitat: Low, windswept montane fynbos, 1 500–2 200 m.
Rationale: A range-restricted taxon (EOO 495 km²), known from four subpopulations. No recorded threats.

Metalasia plicata P.O.Karis
Status: EN B1ab(ii,iii,v)
N.A. Helme
Distribution: WC. Houwhoek to Bredasdorp.
Habitat: Sandstone-clay ecotones, on the transitions between fynbos and renosterveld.
Rationale: EOO < 200 km². Known from four locations: the Houwhoek Mountains, Caledon Swartberg, the foothills of the Riviersonderend Mountains and the former Bontebok National Park near De Mond. It is threatened by agricultural expansion, afforestation and invasion by alien plants.

Metalasia rhoderoides T.M.Salter
Status: Rare
D.A. Kamundi & D. Raimondo
Distribution: WC. Bain’s Kloof.
Habitat: Sandstone slopes, 700–1 500 m.
Rationale: A range-restricted species (EOO 200 km²), known from four subpopulations. No recorded threats.

Metalasia seriphiifolia DC.
Status: VU D2
N.A. Helme
Distribution: WC. Kleinrivier Mountains.
Habitat: Lower sandstone slopes, 50–100 m.
Rationale: Known from three locations and potentially threatened by urban expansion and invasion by alien plants.

Metalasia serrulata P.O.Karis
Status: Rare
N.A. Helme
Distribution: WC. Groot Winterhoek and Witzenberg Mountains.
Habitat: Rocky sandstone slopes.
Rationale: A range-restricted species (EOO 250 km²), known from three high-altitude mountain sites, not threatened.

Metalasia tenuifolia DC.
Status: VU D2
D. Raimondo & N.A. Helme
Distribution: WC. Houwhoek, Caledon Swartberg and Riviersonderend Mountains.
Habitat: Sandstone slopes.
Rationale: Known from three locations and potentially threatened by invading alien plants at all locations.

Metalasia tenuis P.O.Karis
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: WC. Riviersonderend Mountains from west of Genadendal to around Riviersonderend, and on the Caledon Swartberg.
Habitat: Slopes in low fynbos, 100–1 000 m.
Rationale: A range-restricted species (EOO 400 km²), known from three subpopulations, potentially threatened by invasive alien plants.

Metalasia tricolor Pillans
Status: Critically Rare
D. Raimondo & N.A. Helme
Distribution: WC. Rooiberg.
Habitat: Sandstone slopes.
Rationale: Known from the type collection made on Rooiberg Pass. Occurs on rocky arid slopes and is not threatened.

Metalasia umbelliformis P.O.Karis
Status: VU D2
N.A. Helme
Distribution: WC. Pearly Beach to Brandfontein.
Habitat: Low-altitude limestone ridges.
Rationale: EOO 150 km². This limestone endemic is known from four locations: Brandfontein, Rietfontein, Hagelkraal and Pearly Beach. Its habitat is potentially threatened by urban expansion and invasion by alien plants.

Monticapra Koekemoer

Monticapra sp. nov.
Voucher: Esterhuysen EE 28615 BOL
Status: VU D2
N.G. Bergh & D. Raimondo
Distribution: WC. Matroosberg.
Habitat: Montane fynbos slopes.
Rationale: Known from one location, this is a high-altitude, slow-growing species that is potentially threatened by frequent fires.

Monticapra sp. nov.
Voucher: Esterhuysen 35788 BOL
Status: EN B1ab(ii,iii,iv,v)
N.A. Helme, N.G. Bergh & D. Raimondo
Distribution: WC. Groenrivier Mountains.
Habitat: Restio fynbos on flat, quartzitic sands, 1 000 m.
Rationale: Known from three locations (EOO 200 km²). There is a continuing loss of habitat at two of the locations as a result of ploughing for protea orchards and cultivation of berries.

Oedera L.

Oedera conferta (Hutch.) Anderb. & K.Bremer
Status: VU D1
N.A. Helme & D. Raimondo
Distribution: NC. Namaqualand, Kamiesberg.
Habitat: In rock crevices on steep south- and southwest-facing granite slopes, 1 500–1 600 m.
Rationale: Known from the two highest peaks of the Kamiesberg. Subpopulations are small, consisting of less than 250 individuals each.
## Oedera epaleacea

**Bayer**

**Status:** Critically Rare

**Distribution:** WC, Swartruggens.

**Habitat:** Arid fynbos, in crevices between rock sheets.

**Rationale:** A recently described species known from only one site and not threatened.

## Oedera foveolata (K.Bremer) Anderb. & K.Bremer

**Distribution:** WC, Karooport.

**Habitat:** Rocky slopes.

**Rationale:** Known from one collection made at Karooport in 1938. Bremer (Asteraceae taxonomist) suspects that the locality statement may be inexact.

## Oedera laevis DC.

**Status:** DDD

**Distribution:** WC, Langeberg, near Garcia’s Pass.

**Habitat:** Rocky sandstone slopes.

**Rationale:** Last collected in 1923. This genus has not been revised and its species are very poorly known.

## Oedera multiplicata (DC.) Anderb. & K.Bremer

**Status:** NT B1ab(ii,iii,iv,v)

**Distribution:** WC, Bokkeveld Mountains to Swartruggens.

**Habitat:** On sandy and stony mountain slopes.

**Rationale:** Known from less than 15 locations. Subpopulations that occur on sandy flats are currently declining as a result of rooibos tea cultivation. At least half of the subpopulations occur in sandy areas and are likely to be threatened by agriculture.

## Oedera nordenstamii (K.Bremer) Anderb. & K.Bremer

**Status:** Rare

**Distribution:** NC, Springbok.

**Habitat:** Arid mountain summits.

**Rationale:** Known from two collections at high altitudes in the Richtersveld. This species has no recorded threats.

## Oedera resinifera (K.Bremer) Anderb. & K.Bremer

**Status:** Rare

**Distribution:** WC, Klein Swartberg and Touwsberg Mountains.

**Habitat:** Karroid lower slopes.

**Rationale:** Known from seven sites in the Little Karoo, occurs only on low, arid foothills and is not threatened.

## Oedera silicicola (K.Bremer) Anderb. & K.Bremer

**Status:** VU D2

**Distribution:** WC, Western Knersvlakte.

**Habitat:** Stony quartzite outcrops.

**Rationale:** EOO 35 km². Known from two locations and potentially threatened by mining.

## Oedera steyniae (L.Bolus) Anderb. & K.Bremer

**Status:** VU B1ab(ii,iii,iv,v)

**Distribution:** WC, Still Bay to Gouritsmond.

**Habitat:** Limestone rocks.

**Rationale:** EOO < 300 km². Known from seven locations and threatened by ongoing coastal development and invasion by alien plants.

## Oedera viscosa (L’Hér.) Anderb. & K.Bremer

**Status:** NT B1ab(ii,iii,iv,v)

**Distribution:** WC, Piketberg to Tulbagh and Tygerberg.

**Habitat:** Clay and sandy flats.

**Rationale:** EOO 13 800 km². Known from 15 locations. Threatened by a continuing decline of habitat due to agriculture (wheat and vineyards), urban expansion, invasion by alien plants and quarrying.

## Oligothrix DC.

## Oligothrix gracilis DC.

**Status:** Rare

**Distribution:** WC, Cederberg to Kousebokkeveld.

**Habitat:** Sandstone slopes above 1 000 m.

**Rationale:** Known from two collections. Occurs on high-altitude peaks, which are not threatened.

## Oncosiphon Killersjö

## Oncosiphon africanum (P.J.Bergius) Killersjö

**Status:** NT B1ab(ii,iii,iv,v)

**Distribution:** WC, Mouth of the Berg River to Cape Peninsula.

**Habitat:** Coastal sands, salt marshes and inland sandy areas.

**Rationale:** EOO 4 800 km². Known from fewer than 10 locations. A few locations have been lost as a result of invasion by alien plants, coastal and urban expansion and agricultural expansion, especially in the sandveld. Habitat loss is ongoing.

## Oncosiphon schlechteri (Bolus) Killersjö

**Status:** EN B1ab(ii,iii,v)

**Distribution:** WC, Lambert’s Bay to Hondeklip Bay.

**Habitat:** Seasonally wet, saline coastal sands.

**Rationale:** EOO < 400 km². Known from five locations. Experiencing ongoing habitat loss as a result of diamond and heavy-mineral sand mining, salt mining and off-road vehicles.

## Osmotopsis Cass. emend. K.Bremer

## Osmotopsis dentata (Thunb.) K.Bremer

**Status:** Rare

**Distribution:** WC, Cape Peninsula.

**Habitat:** Sandstone cliffs, usually on damp, mossy, south-east-facing ledges.

**Rationale:** A range-restricted species (EOO < 300 km²). Not threatened because of the inaccessibility of its habitat.

## Osmotopsis glabra K.Bremer

**Status:** Rare

**Distribution:** WC, Kogelberg to Palmiet River Mountains.

**Habitat:** Rocky, south-facing sandstone slopes.
Osmotopsis nana Schltr.  
Status: Rare  
N.A. Helme & D. Raimondo  
**Distribution:** WC. Groot Winterhoek to Genadendal.  
Habitat: South-facing, rocky sandstone crevices.  
Rationale: A habitat specialist, EOO < 633 km², known from six sites. Not threatened because of the inaccessibility of its habitat.

Osmotopsis parvifolia (DC.) Hofmeyr  
Status: Rare  
D.A. Kamundi & D. Raimondo  
**Distribution:** WC. Kogelberg.  
Habitat: Stony sandstone slopes and rock crevices, 420–1 250 m.  
Rationale: A range-restricted species (EOO 200 km²), known from three subpopulations. This species has no recorded threats.

Osmotopsis pinnatifida (DC.) K.Bremer subsp. angustifolia (DC.) K.Bremer  
Status: Rare  
D.A. Kamundi & J.E. Victor  
**Distribution:** WC. Stellenbosch and Paarl.  
Habitat: Moist and shady areas, 600–1 100 m.  
Rationale: A range-restricted taxon (EOO 80 km²) known from two subpopulations. No recorded threats.

Osmotopsis pinnatifida (DC.) K.Bremer subsp. pinnatifida  
Status: VU D2  
N.A. Helme & D. Raimondo  
**Distribution:** WC. Drakenstein Mountains.  
Habitat: Damp rocks at the base of waterfalls and along streams.  
Rationale: Known from three locations within a very restricted range (EOO < 80 km²). Potentially threatened by invading alien plants.

Osmotopsis pinnatifida (DC.) K.Bremer subsp. serrata K.Bremer  
Status: Critically Rare  
N.A. Helme, D.A. Kamundi & D.A. Kamundi  
**Distribution:** WC. Wemmershoek Mountains.  
Habitat: Dry rocky outcrops and cliff faces.  
Rationale: Recorded only from one site. Not threatened because of the inaccessibility of its habitat.

Osmotopsis tenuis K.Bremer  
Status: Rare  
N.A. Helme, D.A. Kamundi & D. Raimondo  
**Distribution:** WC. Bain’s Kloof to Du Toit’s Kloof.  
Habitat: Damp, south-facing cliffs.  
Rationale: Known from a small area around the Slanghoek Mountains (EOO 60 km²) and from four collections. Not threatened as its cliff habitat has not been invaded by alien pines or heakes.

Osteospermum L.  
Osteospermum aciphyllum DC.  
Status: NT D2  
D. Raimondo  
**Distribution:** WC. Piketberg, Stettynsberg and Klein Drakenstein Mountains to the Caledon Swartberg.

Habitat: Lower rocky sandstone slopes, 300–600 m.  
Rationale: Known from five locations but a few more are likely to exist on the unexplored mountain slopes within the range of this species. Potentially threatened by invading alien plants at all known locations.

Osteospermum attenuatum Hillard & B.L.Burtt  
Status: Rare  
C.R. Scott-Shaw & J.E. Victor  
**Distribution:** KZN. Underberg and Polela.  
Habitat: Moist places at high altitudes, 1 675–2 300 m.  
Rationale: A Drakensberg endemic with a specialised habitat, known from five sites and not threatened.

Osteospermum burttianum B.Nord.  
Status: Rare  
D.A. Kamundi & J.E. Victor  
**Distribution:** WC. Langeberg Mountains.  
Habitat: Sandstone slopes.  
Rationale: A range-restricted species (EOO < 500 km²), known from two collections. This species has no recorded threats.

Osteospermum elsieae Norl.  
Status: Critically Rare  
J.E. Victor & D. Raimondo  
**Distribution:** WC. Potberg.  
Habitat: Rocky southern slopes in gullies.  
Rationale: Known only from one site and not threatened.

Osteospermum hafstroemii Norl.  
Status: VU D2  
D. Raimondo & J.E. Victor  
**Distribution:** WC. Bredasdorp.  
Habitat: Rocky coastline.  
Rationale: Known from two locations on the Cape Agulhas coastline (EOO 5 km²). Potentially threatened by coastal development and invasion by alien plants.

Osteospermum hirsutum Thunb.  
Status: EX  
P.P.J. Herman & J.E. Victor  
**Distribution:** WC. Unknown.  
Habitat: Unknown.  
Rationale: This species was collected in 1775 by Thunberg at an unspecified site in the then Cape Colony, possibly on the Cape Flats. Not collected since. There are excellent, well-preserved specimens of *O. hirsutum* in various herbaria and there is therefore no doubt about its taxonomic validity. As it has not been reported for over 100 years and most of the Cape Flats has been developed, we conclude that this species is extinct.

Osteospermum hispidum Harv. var. viride Norl.  
Status: D2  
D. Raimondo  
**Distribution:** WC. Stellenbosch.  
Habitat: Unknown.  
Rationale: The only known collection is by Herre in 1933 at ‘Rustenburg’ in Stellenbosch, but this site cannot be traced. Hence we do not know whether it is extinct as a result of urban expansion and agriculture or safe on the slopes of mountains.
**Osteospermum potbergense** A.R.Wood & B.Nord.

- **Status:** Critically Rare
- **Distribution:** WC. Potberg.
- **Habitat:** Lower sandstone slopes.

**Rationale:** EOO 10 km². The range of this species falls within De Hoop Nature Reserve and is therefore protected. It faces a slight threat of grazing because game concentrate in the area in which it occurs. However, it is a resprouter and is unlikely to be very sensitive to grazing.

**Osteospermum pterigoideum** Klatt

- **Status:** EN B1ab(ii,iii,v)
- **Distribution:** WC. Langeberg Mountains.
- **Habitat:** Low- to medium-altitude sandstone slopes.

**Rationale:** A range-restricted species (EOO 160 km²), known from fewer than five locations (EOO < 500 km²), known from three subpopulations, this species has no recorded threats.

**Othonna arminiana** Van Jaarsv.

- **Status:** Critically Rare
- **Distribution:** NC. Richtersveld, northeast of Eksteenfontein.
- **Habitat:** Rock crevices on upper slopes.

**Rationale:** A range-restricted species (EOO 160 km²), known from fewer than five locations (EOO < 500 km²), known from three subpopulations, this species has no recorded threats.

**Othonna cacalioides** L.f.

- **Status:** VU D2
- **Distribution:** WC. Vanrhynsdorp and Hondeklip Bay.
- **Habitat:** Shallow rock pans with a thin layer of coarse sand in quartzite pavement rocks of the Table Mountain Sandstone Formation.

**Rationale:** Restricted to a specific habitat (AOO < 20 km²). Potentially threatened by collecting and trafficking by livestock.

**Othonna cakilifolia** DC.

- **Status:** VU D2
- **Distribution:** NC WC. Vanrhynsdorp and Hondeklip Bay.
- **Habitat:** Flat areas with deep, red sands.

**Rationale:** A range-restricted species (EOO 160 km²), known from two sites and not threatened because of the inaccessibility of its habitat to goats.

**Othonna ciliata** L.f.

- **Status:** VU B1ab(ii,iii,v)
- **Distribution:** WC. Piketberg to Cape Flats and Wolseley.

**Rationale:** Known from fewer than five locations. Potentially threatened by crop cultivation, urban development and invasion by alien plants. It is known from 10 locations.

**Othonna cyclophylla** Merxm.

- **Status:** Rare
- **Distribution:** NC. Richtersveld and southern Namibia.
- **Habitat:** Arid cliffs.

**Rationale:** A habitat specialist known from four collections. This species has no recorded threats.

**Othonna diversifolia** (DC.) Sch.Bip.

- **Status:** Rare
- **Distribution:** NC. Vanrhynsdorp district, between Hol River and Koekenaap.
- **Habitat:** Quartz patches.

**Rationale:** Known from fewer than five locations (EOO < 100 km²). There has been an observed loss of part of a subpopulation as a result of mining in the past, and mining remains a potential threat to this species.

**Othonna herrei** Pillans

- **Status:** Rare
- **Distribution:** WC. Cederberg.
- **Habitat:** Stony shale band, 1 220–2 150 m.

**Rationale:** A range-restricted species (EOO 160 km²), known from three subpopulations and not threatened because of the inaccessibility of its habitat to goats.

**Othonna humilis** Schltr.

- **Status:** Rare
- **Distribution:** WC. Cederberg.
- **Habitat:** Stony shale band, 1 220–2 150 m.

**Rationale:** A range-restricted species (EOO 160 km²), known from three subpopulations, this species has no recorded threats.

**Othonna lepidocaulis** Schltr.

- **Status:** Rare
- **Distribution:** NC WC. Komkans near Vredendal and the Knysvlakte.
ANGIOSPERMS: DICOTYLEDONS

**Othonna linearifolia (DC.) Sch.Bip.**
Status: DDD
P.P.J. Herman & J.E. Victor
eDistribution: EC. Van Stadens and Swartkops Rivers.
Habitat: Steep fynbos slopes near rivers.
Rationale: Last collected in 1932. It is highly likely to be threatened by lack of fire, crop cultivation, urban expansion and severe infestations of alien plants within both the river systems in which it occurs.

**Othonna membranifolia DC.**
Status: DDD
D. Raimondo & J.E. Victor
eDistribution: WC. Gifberg and Nardous Mountain.
Habitat: Quartz outcrops.
Rationale: A range-restricted species (EOO < 500 km²), known from two subpopulations. This species has no recorded threats.

**Othonna papaveroides**
Status: DDD
P.P.J. Herman & J.E. Victor
eDistribution: WC. Cape.
Habitat: Unknown.
Rationale: Known only from the type, collected at an unspecified locality. Habitat and distribution unknown.

**Othonna pavelkae**
Status: Rare
J.E. Victor & C.R. Scott-Shaw
eDistribution: NC. Steinkopf.
Habitat: Quartz outcrops.
Rationale: A range-restricted species (EOO < 500 km²), known from two subpopulations. This species has no recorded threats.

**Othonna petiolaris DC.**
Status: EN B1ab(ii,iii,iv,v)
D. Raimondo
eDistribution: WC. Gifberg to Clanwilliam.
Habitat: Sandy flats and gentle slopes, sometimes near boulders.
Rationale: Extant at two of eight historical locations. It has been heavily affected by citrus and rooibos tea cultivation. Decline is ongoing.

**Othonna retrorsa DC. var. spektakelensis**
(Compton) G.D.Rowley
Status: Rare
D. Raimondo, P.P.J. Herman & J.E. Victor
eDistribution: NC. Spektakel, Eselsfontein, Kamieskroon, Springbok.
Habitat: Rocky sandstone slopes.
Rationale: Widely scattered subpopulations occurring north of Springbok. This taxon has no recorded threats.

**Othonna tephrosioides**
Status: DDD
P.P.J. Herman & J.E. Victor
eDistribution: WC. Matjiesfontein.
Habitat: Unknown.
Rationale: Known from the type, collected near Matjiesfontein in the late 1800s. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Pentattrichia Klatt**

**Pentattrichia alata**
S.Moore
Status: DDD
P.P.J. Herman & D. Raimondo
eDistribution: LM MP. Pilgrim’s Rest, Abel Erasmus Pass and Wolkberg Mountains.
Habitat: Grassland or savanna, on rocky slopes and sandy ground.
Rationale: A poorly known species, collected five times, mostly before 1957. Not enough is known about the current population status of this species to determine its status.

**Phaneroglossa B.Nord.**

**Phaneroglossa bolusii**
(Oliv.) B.Nord.
Status: Rare
N.A. Helme & D. Raimondo
eDistribution: WC. Skurweberg and Hex River Mountains.
Habitat: High-altitude sandstone slopes.
Rationale: A habitat specialist known from five sites and not threatened.

**Phymaspermum Less. emend. Källersjö**

**Phymaspermum peglerae**
(Hutch.) Källersjö
Status: DDD
D.A. Kamundi & D. Raimondo
eDistribution: EC. Mthatha district.
Habitat: Unknown.
Rationale: Known from the type collection made by Pegler near Mthatha in 1910. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Phymaspermum schroeteri**
Compton
Status: Rare
D. Raimondo, P.P.J. Herman & J.E. Victor
eDistribution: NC WC. Beaufort West, Fraserburg, Sutherland and Laingsburg.
Habitat: Arid rocky slopes and summits.
Rationale: Known from five sites in the central Karoo. Not threatened as it occurs on slopes that are not overgrazed by livestock.

**Phymaspermum villosum**
(Hilliard) Källersjö
Källersjö
Status: Rare
J.E. Victor & C.R. Scott-Shaw
eDistribution: KZN. Northern Pondoland and Ngele Mountain.
Habitat: Grassland, rock outcrops or stony slopes.
Rationale: A habitat specialist, known from six sites. It has good seed dispersal abilities and occurs only on rocky habitats with shallow soils that are refuges from threats such as forestry plantations and fire.

**Planea P.O.Karis**

**Planea schlechteri**
(L.Bolus) P.O.Karis
Status: CR PE
F. Daniels, N.A. Helme & D. Raimondo
eDistribution: WC. Bain’s Kloof to Klapmuts.
Habitat: Slopes at 300 m.
Rationale: Known from two herbarium collections. The subpopulation at Klapmuts is extinct. The Bain’s Kloof subpopulation is an old collection from the lower slopes of the Kloof and the site description is insufficiently detailed to know exactly where it occurs. However, large tracts of this habitat have been lost to afforestation, infestations of invasive alien plants and crop cultivation, and this species may well be extinct.

Poecilolepis Grau

Poecilolepis maritima (Bolus) Grau

Status: VU D2
D.A. Helme & D. Raimondo
Distribution: WC. Cape Peninsula to Agulhas.
Habitat: Edges of seasonal salt pans.
Rationale: Five of eight subpopulations (four on the Cape Flats and one more recently at Struisbaai) have been lost to urban development. The three extant subpopulations are on the Agulhas Plain. These subpopulations face a potential threat from invasive alien acacias, should alien clearing management currently being implemented be stopped.

Polyarrhena Cass.

Polyarrhena prostrata Grau subsp. dentata Grau

Status: Rare
D. Raimondo & R.C. Turner
Distribution: WC. Du Toit’s Peak, Wemmershoek Mountains and Stettynsberg.
Habitat: Steep shale slopes.
Rationale: Known from three sites within a restricted range (EOO 52 km²). It occurs on steep mountain slopes and is not threatened.

Polyarrhena prostrata Grau subsp. prostrata

Status: Rare
D. Raimondo & R.C. Turner
Distribution: WC. Bain’s Kloof to Brandwacht.
Habitat: Scree slopes.
Rationale: Known from three sites within a restricted range (EOO 110 km²). It occurs on steep mountain slopes and is not threatened.

Polyarrhena reflexa (L.) Cass. subsp. brachyphylla (Sond. ex Harv.) Grau

Status: VU D2
D. Raimondo & R.C. Turner
Distribution: WC. Caledon to Villiersdorp.
Habitat: Streamsides.
Rationale: Known from four locations, all from streamsides, a habitat that is potentially threatened by invading alien plants.

Pteronia L.

Pteronia anisata B.Nord.

Status: Rare
D.A. Kamundji & D. Raimondo
Distribution: NC. Richtersveld, Cornelskop between Numees and Helskloof.
Habitat: Arid rocky slopes.
Rationale: A range-restricted species (EOO < 5 km²) known from one subpopulation. This species has no recorded threats.

Pteronia beckeoides DC.

Status: DDD
N.A. Helme & D. Raimondo
Distribution: WC. Swellendam.
Habitat: Unknown.
Rationale: Known only from the type collected in 1835. The locality description is vague, listing only Swellendam. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Pteronia centauroides DC.

Status: VU D2
D. Raimondo
Distribution: WC. Du Toit’s Kloof.
Habitat: Granite slopes.
Rationale: Endemic to lower granitic slopes in Du Toit’s Kloof (EOO < 15 km²). Known from one plant, last recorded in 2004. The location was burnt in 2007 and it is likely that the population will have more individuals in the near future. Potentially threatened by invading alien plants.

Pteronia diosmifolia Brusse

Status: VU D2
P.P.J. Herman, J.E. Victor & R.C. Turner
Distribution: WC. De Hoop and Elandsvlei farm near Bredasdorp.
Habitat: Limestone outcrops.
Rationale: Known from two locations. Both subpopulations are small, extremely localised colonies that are potentially threatened by encroachment from invasive alien acacias.

Pteronia elata B.Nord.

Status: Rare
D.A. Kamundji & D. Raimondo
Distribution: NC. Richtersveld.
Habitat: Rocky arid slopes.
Rationale: A range-restricted species (EOO 120 km²), known from two subpopulations. This species has no recorded threats.

Pteronia hutchinsoniana Compton

Status: Rare
D.A. Kamundji & D. Raimondo
Distribution: WC. Klein Swartberg and Ladismith.
Habitat: Dry sandstone slopes.
Rationale: A range-restricted species (EOO < 500 km²), known from fewer than five subpopulations. No recorded threats.

Pteronia pillansii Hutch.

Status: DDD
R.C. Turner
Distribution: WC. Garies and Vanrhynsdorp.
Habitat: Unknown.
Rationale: Last collected in 1910, known from two collections, almost 100 years ago. Not enough is known about the distribution, specific habitat or current population status of this species to determine its status.

Pteronia scabra Harv.

Status: EN B1ab(ii,iii,iv,v)
R.C. Turner
Distribution: WC. Houwhoek to Elim.
Habitat: Rocky slopes.
**Relhania decussata**

Status: EN A2bc; B1ab(iii)+2ab(iii)
N.A. Helme & D. Raimondo

*Distribution*: WC. Caledon, Bredasdorp and Hermanus.

*Habitat*: Flats, acid sands over clays.

*Rationale*: Confined to lowland habitats (EOO < 2 000 km²). There is an extremely high probability that this species is extinct at four of the six historical locations as a result of agriculture, urban expansion and invasion by alien plants. Habitat loss has taken place over the past 80 years, less than three generations of this long-lived resprouter (generation length is estimated to be over 50 years).

**Relhania l’Hér. emend. K.Bremer**

**Relhania spathulifolia**

Status: EN B1ab(ii,iii,iv,v)
R.C. Turner

*Distribution*: WC. Agulhas Plain.

*Habitat*: Damp lowland areas near salt pans.

*Rationale*: EOO < 70 km². Known from four locations. Declining as a result of agriculture (wheat, vineyards and proteas), invasion by alien plants and road construction.

**Relhania tricephala** (DC.) K.Bremer

Status: NT B1ab(ii,iii,iv,v)
D. Raimondo, N.A. Helme & R.C. Turner

*Distribution*: WC. Ceres to Witteberg Mountains.

*Habitat*: Sandy or clay soil on flats below mountains.

*Rationale*: EOO < 3 600 km². Known from ± 10 locations but suspected to occur at 15–20 locations. Although it is abundant at one location, Pypsteelfontein (Waboomsberg), at the others it has been affected by agriculture and road construction. Agricultural expansion is causing a continuing decline.

**Rennera Merxm. emend. P.P.J.Herman**

**Rennera stellata** P.P.J.Herman

Status: VU D2
L. von Staden & P.P.J. Herman

*Distribution*: NC NW. Vryburg, Koopmansfontein and Potfontein.

*Habitat*: Seasonally waterlogged pans, unweathered calcrite rocks, full sun.

*Rationale*: Known from three locations. Potentially threatened by trampling by cattle as all three locations are on stock farms.

**Roodebergia B.Nord.**

**Schistostephiuem** Less.

**Schistostephiuem scandens** Hutch.

Status: DDD
P.F. Matlamela & D.A. Kamundii

*Distribution*: LM. Soutpansberg Mountains.

*Habitat*: Northern Mistbelt Forest.

*Rationale*: Known only from an old, written description. There are no specimens of this species in South African herbaria. Not enough is known about the distribution and current population status to determine its status.

**Senecio L.**

**Senecio albifolius** DC.

Status: Rare
D.A. Kamundi & D. Raimondo

*Distribution*: WC. Cederberg to Klein Swartberg Mountains.

*Habitat*: Rock ledges at high altitudes.

*Rationale*: A habitat specialist, known from four sub-populations with no recorded threats.
Senecio albo-punctatus Bolus

Status: DDD
D. Raimondo & R.C. Turner

Distribution: NC. Klipfontein, Namaqualand.

Habitat: Unknown, possibly occurs on rocky outcrops.

Rationale: Known from one site in a remote, poorly explored region. Last collected in 1930, but no threat information or habitat data are available. It may be sensitive to grazing.

Senecio austromontanus Hilliard

Status: Rare
C.R. Scott-Shaw & J.E. Victor

Distribution: EC KZN. Drakensberg Mountains, from Underberg to Elliot districts, also in Lesotho.

Habitat: Subalpine grassland. Seepages over rock sheets in damp grassland, 2 300–2 500 m.

Rationale: A high-altitude grassland endemic occurring in a localized habitat, not threatened.

Senecio brevilorus Hilliard

Status: Rare
D.A. Kamundi & D. Raimondo

Distribution: KZN. KwaZulu-Natal Drakensberg Mountains, between Giant’s Castle Game Reserve and the Underberg district.

Habitat: Among boulders on the edge of rocky streambeds, or on boulder beds in streams, sometimes submerged by floodwater, 2 100–2 440 m.

Rationale: A range-restricted habitat specialist (EOO 70 km²), known from two subpopulations. No recorded threats.

Senecio cicatricosus Sch.Bip.

Status: Rare
D.A. Kamundi & D. Raimondo

Distribution: NC. Hol River and Kleinsee.

Habitat: In cracks and under rocks and shrubs on steep quartzite slopes.

Rationale: Known from three collections. A rare habitat specialist with no recorded threats.

Senecio dregeanus DC.

Status: VU B1ab(iii)+2ab(iii)
L. von Staden

Distribution: KZN. KwaZulu-Natal Midlands and southern KwaZulu-Natal coastal areas, from Greytown to Umdoni Park.

Habitat: Open grasslands, often on sandstone plateaus but also recorded from moister mistbelt grassland, 0–1 200 m.

Rationale: EOO 6 880 km², AOO (based on remaining untransformed grasslands within the known range) < 1 500 km². It probably occurs at fewer than 10 locations, based on herbarium records and habitat maps. At least 67% of its grassland habitat has been transformed, and all remaining subpopulations are on small habitat fragments that are subject to ongoing degradation as a result of frequent fires, overgrazing, subsistence agriculture and the effects of fragmentation. Habitat loss has taken place over a period longer than three generations. Data on population size and trends are urgently needed.

Senecio eminens Compton

Status: DDD
J.E. Victor & R.C. Turner

Distribution: MP. Piet Retief to Mbabane (Swaziland).

Habitat: Grasslands.

Rationale: Last collected in 1949. It could be threatened as much of its grassland habitat has been transformed. Not enough is known about its distribution, specific habitat or current population status to determine its status.

Senecio exuberans R.A. Dyer

Status: EN B1ab(iii,iv)
L. von Staden, C.R. Scott-Shaw, P. Wragg & J.E. Victor

Distribution: KZN. Formerly around Pietermaritzburg, now restricted to Drummond.

Habitat: Sandstone grasslands, 800–1 000 m.

Rationale: Known from five or fewer locations, from a very small area (EOO < 200 km²). It is undergoing a continuing decline as a result of urban expansion, industrial development, invasion by alien plants and a deleterious fire regime. It has also lost habitat to crop cultivation and afforestation.

Senecio foeniculoides Harv.

Status: EN B1ab(iii)
D. Raimondo & R.C. Turner

Distribution: NC. Near the Orange River in the Northern Cape or Namibia.

Habitat: Unknown.

Rationale: Known only from the type specimen, which was collected at an unspecified locality in 1830. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Senecio gariepiensis Cron

Status: DDD
L. von Staden

Distribution: NC. Near the Orange River in the Northern Cape or Namibia.

Habitat: Unknown.

Rationale: Known only from the type specimen, which was collected at an unspecified locality in 1830. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Senecio hallianus G.D. Rowley

Status: Rare
D.A. Kamundi & D. Raimondo

Distribution: NC WC. Central Karoo, Loxton to Fraserburg.

Habitat: Rock clefts, 800–1 400 m.

Rationale: A habitat specialist recorded from two herbarium collections. It has no known threats.

Senecio hederiformis Cron

Status: Rare
P.J.D. Winter, G.V. Cron & J.E. Victor

Distribution: LM MP. Blouberg and Graskop.

Habitat: Cracks of quartzite rock faces in mistbelt.

Rationale: A habitat specialist occurring as naturally disjunct subpopulations. No significant threats.

Senecio hirtifolius DC.

Status: CR PE
D. Raimondo & R.C. Turner

Distribution: EC. Uitenhage, Swartkops River.

Habitat: Unknown, possibly riverbanks.

Rationale: Known from the type, collected in 1895. It has
not been recorded since and is probably extinct because the type area has now been almost completely transformed by urban expansion and crop cultivation.

**Senecio kalingenwae** Hilliard & B.L.Burtt

**Status:** Critically Rare  
**C.R. Scott-Shaw, D. Raimondo & R.C. Turner**

**Distribution:** KZN. Gxalingenwa Valley between Sani Pass and Polela Valley.

**Habitat:** Montane and subalpine grassland. In grass tussocks of moist rocky stream gullies, 2 000–2 500 m.

**Rationale:** Only one site known, it is locally common and not threatened.

**Senecio latissimifolius** S.Moore

**Status:** DDD  
**P.F. Matlamela & D.A. Kamundi†**

**Distribution:** MP. Pilgrim’s Rest.

**Habitat:** Unknown.

**Rationale:** Known only from the type, which was collected somewhere near Pilgrim’s Rest by Moore in 1918. Not enough is known about the distribution, specific habitat or population status of this species to determine its status, but it is potentially threatened by afforestation.

**Senecio lycopodioides** Schltr.

**Status:** VU B1ab(iii,v)  
**D. Raimondo & R.C. Turner**

**Distribution:** WC. Agulhas to De Hoop.

**Habitat:** Limestone rocks.

**Rationale:** Occurring between Agulhas and Still Bay (EOO < 2 900 km²), known from three locations, but is likely to exist at around 10 locations. It is threatened by invasive alien acacias throughout its range.

**Senecio mauricei** Hilliard & B.L.Burtt

**Status:** Rare  
**D.A. Kamundi† & D. Raimondo**

**Distribution:** KZN. KwaZulu-Natal Drakensberg Mountains.

**Habitat:** Grassy slopes below sandstone cliffs, 1 675–2 440 m.

**Rationale:** A range-restricted Drakensberg endemic (EOO < 100 km²), recorded from six subpopulations. No known threats.

**Senecio muriini** L.Bolus

**Status:** Rare  
**W.G. Welman, J.E. Victor & R.C. Turner**

**Distribution:** WC. Calitzdorp to Gourits River.

**Habitat:** Shale cliffs.

**Rationale:** A narrow habitat specialist known from six sites. Not threatened because of the inaccessibility of its habitat.

**Senecio ngoyanus** Hilliard

**Status:** VU B1ab(i,ii,iii,iv,v)  
**C.R. Scott-Shaw & L. von Staden**

**Distribution:** KZN. Formerly widespread along the coast of KwaZulu-Natal from Stanger northwards, now occurring only around St Lucia and Ngoye Forest. It also occurs in southern Mozambique.

**Habitat:** Coastal grassland, marshy depressions, sometimes on granite domes.

**Rationale:** Restricted to coastal grasslands of northern KwaZulu-Natal that have been extensively transformed. EOO has declined from 17 600 km² to 13 600 km², because of habitat loss in the southern end of the range. Extant at 6–9 locations, and there is a continuing decline in the habitat outside reserves as a result of small-scale subsistence agriculture and overgrazing.

**Senecio odontopterus** DC.

**Status:** DDD  
**P.F. Matlamela, D. Raimondo & D.A. Kamundi†**

**Distribution:** WC. Paarl Mountain.

**Habitat:** Rocky slopes.

**Rationale:** The only available species description is from *Flora capensis* in 1865. It is also known from two old herbarium collections on Paarl Mountain made before 1929. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Senecio saniensis** Hilliard & B.L.Burtt

**Status:** Rare  
**C.R. Scott-Shaw, J.E. Victor & R.C. Turner**

**Distribution:** KZN. Drakensberg Mountains, Loteni River to Sani Pass.

**Habitat:** Subalpine grassland, below moist basalt cliffs, 2 300–2 900 m.

**Rationale:** A rare Drakensberg species known from two sites in South Africa. Occurs in high-altitude areas and is not threatened.

**Senecio scaposus** DC. var. *addoensis* (Compton)

**G.D.Rowley**

**Status:** EN B1ab(iii)  
**J.E. Victor & W. Berrington**

**Distribution:** EC. Addo Elephant National Park and Port Elizabeth.

**Habitat:** Sandstone rocks.

**Rationale:** Restricted to an area of ≈ 200 km². Known from two locations. This taxon is declining as a result of trampling by people in the Baakens Valley in Port Elizabeth. It is not known whether it is declining at Addo Elephant National Park, nor whether it occurs at other locations nearby.

**Senecio serrurioides** Turcz.

**Status:** DDD  
**R.C. Turner, W.G. Welman & J.E. Victor**

**Distribution:** EC. Van Stadens Mountain.

**Habitat:** Sandstone slopes in grassland.

**Rationale:** The type was collected in 1830 in the Van Stadens Mountains and the species has not been recorded again. A record from the Kouga Mountains may represent this species, but this needs verification.

**Senecio speciosissimus** J.C.Manning & Goldblatt

**Status:** Rare  
**P.A. Manyama**

**Distribution:** WC. Bain’s Kloof to Kogelberg.

**Habitat:** Moist fynbos vegetation, in seepage areas or along streams, 600–1 500 m.

**Rationale:** A short-lived, postfire pioneer species known from two sites (EOO < 100 km²). In the past, it has lost habitat to afforestation but currently there are no threats that have an impact on it.

**Senecio triodontiphyllus** C.Jeffrey

**Status:** VU D2  
**M. Lötter, J.E. Burrows & L. von Staden**

**Distribution:** MP. Barberton to Kaapmuiden.

**Habitat:** Steep slopes in grasslands.
Senecio verbascifolius Burm.f.

Status: EN D
N.A. Helme, D. Raimondo & R.C. Turner

Distribution: WC. Cape Peninsula.
Habitat: Sheltered rocky slopes.
Rationale: Less than 250 plants are known from Table Mountain.

Senecio villifluctus Hilliard

Status: EN B1ab(iii)
C.R. Scott-Shaw, I.M. Johnson & L. von Staden

Distribution: KZN. Louwsburg.
Habitat: Mistbelt grassland, rocky, doleritic sites on mountain tops, 1 000–1 200 m.
Rationale: Known from a small area around the type locality (EOO 120 km²) where the population is partly protected within a nature reserve. The two subpopulations outside the reserve are threatened by a severe, continuing decline in habitat quality as a result of heavy overgrazing. Surveys in similar habitat on surrounding mountain tops have not located additional subpopulations, but if other locations exist, they are likely to be similarly threatened.

Senecio wittebergensis Compton

Status: DDD
R.C. Turner

Distribution: WC. Witteberg Mountains.
Habitat: Sandstone slopes in arid fynbos.
Rationale: Known from Compton’s collections in the early 1940s, close to Laingsburg. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Steirodiscus Less.

Steirodiscus gamolepis Bolus ex Schltr. Plate 49

Status: EN D
J.C. Manning, D. Raimondo & R.C. Turner

Distribution: WC. Tulbagh.
Habitat: Seasonally wet, lowland shales.
Rationale: Collected by J. Manning in the spring of 2006; only 100 plants were seen. Its seasonally wet, lowland habitat has been mostly lost to ploughing for vineyards and cereal crops in the past.

Steirodiscus linearilobus DC.

Status: DDD
P.F. Matlamela, D. Raimondo & D.A. Kamundii

Distribution: WC. Olifants River.
Habitat: Unknown.
Rationale: The only available species description is from Flora capensis in 1865, which notes Olifants River as the distribution of this species. There are no specimens in South African herbaria. This species is likely to be highly threatened as the Olifants River has been mostly transformed for agriculture.

Steirodiscus schlechteri Bolus ex Schltr.

Status: VU D2
N.A. Helme, D. Raimondo, P.P.J. Herman & J.E. Victor

Distribution: WC. Vanrhynsdorp.
Habitat: Sandy flats.
Rationale: Known from three locations and potentially threatened by crop cultivation and grazing by livestock.

Steirodiscus speciosus (Pillans) B.Nord.

Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
D. Raimondo & N.A. Helme

Distribution: WC. Malmesbury.
Habitat: Sandy flats.
Rationale: EOO < 5 000 km². Extinct at six of 13 locations because of urban expansion on the Cape Flats. It has also lost significant amounts of habitat to wheat cultivation. Extant subpopulations continue to decline as a result of further urban expansion and eutrophication from fertiliser runoff from surrounding crop fields and the subsequent invasion of habitat by invasive alien annual grasses and acacias. The only recent collecting location, Macassar, is heavily invaded by woody acacias and is continuously under pressure for the development of low-cost housing (20% of this location was lost in 2005).

Stoebe L.

Stoebe gomphrenoides (Lam.) P.J.Bergius

Status: EN B1ab(iii)
N.G. Bergh, F. Daniels & D. Raimondo

Distribution: WC. Malmesbury to Pella.
Habitat: Lowland sand plain fynbos.
Rationale: Known from a very restricted area (EOO 82 km²) from four locations. Declining as a result of severe infestations of invasive alien plants.

Stoebe montana Schltr. ex Levyns

Status: Rare
P.A. Manyama

Distribution: WC. Hex River Mountains.
Habitat: Table Mountain Sandstone rocks, 1 700–2 300 m.
Rationale: Known from three collections (EOO 120 km²). Not threatened as the habitat is inaccessible.

Stoebe muirii Levyns

Status: VU B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: WC. Still Bay to Bredasdorp.
Habitat: Coastal limestone ridges below 100 m.
Rationale: EOO 4 600 km². A habitat specialist extant at WC. Cape Peninsula. Not threatened as the habitat is inaccessible.

Stoebe rosea Wolley-Dod

Status: Rare
N.G. Bergh, D. Raimondo & F. Daniels

Distribution: WC. Cape Peninsula.
Habitat: South-facing slopes on Table Mountain Sandstone, 300–800 m.
ANGIOSPERMS: DICOTYLEDONS

ANGIOSPERMS: DICOTYLEDONS

**Stoebe rugulosa** Harv.

*Status:* EN B1ab(ii,iii,iv,v)

*Habitat:* Damp coastal flats.

*Rationale:* Declining because of coastal development and invasion by alien plants.

**Syncarpha DC.**

**Syncarpha chlorochrysum** (DC.) B.Nord.

*Status:* NT B1ab(ii,iii,iv,v)

*Habitat:* Limestone hills in fynbos.

*Rationale:* Known from fewer than 10 locations. Declining as a result of crop cultivation, coastal development and invasion by alien plants.

**Syncarpha dykei** (Bolus) B.Nord.

*Status:* Rare

*Habitat:* Permanent seepages on sandstone.

*Rationale:* A habitat specialist, known from fewer than 10 sites. It has lost habitat to forestry plantations and dam construction in the past, but these threats have ceased and no significant current or future threats are expected.

**Syncarpha lepidopodium** (Bolus) B.Nord.

*Status:* VU B1ab(ii,iii,iv,v)

*Habitat:* Dunes and sandy slopes.

*Rationale:* Known from fewer than 10 locations, from a restricted range (EOO 730 km²). Declining because of coastal development and invasive alien plants.

**Syncarpha montana** (B.Nord.) B.Nord.

*Status:* Rare

*Habitat:* Sandstone rocks on south-facing slopes, 1 200–1 830 m.

*Rationale:* A rare, high-altitude habitat specialist, known from five subpopulations, this species has no recorded threats.

**Syncarpha recurvata** (L.f.) B.Nord.

*Status:* EN B1ab(ii,iii,iv,v)

*Habitat:* Limestone hills in fynbos.

*Rationale:* Expected.

**Syncarpha sordescens** (DC.) B.Nord.

*Status:* Rare

*Habitat:* Sandstone rocks above 1 600 m.

*Rationale:* Confined to five sites on high-altitude summits, this species has no recorded threats.

**Syncarpha zeyheri** (Sond.) B.Nord.

*Status:* Rare

*Habitat:* Sandstone flats and slopes.

*Rationale:* A montane species known from eight sites. Not threatened as it occurs only within protected areas: Kogelberg Biosphere Reserve, Table Mountain National Park and Fernkloof Nature Reserve.

**Thaminophyllum Harv.**

**Thaminophyllum latifolium** Bond

*Status:* Rare

*Habitat:* South-facing, stony slopes and along streams.

*Rationale:* Known from three sites within a tiny range (EOO 11 km²). Occurs in two nature reserves above Hermanus and is not threatened.

**Thaminophyllum multiflorum** Harv.

*Status:* Rare

*Habitat:* Permanent seepages on sandstone.

*Rationale:* A habitat specialist, known from fewer than 10 sites. It has lost habitat to forestry plantations and dam construction in the past, but these threats have ceased and no significant current or future threats are expected.
Thaminophyllum mundii Harv.
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: WC. Kogelberg to Caledon Swartberg.
Habitat: Fynbos, damp sandstone slopes.
Rationale: Known from five locations, this species lost habitat to afforestation in the past and remains potentially threatened by invasive alien plants.

Trichogyne Less.

Trichogyne lerouxiae Beyers
Status: Rare
P.P.J. Herman & J.E. Victor
Distribution: NC. Namaqualand, Soebatsfontein and Kookfontein districts.
Habitat: Sandy soil, 150–250 m.
Rationale: Known from two sites within the Namaqua National Park. Not threatened.

Troglophyton Hilliard & B.L.Burtt

Troglophyton acocssianum Hilliard
Status: Rare
P.P.J. Herman & J.E. Victor
Distribution: NC. Akkerendam and Hantamsberg Mountain.
Habitat: Base of cliffs.
Rationale: A range-restricted habitat specialist (EOO < 60 km²), known from two sites and not threatened.

Troglophyton elsiae Hilliard
Status: Rare
D. Raimondo & R.C. Turner
Distribution: WC. Cederberg, Bokkeveld Tafelberg in Ceres district, and the Hex River Mountains.
Habitat: Damp, sheltered slopes under rock overhangs, 1 500–2 000 m.
Rationale: A habitat specialist known from fewer than 10 sites. Occurs as small, scattered subpopulations.

Ursinia Gaertn.

Ursinia caledonica (E.Phillips) Prassler
Status: VU B1ab(ii,iii)
R.C. Turner
Distribution: WC. Groot Drakenstein to Hottentots Holland Mountains.
Habitat: Damp sandstone slopes, often in seeps and marshes, above 600 m.
Rationale: A range-restricted species (EOO < 150 km²) known from six locations. There is a continuing decline in habitat as a result of invasive alien pines and forestry plantations.

Ursinia coronopifolia (Less.) N.E.Br.
Status: Rare
P.P.J. Herman, J.E. Victor & R.C. Turner
Habitat: Sandstone slopes above 600 m, near streams.
Rationale: A range-restricted habitat specialist (EOO 40 km²), known from four sites and not threatened.

Ursinia dregeana (DC.) N.E.Br.
Status: Rare
D.A. Kamundi & D. Raimondo
Distribution: NC WC. Bokkeveld Mountains to Gifberg.
Habitat: Sandstone pavement, 500–1 500 m.
Rationale: A range-restricted species (EOO 347 km²), known from four subpopulations. No recorded threats.

Ursinia filipes (E.Mey. ex DC.) N.E.Br.
Status: Rare
D.A. Kamundi & D. Raimondo
Distribution: WC. Hex River Mountains to Franschhoek.
Habitat: Sandstone slopes along streams, 610–1 065 m.
Rationale: A habitat specialist, recorded from seven subpopulations and not threatened.

Ursinia hispida (DC.) N.E.Br.
Status: VU D2
R.C. Turner
Distribution: WC. Swellendam to Riversdale.
Habitat: Sandstone slopes.
Rationale: A Langeberg endemic, occurring at five locations (EOO < 510 km², AOO < 20 km²). Potentially threatened by invasive alien pines and forestry plantations.

Ursinia merxmulleri Prassler
Status: Critically Rare
R.C. Turner & D. Raimondo
Distribution: WC. Bain’s Kloof to Hottentots Holland Mountains.
Habitat: Sandstone slopes.
Rationale: Known from one herbarium specimen from the Mostertshoek Twins, collected in 1961. Owing to the moist habitat of this species, it is unlikely to be affected by frequent fires, the only potential threat.

Ursinia oreogena Schltr. ex Prassler
Status: Rare
R.C. Turner
Distribution: WC. Bain’s Kloof to Hottentots Holland Mountains.
Habitat: Sandstone slopes.
Rationale: Occurs in at least four different mountain ranges and four subpopulations have been recorded. All known subpopulations are conserved within nature reserves.

Ursinia pygmaea DC.
Status: Rare
D. Raimondo, P.P.J. Herman & J.E. Victor
Distribution: NC WC. Vanrhynsdorp to Kamiesberg.
Habitat: Sandy flats or slopes.
Rationale: Known from fewer than 10 sites, occurs as small, sparse, disjunct subpopulations. Not threatened.

Ursinia subflorocula (DC.) Prassler
Status: EN B1ab(iii)
R.C. Turner & D. Raimondo
Distribution: WC. Clanwilliam and Vanrhynsdorp.
Habitat: Sandstone slopes and sandy soils.
Rationale: Known from four historical locations, probably extinct at one of them. EOO has contracted by at least 30% as a result of wheat and rooibos tea cultivation. One location is threatened by ongoing agricultural expansion. The generation length of this species is not known.

Vellereophyton Hilliard & B.L.Burtt

Vellereophyton felinum Hilliard
Status: Rare
P.P.J. Herman & J.E. Victor
Distribution: WC. Swartruggens.
Habitat: Arid fynbos in deep orange sand.

Rationale: Known from only one site but it is likely to be under-collected and to occur at a few more. Not threatened as the area is too arid for agriculture.

**Vellereophyton lasianthum** (Schltr. & Moeser) Hilliard

Status: **VU**
N.A. Helme & D. Raimondo

Distribution: WC. Klawer.
Habitat: Rocky sandstone slopes.

Rationale: Known from the type collection near Klawer made by Smith in 1926. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Vellereophyton pulvinatum** Hilliard

Status: **DD**
N.A. Helme & D. Raimondo

Distribution: WC. Klawer.

Habitat: Unknown.

Rationale: Known from the type collection near Klawer made by Smith in 1926. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Vernonia africana** (Sond.) Cass.

Status: **DD**
V.L. Williams, N.R. Crouch, T. McLellan & L. von Staden

Distribution: WC. Cape Peninsula to Hangklip.
Habitat: Dam sandstone slopes.

Rationale: A montane fynbos species known from six sites. Not threatened.

**Vernonia lasiantha** Zyrphelis Cass.

**Zyrphelis decumbens** (Schltr.) G.L.Nesom

Status: **Rare**
P.P.J. Herman & D. Raimondo

Distribution: WC. Bain's Kloof.
Habitat: Rocky sandstone slopes.

Rationale: A range-restricted species (EOO < 100 km²), known from two sites and not threatened.

**Zyrphelis montana** (Schltr.) G.L.Nesom

Status: **Rare**
N.A. Helme & D. Raimondo

Distribution: WC. Elandskloof to Wemmershoek Mountains.
Habitat: Rocky sandstone slopes.

Rationale: A range-restricted species (EOO < 300 km²), known from five collections and not threatened.

**Zyrphelis sp. nov.**
Voucher: Barker 10860 NBG

Status: **DD**
N.A. Helme & D. Raimondo

Distribution: WC. Bredasdorp.
Habitat: Rocky sandstone slopes.

Rationale: Known from two collections. One refers to a rocky area near Elim. A second collection was made in 1971, from the southern slopes of the Bredasdorp Mountains. It is likely that the Elim collection was from the same mountains and that this species is a Bredasdorp Mountains/Sicotuisberg endemic. It is potentially threatened by invading alien plants.

**Zyrphelis sp. nov.**
Voucher: Esterhuysen 33669 NBG

Status: **Rare**
N.A. Helme & D. Raimondo

Distribution: WC. Montagu to Keeromsberg and north to the Witteberg Mountains.
Habitat: Arid rocky sandstone slopes.

Rationale: A range-restricted species (EOO 181 km²) that is not threatened.

**Zyrphelis taxifolia** (L.) Nees

Status: **VU**
N.A. Helme & D. Raimondo

Distribution: WC. Cape Peninsula to Hangklip.
Habitat: Dam sandstone slopes.

Rationale: A range-restricted species (EOO < 100 km²), known from two sites and not threatened.

**Zyrphelis sp. nov.**

Status: **DD**
N.A. Helme & D. Raimondo

Distribution: WC. Klawer.
Habitat: Rocky sandstone slopes.

Rationale: A range-restricted species (EOO < 100 km²), known from two sites and not threatened.

**Zyrphelis sp. nov.**

Status: **DD**
N.A. Helme & D. Raimondo

Distribution: WC. Cape Peninsula to Hangklip.
Habitat: Dam sandstone slopes.

Rationale: A montane fynbos species known from six sites. Not threatened.

**Balanites Delile**

**Balanites maughamii** Sprague

Status: **Declining**

Distribution: KZN. Durban to Tongaat.
Habitat: Coastal grassland, 50–100 m.

Rationale: A montane species known from six collections. One refers to the type collection near the base of waterfalls in deep, moist, shaded sandstone gorges. A large amount of habitat has been lost in northern KwaZulu-Natal and, in the light of bark harvesting for the commercial medicinal plant trade and poor wound recovery, the species is declining and should be monitored.

**Balsaminaceae**

**Impatiens L.**

**Impatiens flanaganiae** Hemsl.

Status: **VU**
L. von Staden, J.E. Victor & E. Cloete

Distribution: EC KZN. Pondoland and southern KwaZulu-Natal.
Habitat: Scarp forest, in leaf litter among large boulders near the base of waterfalls in deep, moist, shaded sandstone gorges.

Rationale: Known from five locations and potentially threatened by harvesting for medicinal use, invasion by alien plants and extraction of water from river systems.

**Begonia L.**

**Begonia dregei** Otto & A.Dietr.

Status: **EN C2a(f)**
V.L. Williams, N.R. Crouch, T. McLellan & L. von Staden

Distribution: EC KZN. East London to Durban.
Habitat: Rocky cliffs, steep earth banks and among rocks in forest below 600 m.
**BEGONIACEAE** Begonia dregei

**ANGIOSPERMS: DICOTYLEDONS**

**Echiostachys**

- **Echiostachys incanus**
  - Status: EN B1ab(i,ii,iii,iv,v)
  - Distribution: WC. St Helena Bay to Somerset West.
  - Habitat: Seasonally damp sandy flats overlying clays.
  - Rationale: EOO 1 700 km². Known from six severely fragmented subpopulations with ongoing habitat loss to agriculture and urban development. Its habitat is also highly sensitive to invasion by woody and annual alien plants.

**Lobostemon**

- **Lobostemon belliformis** M.H.Buys
  - Status: CR A2c; D
  - Distribution: WC. Gourits River, Gouriqua.
  - Habitat: Sandstone koppies.
  - Rationale: A highly restricted species known from one small sandstone outcrop on the Riversdale Plain. Over 80% of its habitat has been lost to mining since 1980. There are only 22 extant plants. The site is not currently mined but this remains a potential threat. It appears to be a slow-growing species that escapes fire by growing on rocky outcrops and by having thick bark (generation length is estimated to be 40 years).

**Lobostemon collinus** Schltr. ex C.H.Wright

- Status: EN B1ab(i,ii,iii,iv,v)
  - Distribution: WC. Bredasdorp to Elim.
  - Habitat: Sandy coastal flats.
  - Rationale: EOO 2 760 km². Known from five locations. Ploughing of the habitat of this species for wheat and proteas has been severe in the past and is ongoing in the Bredasdorp region. It is also threatened by invasive alien plants, and around Elim it is threatened by the expansion of a road (the only subpopulation in the area occurs on a road verge).

**Lobostemon daltonii** M.H.Buys

- Status: EN B1ab(i,ii,iii,v) + 2ab(ii,iii,v)
  - Distribution: WC. Malgas to Cape Infanta.
  - Habitat: Fynbos-renosterveld ecotone in loamy soils.
  - Rationale: A highly range-restricted species (EOO 20 km²) known from four locations. Continuing declines as a result of agricultural expansion, development of holiday homes and severe infestations of invasive alien acacias.

**BIGNONIACEAE**

**Podrana** Sprague

- **Podrana ricasoliana** (Tanzani) Sprague
  - Status: VU D2
  - Distribution: EC. Port St Johns.
  - Habitat: Coastal forest margins on shales.

**BORAGINACEAE**

**Echiostachys** Levens

- **Echiostachys ecklonianus** (H.Buek) Levens
  - Status: EN B1ab(iii)
  - Distribution: WC. Somerset West, Elim flats to Bredasdorp.
  - Habitat: Fynbos, gravelly or sandy slopes, probably on seasonally wet soils.
  - Rationale: EOO 2 760 km². Known from five locations, all of which are experiencing severe invasion by alien plants.

- **Echiostachys incanus** (Thunb.) Levens
  - Status: VU A2ac; B1ab(ii,iii,iv,v)
  - Distribution: WC. Citrusdal to Gordon’s Bay.
  - Habitat: Seasonally damp clay flats, sometimes overlain by sands.
  - Rationale: EOO 14 900 km². This species grows in a very specialised habitat and subpopulations are typically isolated. Agriculture and urban development have led to high levels of habitat loss over the last decade and before, leaving current extant subpopulations on small isolated fragments. Based on the observed habitat loss over the past 10 years and the loss of known historical records from herbaria, we infer that there has been a 30% decline over the past 60 years. Generation length is suspected to be 20 years as the plants have large woody tubers. Loss to urban expansion and agriculture is ongoing.

- **Echiostachys spicatus** (Burm.f.) Levyns
  - Status: EN B1ab(ii,iii,iv,v)
  - Distribution: WC. Gourits River, Gouriqua.
  - Habitat: Sandstone koppies.
  - Rationale: A highly restricted species known from one small sandstone outcrop on the Riversdale Plain. Over 80% of its habitat has been lost to mining since 1980. There are only 22 extant plants. The site is not currently mined but this remains a potential threat. It appears to be a slow-growing species that escapes fire by growing on rocky outcrops and by having thick bark (generation length is estimated to be 40 years).
Lobostemon gracilis Levyns
Status: NT D2
M.H. Buys, N.A. Helme & D. Raimondo

Distribution: WC. Worcester to Robertson and Jonaskop.
Habitat: Transitional zones between montane fynbos and mountain renosterveld, mainly in disturbed habitats.
Rationale: Known from seven locations and potentially threatened by vineyard expansion.

Lobostemon hortentoticus Levyns
Status: EN B1ab(ii,iii,iv,v)
M.H. Buys, N.A. Helme, D. Raimondo & J.E. Victor

Distribution: WC. Somerset West to Gordon’s Bay.
Habitat: Stony lower slopes.
Rationale: A range-restricted species (EOO 195 km²), known from seven locations, three of which have been lost to urban development. This remains the main threat to this species but it is also threatened by expanding agriculture and invasion by alien plants.

Lobostemon lucidus (Lehm.) H.Buek
Status: VU B1ab(i,ii,iii,iv); C2a(i)
M.H. Buys, N.A. Helme & D. Raimondo

Distribution: WC. Agulhas to Potberg.
Habitat: Sandy soils, on transitions between sands and clays.
Rationale: EOO 1 067 km². Known from seven locations. This species grows in areas with high densities of invasive alien plants and aliens have been observed to affect subpopulations close to Napoleon and Bredasdorp. Grazing and trampling by livestock threaten populations around Napoleon and the species also has lost habitat to pasture cultivation throughout its range.

Lobostemon muirii Levyns
Status: Rare
M.H. Buys, N.A. Helme & D. Raimondo

Distribution: WC. Langeberg Mountains, between Pheasantfontein and Witboois River.
Habitat: Sandy, north-facing mountain slopes.
Rationale: A range-restricted Langeberg endemic (EOO < 500 km²) known from six sites. Not threatened.

Lobostemon regulareflorus (Ker Gawl.) M.H.Buys
Status: VU D2
M.H. Buys, N.A. Helme & D. Raimondo

Distribution: WC. Stellenbosch and Du Toit’s Kloof Mountains.
Habitat: Mainly in moist, shaded kloofs, but not directly in water.
Rationale: Known from fewer than five locations. It has lost habitat to vineyards and invading alien plants and they remain potential threats.

Lobostemon sanguineus Schltr.
Status: VU D1 + 2
M.H. Buys, N.A. Helme, D. Raimondo & F. Daniels

Distribution: WC. Bredasdorp.
Habitat: Confined to relatively sandy soils on slopes or hilltops.
Rationale: EOO 700 km². Known from four sites. It has lost habitat to agriculture. Potentially threatened by invading alien plants.

Heliophila L.

Heliophila affinis Sond.
Status: DDD
D. Raimondo & J.E. Victor

Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Granitic soils.
Rationale: A Kamiesberg endemic, last collected in 1941. May have been affected by overgrazing but we do not know the extent to which this annual species is vulnerable to grazing.

Heliophila arenaria Sond. var. agtertuinensis (O.E.Schulz) Marais
Status: DDD
D. Raimondo & R.C. Turner

Distribution: WC. Clanwilliam.
Habitat: Unknown.
Rationale: Known from three sites in the northern Olifants River Valley, last collected in 1941. No accurate habitat information is available. Likely to be severely threatened by citrus and rooibos tea cultivation.

Heliophila cedarbergensis Marais
Status: Rare
D. Raimondo

Distribution: WC. Cederberg.
Habitat: Sandstone ledges, 1 200–1 650 m.
Rationale: Known from three collections in the Central Cederberg (Wolberg, Langeberg and Tafelberg). Occurs in fire-protected habitats: sandstone ledges and rocks in shaded habitats.

Heliophila cinerea Marais
Status: Rare
J.E. Victor & R.C. Turner

Distribution: WC. Cape Peninsula.
Habitat: Sandy coastal slopes.
Rationale: Known from four sites on the southern tip of the Cape Peninsula. Well conserved within Table Mountain National Park.

Heliophila cornelssbergia B.J.Pienaar & Nicholas
Status: Rare
D. Raimondo

Distribution: NC. Richtersveld.
Habitat: Stony places in well-drained, clay loam soils.
Rationale: Endemic to peaks of the Richtersveld, known from one site. Not threatened because of the inaccessibility of its habitat.
Heliophila cuneata Marais
Status: Critically Rare
D. Raimondo
Distribution: WC. Jonkershoek Valley.
Habitat: Forest fringes on boulders.
Rationale: An extremely restricted distribution, known from one kloof in the Jonkershoek Valley. This area falls within a protected area and the species is not threatened.

Heliophila elata Sond.
Status: EN A2c
N.A. Helme & D. Raimondo
Distribution: NC. WC. Bokkeveld Mountains to Worcester.
Habitat: Sandy flats.
Rationale: Known only from one subpopulation, estimated by Bean (1990) to comprise 200 plants. Conservatively, we suspect that there are less than 1 000 plants.

Heliophila ephemera P.A.Bean
Status: VU D1
N.A. Helme & D. Raimondo
Distribution: WC. Swartberg Mountains.
Habitat: Montane fynbos on upper sandstone slopes.
Rationale: Known only from one subpopulation, estimated by Bean (1990) to comprise 200 plants. Conservatively, we suspect that there are less than 1 000 plants.

Heliophila filicaulis Marais
Status: VU D2
J.E. Victor & R.C. Turner
Distribution: WC. Hex River Mountains.
Habitat: Southern, southeastern and eastern aspects on rocky, upper slopes.
Rationale: EOO < 21 km². Known from two locations. Faces a potential threat from the combined effect of frequent fires and drought.

Heliophila katbergensis Marais
Status: DDD
D.A. Kamundi† & J.E. Victor
Distribution: EC. Katberg.
Habitat: Rocky slopes, 1 650–1 850 m.
Rationale: Known from one collection made from the top of Katberg by Hutchinson in 1928. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Heliophila leptophylla Schltr.
Status: VU D2
D. Raimondo
Distribution: WC. Vanrhynsdorp.
Habitat: Red sands.
Rationale: Known from the sandy soils associated with the Swart River on the Knersvlakte. Potentially threatened by agriculture (vineyards, onions and tomato cultivation).

Heliophila linearis (Thunb.) DC. var. reticulata (Eckl. & Zeyh.) Marais
Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Hawston to Still Bay.
Habitat: Coastal sands.
Rationale: EOO < 3 500 km². Known from eight locations, most of which are declining as a result of coastal development and invasive alien plants.

Heliophila promontorii Marais
Status: VU D2
D. Raimondo, N.A. Helme & D.A. Kamundí
Distribution: WC. Cape Peninsula.
Habitat: Sand dunes or sandy flats.
Rationale: A minimum of 30% of subpopulations have gone extinct as a result of urban expansion on the Cape Flats. The remaining subpopulations are within the Table Mountain National Park, but occur in areas with invasive alien plants. Constant management by the South African National Parks staff has halted decline of habitat, but should this management stop, declines will resume. Extant at three, possibly four locations.

Heliophila ramosissima O.E.Schulz
Status: DDD
J.E. Victor, L. Potter & R.C. Turner
Distribution: WC. Houwhoek Mountains.
Habitat: Unknown.
Rationale: Known only from old collections from the Hotentots Holland Mountains. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Heliophila rimbicola Marais
Status: Rare
J.E. Victor & R.C. Turner
Distribution: WC. Gamka Mountain, Seweweekspoort and Toweerkop.
Habitat: Moist crevices on rock faces, 1 800–2 100 m.
Rationale: A rare habitat specialist known from three subpopulations. The range suggests that additional subpopulations may exist, especially in the Groot Swartberg. Not threatened.

Heliophila schulzii Marais
Status: Rare
J.E. Victor
Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Sandy soil derived from granite.
Rationale: A range-restricted species (EOO < 500 km²). It can survive in slightly disturbed areas and is therefore not considered threatened.

Heliophila tabularis Wolley-Dod
Status: VU D2
D. Raimondo & R.C. Turner
Distribution: WC. Cape Peninsula.
Habitat: Sandstone mountain slopes.
Rationale: Last collected in 1970. There is one old collection with a vague location and one collection from Froggy Pond (near Simon’s Town). The latter subpopulation is potentially threatened by expansion of housing and by invading alien plants.

Heliophila tricuspidata Schltr.
Status: Rare
D. Raimondo & R.C. Turner
Distribution: WC. Riviersonderend and Hotentots Holland Mountains.
Habitat: Damp rock crevices.
Rationale: A range-restricted habitat specialist (EOO 420 km²) known from fewer than 10 sites, not threatened.
Lepidium L.

*Lepidium mossii* Thell.

Status: DDD
J.E. Victor & M.F. Pfäb

*Distribution*: FS G. Nancefield and Free State.

Habitat: Unknown.

Rationale: Known from two disjunct collections, one from Gauteng and another from the Free State. The subpopulation in Gauteng is probably extinct, while there are probably no serious threats to the subpopulation in the Free State. Not enough is known about the distribution, specific habitat or current population status of this species to determine its status.

Silicularia Compton

*S. polygaloides* (Schltr.) Marais

Status: Rare
D.A. Kamundi† & J.E. Victor

*Distribution*: WC. Kouebokkeveld and Swartruggens Mountains.

Habitat: Arid sandstone slope, 950–1 500 m.

Rationale: A range-restricted species (EOO < 500 km²), known from fewer than five subpopulations. No recorded threats.

Thlaspecarpus C.A.Sm.

*Thlaspecarpus namaquensis* Marais

Status: Rare
D. Raimondo

*Distribution*: NC. Steinkopf north to the Richtersveld.

Habitat: Quartzitic hillsides.

Rationale: Known from three collections. Not threatened because of the inaccessibility of its habitat.

BRUNIACEAE

Audouinia Brongn.

*Audouinia capitata* (L.) Brongn. *Plate 50*

Status: Rare
N.A. Helme, R.C. Turner & D. Raimondo

*Distribution*: WC. Cape Point to Caledon.

Habitat: Rocky flats and slopes.

Rationale: Occurs as widely scattered, small (often fewer than 10 individuals) subpopulations. At least 15 subpopulations are known. No recorded threats.

Berzelia Brongn.

*Berzelia cordifolia* Schltdl.

Status: VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
R.C. Turner

*Distribution*: WC. Potberg in the De Hoop Nature Reserve to the mouth of the Breede River at Cape Infanta.

Habitat: Sandstone and limestone slopes.

Rationale: EOO 150 km². Occurs at eight locations. Threatened by invading alien plants and coastal housing development.

Berzelia dregdna Colozza

Status: Rare
F. Daniels & R.C. Turner

*Distribution*: WC. Kogelberg to Betty’s Bay.

Habitat: Marshy sandstone slopes.

Rationale: A range-restricted species (EOO 210 km²), known from five sites. Well conserved in the Kogelberg Biosphere Reserve.

Berzelia ecklonii Pillans

Status: Rare
F. Daniels & R.C. Turner

*Distribution*: WC. Kogelberg to Betty’s Bay.

Habitat: Marshy sandstone slopes.

Rationale: A range-restricted species (EOO 210 km²), known from five sites. Well conserved in the Kogelberg Biosphere Reserve.

Berzelia galpinii Pillans

Status: Rare
R.C. Turner

*Distribution*: WC. Langeberg Mountains.

Habitat: Damp areas on upper, north-facing sandstone slopes.

Rationale: Frequently in extensive stands in high-altitude wetlands between Suurbraak Mountain and García's Pass, Langeberg Mountains, but still a range-restricted species (EOO 300 km²) known from fewer than 10 subpopulations. Not threatened.

Berzelia incurva Pillans

Status: VU B1ab(iii)
R.C. Turner

*Distribution*: WC. Babilonstoring to Stanford.

Habitat: Sandstone.

Rationale: EOO 80 km². Known from nine locations. Severely threatened by encroachment from invasive alien pines and hakeas in the Babilonstoring Mountains as well as in the Kleinrivier Mountains above Stanford.

Berzelia rubra Schltdl. *Plate 50*

Status: VU D2
R.C. Turner & D. Raimondo

*Distribution*: WC. Kleinrivier Mountains.

Habitat: Mainly seepage areas and streambanks.

Rationale: Known from four locations with an EOO < 10 km². Potentially threatened by encroachment from invasive aliens pines and hakeas.

Linconia L.

*Linconia alopecuroidea* L. *Plate 50*

Status: EN D
N.A. Helme & D. Raimondo

*Distribution*: WC. Langeberg to Gourits River.
Lonchostoma Wikstr.

Lonchostoma esterhuyseniae Strid

Status: EN D
R.C. Turner & D. Raimondo

Distribution: WC. Rivieronsderend Mountains.
Habitat: Wet sandstone rocks above 1 000 m.
Rationale: This species is known from only one subpopulation with less than 100 mature individuals.

Lonchostoma myrtoides (Vahl) Pillans

Status: VU D1
R.C. Turner & D. Raimondo

Distribution: WC. Ceres.
Habitat: Montane marshes.
Rationale: Known from four locations. The population consists of less than 1 000 mature individuals. It has lost 30% of the population to deciduous fruit cultivation.

Lonchostoma purpureum Pillans

Status: Rare
R.C. Turner & D. Raimondo

Distribution: WC. Bain’s Kloof to Kogelberg.
Habitat: Moist areas, often on or below shale bands or among rocks, ranging from summits to valleys and on various aspects, 1 60–2 000 m.
Rationale: A range-restricted species (EOO 305 km²), known from fewer than 10 subpopulations. Not threatened.

Mniothamnea Nied.

Mniothamnea bullata Schltr.

Status: CR D
N.A. Helme & D. Raimondo

Distribution: WC. Langeberg Mountains, Suurbraak to Lemoenshoek Peak.
Habitat: Steep, rocky, south-facing slopes at high altitudes, above 1 400 m.
Rationale: A very rare species known only from three high-altitude peaks. It is a slow-growing, reseeding species with tiny subpopulations (fewer than 10 plants in each). Potentially threatened by frequent fires.

Mniothamnea callunoides (Oliv.) Nied.

Status: VU D2
N.A. Helme & D. Raimondo

Distribution: WC. Langeberg Mountains.
Habitat: South-facing, peaty seepages above 700 m.
Rationale: Known from fewer than five locations and potentially threatened by invasive alien pines.

Nebelia Neck. ex Sweet

Nebelia laevis (E.Mey.) Kuntze

Status: VU D2
D. Raimondo & R.C. Turner

Distribution: WC. Riviersonderend Mountains.
Habitat: Rocky upper mountain slopes.
Rationale: A highly range-restricted species (EOO < 10 km²) known from two locations. Potentially threatened by invading alien pines and frequent fires.

Nebelia sphaerocephala (Sond.) Kuntze Plate 50

Status: Rare
D. Raimondo & R.C. Turner

Distribution: WC. Hottentots Holland, Wemmershoek and the Bain’s Kloof Mountains.
Habitat: Sandstone slopes, typically above 1 000 m.
Rationale: Localised to high alpine areas (EOO 200 km²), occurring in naturally disjunct subpopulations. No recorded threats.

Pseudobaeckea Nied.

Pseudobaeckea stokoei Pillans

Status: DDD
F. Daniels

Distribution: WC. Kleinrivier Mountains.
Habitat: Sandstone slopes near streams.
Rationale: Known from one collection, made in 1920. It has not been relocated despite occurring in a well explored area. Not enough is known about the current population status of this species to determine its status.

Raspalia Brongn.

Raspalia barnardi Pillans

Status: EN D
N.A. Helme & R.C. Turner

Distribution: WC. Langeberg, Goedgeloof Peak.
Habitat: Sandstone slopes, damp peaty soils at high altitudes, 2 000 m.
Rationale: Known from only one site and may have low numbers of individuals. R.C. Turner (Ericaceae and Bruniaceae expert) observed only five plants, but did not search extensively. We therefore suspect that there are less than 250 individuals.

Raspalia oblongifolia Pillans

Status: Rare
D.A. Kamundii & D. Raimondo

Distribution: WC. Waaibokkeveld and Hex River Mountains.
Habitat: Among rocks at high altitude, 1 200–1 900 m.
Rationale: A range-restricted species (EOO 210 km²), known from seven subpopulations. No known threats.

ANGIOSPERMS: DICOTYLEDONS
Staavia brownii Dummer
Status: Rare
N.A. Helme & J.E. Victor
Distribution: WC. Langeberg Mountains.
Habitat: Rocky streams and damp areas at high altitude.
Rationale: A range-restricted habitat specialist (EOO < 500 km²) known from only two subpopulations and not threatened.

Staavia glutinosa
Status: Rare
D. Raimondo, N.A. Helme & E. Marinus
Distribution: NC WC. Bokkeveld Mountains.
Habitat: Moist south-facing overhangs on sandstone plateaus, above 800 m.
Rationale: The known population consists of five plants. Moist, south-facing overhangs above 800 m within the range of this species are exceptionally rare, and it is highly unlikely that there are more than 250 individuals in the wild. Climate change could lead to the drying out of its moist habitat.

Staavia phylicoides Pillans
Status: EN D
D. Raimondo & E. Marinus
Distribution: WC. Cape Peninsula.
Habitat: Moist south-facing overhangs on sandstone slopes.
Rationale: Known from one site with a very small subpopulation, estimated to consist of less than 50 mature individuals.

Thamnea Sol. ex Brongn.

Thamnea depressa Oliv.
Status: EX
D. Raimondo & J.E. Victor
Distribution: WC. Witzenberg Mountains.
Habitat: Sandstone rocks, well-drained stony ridges at high altitudes.
Rationale: Known only from four subpopulations. No recorded threats.

Thamnea massoniana Dummer
Status: EN D
N.A. Helme & D. Raimondo
Distribution: WC. Du Toit’s Kloof to Hottentots Holland Mountains.
Habitat: Rocky outcrops.
Rationale: A very rare, resprouting alpine species that occurs only as tiny subpopulations, each consisting of 20 mature individuals. There are only six known subpopulations and it is highly unlikely that more than 20 subpopulations exist. We therefore suspect that there are less than 1 000 mature individuals in the population.
Thamnea thesioides Dummer
Status: Rare
D. Raimondo

Distribution: WC. Ceres district, Michell’s Pass and Mostertsloek Twins.
Habitat: Rocky summits at high altitudes.
Rationale: A range-restricted species (EOO < 500 km²), known from fewer than five subpopulations. No recorded threats.

Tittmannia Brongn.

Tittmannia esterhuysenii Powrie
Status: VU D2
D. Raimondo & R.C. Turner

Distribution: WC. Worcestere.
Habitat: Shale soil on south-facing slopes below sandstone cliffs.
Rationale: A rare montane resprouter, known from two locations. It may have very low numbers, but subpopulations have to be surveyed before this plant can be listed under Criterion D. There is a severe pine infestation close to one of the known subpopulations, posing a potential threat to this species.

Tittmannia laxa (Thunb.) C.Presl var.
langebergensis Pillans
Status: Rare
D. Raimondo

Distribution: WC. Langeberg Mountains near Montagu.
Habitat: Mountain summits.
Rationale: Known from three sites (EOO < 100 km²). This taxon naturally has very low abundance and typically only a handful of individuals are seen.

CAMPANULACEAE

Merciera A.DC.

Merciera azurea Schltr.
Status: EN B1a(b,ii,iii,iv,v)
D. Raimondo, C.N. Cupido & F. Daniels

Distribution: WC. Sir Lowry’s Pass to Bredasdorp.
Habitat: Sandy or stony soils, on low-altitude slopes, 100–650 m.
Rationale: EOO 2 600 km². This species has lost half of its eight historical locations to crop cultivation and urban development. The remaining four locations are threatened by ongoing expansion of coastal housing and invasion by alien plants.

Merciera brevifolia A.DC.
Status: EN B1a(b,ii,iii,iv,v)
D. Raimondo, C.N. Cupido & F. Daniels

Distribution: WC. Houwhoek to Caledon.
Habitat: Stony, sandy soils on sandstone.
Rationale: EOO 503 km². Possibly extant at five locations, most of which are threatened by invasive alien plants.

Merciera leptoloba A.DC.
Status: NT B1a(b,ii,iii,iv,v)
C.N. Cupido & F. Daniels

Distribution: WC. Kogelberg to Bredasdorp.
Habitat: Sandy or stony flats and hills derived from Table Mountain Sandstone.
Rationale: EOO 2 500 km². Known from 10–15 locations. Declining as a result of urban expansion, invasion by alien plants and crop cultivation.

Merciera tenuifolia (L.f.) A.DC. var.
tenuifolia
Status: VU D2
C.N. Cupido, F. Daniels & D. Raimondo

Distribution: WC. Kogelberg to Bot River.
Habitat: Fynbos, on sandstone, 110–600 m.
Rationale: EOO 125 km². Known from four extant subpopulations. This taxon has lost habitat to commercial forestry plantations in the past and faces potential threats from invasive alien plants and a deleterious fire regime.

Merciera tetraloba C.N.Cupido
Status: EN B1a(b,ii,iii,iv,v)
C.N. Cupido, D. Raimondo & F. Daniels

Distribution: WC. Malmesbury to Stellenbosch and Gordon’s Bay.
Habitat: Clay soils on shale, 60 m.
Rationale: EOO 2 547 km². Known from four extant subpopulations. It has lost large areas of habitat to urban expansion and viticulture. Subpopulations are highly fragmented and inadequately managed, with a continuing decline in habitat quality and habitat loss taking place as a result of ongoing urban development.

Prismatocarpus l’Hér.

Prismatocarpus altiflorus l’Hér.
Status: EN B1a(b,ii,iii,iv,v)
R.C. Turner & D. Raimondo

Distribution: WC. Cederberg and Kouebokkeveld Mountains.
Habitat: Sandy soils at low altitudes.
Rationale: EOO 1 800 km². Known from fewer than five locations. Historical locations in the Cederberg and Kouebokkeveld are from valley floors, which have been heavily affected by agriculture (orchards). Two locations in particular (Grootfontein and Onderboskloof) are likely to have been transformed over the past 25 years. Loss to crop cultivation is ongoing throughout its range.

Prismatocarpus campanuloides (L.f.) Sond. var.
dentatus Adamson
Status: DD
R.C. Turner & D.A. Kamundij

Distribution: WC. Rivieronderend Mountains near Genadendal.
Habitat: Unknown.
Rationale: Known from two very old collections from the Genadendal area, not collected for 80 years. Not enough is known about the distribution, habitat or population status of this taxon to determine its status.

Prismatocarpus cliffortioides Adamson
Status: EN B1a(b,ii,iii)
R.C. Turner

Distribution: WC. Langeberg Mountains.
Habitat: Stony areas, often shale slopes.
Rationale: EOO 40 km². Known from two locations. Declining because of agriculture, invasion by alien plants and burning for grazing.

Prismatocarpus cordifolius Adamson
Status: Rare
C.N. Cupido, J.E. Victor & R.C. Turner

Distribution: WC. Betty’s Bay.
Habitat: Seep areas close to streams.
Prismatocarpus decurrens Adamson
Status: VU D1 + 2
R.C. Turner & D. Raimondo
Distribution: WC. Cederberg Mountains. Status: VU D1 + 2
Habitat: Sandstone slopes above 1 000 m. Distribution: WC. Cederberg Mountains. Status: VU D1 + 2
Rationale: A high-alpine, range-restricted species (EOO 45 km²), occurring in 3–5 small subpopulations. We suspect that there are less than 1 000 individuals in the population. This species is a slow-growing reseeders potentially threatened by frequent fires.

Prismatocarpus implicatus Adamson
Status: DDD
D. Raimondo & R.C. Turner
Distribution: WC. Bredasdorp. Status: DDD
Rationale: Unknown.
Habitat: Ravens and steep mountain slopes.
Rationale: Known from four subpopulations but a few more likely in unexplored ravines within its range. A rare species restricted to a very specific habitat, but not threatened.

Prismatocarpus lycioides Adamson
Status: Rare
D. Raimondo & R.C. Turner
Distribution: WC. Langeberg Mountains. Status: Rare
Habitat: Sheltered sandstone crevices. Distribution: WC. Langeberg Mountains. Status: Rare
Rationale: Localised on two peaks of the Langeberg Mountains (EOO 70 km²). Not threatened.

Prismatocarpus spinosus Adamson
Status: Rare
C.N. Cupido, F. Daniels & D. Raimondo
Distribution: WC. hills near Worcester. Status: Rare
Habitat: Foothills of dry, north-facing sandstone slopes. Distribution: WC. hills near Worcester. Status: Rare
Rationale: Known from Hammanshoef near Worcester, but not collected over the last 60 years. Not enough is known about the current population status to determine its status. Parts of the Kouebokkeveld Mountains have burnt three times within the past 10 years and this could be causing a decline to the population.

Prismatocarpus lycopodioides A.DC. var. hispidus Adamson
Status: Rare
D.A. Kamundi & D. Raimondo
Distribution: WC. Wemmershoek Mountains. Status: Rare
Habitat: Sandstone slopes on sand between rocks. Distribution: WC. Wemmershoek Mountains. Status: Rare
Rationale: A range-restricted taxon (EOO < 10 km²) known from two subpopulations. No recorded threats.

Prismatocarpus pauciflorus Adamson
Status: VU D2
R.C. Turner
Distribution: WC. Northern Cederberg. Status: VU D2
Habitat: Sandstone slopes, on rocks, 1 000–1 300 m. Distribution: WC. Northern Cederberg. Status: VU D2
Rationale: Although this species occurs in the Cederberg Wilderness Area, there are only two known locations (EOO 64 km²) and it is potentially threatened by frequent fires and climate change.
Roella decurrens L'Hér.
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: WC. Cape Peninsula.
Habitat: Wooded slopes.
Rationale: Endemic to the eastern slopes of Table Mountain, known from fewer than five locations. Potentially threatened by a lack of fire and invasive alien plants.

Roella goodiana Adamson
Status: VU D2
W.G. Welman & J.E. Victor
Distribution: WC. Cape Peninsula, Klawer Valley near Simon’s Town.
Habitat: Sandy slopes, 200 m.
Rationale: Known only from one location and potentially threatened by invasive alien plants.

Roella latiloba A.DC.
Status: DDD
W.G. Welman & J.E. Victor
Distribution: WC. Clanwilliam and Bredasdorp.
Habitat: Low hills.
Rationale: Not collected since 1927, with a very strange disjunction between the only two known collections, one from Clanwilliam and the other from Bredasdorp.

Roella recurvata A.DC.
Status: Rare
N.A. Helme & D. Raimondo
Distribution: WC. Cape Peninsula, south of Steenberg.
Habitat: Sandy flats.
Rationale: Southern Peninsula endemic (EOO < 200 km²), known from fewer than five subpopulations, all within the Cape Point section of the Table Mountain National Park. Not threatened.

Wahlenbergia Schrad. ex Roth

Wahlenbergia adamsonii Lammers
Status: Rare
D. Raimondo
Distribution: WC. Pakhuis and Cederberg Mountains.
Habitat: Flat areas on sandstone slopes above 1 700 m.
Rationale: A range-restricted species (EOO 320 km²), known from two subpopulations. A high-altitude species with no known threats.

Wahlenbergia asparagoides (Adamson) Lammers
Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: NC WC. Olfants River to Hondeklip Bay.
Habitat: Sandveld in acid/alkaline sand ecotones.
Rationale: Southern Peninsula endemic (EOO < 2000 km²). Known from fewer than five locations. This sandveld endemic is threatened by mining of heavy-mineral sands at Brand-se-baai. A proposed mining expansion will destroy around 60% of known subpopulations. Substantial portions of habitat have already been destroyed by mining. This threat is ongoing.

Wahlenbergia brachycarpa Schltr.
Status: DDD
D. Raimondo
Distribution: WC. Pakhuis and Cederberg Mountains.
Habitat: Stony flats and slopes.
Rationale: Uncertainty exists about the correct assignment of sandveld collections from Redelinghuys and Bokwater by Acocks and Barker. If it did occur at these sites, this species qualifies for EN under Criterion B. However, if it is only from the Pakhuis Pass area, it should be listed as Rare. Until a revision is completed for this genus we cannot tell the exact range and therefore the threat status.

Wahlenbergia brachyphylla (Adamson) Lammers
Status: Rare
W.G. Welman & J.E. Victor
Distribution: WC. Langeberg Mountains.
Habitat: Kloofs at the foot of mountains.
Rationale: Known from one collection made over 70 years ago. More precise habitat and site information are needed to assess this species correctly.

Wahlenbergia buseriana Schltr. & Brehmer
Status: Rare
D. Raimondo & C.N. Cupido
Distribution: NC. Eksteenfontein.
Habitat: Sandveld in acid/alkaline sand ecotones.
Rationale: Southern Peninsula endemic (EOO < 500 km²). Known from two sites in mountainous areas without any apparent threats.

Wahlenbergia buseriana Schltr. & Brehmer
Status: Rare
D. Raimondo & C.N. Cupido
Distribution: NC. Eksteenfontein.
Habitat: Sandveld in acid/alkaline sand ecotones.
Rationale: Southern Peninsula endemic (EOO < 500 km²). Known from two sites in mountainous areas without any apparent threats.

Wahlenbergia buseriana Schltr. & Brehmer
Status: Rare
D. Raimondo & C.N. Cupido
Distribution: NC. Eksteenfontein.
Habitat: Sandveld in acid/alkaline sand ecotones.
Rationale: Southern Peninsula endemic (EOO < 500 km²). Known from two sites in mountainous areas without any apparent threats.
Habitat: Coastal thornveld and grassland, sandy soil, 30–200 m.
Rationale: EOO < 2 000 km². Four sites known but likely to occur at a few more. Although this species occurs on the coast, development of coastal towns within its range is unlikely to be spreading outwards at a fast enough rate to be of concern to this species; much habitat remains intact.

Wahlenbergia levynsiae Lammers
Status: EN B1ab(ii,iii)
D. Raimondo & C.N. Cupido
Distribution: WC. Agulhas to Still Bay.
Habitat: Limestone flats.
Rationale: Known from two locations. It has lost habitat to crop cultivation on the Agulhas Plain and continues to decline because of ongoing habitat loss and degradation as a result of invasion by alien plants and coastal development.

Wahlenbergia microphylla (Adamson) Lammers
Status: VU D2
D. Raimondo, C.N. Cupido & F. Daniels
Distribution: WC. Bontebok National Park.
Habitat: Sandy soils at low altitudes.
Rationale: Known from only one collection, collected over 50 years ago in the Bontebok National Park, which used to be on the Agulhas Plain. This area is no longer conserved as the park has been moved to an area near Swellendam. This species is potentially threatened by invasive alien plants.

Wahlenbergia minuta Brehm
Status: Rare
W.G. Welman & J.E. Victor
Distribution: NC.Namaqualand.
Habitat: Namaqualand Klipkoppe Shrubland.
Rationale: A range-restricted species (EOO 210 km²) that is not threatened.

Wahlenbergia namaquana Sond.
Status: DDD
C.N. Cupido, D. Raimondo & F. Daniels
Distribution: WC. Namaqualand, Kamiesberg.
Habitat: Sands at low altitudes.
Rationale: No collections of this species have been made for over 60 years. It may be threatened by overgrazing in some areas of the Kamiesberg that are communally owned, but more data are required for accurate assessment of this species.

Wahlenbergia oligantha Lammers
Status: DDD
D. Raimondo
Distribution: WC. Langeberg Mountains.
Habitat: Sandstone slopes.
Rationale: No collections made of this species for over 60 years. There is uncertainty whether a specimen from Albertinia is correctly assigned to this taxon. If so, it is threatened by agriculture. The genus is urgently in need of revision.

Wahlenbergia pilosa H.Huek
Status: DDD
D. Raimondo
Distribution: WC. Olifants River Valley.
Habitat: Sandy flats and slopes.
Rationale: Known from a few collections, some of which appear to be misidentified. If this species is restricted to sandy flats and slopes, as indicated in Goldblatt & Manning (2000), then it is likely to be threatened by agriculture. Until this genus is revised and the exact range and habitat described, this species will remain Data Deficient.

Wahlenbergia pinnata Compton
Status: NT* D2
C.R. Scott-Shaw & J.E. Victor
Distribution: KZN. Louwsburg and Forbes Reef (Swaziland).
Habitat: Mistbelt grassland.
Rationale: Known from one location in KwaZulu-Natal where it is potentially threatened by commercial afforestation. This subpopulation is not very isolated from the Swaziland subpopulations.

Wahlenbergia polyclada A.D.C.
Status: DDD
D. Raimondo, W.G. Welman & J.E. Victor
Distribution: WC. Kleinmond to Knysna.
Habitat: Sandy flats.
Rationale: Only two collections exist, both predating 1945. It occurs in sandy flats in areas where vineyard expansion is a threat. More collections are required for an accurate assessment of the range of this species and the threats it faces.

Wahlenbergia riversdalensis Lammers
Status: CR B1ab(iii)
A.L. Schutte-Vlok, J.H. Vlok & D. Raimondo
Distribution: WC. Langeberg, Garcia’s Pass.
Habitat: Sheltered sandstone slopes.
Rationale: EOO < 10 km². The only known location is heavily invaded by black wattles and pines, and this species continues to decline.

Wahlenbergia subulata (L’Hér.) Lammers var. congesta (Adamson) W.G.Welman
Status: VU B1ab(iii,iv,v)
D. Raimondo
Distribution: WC. Klawer.
Habitat: Coastal sands.
Rationale: Known from only one collection, collected 1945. It occurs in sandy flats in areas where vineyard expansion is a threat. More collections are required for an accurate assessment of the range of this species and the threats it faces.

Wahlenbergia subulata (L’Hér.) Lammers var. tenuifolia (Adamson) W.G.Welman
Status: DDD
D.A. Kamundi & D. Raimondo
Distribution: WC. Cape Infanta.
Habitat: On sand over limestone near the coast.
Rationale: Known from one location and potentially threatened by coastal development and invasive alien plants.

Wahlenbergia subulata (L’Hér.) Lammers var. pilosa A.D.C.
Status: DDD
D.A. Kamundi & D. Raimondo
Distribution: WC. Franschhoek Pass and Hawaqua Peak.
Habitat: Sandstone slopes.
Rationale: This taxon has not been collected since 1955. It may be naturally rare, but more collections are required to determine its distribution.
Wahlenbergia tetramera Thulin
Status: Rare
W.G. Welman & J.E. Victor

Distribution: KZN. Central Drakensberg Mountains.
Habitat: Basalt cliffs, subalpine grassland, 2 200 m.
Rationale: A habitat specialist, known from two sites and not threatened.

Wahlenbergia tumida Brehmer
Status: DDD
D. Raimondo, W.G. Welman & J.E. Victor

Distribution: NC. WC. Bokkeveld Escarpment and Vansynsdorp.
Habitat: Unknown.
Rationale: Known from two collections before 1954; no habitat information is known. If this species occurs in sandy soils it may be threatened by rooibos tea cultivation.

Wahlenbergia uitenhagensis (H.Buek) Lammers var. filifolia (Adamson) W.G.Welman
Status: Rare
J.E. Victor

Distribution: EC. Groot Winterhoek Mountains north of Uitenhage to near Grahamstown.
Habitat: Alluvial soils near rivers.
Rationale: A habitat specialist, known from five sites, most of which are from untransformed areas. It is not likely to be declining.

Wahlenbergia umbellata (Adamson) Lammers
Status: VU D2
W.G. Welman & J.E. Victor

Distribution: WC. Lambert’s Bay.
Habitat: Coastal sands.
Rationale: Known from one location and potentially threatened by housing developments and potato cultivation.

CANNELLACEAE

Warburgia Engl.

Warburgia salutaris (G.Bertol.) Chiov.
Status: EN A2acd
V.L. Williams, C.J. Geldenhuys, C.R. Scott-Shaw & J.E. Victor

Distribution: KZN LM MP. Northeastern KwaZulu-Natal, Mpumalanga and Limpopo Province. Also occurs in Swaziland, Mozambique, Zimbabwe and Malawi.
Habitat: Variable, including coastal, riverine, dune and montane forest as well as open woodland and thickets.
Rationale: There was been a 50% decline in the South African population because of excessive harvesting of bark for traditional medicine, especially in KwaZulu-Natal. While some healthy subpopulations exist in Mpumalanga and Limpopo, most subpopulations in the country have been targeted by bark harvesters. Extinctions and very low subpopulation numbers of less than 20 trees have been documented.

CAPARACEAE

Cleome L.

Cleome conrathii Burtt Davy
Status: NT D2
M.F. Pfahl, J.E. Victor, A. de Castro & P.J.D. Winter

Distribution: GC NW. Kuruman to Pretoria.

Habitat: Stony quartzite slopes, usually in red sandy soil, grassland or deciduous woodland, all aspects.
Rationale: Known from eight locations and potentially threatened by urban expansion, invasive alien plants, a deleterious fire regime, overgrazing, trampling and erosion.

Cleome schlechteri Briq.
Status: DDD
J.E. Victor & M. Lötter

Distribution: KZN MP. Komatipoort and Mkuze.
Habitat: Heavy clay soils.
Rationale: Distribution is poorly known. It has been recorded only at Komatipoort and Mkuze, but is likely to occur in Swaziland and Mozambique. Until there are more collections, it cannot be adequately assessed.

CARYOPHYLLACEAE

Herniaria L.

Herniaria grimmii Herm.
Status: DDD
D. Raimondo

Distribution: EC. Witteberge near Barkly East.
Habitat: Unknown.
Rationale: Known from one old herbarium specimen collected in 1904. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

CELASTRACEAE

Elaeodendron Jacq.

Elaeodendron croceum (Thunb.) DC.
Status: Declining
C.J. Geldenhuys & J.E. Victor

Distribution: EC KZN LM MP. From Knysna through the Eastern Cape and KwaZulu-Natal northwards along the Mpumalanga and Limpopo Drakensberg Escarpment. Also in Zimbabwe.
Habitat: Margins of coastal and montane forests.
Rationale: Although widespread (EOO 852 000 km²) and known from more than 150 sites, it is heavily targeted for the medicinal plant trade and continues to decline, especially in the Eastern Cape and KwaZulu-Natal.

Elaeodendron transvaalense (Burtt Davy) R.H.Archer
Status: NT A4ad

Distribution: KZN LM MP NW. Widespread in southern Africa, including Angola, Namibia, Botswana, Zambia, Zimbabwe, Swaziland and Mozambique. In South Africa it is restricted to eastern, summer-rainfall areas from the KwaZulu-Natal coast northwards through eastern Mpumalanga into Limpopo and North West Provinces.
Habitat: Savanna or bushveld, from open woodland to thickets, often on termite mounds.
Rationale: A very popular species on the muthi markets and heavy exploitation and subpopulation declines have been observed. Over-exploitation would probably continue and the species is further threatened by poor wound recovery after bark-stripping. It is likely to experience a 20% decline over a moving window of 180 years (110 years in the past and 70 years into the future) (generation length suspected to be a minimum of 60 years).
Gymnosporia (Wight & Arn.) Hook.f.

Gymnosporia bachmannii Loes.
Status: VU D2
L. von Staden & A.T.D. Abbott
Distribution: EC KZN. Oribi Gorge to Port St Johns.
Habitat: Pondoland scarp forest, along streambanks on sandstone, rocky banks of streams and rivers, often on islands in larger rivers.
Rationale: A range-restricted endemic to the Pondoland region, rare and found in a highly restricted habitat along streambanks (AOO < 20 km²). Potentially threatened by invading alien plants.

Gymnosporia devenishii Jordaan Plate 52
Status: Rare
J.E. Victor & A.E. van Wyk
Distribution: EC KZN MP. Roossenekal to Strydpoort Mountains.
Habitat: Coastal plains.
Rationale: EOO 2 300 km². Known from fewer than 10 locations. Declining as a result of agriculture, commercial forestry plantations and urban expansion.

Gymnosporia elliptica (Thunb.) Schönland
Status: VU B1ab(ii,iii,iv,v)
D. Raimondo & R.C. Turner
Distribution: EC Humansdorp to Port Elizabeth.
Habitat: Coastal plains.
Rationale: EOO 2 300 km². Known from fewer than 10 locations. Declining as a result of agriculture, commercial forestry plantations and urban expansion.

Gymnosporia oxycarpa (N.Robson) Jordaan
Status: Rare
P.A. Manyama
Distribution: LM. Northern Kruger National Park, southern Zimbabwe and possibly eastern Mozambique.
Habitat: Sandveld.
Rationale: Known from fewer than five subpopulations in South Africa, where it is restricted to occurring on the border of Mozambique and Zimbabwe (national EOO < 200 km²).

Gymnosporia vanwykii (R.H.Archer) M.Jordaan
Status: NT B1ab(ii,iii,v)
L. von Staden
Distribution: EC KZN. Pondoland endemic, Umtamvuna River to Magwa Falls.
Habitat: Pondoland Coastal Grasslands, Msikaba Formation Sandstone.
Rationale: EOO 495 km². It has 8–15 locations. This species has lost 20–30% of its habitat over the last 100 years, representing one or two generations of this long-lived resprouter, mainly because of commercial and subsistence crop cultivation, overgrazing and too frequent fires. Decline is continuing.

Lydenburgia cassinoides N.Robson
Status: NT B1ab(ii,iii,v); C2a(i)
S.J. Siebert, I.J. van der Merwe, T. Stehle & J.E. Victor
Distribution: LM MP. Roossenekal to Strydpoort Mountains.
Habitat: Exposed norite bedrock and dolomite.
Rationale: EOO < 2 500 km². Declining because of habitat degradation and harvesting. However, there are still more than 10 locations and subpopulations are not severely fragmented.

Maytenus Molina
Maytenus abbottii A.E.van Wyk Plate 52
Status: EN B1ab(iii,v) + 2ab(iii,v); C2a(i)
Distribution: EC KZN. Oribi Gorge to Port St Johns.
Habitat: Pondoland scarp forest, along streambanks on sandstone, 300–400 m.
Rationale: Formerly widespread in KwaZulu-Natal and the Pondoland region but now very rare, with only eight small, isolated subpopulations known in Pondoland forests. There is a continuing decline in the number of mature individuals and habitat quality at two known subpopulations in southern KwaZulu-Natal as a result of firewood harvesting. The current EOO is 2 200 km². There are 6–10 known locations, and subpopulations (consisting of ± 10 mature individuals each) are severely fragmented. The total population is estimated to be less than 1 000 mature individuals.

Maytenus oleosa A.E.van Wyk & R.H.Archer Plate 52
Status: Rare
L. von Staden & A.T.D. Abbott
Distribution: EC KZN. Umtamvuna River to Msikaba River.
Habitat: Pondoland scarp forest, restricted to Msikaba Formation Sandstone, on rocky riverbanks, always over-hanging water, 200–500 m.

Rationale: A range-restricted habitat specialist, locally common in a few river gorges. It has no serious threats because of the inaccessibility of its habitat.

Pseudosalacia Codd

Pseudosalacia streyi Codd

Status: EN B1ab(iii,v); C2a(i)

L. von Staden & A.T.D. Abbott

Distribution: EC KZN. Pondoland, Izotsha River to Mtentu River.

Habitat: Scarp forest on sandstone along rocky stream-banks in river gorges, sometimes extending to forest margins, 50–200 m.

Rationale: A rare tree found in only a small area within Pondoland (EOO 500 km²), where it occurs in isolated clumps within a highly specialised habitat. Known from nine subpopulations, but a few more may exist in unexplored river gorges. Subpopulations are small, consisting of no more than 60 mature individuals, and are severely fragmented. The total population is estimated to be 540–1 000 mature individuals. There is a continuing decline in at least two subpopulations as a result of harvesting of wood for fuel and building materials and a deleterious fire regime. It is likely that other subpopulations are also declining, especially those that extend to forest margins. A lack of recruitment is of concern.

Pterocelastrus Meisn.

Pterocelastrus rostratus (Thunb.) Walp.

Status: Declining


Distribution: EC KZN LM MP WC. Cape Peninsula through the Eastern Cape to Limpopo Province and Swaziland.

Habitat: Forest and montane scrub in forest margins and on mountainsides.

Rationale: Some notable declines in Mpumalanga as a result of ring-barking for the medicinal plant trade, but it does not appear to be severely affected in the rest of its South African range.

Putterlickia Endl.

Putterlickia retrospinosa A.E.van Wyk & Mostert

Status: NT B1ab(iii)

L. von Staden & A.T.D. Abbott

Distribution: EC KZN. Oribi Gorge to Ntsubane.

Habitat: Pondoland scarp forest, restricted to rocky areas along upper margins of forests above the deep river gorges.

Rationale: A range-restricted Pondoland endemic (EOO 1 900 km²), known from more than 10 locations. There is a continuing decline in the quality and extent of the habitat outside reserves as a result of the impact of frequent and intense grassland fires on forest margins. Within protected areas the species is common and subpopulations are not severely fragmented.

COMBRETACEAE

Combretum Loefl.

Combretum mkuzense J.D.Carr & Retief

Status: NT B1ab(i,iii,iv,v)

J.E. Victor & A.E. van Wyk

Distribution: KZN. Northern KwaZulu-Natal, Maputaland, eastern foothills of the Lebombo Mountains and Mozambique.

Habitat: Closed woodland savanna and sand forest.

Rationale: EOO within South Africa is 6 700 km². It is known from 12 locations. Declining as a result of clearing for subsistence crop cultivation and firewood extraction.

Combretum petrophilum Retief

Status: Rare

M. Lötter, D. McMurtry & D. Raimondo

Distribution: LM MP. Waterberg, Strypdoort Mountains, Loskop Dam and Mpumalanga Drakensberg Mountains.

Habitat: Rocky outcrops in mountain bushveld.

Rationale: A habitat specialist known from fewer than 10 subpopulations, most of which occur in inaccessible habitats and are not threatened.

CONVOLVULACEAE

Cuscuta L.

Cuscuta bifurcata Yunck.

Status: DDD

D. Raimondo

Distribution: EC WC. Kouebokkeveld and Port Elizabeth.

Habitat: Unknown.

Rationale: Last collected in 1909. The only two collections of this species have a very unusual disjunction of over 650 km. This species is too poorly known to be assessed.

Cuscuta gerrardii Baker

Status: DDD

W.G. Welman & J.E. Victor

Distribution: EC. KwaZulu-Natal, Umzinto and Entumeni.

Habitat: Unknown.

Rationale: Known from three collections made before 1915 in KwaZulu-Natal, in areas that are either transformed for agriculture or are currently communal areas that have been severely degraded by grazing cattle. The habitat of this species is not known and as a whole it remains too poorly known to allocate a threat status.

Ipomoea L.

Ipomoea bisavium A.Meeuse

Status: Rare

P.A. Manyama

Distribution: LM. Soutpansberg Mountains.

Habitat: Quartzitic soils, growing among shrubs.

Rationale: A range-restricted species (EOO 50 km²), known from three subpopulations. Not threatened because of the rocky nature of its habitat.

Merremia Dennst.

Merremia malvaefolia Rendle

Status: DDD

W.G. Welman & J.E. Victor

Distribution: EC. Albany, Bathurst and Somerset East.

Habitat: Unknown.

Rationale: Known from old herbarium collections and not collected for the past 70 years. Its habitat is unknown and the species can therefore not be assigned a threat status.
Plate 55

Tylecodon cordiformis Critically Rare

Tylecodon frogfis EN

Tylecodon leucothrix Rare

Tylecodon viridiflorus Rare

Tylecodon buchholzianus subsp. fasciculatus Rare

Tylecodon soltse VU
ANGIOSPERMS: DICOTYLEDONS

CORNACEAE

Curtisia Aiton

*f Curtisia dentata* (Burm.f.) C.A.Sm.

Status: NT A2d

Distribution: EC FS KZN LM MP. Cape Peninsula to the Zimbabwe/Mozambique highlands.

Habitat: Evergreen forest from coast to 1 800 m.

Rationale: The species has been exploited over most of its South African range as a result of timber extraction and bark harvesting for the traditional medicine trade. The decline to the population over the last 120 years is estimated to exceed 20% (generation length estimated to be 40 years). Further declines are anticipated in the future because of the popularity of the species in the traditional medicine trade. Recent trends show that bark collectors have shifted their harvesting activities to Mpu-malanga because of its scarcity in KwaZulu-Natal.

CRASSULACEAE

Adromischus Lem.

*Adromischus bicolor* Hutchison

Status: Rare
E.J. van Jaarsveld, N.A. Helme & P.G. Desmet, E.J. van Jaarsveld & P.M. Burgoyne

Distribution: NC. Vioolsdrif to Pofadder.

Habitat: Quartzite inselbergs on south-facing aspects or steep, inaccessible cliff faces.

Rationale: Known from fewer than five sites in the mountains of the Richtersveld. A rare, habitat specialist that has no recorded threats.

Adromischus fallax Toelken

Status: Rare
P. Bruyns & D. Raimondo

Distribution: EC. Graaff-Reinet district.

Habitat: Rock faces at high altitude.

Rationale: Known from two sites, likely to occur at a few more. A rare, range-restricted habitat specialist (EOO < 20 km²) that is not threatened.

Adromischus humilis (Marloth) Poelln.

Status: Rare
J.E. Victor & N.A. Helme

Distribution: WC. Nuweveld Mountains near Beaufort West, north of Laingsburg at Klipfontein, and at Oukloof Pass near Fraserburg.

Habitat: Rock crevices.

Rationale: Restricted to rock crevices in mountains in the central Karoo, known from four sites, but it is likely that undiscovered populations exist.

Adromischus liebenbergii Hutchison subsp. orientalis Van Jaarsv.

Status: Rare
L. von Staden

Distribution: EC. Lower reaches of the Mbashe River.

Habitat: Rock crevices on north-facing, exposed Ecca shale cliffs. Surrounding vegetation consists of a mosaic of thicket and subtropical shrub forest, below 300 m.

Rationale: EOO 80–290 km². Locally abundant. Occurs on sheer cliff faces where it is safe from threat.

Adromischus mammillaris (L.f.) Lem.

Status: EN B1ab(iii)
D. Raimondo & J.H. Vlok

Distribution: WC. Calitzdorp to Montagu.

Habitat: Grows on lower gravelly slopes.

Rationale: EOO 500 km². Known from only two locations, this species has not been recorded in the Calitzdorp area, the type locality, for some time and may be extinct here because of severe degradation of its habitat by ostriches.

Adromischus marianiae (Marloth) A.Berger var. hallii (Hutchison) Toelken

Status: Rare
D. Raimondo

Distribution: NC. Mountains north and south of the Orange River.

Habitat: Sandy pockets in rocks, associated with quartz, near the coast.

Rationale: A habitat specialist, currently recorded from three sites and not threatened.
Adromischus maximus Hutchison

Status: Rare
N.A. Helme & J.E. Victor

Distribution: WC. Gilberg to Klaver and Doringbos.
Habitat: Dry rocky sandstone cliffs.
Rationale: A habitat specialist known from fewer than 10 subpopulations and not threatened.

Adromischus phillipsiae (Marloth) Poelln.

Status: Rare
J.E. Victor, P.G. Desmet, P. Bruyns & P.M. Burgoyne

Distribution: NC WC. Roggeveld Mountains to Kamiesberg.
Habitat: Sheltered rock crevices in loam soil.
Rationale: Previously considered to be a Roggeveld endemic. A subpopulation was recently found in the Kamiesberg. It is never common and occurs as small subpopulations. No known threats.

Adromischus umbraticola C.A.Sm. subsp. umbraticola

Status: NT B1ab(ii,iii,v)
N.A. Helme & D. Raimondo

Distribution: G NW. Potchefstroom and Zeerust to Cullinan.
Habitat: South-facing rock crevices on ridges, restricted to Gold Reef Mountain Bushveld in the northern parts of its range, and Andesite Mountain Bushveld in the south.
Rationale: EOO 14 600 km². Known from 14 locations. The rocky ridges where this taxon grows are increasingly under threat from urban expansion within Gauteng.

Cotyledon tomentosa Harv. subsp. tomentosa

Status: VU D1+2
J.H. Vlok & D. Raimondo

Distribution: EC WC. Ladismith to Steytlerville.
Habitat: Arid thicket, on lower, gravelly slopes in sheltered ravines.
Rationale: Known from one site in one ravine, where there are a few hundred plants. Potentially threatened by invading alien plants, collecting for the specialist succulent horticultural trade.

Crassula alpustris Thunb. subsp. massonii (Britten & Baker f.) Toelken

Status: Rare
D. Raimondo & N.A. Helme

Distribution: WC. Holgat River to Saldanha.
Habitat: Grows on sandy or gravelly slopes.
Rationale: Known from three disjunct sites and not threatened.
<table>
<thead>
<tr>
<th>Species</th>
<th>Distribution</th>
<th>Habitat</th>
<th>Status</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Crassula arborescens</em> (Mill.) Willd. subsp. undulatifolia Toelken</td>
<td>EC. Klein Winterhoek Mountains.</td>
<td>Lower rocky slopes in sheltered ravines.</td>
<td>Critically Rare</td>
<td>A northernNamaqualand endemic that occurs in specialised rocky habitats and has no significant threats. Currently known from five subpopulations, but we suspect that more are likely to exist in unexplored areas of its range.</td>
</tr>
<tr>
<td><em>Crassula cremnophila</em> Van Jaarsv. &amp; A.E.van Wyk</td>
<td>EC. Baviaanskloof and Kouga River.</td>
<td>Shade in crevices of vertical cliff faces, usually on eastern and southern aspects, 100–700 m.</td>
<td>Rare</td>
<td>A range-restricted species (EOO &lt; 500 km²), known from two subpopulations. Not threatened because of the inaccessibility of its habitat to livestock.</td>
</tr>
<tr>
<td><em>Crassula badspoortense</em> Van Jaarsv.</td>
<td>WC. Badspoort, south of Calitzdorp.</td>
<td>Quartzitic sandstone cliffs, 300–500 m.</td>
<td>Rare</td>
<td>A range-restricted species (EOO &lt; 500 km²), not threatened because of its habitat being inaccessible to livestock.</td>
</tr>
<tr>
<td><em>Crassula bergioides</em> Harv.</td>
<td>WC. Ceres to De Hoop.</td>
<td>Open space on gravelly slopes.</td>
<td>Rare</td>
<td>A range-restricted species (EOO &lt; 500 km²) that has no threats.</td>
</tr>
<tr>
<td><em>Crassula brachystachya</em> Toelken</td>
<td>WC. Witteberg and Swartberg Mountains.</td>
<td>Moist, shaded crevices on rock faces in ravines.</td>
<td>Rare</td>
<td>A range-restricted habitat specialist (EOO &lt; 500 km²) that has no threats.</td>
</tr>
<tr>
<td><em>Crassula brevifolia</em> Harv. subsp. psammophila Toelken</td>
<td>NC. Grootmis to the Orange River.</td>
<td>Rocky soils close to the coast.</td>
<td>Rare</td>
<td>A range-restricted species (EOO &lt; 500 km²), not threatened because of its habitat being inaccessible to livestock.</td>
</tr>
<tr>
<td><em>Crassula capensis</em> (L.) Baill. var. <em>promontorii</em> (Schönland &amp; Baker f.) Toelken</td>
<td>NC. Grootmis to near Bredasdorp.</td>
<td>Shaded places under rocks or in rock basins.</td>
<td>Rare</td>
<td>A range-restricted species (EOO &lt; 500 km²), not threatened because of the inaccessibility of its habitat.</td>
</tr>
<tr>
<td><em>Crassula columnella</em> Marloth &amp; Schönland</td>
<td>WC. Ceres to near Bredasdorp.</td>
<td>Shaded places under rocks or in rock basins.</td>
<td>Rare</td>
<td>A northernNamaqualand endemic that occurs in specialised rocky habitats and has no significant threats. Currently known from five subpopulations, but we suspect that more are likely to exist in unexplored areas of its range.</td>
</tr>
<tr>
<td><em>Crassula columella</em> Marloth &amp; Schönland</td>
<td>WC. Clanwilliam to near Bredasdorp.</td>
<td>Saline salt marshes, usually along the coast.</td>
<td>Rare</td>
<td>A range-restricted species (EOO &lt; 500 km²), not threatened because of the inaccessibility of its habitat.</td>
</tr>
<tr>
<td><em>Crassula decumbens</em> Thumb. var. <em>brachyphylla</em> (Adamson) Toelken</td>
<td>WC. Northern Cederberg.</td>
<td>Shaded places under rocks or in rock basins.</td>
<td>Rare</td>
<td>A northernNamaqualand endemic that occurs in specialised rocky habitats and has no significant threats. Currently known from five subpopulations, but we suspect that more are likely to exist in unexplored areas of its range.</td>
</tr>
<tr>
<td><em>Crassula elsieae</em> Toelken</td>
<td>NC. Steinkopf.</td>
<td>Shaded places under rocks or in rock basins.</td>
<td>Rare</td>
<td>A northernNamaqualand endemic that occurs in specialised rocky habitats and has no significant threats. Currently known from five subpopulations, but we suspect that more are likely to exist in unexplored areas of its range.</td>
</tr>
<tr>
<td><em>Crassula exilis</em> Harv. subsp. <em>exilis</em></td>
<td>NC. Steinkopf.</td>
<td>Sheltered rock crevices, often under overhanging rocks, usually on southern or southwestern aspect of mountains.</td>
<td>Rare</td>
<td>A northernNamaqualand endemic that occurs in specialised rocky habitats and has no significant threats. Currently known from five subpopulations, but we suspect that more are likely to exist in unexplored areas of its range.</td>
</tr>
</tbody>
</table>

**Habitat:**
- Sheltered rock crevices, typically on the southwestern aspect of low hills.
- Moist places in sheltered ravines or in the shade of overhanging rocks, 700–1 000 m.
- Open space on gravelly slopes.
- Moist, shaded crevices on rock faces in ravines.
- Open space on gravelly slopes.
- Moist rocks close to the coast.
- Moist places in sheltered ravines or in the shade of overhanging rocks, 700–1 000 m.
- Open space on gravelly slopes.
- Moist, shaded crevices on rock faces in ravines.
- Open space on gravelly slopes.
- Moist rocks close to the coast.
- Moist places in sheltered ravines or in the shade of overhanging rocks, 700–1 000 m.
- Open space on gravelly slopes.
- Moist, shaded crevices on rock faces in ravines.
- Open space on gravelly slopes.
- Moist rocks close to the coast.
- Moist places in sheltered ravines or in the shade of overhanging rocks, 700–1 000 m.
- Open space on gravelly slopes.
- Moist, shaded crevices on rock faces in ravines.
- Open space on gravelly slopes.
- Moist rocks close to the coast.
- Moist places in sheltered ravines or in the shade of overhanging rocks, 700–1 000 m.
- Open space on gravelly slopes.
- Moist, shaded crevices on rock faces in ravines.
- Open space on gravelly slopes.
- Moist rocks close to the coast.
- Moist places in sheltered ravines or in the shade of overhanging rocks, 700–1 000 m.
- Open space on gravelly slopes.
- Moist, shaded crevices on rock faces in ravines.
**Crassula foveata** Van Jaarsv.

**Status:** Rare

D. Raimondo & F. Cholo

**Distribution:** EC. Eastern Cape, Butterworth.

**Habitat:** Cliffs and steep outcrops, mainly on exposed, northern and western aspects of Beaufort shale, 300–400 m.

**Rationale:** A range-restricted species (EOO 10 km²), known from one subpopulation. No recorded threats.

**Crassula fusca** Herre

**Status:** Rare

N.A. Helme & J.E. Victor

**Distribution:** NC. Mouth of the Orange River.

**Habitat:** Rock outcrops, usually in sheltered ravines or south-facing slopes.

**Rationale:** A northern Richtersveld endemic (EOO < 200 km²) known from fewer than 10 sites. It occurs mostly in sheltered ravines where it is protected from grazing and trampling by livestock.

**Crassula lasiantha** Drège ex Harv.

**Status:** Rare

N.A. Helme

**Distribution:** WC. Southern Cederberg to Groot Winterhoek Peak.

**Habitat:** Shaded rock ledges at high altitudes.

**Rationale:** A range-restricted species, EOO < 400 km². Known from fewer than 10 sites, not threatened.

**Crassula multiceps** Harv.

**Status:** Rare

E.J. van Jaarsveld & L. Potter

**Distribution:** WC. Between Vredendal and Bitterfontein.

**Habitat:** Crevices on horizontal rocks, often partly covered with gravel.

**Rationale:** Known from four subpopulations in a restricted range (EOO < 400 km²). A few more undiscovered subpopulations are likely to exist. This species is not declining.

**Crassula namaquensis** Schönland & Baker f. subsp. comptonii (Hutchinson & Pillans) Toelken

**Status:** Rare

E.J. van Jaarsveld, L. Potter & N.A. Helme

**Distribution:** NC. Bokkeveld Escarpment.

**Habitat:** Shallow soil on sandstone pavements.

**Rationale:** A range-restricted taxon (EOO < 50 km²). Not threatened because of the inaccessibility of its habitat.

**Crassula obovata** Haw. var. dreggeana (Harv.) Toelken

**Status:** VU D2

J.E. Victor

**Distribution:** EC KZN. Southern KwaZulu-Natal and Pondoland.

**Habitat:** Sandstone rock gardens on sandstone outcrops in coastal hills, 300–500 m.

**Rationale:** Known from three locations and potentially localised patches in rock crevices. No threats are likely to affect this taxon.

**Crassula peculiaris** (Toelken) Toelken & Wickens

**Status:** Rare

J.E. Victor & N.A. Helme

**Distribution:** WC. Swartberg Mountains.

**Habitat:** Grows in moist places in the shade of rocks at an altitude above 1 500 m.

**Rationale:** A high-altitude, range-restricted endemic (EOO < 200 km²) that grows under rocks and is not threatened.

**Crassula pellucida** L. subsp. spongiosa Toelken

**Status:** Rare

J.E. Victor & P.M. Burgoyne

**Distribution:** NC. Nieuwoudtville to Calvinia.

**Habitat:** Sandy soil in sheltered kloofs.

**Rationale:** A Bokkeveld Escarpment endemic (EOO < 500 km²) known from six sites. A few more undiscovered sites within its range are likely to exist. Occurs in sheltered kloofs and is therefore presumably not threatened by rooibos tea cultivation.

**Crassula pleegmatoides** Friedrich

**Status:** VU D2

D. Raimondo

**Distribution:** NC. Northern Richtersveld to southern Namibia.

**Habitat:** Quartzite gravels towards the top of hills.

**Rationale:** Endemic to the coastal quartzitic strip in the northern Richtersveld and the Sperrgebiet. Known from three locations in South Africa where it is potentially threatened by mining.

**Crassula rupestris** Thunb. subsp. commutata (Friedrich) Toelken

**Status:** Rare

E.J. van Jaarsveld & L. Potter

**Distribution:** NC. Western slopes of mountains near the mouth of the Orange River.

**Habitat:** Rocky slopes or among boulders in kloofs and usually on the south-facing aspect of slopes.

**Rationale:** Roggeveld endemic (EOO < 300 km²) known from fewer than 10 sites. Not threatened.

**Crassula rupestris** Thunb. subsp. marnierana (H.E.Huber & H.Jacobsen) Toelken

**Status:** Rare

D. Raimondo

**Distribution:** WC. Anysberg, Rooiberg and Klein Swartberg Mountains.

**Habitat:** In shallow soil pockets on large rocks in arid mountains.

**Rationale:** Known from fewer than 10 sites, found in localised patches in rock crevices. No threats are likely to affect this taxon.

**Crassula sarmentosa** Harv. var. integrifolia Toelken

**Status:** Rare

D. Styles, C.R. Scott-Shaw & L. von Staden

**Distribution:** KZN. Southern and central KwaZulu-Natal.
Crassula sediflora (Eckl. & Zeyh.) Endl. & Walp. var. amatolica (Schönland) Toelken
Status: DDD
Distribution: NC. Western mountains on both sides of the Orange River.
Habitat: Rock crevices on quartzite outcrops, mainly on the southern or southwestern aspect on high peaks.
Rationale: Known from five subpopulations. A few more are likely in unexplored, inaccessible mountains within the range of this taxon. Restricted to high-altitude rock crevices, therefore unlikely to be threatened.

Crassula sericea Schönland var. velutina (Friedrich) Toelken
Status: Rare
D. Raimondo
Distribution: NC. Western mountains on both sides of the Orange River.
Habitat: Rock crevices on quartzite outcrops, mainly on the southern or southwestern aspect on high peaks.
Rationale: Known from five subpopulations. A few more are likely in unexplored, inaccessible mountains within the range of this taxon. Restricted to high-altitude rock crevices, therefore unlikely to be threatened.

Crassula setulosa Harv. var. deminuta (Diels) Toelken
Status: VU D2
J.E. Victor & D.R. Burgoyne
Distribution: NC. Western mountains on both sides of the Orange River.
Habitat: Rock crevices on quartzite outcrops, mainly on the southern or southwestern aspect on high peaks.
Rationale: Known from five subpopulations. A few more are likely in unexplored, inaccessible mountains within the range of this taxon. Restricted to high-altitude rock crevices, therefore unlikely to be threatened.

Crassula simulans Schönland
Status: VU D2
D. Raimondo & N.A. Helme
Distribution: NC. Western mountains on both sides of the Orange River.
Habitat: Rock crevices on quartzite outcrops, mainly on the southern or southwestern aspect on high peaks.
Rationale: Known from five subpopulations. A few more are likely in unexplored, inaccessible mountains within the range of this taxon. Restricted to high-altitude rock crevices, therefore unlikely to be threatened.

Crassula sladenii Schönland
Status: NT B1ab(v)
D. Raimondo & P.M. Burgoyne
Distribution: NC. Western slopes of mountains near the mouth of the Orange River.
Habitat: Dolomite outcrops, in sheltered sites in crevices on rock faces or among boulders.
Rationale: Northern Richtersveld and Sperrgebiet endemic (EOO < 400 km²) and suspected to occur at 15 locations. P.M. Burgoyne has observed drought-related mortality, most probably a result of climate change, which is very likely to continue in the future. Past loss from dolomite quarrying has also affected this species.

Crassula socialis Schönland
Status: Rare
D. Raimondo
Distribution: EC. King William’s Town and Kommadagga.
Habitat: In rock crevices on cliffs, which are usually south- or southeast-facing.
Rationale: Known from four subpopulations, but a few more are likely as this species occurs in inaccessible habitats and is likely to be under-collected. It has no threats.

Crassula streyi Toelken
Status: Rare
Distribution: NC. Lekkersing to Steinkopf.
Habitat: Lower gravel slopes.
Rationale: This taxon is a range-restricted Namaqualand endemic (EOO < 20 km²) known from one location and is potentially threatened by mining and grazing and trampling by livestock.

Crassula subacaulis Schönland & Baker f. subsp. subacaulis
Status: VU D2
J.E. Victor & P.M. Burgoyne
Distribution: NC. Lekkersing to Steinkopf.
Habitat: Lower gravel slopes.
Rationale: Known from fewer than five sites, restricted to a specific and inaccessible habitat in Pondoland, not threatened.

Crassula subulata L. var. hispida Toelken
Status: EX
J.E. Victor & P.M. Burgoyne
Distribution: NC. Namaqualand, Karooهوогоته.
Habitat: Known from three subpopulations.
Rationale: Known from one location. It has been threatened by mining and quarrying, and its habitat is likely to continue in the future. Quarrying and collecting for the specialist succulent horticultural trade remain potential threats.

Crassula thunbergiana Schult. subsp. minutiflora (Schönland & Baker f.) Toelken
Status: Rare
J.E. Victor & D. Raimondo
Distribution: NC. Aus in Namibia and Springbok in the Northern Cape.
Habitat: Sandy soil.
Rationale: Known from three subpopulations. No recorded threats.
Crassula vestita Thunb. Plate 54

**Status:** Rare

N.A. Helme, E.J. van Jaarsveld & L. Potter

**Distribution:** NC. Roggeveld Mountains.

**Habitat:** Amongst low shrublets, associated with rock outcrops.

**Rationale:** Roggeveld endemic (EOO < 200 km²) known from three sites. Never common and occurs as scattered plants amongst rock outcrops.

Kalanchoe Adans.

**Kalanchoe alticola** Compton

**Status:** DDD

P.M. Burgoyne, J.E. Burrows, M. Lütt & L. von Staden

**Distribution:** MP. Barberton to northeastern Swaziland.

**Habitat:** Shallow peaty soils on granite rock, or in rock crevices, 900–1 800 m.

**Rationale:** There are no precise sites for this species in South Africa and collections are generally old. In Swaziland it occurs in an area heavily transformed by sugarcane. Surveys are needed to determine the status of this species.

**Kalanchoe crundallii** I.Verdc.

**Status:** Rare

L. von Staden, P.M. Burgoyne & J.E. Victor

**Distribution:** LM. Restricted to mistbelt areas in the western Soutpansberg Mountains west of Wylie's Poort.

**Habitat:** Mistbelt, grows among large boulders in open woodland or on forest margins.

**Rationale:** EOO 52 km², AOO estimated < 1 km². Only four or five known sites. Subpopulations are small and isolated and therefore considered severely fragmented. There is a slight potential threat of harvesting for horticultural purposes, but harvesting appears not to be causing declines and is unlikely to cause extinction in the near future.

Tylecodon Toelken

**Tylecodon albiflorus** Bruyns

**Status:** Rare

P. Bruyns & D. Raimondo

**Distribution:** WC. Montagu.

**Habitat:** Renosterveld on south-facing slopes on shale.

**Rationale:** A range-restricted species (EOO < 200 km²), known from three subpopulations. Not threatened.

**Tylecodon atropurpureus** Bruyns

**Status:** Rare

P. Bruyns & D. Raimondo

**Distribution:** NC. Springbok to Steinkopf.

**Habitat:** Namaqualand Shale Shrubland, in renosterveld in shade of bushes.

**Rationale:** A range-restricted species (EOO < 100 km²), known from two subpopulations. Not threatened.

**Tylecodon boddeleyi** Van Jaarsv.

**Status:** Rare

E.J. van Jaarsveld & D. Raimondo

**Distribution:** NC. Augrabies Mountains.

**Habitat:** Quartz-rich sandstone crevices, upper south-facing slopes.

**Rationale:** Known from one subpopulation from a restricted range in a very specific habitat (sandstone crevices). Not threatened.

**Tylecodon buchholzianus** (Schultd & P.Stephan) Toelken subsp. fasciculatus G.Will. Plate 55

**Status:** Rare

D. Raimondo & F. Cholo

**Distribution:** NC. Southwest Richtersveld, east of Port Nolloth.

**Habitat:** Eastern aspect of steep mountain slopes, 300–480 m.

**Rationale:** A Richtersveld endemic (EOO 20 km²) known from two subpopulations. No recorded threats.

**Tylecodon cordiformis** G.Will.

**Status:** Critically Rare

E.J. van Jaarsveld & D. Raimondo

**Distribution:** NC. Port Nolloth district, southern end of the Harrasberg.

**Habitat:** Namaqualand Klipkoppe Shrubland, quartzitic rock cracks, 500 m.

**Rationale:** Known from only one subpopulation. No recorded threats.

**Tylecodon decipiens** Toelken

**Status:** Rare

E.J. van Jaarsveld, D. Raimondo & P.G. Desmet

**Distribution:** NC. Kleinsee.

**Habitat:** Grows in shaded rock crevices, not far from the coast.

**Rationale:** A range-restricted species (EOO < 3 km²), known from two sites. Not threatened.

**Tylecodon ellaphieae** Van Jaarsv.

**Status:** Rare

P.M. Burgoyne, E.J. van Jaarsveld & J.E. Victor

**Distribution:** NC. Richtersveld.

**Habitat:** Sheer, quartzite sandstone cliff faces.

**Rationale:** A range-restricted endemic to the northern Richtersveld (EOO < 100 km²), known from three sites. Not threatened because of the inaccessibility of its habitat.

**Tylecodon faucium** (Poelln.) Toelken

**Status:** Rare

D. Raimondo, P.A. Manyama & D.A. Kamundij

**Distribution:** NC. Mountains south of Sutherland.

**Habitat:** Shaded rock crevices, often on south-facing slopes, 1 100–1 400 m.

**Rationale:** A range-restricted species (EOO < 100 km²), known from one subpopulation. No recorded threats.

**Tylecodon fragilis** (R.A.Dyer) Toelken

**Status:** EN B1ab(i,ii,iii,iv,v)

P.G. Desmet, E.J. van Jaarsveld & D. Raimondo

**Distribution:** NC. Komaggas and Spektakel Pass.

**Habitat:** Rock outcrops, usually in the shelter of other vegetation.

**Rationale:** EOO 150 km². Known from three locations. Declining as a result of coastal development and heavy-mineral sand mining.

**Tylecodon hirtifolius** (W.F.Barker) Toelken

**Status:** Rare

E.J. van Jaarsveld & L. Potter

**Distribution:** NC. Komaggas and Spektakel Pass.

**Habitat:** Rocky sandstone slopes, usually in shade.

**Rationale:** A range-restricted Namaqualand endemic (EOO < 250 km²) known from three collecting records. Not threatened.
**Tylecodon kritzingeri** Van Jaarsv.

**Status:** Rare  
**P. Bruyns, E.J. van Jaarsveld & L. Potter**  
**Distribution:** NC, Richtersveld.  
**Habitat:** Steep slopes amongst shrubs.  
**Rationale:** A range-restricted species (EOO < 100 km²), known from fewer than five sites. Not threatened.

**Tylecodon leucothrix** (C.A.Sm.) Toelken  
**Plate 55**

**Status:** Rare  
**P. Bruyns & D. Raimondo**  
**Distribution:** WC, Ladismith to Van Wyksdorp.  
**Habitat:** Shaded places, usually on south-facing aspects and often associated with rock outcrops.  
**Rationale:** A habitat specialist known from five subpopulations. Not threatened.

**Tylecodon longipes** Van Jaarsv. & G.Will.

**Status:** Critically Rare  
**E.J. van Jaarsveld & D. Raimondo**  
**Distribution:** NC, Richtersveld.  
**Habitat:** Sheer, south-facing quartzitic sandstone slopes.  
**Rationale:** A range-restricted Richtersveld endemic known from one site. Not threatened because of the inaccessibility of its habitat.

**Tylecodon nigricalus** G.Will. & Van Jaarsv.

**Status:** Rare  
**E.J. van Jaarsveld & D. Raimondo**  
**Distribution:** NC, Bitterfontein.  
**Habitat:** Shallow, soil-filled pockets on large granite inselbergs.  
**Rationale:** A range-restricted Namaqualand endemic (EOO < 10 km²), known from two sites. Not threatened because of the inaccessibility of its habitat.

**Tylecodon nolteei** Lavranos

**Plate 55**

**Status:** VU D2  
**E.J. van Jaarsveld, D. Raimondo & P.G. Desmet**  
**Distribution:** WC, Nuwerus.  
**Habitat:** Rock crevices in sandstone, quartzite or shale.  
**Rationale:** Known from two locations. Potentially threatened by infrastructure development and harvesting for the specialist succulent horticultural trade.

**Tylecodon peculiaris** Van Jaarsv.

**Status:** Critically Rare  
**E.J. van Jaarsveld & D. Raimondo**  
**Distribution:** WC, Knysnvakte.  
**Habitat:** Quartz flats.  
**Rationale:** Known from one site. Not known to be threatened.

**Tylecodon scandens** Van Jaarsv.

**Status:** Rare  
**E.J. van Jaarsveld & D. Raimondo**  
**Distribution:** WC, Knysnvakte.  
**Habitat:** Quartz flats.  
**Rationale:** A range-restricted Knysnvakte endemic (EOO 20 km²), known from three sites. No recorded threats.

**Tylecodon stenocaulis** Bruyns

**Status:** Rare  
**E.J. van Jaarsveld & D. Raimondo**  
**Distribution:** WC, Tanqua Karoo.  
**Habitat:** Shale on hills and stony outcrops.  
**Rationale:** A range-restricted species (EOO < 200 km²), known from five sites. Not threatened.

**Tylecodon sulphureus** (Toelken) Toelken var. armianus Van Jaarsv.

**Status:** Rare  
**P.F. Matlamela, D. Raimondo & D.A. Kamundji**  
**Distribution:** NC, Orange River Valley in northern Bushmanland, Davenoris to Pella Berg Mountains.  
**Habitat:** Steep, often sheer, north-facing quartz cliffs, shaded for most of the day, 700–1 100 m.  
**Rationale:** Known from one site. Not threatened.

**Tylecodon tenuis** (Toelken) Bruyns

**Status:** Rare  
**E.J. van Jaarsveld & D. Raimondo**  
**Distribution:** WC, Knysnvekte.  
**Habitat:** Quartz gravel flats.  
**Rationale:** A habitat specialist. No known threats.

**Tylecodon tobulosus** Toelken

**Status:** VU D2  
**E.J. van Jaarsveld & D. Raimondo**  
**Distribution:** NC, Richtersveld.  
**Habitat:** Shaded quartzite rock crevices.  
**Rationale:** Known from one location where it is potentially threatened by diamond quartz mining.

**Tylecodon tuberosus** Toelken

**Status:** Rare  
**D. Raimondo, P.A. Manyama & D.A. Kamundji**  
**Distribution:** NC, Richtersveld.  
**Habitat:** Shaded rock crevices, 900–1 100 m.  
**Rationale:** Known from one site (EOO < 10 km²). No recorded threats.

**Tylecodon viridiflorus** (Toelken) Toelken  
**Plate 55**

**Status:** Rare  
**D. Raimondo, P.A. Manyama & D.A. Kamundji**  
**Distribution:** NC, Angella to Namaqualand.  
**Habitat:** Dry sand dunes.  
**Rationale:** Known from two collections in South Africa, from Namaqualand and the Richtersveld, both made

**CUCURBITACEAE**

**Acanthosicyos** Welw. ex Hook.f.

**Acanthosicyos horridus** Welw. ex Hook.f.

**Status:** CR PE  
**D. Raimondo**  
**Distribution:** NC, Angola to Namaqualand.  
**Habitat:** Dry sand dunes.  
**Rationale:** Known from two subpopulations in South Africa, from Namaqualand and the Richtersveld, both made

**CRASSULACEAE**

**Tylecodon kritzingeri**
before 1925. It has not been recollected in the Northern Cape and may be lost here, but further searches are required to confirm this. The species is still widespread in Namibia and Angola despite the utilisation of its fruits for food.

**Cucumis L.**

*Cucumis humifructus* Stent

**Status:** VU B1ab(ii,v)

**J.E. Victor & M.F. Pfab**

**Distribution:** G LM. Eastern and southern tropical Africa, and from Kenya to northern Namibia.

**Habitat:** Woodland and grassland, deep sand, 1 350–1 500 m.

**Rationale:** A range-restricted species within South Africa (EOO 8 300 km²), but widespread elsewhere in Africa. Known from 6–10 old herbarium records, none of which are from reserves. It is entirely dependent on aardvarks for dispersal and recruitment, and is probably declining because of local extinctions of aardvarks outside reserves in South Africa. Historical locations within Gauteng cannot be relocated and it is presumed to be locally extinct.

**Gerrardanthus** Harv. ex Hook.f.

*Gerrardanthus tomentosus* Hook.f.

**Status:** VU D1+2

**D. Styles, C.R. Scott-Shaw, D. Raimondo & L. von Staden**

**Distribution:** KZN. Durban.

**Habitat:** Among boulders and scree in steep, wooded sandstone ravines, 100–400 m.

**Rationale:** The distribution of this rare species is entirely confined within the Greater Durban Metropolitan Area, one of the fastest developing urban regions in South Africa. It has, however, survived extensive urban expansion and land degradation by virtue of its inaccessible habitat which is unsuitable for either development or agriculture. It is known from five sites and is potentially threatened by invading alien plants, habitat degradation as a result of firewood harvesting and harvesting for medicinal purposes. We estimate that there are less than 1 000 mature individuals.

**CYTINACEAE**

*Cytinus L.*

*Cytenus capensis* Marloth

**Status:** CR PE

**A.G. Rebelo, P.M. Burgoyne & D. Raimondo**

**Distribution:** WC. Cape Peninsula.

**Habitat:** Deep sands, parasitic, mainly on *Metalasia murieta*.

**Rationale:** Known from seven locations in the past but not collected since 1965. Concerted efforts in recent years have failed to relocate it. It is probably extinct because of urban expansion and dense infestations of invasive alien plants.

**DIPSACACEAE**

*Cephalaria* Schrad.

*F* *Cephalaria armierioides* Szabó

**Status:** DDD

**P.A. Manyama**

**Distribution:** LM MP. Groblersdal to Roossenekal.

**Habitat:** Open woodland, in rocky habitats above 1 300 m.

**Rationale:** Known from an early collection near Roossenekal by Young in 1933 and two collections made by Acocks in 1959. One of the latter sites has been lost to urban expansion and the other is severely threatened by habitat degradation caused by overgrazing. Not enough is known about the current population status of this species to determine its threat status.

*F* *Cephalaria decurrens* (Thunb.) Roem. & Schult.

**Status:** Rare

**N.A. Helme & D. Raimondo**

**Distribution:** NC WC. Koebbe and Bokkeveld Escarpments.

**Habitat:** Thin shale bands on sandstone slopes.

**Rationale:** Currently recorded from two subpopulations. A few more subpopulations are likely. No significant threats exist where this species occurs.

*F* *Cephalaria foliosa* Compton

**Status:** VU D2

**W.G. Welman & J.E. Victor**

**Distribution:** KZN. Eastern Swaziland and Vryheid district in northern KwaZulu-Natal.

**Habitat:** Moist montane grassland, in wetlands and near streams, 1 000–1 500 m.

**Rationale:** Known from fewer than five locations and potentially threatened by afforestation, agriculture, overgrazing, urban expansion and invasion by alien plants.

*F* *Cephalaria galpiniana* Szabó subsp. *galpiniana*

**Status:** VU D2

**J.E. Victor**

**Distribution:** EC KZN. KwaZulu-Natal Drakensberg Mountains and Lesotho.

**Habitat:** Montane grassland, short, sloping subalpine and alpine grasslands and gravel beds on summits, 2 400–3 000 m.

**Rationale:** Known from three locations and potentially threatened by overgrazing and trampling and associated soil erosion.

*F* *Cephalaria wilmsiana* Szabó

**Status:** DDD

**D.A. Kamundi† & D. Raimondo**

**Distribution:** Unknown.

**Habitat:** Unknown.

**Rationale:** Known from one collection made by Wilms in 1894 that has a vague locality description. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**EBENACEAE**

*Eucla* Murray

*Eucla dewinteri* Retief

**Status:** Critically Rare

**J.E. Victor & A.E. van Wyk**

**Distribution:** MP. Pilgrim’s Rest.

**Habitat:** Quartzite hill slopes, often rooted in crevices between boulders, in grasslands.

**Rationale:** Known from one site. The only subpopulation occurs entirely within a formally protected provincial nature reserve. No threats.

**ERICACEAE**

*Erica L.*

*Erica abbottii* E.G.H.Oliv.

**Status:** VU D2


**Distribution:** EC KZN. Umtamvuna to Mkambati.
**Habitat:** Grassland, marshes, moist seepage areas or along streambanks in permanently waterlogged black turf soil on rocky upper and summit slopes, 800–1 000 m.

**Rationale:** Known from three locations that are potentially threatened by agriculture.

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**Erica abelli** E.G.H.Oliv.

**Status:** VU D1

R.C. Turner

**Distribution:** EC. Groendal Wilderness Area, near Uitenhage.

**Habitat:** Ledges and crevices on high cliffs on quartzitic outcrops.

**Rationale:** EOO and AOO < 1 km². Known from one subpopulation where there are less than 1 000 mature individuals.

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**Erica abietina** L. subsp. diabolis E.G.H.Oliv. & I.M.Oliv.

**Status:** CR B1ab(iii)+2ab(iii)

R.C. Turner & E.G.H. Oliver

**Distribution:** WC. Table Mountain National Park.

**Habitat:** Rocky upper and summit slopes, mostly 100–800 m, but also at lower altitudes.

**Rationale:** An extremely localised taxon restricted to the Devil’s Peak/Table Mountain saddle and the southern slopes and summit of Devil’s Peak (EOO 1 km², AOO < 0.1 km²). This is one of the most heavily trampled and oft-frequented slopes on the entire Table Mountain massif, with multiple eroded pathways on the southern slopes and summit ridge. Frequent fires on the northern slopes of Table Mountain also threaten this single-stemmed reseeder.

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**Erica abietina** L. subsp. perfoliosa E.G.H.Oliv. & I.M.Oliv.

**Status:** CR B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)

R.C. Turner & E.G.H. Oliver

**Distribution:** WC. Stellenbosch.

**Habitat:** Lower, granitic, loamy slopes.

**Rationale:** A recently described taxon, known from one location (EOO and AOO 5 km²). The entire population falls within a pine plantation and subpopulations are highly fragmented. Several subpopulations occur in roadside cuttings and are being degraded by erosion.

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**Erica abietina** L. subsp. petraea E.G.H.Oliv. & I.M.Oliv.

**Status:** EN B1ab(i,ii,iii,iv,v)+B2ab(i,ii,iii,iv,v)

R.C. Turner & E.G.H. Oliver

**Distribution:** WC. Groot Winterhoek Mountains near Porterville.

**Habitat:** Rock crevices on rocky outcrops.

**Rationale:** EOO 10 km², AOO 0.5 km². This is an extremely localised taxon, known from less than 250 mature individuals and potentially threatened by invasive alien pines and frequent fires.

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**Erica accommodata** Klotzsch ex Benth. var. subviscidula Bolus

**Status:** Rare

R.C. Turner

**Distribution:** WC. The upper slopes of the Riviersonderend Mountains, the Hex River and Kammanassie Mountains.

**Habitat:** Steep, upper, south-facing slopes and summit ridges on damp, peaty rock ledges.

**Rationale:** A habitat specialist with a naturally disjunct distribution. Most subpopulations occur on the Riviersonderend Mountains but there are outliers from the Hex River and Kammanassie Mountains. No significant threats.

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**Erica affinis** Benth.

**Status:** NT D2

R.C. Turner & D. Raimondo

**Distribution:** EC WC. Uniondale to Uitenhage.

**Habitat:** Rocky/sandy mountain slopes and plateaus, as well as hills and streambeds at lower altitudes.

**Rationale:** EOO 4 500 km². Known from nine locations. A slow-growing reseeder potentially threatened by short fire return intervals.

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**Erica agglutinans** E.G.H.Oliv.

**Status:** EN B1ab(ii,iii,v)

E.G.H. Oliver & R.C. Turner

**Distribution:** WC. Napier to Bredasdorp and Geelugur.

**Habitat:** Seasonal seepage areas and drier slopes on sandy, quartzitic flats or limestone.

**Rationale:** EOO < 500 km². Known from three historical locations. The Napier location has been lost to crop cultivation and infestations of invasive alien plants. The remaining two locations are severely threatened by invasive alien plants and grazing by livestock.

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**Erica aghillana** Guthrie & Bolus var. aghillana

**Status:** EN B1ab(ii,iii,v)

E.G.H. Oliver & R.C. Turner

**Distribution:** WC. Cape Agulhas to Pearly Beach.

**Habitat:** Sandy coastal flats and grey, loamy soils (inland areas).

**Rationale:** EOO < 200 km². Known from three locations. This taxon is severely threatened by encroachment from invasive alien acacias and by golf course and housing developments.

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**Erica albospicata** Hilliard & B.L.Burtt

**Status:** Rare

R.C. Turner & D. Raimondo

**Distribution:** KZN. Drakensberg mountain range.

**Habitat:** Steep, grassy slopes.

**Rationale:** Known from only three sites. No recorded threats.

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**Erica alexandri** Guthrie & Bolus subsp. acockii (Compton) E.G.H.Oliv.

**Status:** EX

E.G.H. Oliver & D. Pillay

**Distribution:** WC. Kraaifontein.

**Habitat:** Sandy flats.

**Rationale:** This taxon has only ever been collected in the Kraaifontein area where all its habitat has been converted for urban and industrial development. Not collected since 1940 and therefore considered extinct.

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**Erica alexandri** Guthrie & Bolus subsp. alexandri

**Status:** CR B1ab(i,ii,iii,iv,v)+B2ab(i,ii,iii,iv,v)

R.C. Turner

**Distribution:** WC. Wemmershoek Mountains.

**Habitat:** Wetlands on sandy flats at foot of mountains.

**Rationale:** EOO < 10 km², AOO 2 km². There are two fragmented extant subpopulations and both are severely threatened by forestry, sand mining and invasion by alien plants.
Erica alfredii Guthrie & Bolus
Status: VU D1 +2
E.G.H. Oliver & R.C. Turner
Distribution: WC. Riviersonderend Mountains, Pilaarkop.
Habitat: High-altitude, rocky, north-facing slopes.
Rationale: Known from one location (EOO < 20 km²), with low population numbers (less than 500 mature individuals in total). Scattered pines occur within its habitat on Pilaarkop and pose a potential threat to this species.

Erica amalophylla E.G.H.Oliv. & I.M.Oliv.
Status: DDD
R.C. Turner & D.A. Kamundi†
Distribution: WC. Porterville.
Habitat: Shaded, sandy floor of overhanging rock shelter.
Rationale: Known only from the type, collected in the 1940s. Not enough is known about the distribution or current population status of this species to determine its status.

Erica amicorum E.G.H.Oliv.
Status: Rare
R.C. Turner
Distribution: WC. Langeberg Mountains.
Habitat: Amongst restios in seepage areas or in wetlands, mostly between 300–600 m.
Rationale: This localised Langeberg endemic (EOO < 40 km²) occurs at four sites and is restricted to its specialised wetland habitat. Not currently threatened.

Erica amoena J.C.Wendl. Plate 58
Status: Rare
E.G.H. Oliver & R.C. Turner
Distribution: WC. Constantiaberg to Clovelly, Red Hill Plateau and the Cape Point section of the Table Mountain National Park.
Habitat: Mountain streams and marshes.
Rationale: A range-restricted species (EOO < 125 km²), known from 5–10 subpopulations. Typically encountered as dense, localised stands of several hundred to thousands of plants. Not threatened as it occurs within the boundaries of the Table Mountain National Park.

Erica amphigena Guthrie & Bolus
Status: VU D2
R.C. Turner & D.A. Kamundi†
Distribution: WC. Houwhoek.
Habitat: Lower mountain slopes.
Rationale: Known from one location. Part of the population has been lost to road construction. This species is potentially threatened by afforestation, invasion by alien plants and a deleterious fire regime.

Erica aneimena Dulfer
Status: VU D2
R.C. Turner
Distribution: WC. George, Outeniqua Mountains.
Habitat: Cool, moist, south-facing shale slopes.
Rationale: Known from three locations and potentially threatened by encroachment from invasive alien pines as extensive pine plantations cover the lower slopes of these mountains to the north of George.

Erica annalis E.G.H. & I.M.Oliv.
Status: Critically Rare
R.C. Turner & E.G.H. Oliver
Distribution: WC. Kamnanassie Mountains.
Habitat: Low altitude on quartzitic rock faces, in crevices. Surrounding vegetation is arid scrub with no fynbos elements.
Rationale: Known from one subpopulation. No known direct threats.

Erica annectens Guthrie & Bolus
Status: VU D2
E.G.H. Oliver & R.C. Turner
Distribution: WC. Cape Peninsula.
Habitat: Steep, moist slopes, on peaty rock ledges and cliff faces.
Rationale: EOO < 100 km². Known from three locations and subpopulations. Potentially threatened by frequent fires and invasive alien plant infestation. No plants have been collected from Noordhoek Peak and the Swartkopberge for over 25 years and the status of these subpopulations is unknown. The plants occur in very inaccessible places and are not often visited by collectors.

Erica anomala Hilliard & B.L.Burtt
Status: Rare
R.C. Turner & E.G.H. Oliver
Distribution: KZN. KwaZulu-Natal Drakensberg Mountains, from Giant’s Castle to Garden Castle and Impendle and Underberg districts.
Habitat: Montane grassland. Damp cliffs, rubble banks above stream gullies, sometimes in rock crevices near damp overhangs, 1 900–2 150 m.
Rationale: Known from five sites in the Drakensberg. A habitat specialist restricted to damp cliffs at very high altitudes. Not threatened.

Erica arenaria L.Bolus
Status: NT B1ab(iii,v)
E.G.H. Oliver & R.C. Turner
Distribution: WC. Cape Infanta to Still Bay.
Habitat: South-facing limestone ridges.
Rationale: EOO < 350 km². Known from less than 15 locations. Occurs as large stands in the Still Bay area. It is severely threatened by dense acacia infestations throughout its range and is declining as a result.

Erica arietifolia Benth.
Status: VU D2
N.A. Helme, D. Raimondo & R.C. Turner
Distribution: WC. Gilberg/Matsikamma Mountains.
Habitat: Flat or gently sloping rocky or sandy, mostly nonperennial seepage areas.
Rationale: EOO < 100 km². Known from three locations. There was a past threat from wetland infilling and crop cultivation and these activities remain potential future threats.

Erica aspalathifolia Bolus var. aspalathifolia
Status: Declining
C.R. Scott-Shaw & R.C. Turner
Distribution: EC KZN. Pondoland to Pietermaritzburg.
**Erica aspalathoides** Guthrie & Bolus

**Status:** VU D2

E.G.H. Oliver & R.C. Turner

- **Habitat:** Damp slopes and ledges.
- **Rationale:** A widespread grassland taxon with a range of \( \pm 30,000 \text{ km}^2 \). As this is a low-altitude taxon, it has lost habitat to agriculture, afforestation and urban development but has not yet declined sufficiently to qualify for NT or VU.

**Erica banksii** Andrews subsp. comptonii (T.M.Salter) E.G.H.Oliv. & I.M.Oliv.

- **Status:** EN D
  - **Rationale:** Known from one location (EOO and AOO 0.2 km²). This species occurs within a commercial forestry plantation. Its habitat is being constantly degraded as a result of invasion by alien plants and a deleterious fire regime.

**Erica bakeri** T.M.Salter

- **Status:** CR B1ab(iii)+2ab(iii)
  - **Rationale:** A range-restricted species (EOO 500 km²) that is fairly common within its specific habitat on the southern side of the Swartberg Mountains. Not threatened.

**Erica atrovinosa** E.G.H.Oliv.

- **Status:** EN D
  - **Rationale:** Known from three locations and potentially threatened by too frequent fires as it is a slow-growing reseeder.

**Erica astroites** Guthrie & Bolus var. astroites

- **Status:** Rare
  - **Rationale:** As this is a low-altitude taxon, it has lost habitat to agriculture, afforestation and urban development but has not yet declined sufficiently to qualify for NT or VU.

**Erica atherstonei** Diels ex Guthrie & Bolus

- **Status:** NT D2
  - **Rationale:** Known from three locations and potentially threatened by too frequent fires as it is a slow-growing reseeder.

**Erica atromontana** E.G.H.Oliv.

- **Status:** Rare
  - **Rationale:** Known from one location (EOO and AOO 0.2 km²). This species occurs within a commercial forestry plantation. Its habitat is being constantly degraded as a result of invasion by alien plants and a deleterious fire regime.

**Erica astroites** Guthrie & Bolus

- **Status:** Rare
  - **Rationale:** Known from three locations and potentially threatened by too frequent fires as it is a slow-growing reseeder.

**Erica atroviolosa** E.G.H.Oliv.

- **Status:** EN D
  - **Rationale:** Known from three locations and potentially threatened by too frequent fires as it is a slow-growing reseeder.

**Erica bakeri** T.M.Salter

- **Status:** CR B1ab(iii)+2ab(iii)
  - **Rationale:** Known from one location (EOO and AOO 0.2 km²). This species occurs within a commercial forestry plantation. Its habitat is being constantly degraded as a result of invasion by alien plants and a deleterious fire regime.
Erica blaerioides E.G.H.Oliv. subsp. blaerioides
Status: Rare
R.C. Turner

Distribution: WC. Groot Swartberg Mountains.
Habitat: High altitude on cool slopes.
Rationale: A range-restricted endemic to the Groot Swartberg Mountains (EOO 10 km²) occurring mainly on the Kariega mountain. No recorded threats.

Erica bolusiae Salter var. bolusiae
Status: CR B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(ii)
R.C. Turner & D. Raimondo

Distribution: WC. Yzerfontein to Kraaifontein.
Habitat: Seasonal wetlands and seepage areas on sandy coastal plains.
Rationale: Urban expansion, crop cultivation, grazing and alien acacia infestations have decimated the range of this taxon. Only one known extant locality remains. This taxon now has a diminished EOO of less than 1 km² and an AOO of less than 200 m². Less than 250 mature individuals are extant. Decline as a result of grazing by livestock and invasive alien plants is ongoing.

Erica bolusiae Salter var. cyathiformis H.A.Baker
Status: EW
R.C. Turner & D. Raimondo

Distribution: WC. Formerly occurred near Kraaifontein on the Cape Flats.
Habitat: Acid sand plain fynbos, seepage areas on sandy flats.
Rationale: Urban expansion and agriculture, grazing and invading alien acacias have led to the complete loss of the habitat of this taxon. It is now extinct in the wild. Plants are cultivated at Kirstenbosch National Botanical Garden.

Erica boucheri E.G.H.Oliv.
Status: Rare
R.C. Turner

Distribution: WC. Worcester, Ouhangsberg.
Habitat: Sandy slopes in fynbos.
Rationale: A range-restricted species (EOO < 40 km²), known from one population. No known threats.

Erica brachialis Salisb.
Status: EN B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(ii)
R.C. Turner & D.A. Kamundi

Distribution: WC. Camps Bay to Cape Point, and Rooiels to Pringle Bay.
Habitat: Rocky coastal outcrops, slopes, and low coastal mountains, on granitic and sandstone substrates.
Rationale: EOO 144 km². Known from six small, severely fragmented subpopulations. Extinct at historical locations on the northern Cape Peninsula as a result of urban expansion. Remaining subpopulations on the Peninsula are threatened by frequent fires. The Rooiels/Pringle Bay subpopulation has been severely affected and is still currently threatened by coastal housing development. It has very low total population numbers—less than 500 mature individuals, and no subpopulation has more than 250 plants.

Erica brachysepala Guthrie & Bolus
Status: EN B1ab(i,ii,iii,v)+2ab(i,ii,iii,v)
R.C. Turner

Distribution: WC. Bot River and Theewaterskloof to Elim and Soetansberg.
Habitat: Lowland fynbos, usually in slightly loamy quartzitic sand over laterite.
Rationale: Formerly more abundant and widespread in the lowlands, now confined to seven small, severely fragmented subpopulations and an area of 1 275 km². All locations are being severely degraded by agriculture, invasion by alien plants, a deleterious fire regime and infrastructure development (power lines, roads etc.).

Erica brevicaulis Guthrie & Bolus
Status: Rare
R.C. Turner

Distribution: WC. Garcia’s Pass.
Habitat: Fynbos, dry, sandy, stony north-facing slopes.
Rationale: A naturally rare, localised resprouter, known from one site. The population consists of less than 50 plants, which are old resprouting individuals, and recruitment appears to be unsuccessful. Potentially threatened by grazing by livestock and frequent fires.

Erica cabernetea E.G.H.Oliv.
Status: CR D
E.G.H. Oliver & R.C. Turner

Distribution: WC. Worcester, Ouhangsberg.
Habitat: Sandy slopes in fynbos.
Rationale: An extremely localised endemic (EOO < 100 km²), fewer than five subpopulations are known. The species occurs in a habitat that is protected from too frequent fires and is not threatened.

Erica burchelliana E.G.H.Oliv.
Status: CR D
E.G.H. Oliver & R.C. Turner

Distribution: WC. Worcester, Ouhangsberg.
Habitat: Sandy slopes in fynbos.
Rationale: A range-restricted species (EOO < 100 km²), fewer than five subpopulations are known. Currently threatened by grazing by livestock and frequent fires.

Erica calcareophila E.G.H.Oliv.
Status: VU D2
R.C. Turner

Distribution: WC. Pearly Beach.
Habitat: Limestone boulders, cliff faces and ridge tops.
Rationale: Extinct at historical locations. It faces the potential threat of a nuclear power station being constructed (the only known location where it occurs is owned by ESKOM) as well as infestation by Acacia cyclops.

Erica calcicola (E.G.H.Oliv.) E.G.H.Oliv.
Status: EN B1ab(i,ii,iii,v)+2ab(i,ii,iii,v)
E.G.H. Oliver, R.C. Turner & D. Raimondo

Distribution: WC. Pearly Beach and Still Bay.
Habitat: Moderate to steep, southwest- to southeast-facing slopes on limestone ridges.
ANGIOSPERMS: DICOTYLEDONS


ericaceae

Erica calcicola E.G.H.Oliv.

Status: EN

Distribution: WC. Table Mountain National Park.

Habitat: Damp, peaty rock ledges and cliff faces, 600–1 000 m.

Rationale: EOO < 35 km², AOO 1.2 km². This taxon was thought to be extinct, but was rediscovered above the Woodhead Dam in 2006. Stands have now also been atlassed on Valken Buttress, Valley of the Red Gods/Ark Valley, head of the Disa Gorge, and Isolation Ridge (four locations). There is a total of 253 plants known. This taxon is threatened by trampling at all locations except the Disa Gorge cliffs.

Erica catariflora Salisb. var. catariflora Plate 58

Status: EN B1ab(iii)+2ab(iii); C2a(i); D

R.C. Turner & A.N. Hitchcock

Distribution: WC. Table Mountain National Park.

Habitat: Damp, peaty rock ledges and cliff faces, 600–1 000 m.

Rationale: EOO < 35 km². AOO 1.2 km². This taxon was thought to be extinct, but was rediscovered above the Woodhead Dam in 2006. Stands have now also been atlassed on Valken Buttress, Valley of the Red Gods/Ark Valley, head of the Disa Gorge, and Isolation Ridge (four locations). There is a total of 253 plants known. This taxon is threatened by trampling at all locations except the Disa Gorge cliffs.

Erica catariflora Salisb. var. glabrata Benth.

Status: CR B1ab(iii)+2ab(iii); D

R.C. Turner, E.G.H. Oliver & A.N. Hitchcock

Distribution: WC. Table Mountain.

Habitat: Damp, peaty rock ledges and cliff faces, 600–1 000 m.

Rationale: Only seven plants are known, from three locations within 1 km² of one another. Threatened by trampling at all locations.

Erica cavartica E.G.H. & I.M.Oliv.

Status: DDD

R.C. Turner, D.A. Kamundii & D. Raimondo

Distribution: WC. Cederberg Wilderness Area, near Crystal Pool.

Habitat: Rock crevices and on floor of a sandy cave.

Rationale: Recently described from material collected in 1932. Despite several searches it has not been relocated and is therefore too poorly known to be assessed.

Erica ceraria E.G.H.Oliv. & I.M.Oliv.

Status: CR B1ab(iii)+2ab(iii); D

R.C. Turner, E.G.H. Oliver & A.N. Hitchcock

Distribution: WC. Cederberg Wilderness Area, near Crystal Pool.

Habitat: Rock crevices and on floor of a sandy cave.

Rationale: Recently described from material collected in 1932. Despite several searches it has not been relocated and is therefore too poorly known to be assessed.

Erica ceraria (Compton) E.G.H.Oliv.

Status: Rare

R.C. Turner

Distribution: WC. Northern slopes of the Hex River Mountains.

Habitat: Sandy lower slopes in fynbos.

Rationale: A range-restricted species (EOO less than 70 km²) with fewer than five known subpopulations. Locally common and not threatened.

Erica chionodes E.G.H.Oliv.

Status: Rare

R.C. Turner

Distribution: WC. Swartberg Mountains.

Habitat: Montane seepage areas, in restionaceous fynbos.

Rationale: A range-restricted species (EOO ± 100 km²), known from two sites, where it is locally abundant. Not threatened.
Erica chiroptera E.G.H. Oliv.
Status: Rare
R.C. Turner

Distribution: WC. Kogelberg.
Habitat: Fynbos, in sandy quartzitic soils.
Rationale: A range-restricted species (EOO < 100 km²), known from one population which is protected in the Kogelberg Biosphere Reserve.

Erica chlorosepala Bentham.
Status: VU D2
R.C. Turner & E.G.H. Oliver

Distribution: WC. Swellendam to Riversdale.
Habitat: Fynbos, on rocky or sandy, north-facing mountain slopes.
Rationale: A range-restricted species from the central Langeberg (EOO 200 km²), infrequently encountered. Most collections are from the Goedgeloof Peak area. Although it occurs within provincial reserves, invasive alien pines remain a potential threat in parts of its range.

Erica chrysocodon Guthrie & Bolus
Status: CR B1ab(ii)
R.C. Turner & E.G.H. Oliver

Distribution: WC. Southern Cape Peninsula.
Habitat: Marshy flats.
Rationale: A range-restricted species from the central Langeberg (EOO 45 km²), locally common, with at least 20,000 plants known. This species is protected within the Cape Point section of the Table Mountain National Park and is not threatened.

Erica clavisepala Guthrie & Bolus
Status: Rare
E.G.H. Oliver & R.C. Turner

Distribution: WC. Southern Cape Peninsula.
Habitat: Marshy flats.
Rationale: A range-restricted species from the central Langeberg (EOO 45 km²), locally common, with at least 20,000 plants known. This species is protected within the Cape Point section of the Table Mountain National Park and is not threatened.

Erica columnaris E.G.H. Oliv.
Status: VU D2
E.G.H. Oliver & R.C. Turner

Distribution: WC. Riviersonderend Mountains.
Habitat: South-facing, damp, peaty hollows and steep upper slopes.
Rationale: An extremely localised species, known from the type locality. Although there are at least 2,000 plants, it occurs only within an area of 1 km². Potentially threatened by encroachment from invasive alien pines on the middle and lower slopes of Pilaarkop.

Erica comata Guthrie & Bolus
Status: DDD
R.C. Turner

Distribution: WC. Langeberg, Craggy Peak.
Habitat: Rocky slopes in fynbos.
Rationale: Known only from the type, collected in 1815. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Erica conspicua Sol. subsp. roseoflora
E.G.H. Oliv. & I.M.Oliv.
Status: Rare
P.A. Manyama

Distribution: WC. Keeromsberg and Langeberg Mountains.

Habitat: Fynbos, in marshes and along streambanks.
Rationale: Known from two small areas (EOO < 500 km²). Not threatened.

Erica constantia Nois. ex Benth.
Status: Rare
R.C. Turner & E.G.H. Oliver

Distribution: WC. Hex River Mountains to Klein Swartberg Mountains.
Habitat: Summit ridges and rocky, south-facing slopes.
Rationale: Occasional on summit ridges along the drier inland mountain ranges. Not threatened.

Erica cooperi Bolus var. cooperi
Status: Rare
R.C. Turner & E.G.H. Oliver

Distribution: EC KZN. Southern Drakensberg Mountains.
Habitat: Seepage areas on grassy mountain slopes.
Rationale: Habitat specialist, EOO 3,000 km². Not threatened.

Erica coruscans L.Bolus
Status: DDD
E.G.H. Oliver & R.C. Turner

Distribution: WC. Kleinrivier Mountains.
Habitat: Fynbos, among rocks on ridges and summits.
Rationale: A high-altitude species last collected in 1940. Specific habitat and population status not known.

Erica costatisepala H.A. Baker
Status: Rare
R.C. Turner

Distribution: WC. Klein Swartberg and the Kammanassie Mountains.
Habitat: Rocky clefts and crevices.
Rationale: EOO 350 km². Known from three subpopulations. A high-altitude species growing in fire-protected habitats. No known threats.

Erica crenata Dulfer
Status: VU D1 + 2
R.C. Turner & E.G.H. Oliver

Distribution: WC. Wellington Sneeukop.
Habitat: Shale bands at high altitudes.
Rationale: EOO < 25 km², AOO < 2 km². Known from less than 1,000 plants. Sneeukop is severely infested by hakeas, which could potentially threaten this species.

Erica crenata E.Mey. ex Benth.
Status: Rare
R.C. Turner

Distribution: WC. Cape Peninsula.
Habitat: Sandstone fynbos, on mountain plateaus and slopes.
Rationale: Although locally extinct at Camps Bay, it is well represented and conserved in other parts of the Table Mountain National Park and is not currently declining. EOO 230 km², AOO < 25 km². Closely allied morphologically to E. ferrea, although E. ferrea is always a resprouter whereas E. crenata is always a reseedner.

Erica croceovirens E.G.H. Oliv. & I.M.Oliv.
Status: CR B1ab(ii)
R.C. Turner & E.G.H. Oliver

Distribution: WC. Outeniqua Mountains.

Status: Critically Rare
P.A. Manyama

Distribution: WC. Outeniqua Mountains.
Habitat: Fynbos, on sandy dry flats or rocky north-facing slopes.

Rationale: Confined to the Doring River Wilderness Area (EOO < 10 km²) on the northern slopes of the Outeniqua Mountains. Not threatened.

Erica cryptanthera Guthrie & Bolus

Status: DDD
R.C. Turner

Distribution: WC. Franschhoek Pass, Hottentots Holland Mountains, and from Kogelberg to the Riviersonderend Mountains.

Habitat: Shaded areas under rocky overhangs.

Rationale: Very poorly known but with a relatively wide distribution (EOO ± 3 000 km²), with too few recent collections to assess it accurately. All subpopulations have to be relocated and assessed.

Erica cubitans E.G.H.Oliv.

Status: Rare
R.C. Turner & E.G.H. Oliver

Distribution: WC. Langeberg, Lemoenshoek Peak.

Habitat: Rocky slopes or plateaus in fynbos, 1 300–1 500 m.

Rationale: Endemic to Lemoenshoek Peak (EOO and AOO < 3.2 km²), known from one subpopulation. No known threats.

Erica cunoniensis E.G.H.Oliv.

Status: EN D
R.C. Turner & E.G.H. Oliver

Distribution: WC. Buffelstalberg, Kogelberg Biosphere Reserve.

Habitat: Steep, moist, south-facing slopes in fynbos.

Rationale: EOO and AOO < 1.5 km². The total population consists of less than 200 individuals. Potentially threatened by too frequent fires—the area has burnt twice with over the past 17 years.

Erica cygnea Salter

Status: Rare
R.C. Turner

Distribution: WC. Platberg, Kogelberg Biosphere Reserve.

Habitat: Among rocks and rocky outcrops in fynbos, 200–300 m.

Rationale: A range-restricted species (EOO 10 km²). The population is conserved in the Kogelberg Biosphere Reserve.

Erica cymosa E.Mey. ex Benth. subsp. cymosa

Status: Rare
R.C. Turner & D.A. Kamundi

Distribution: WC. Wellington to Franschhoek.

Habitat: Moist, shaded cliff faces and damp ledges.

Rationale: EOO 600 km². Known from nine subpopulations. A habitat specialist that is well protected against area threats such as encroachment from invasive alien pines and species of *Hakea* and too frequent fires.

Erica cymosa E.Mey. ex Benth. subsp. grandiflora E.G.H. & I.M.Oliv.

Status: Rare
R.C. Turner, D.A. Kamundi & A.N. Hitchcock

Distribution: WC. Worcester to De Doorns.

Habitat: Damp, shaded, south-facing cliff faces.

Rationale: A range-restricted taxon (EOO < 280 km²), known from four subpopulations. No known threats as it occurs in very inaccessible habitats on steep cliffs and mountain summits.

Erica cyrilliiflora Salisb.

Status: EN A2ce; B1ab(ii,iii,iv)+2(ii,iii,iv)
R.C. Turner & E.G.H. Oliver

Distribution: WC. Cape Peninsula.

Habitat: Sandy, quartzitic, nonperennial streambeds and peaty seepage areas on streambanks.

Rationale: An extremely localised and threatened Cape Peninsula endemic. Two of its four known subpopulations have been destroyed over the last 37 years as a result of dam construction (generation length ≥ 15 years). Declining as a result of urban expansion, crop cultivation and invasion by alien plants. Potentially threatened by a deleterious fire regime and future dam construction.

Erica diosmifolia Salisb.

Status: Rare
R.C. Turner & D.A. Kamundi

Distribution: WC. Cape Peninsula, Table Mountain and Constantiaberg.

Habitat: Fynbos, in rocky places at higher altitudes above 600 m.

Rationale: EOO 33 km². At least 10 subpopulations are known. Potentially threatened by too infrequent fires.

Erica diotiflora Salisb.

Status: EN B2ab(iii); C2a(i); D
R.C. Turner

Distribution: WC. Riviersonderend Mountains.

Habitat: Fynbos, on lower, south-facing mountain slopes.

Rationale: EOO < 43 km². Only two locations and less than 250 mature individuals are known. Declining because of ongoing degradation of the habitat by frequent fires and encroachment from dense stands of alien *Acacia mearnsii* and pines.

Erica dispar (N.E.Br.) E.G.H.Oliv.

Status: VU B1ab(i,ii,iii,iv,vy)
R.C. Turner & D. Raimondo

Distribution: WC. Heidelberg to Mossel Bay.

Habitat: Open sandy areas in lowland fynbos.

Rationale: EOO 2 570 km², AOO < 100 km². Nine locations are known. Crop cultivation, thatch harvesting, urban expansion and invasion by alien plants are causing a continuing decline of habitat and number of subpopulations throughout the range.

Erica dolfiana E.G.H.Oliv. & I.M.Oliv.

Status: Rare
R.C. Turner

Distribution: WC. Groot Swartberg Mountains.

Habitat: Rocky, stony, high-altitude slopes, in low alpine fynbos.

Rationale: EOO ± 40 km². Known from two naturally disjunct subpopulations. The population is large, consisting of at least 3 000 plants, and is not declining.

Erica doliformis Salisb.

Status: Rare
R.C. Turner

Distribution: WC. Elandskloof Mountains to Franschhoek.

Habitat: Mountain slopes in sandstone fynbos.

Rationale: A rare montane species. Subpopulations are small, seldom consisting of more than a few plants. Not threatened.
Erica dregei E.G.H.Oliv.
Status: CR B2ab(ii,iii,v)
R.C. Turner, D.A. Kamundij & D. Raimondo
Distribution: WC. Aurora to Leipoldtville.
Habitat: Sand plain fynbos.
Rationale: EOO < 160 km². AOO < 2 km². Known from three subpopulations with less than 250 plants in total. Subpopulations are naturally disjunct, with only ± 30–50 plants in each. Not declining.

Erica dysantha
Status: VU D2
R.C. Turner
Distribution: WC. Langeberg Mountains.
Habitat: Rocky summit slopes in fynbos.
Rationale: An extremely localised endemic (EOO 3.25 km²) occurring in two subpopulations only 6.5 km apart. A habitat specialist that inhabits small areas on summit ridges. Both subpopulations were recently burnt by the same fire—too frequent fires are a potential threat to this species.

Erica eburnea Salter
Status: Rare
R.C. Turner & E.G.H. Oliver
Distribution: WC. Cape Peninsula.
Habitat: Wetlands and adjacent seepage areas.
Rationale: A range-restricted species (EOO 55 km²), occurring only in the Cape of Good Hope section of the Table Mountain National Park. Not threatened.

Erica ecklonii E.G.H.Oliv.
Status: EN B1ab(ii,iii,v)
R.C. Turner & E.G.H. Oliver
Distribution: WC. Onrus River, Kleinrivier and Babilons-toring Mountains.
Habitat: Fynbos, on cool, moist, south-facing slopes on coastal mountains.
Rationale: EOO < 80 km², AOO < 1 km². Known from three locations. Habitat and numbers of mature individuals are declining as a result of severe encroachment from invasive alien hakeas and pines.

Erica eglandulosa (Klotzsch) E.G.H.Oliv.
Status: DDD
E.G.H. Oliver & R.C. Turner
Distribution: WC. Riviersonderend Mountains and Caledon Swartberg.
Habitat: Fynbos slopes.
Rationale: Not recorded for over 100 years. The habitat and altitudinal range are not known. If it occurred on lower slopes, it is likely to be extinct as these areas have been extensively transformed, mainly by invasive alien plants. This is an inconspicuous, tiny-flowered, wind-pollinated species and it may be present at slightly higher altitudes where it has remained overlooked.

Erica elsieana (E.G.H.Oliv.) E.G.H.Oliv.
Status: EN D
R.C. Turner, J.H. Vlok & A.L. Schutte-Vlok
Distribution: WC. Swellendam to Oudshoorn.
Habitat: Fynbos, on moist rock ledges on mountain summits.
Rationale: AOO < 1 km². Known from three subpopulations with less than 250 plants in total. Subpopulations are naturally disjunct, with only ± 30–50 plants in each. Not declining.

Erica erina (Klotzsch ex Benth.) E.G.H.Oliv.
Status: EN B1ab(ii,iii,v)
R.C. Turner
Distribution: WC. Bot River to Baardskeerdersbos.
Habitat: Fynbos, on rocky or sandy quartzitic hill and mountain slopes, often near seepage areas.
Rationale: EOO < 710 km². Known from five locations. There is a severe, continuing decline in habitat and number of mature individuals as a result of encroachment from invasive alien species, especially hakeas and pine, as well as agricultural expansion in the southern Overberg.

Erica euryphylla R.C.Turner
Status: VU D1+2
R.C. Turner
Distribution: WC. Swellendam to Barrydale.
Habitat: Fynbos, in shady rock crevices on upper, north-facing slopes below summits.
Rationale: This habitat specialist is known from two sites (EOO < 20 km², AOO < 1 km²), with less than 1 000 plants in total. Potentially threatened by encroachment from invasive alien species of Hakea, in particular on Suurbraak Mountain, and by scattered pines throughout its range. A slight threat from frequent fires also exists.

Erica extrusa Compton
Status: CR B1ab(ii,iii,v)+2ab(ii,iii,v); C2a(ii)
E.G.H. Oliver & R.C. Turner
Distribution: WC. Elgin.
Habitat: Fynbos, sandy flats and stony, rocky areas with quartzitic gravels.
Rationale: An extremely localised species, known from one location. Potentially threatened by frequent fires as it is a relatively slow-growing reseeders.

Erica fairii Bolus Plate 56
Status: VU D2
E.G.H. Oliver & R.C. Turner
Distribution: WC. Simon’s Town.
Habitat: Fynbos, rocky, sandy ridges and shallow quartzitic sand over rock or quartzitic sand between low rocky ridges.
Erica filipendula Bent. subsp. filipendula

Status: Rare
R.C. Turner

Distribution: WC. Southern Agulhas Plain.
Habitat: Sandy quartzitic hills in fynbos.

Rationale: Extremely localised in the southwestern portion of the southern Agulhas Plain (EOO 152 km²). Some habitat has been lost to agriculture as well as alien plant infestations, especially in the Viljoenshof area. However, loss is not ongoing and it is currently well conserved. There are several thousand plants protected in the Waterford Bosluis Private Nature Reserve.

Erica flexistyla E.G.H.Oliv.

Status: CR B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
R.C. Turner & E.G.H. Oliver

Distribution: WC. Southern Agulhas Plain.
Habitat: Fynbos, lateritic clay soil.

Rationale: EOO < 26 km², AOO < 5 km². Known from three small, severely fragmented subpopulations and less than 500 plants. Population decline is continuing as a result of agriculture, grazing, road construction and invasion by alien plants. The largest location was burnt ± two years ago and is currently being grazed by cattle.

Erica filiciflora Bent.

Status: NT B1ab(ii,iii,v)
R.C. Turner & J.H. Vlok

Distribution: EC. Langkloof, Joubertina.
Habitat: Fynbos, rocky outcrops on mountain slopes.

Rationale: EOO 200 km². Less than 15 locations known. The more eastern Onder-Kouga subpopulations have declined as a result of agriculture and grazing, invasion by alien plants and frequent fires. Subpopulations northeast of Uniondale are still healthy and not declining.

Erica foliacea Andrews subsp. foliacea Plate 57

Status: EN B1ab(iii)+2ab(iii)
R.C. Turner & E.G.H. Oliver

Distribution: WC. Kogelberg Biosphere Reserve.
Habitat: Fynbos, rocky outcrops and ridges on mountain slopes.

Rationale: Naturally confined to one mountain range (EOO < 20 km²) and known from two locations. Threatened by invasive alien pines at Honingklip. Some habitat was transformed to pine plantations at Highlands Forest Reserve, but plantations are not currently expanding. However, unmanaged escaped pine seedlings are a threat to the remaining habitat.

Erica foliacea Andrews subsp. fulgens (Klotzsch) E.G.H.Oliv. & I.M.Oliv.

Status: EX
R.C. Turner & E.G.H. Oliver

Distribution: WC. Formerly occurred on Sir Lowry’s Pass.
Habitat: Fynbos, on rocky outcrops and ridges on mountain slopes.

Rationale: Last collected in 1895 and is now presumed to be extinct as its habitat has been transformed by the construction of the Steenbras Dam, urban expansion, grazing by livestock, afforestation, invasion by alien plants and a deleterious fire regime.
Erica fontana L.Bolus
Status: Rare

Distribution: WC. Cape Peninsula.
Habitat: Wetlands and adjacent seepage areas.

Rationale: A range-restricted species known from a small area of 21 km², where there are more than 17 000 plants. It regenerates vigorously after fire. This species is well conserved in the Cape of Good Hope section of the Table Mountain National Park.

Erica galgebergensis H.A.Baker
Status: VU D1 + 2

Distribution: WC. Riviersonderend Mountains.
Habitat: Fynbos, in rock crevices at high altitudes.

Rationale: EOO < 10 km². Less than 1 000 plants. Potentially threatened by encroachment from invasive alien pines.

Erica galpinii T.M.Salter
Status: EN B1ab(iii,iv)+2ab(iii,iv); C1 + 2a(i)

Distribution: WC. Hermanus, Kleinrivier Mountains.
Habitat: Cool, moist upper slopes, north- or south-facing.

Rationale: EOO 7 km², AOO 0.5 km². Two locations representing two locations are known. This is a long-lived reseeder that is adversely affected by frequent fires. The subpopulation on Galpin Kop/Kaasvoëlkop has declined as a result of a deleterious fire regime from around 700 plants before 1980 to less than 200 plants in 2001 and the decline is continuing. The other subpopulation is likely to be stable at around 250 individuals. From this we inferred a 40% decline in the population over the past 20 years (generation length suspected to be 15 years).

Erica garciae E.G.H.Oliv.
Status: VU D2

Distribution: WC. Garcia’s Pass, near Riversdale.
Habitat: Dry, stony/clay soils on southeast-facing slopes or yellow-brown, loamy, sandy/stony soil on north-facing slopes.

Rationale: Known from two subpopulations on the same mountain ridge. The area in which this species occurs burnt twice within eight years—frequent fires are a potential threat, as are invading alien pines.

Erica gerhardii E.G.H. & I.M.Oliv.
Status: CR B1ab(iii)

Distribution: WC. Stanford.
Habitat: Fynbos, on steep, south-facing, rocky/peaty slopes.

Rationale: Known from one subpopulation of ± 400 seedlings, in an area of ± 300 m² in the Kleinrivier Mountains. Declining because of invasive alien pines and hakeas.

Erica gigantea Klotzsch ex Benth.
Status: Rare

Distribution: WC. Northern Langeberg, Plattekloof to Cloete’s Pass.
Habitat: Sandstone slopes in fynbos.

Rationale: A range-restricted species (EOO < 50 km²), four subpopulations known. No known threats.

Erica gillii Benth.
Status: VU D2

Distribution: WC. Swartberg Mountains.
Habitat: Fynbos, on high-altitude sandstone slopes.

Rationale: EOO < 10 km². Two locations known. Some habitat has been transformed to forestry plantations in the past and the species remains potentially threatened by invading alien plants and further afforestation.

Erica glanduliplia Compton
Status: Rare

Distribution: WC. Anyberg to Swartberg Mountains at Waboomsberg, Meiringspoort, Montagu and Garcia’s Pass.
Habitat: Rocky or sandy slopes in fynbos.

Rationale: Occurs as naturally disjunct subpopulations over a large range (17 625 km²), known from four sites. It is a respointer with small subpopulations.

Erica glandulosa Thunb. subsp. breviflora (Bolus) E.G.H.Oliv. & I.M.Oliv.
Status: EN B1ab(iii)

Distribution: EC. Humansdorp.
Habitat: Sandy flats in fynbos.

Rationale: A range-restricted taxon (EOO < 160 km²), with one recent collection (made in 1990), but there are likely to be one or two more undiscovered subpopulations in unexplored lowland fragments around Humansdorp. This taxon has lost > 50% of its habitat to crop and pasture cultivation in the past, and decline is continuing because of ongoing habitat loss to further pasture cultivation and degradation due to overgrazing and lack of fire as a result of fragmentation.

Erica glandulosa Thunb. subsp. fourcadei (L.Bolus) E.G.H.Oliv. & I.M.Oliv.
Status: EN B1ab(ii,iii,iv,v)

Distribution: WC. Mossel Bay to Storms River.
Habitat: Coastal fynbos.

Rationale: Restricted to a narrow strip along the coastal belt (EOO 1 600 km²). Fewer than 10 locations are known. Most of the habitat has been transformed as a result of urban development, invasion by alien plants, afforestation and an altered fire regime and these threats are causing a continuing decline.

Erica glumiflora Klotzsch ex Benth.
Status: VU B1ab(i,ii,iii,iv,v)

Distribution: WC. Klein Swartberg and Groot Swartberg Mountains.

Habitat: Stabilised sand dunes, often on calcrite.

Rationale: Known from one subpopulation of 400 seedlings, in an area of ± 300 m² in the Kleinrivier Mountains. Declining because of invasive alien pines and hakeas.

Erica gossypioides E.G.H.Oliv.
Status: EN D

Distribution: WC. Klein Swartberg and Groot Swartberg Mountains.

Habitat: Stabilised sand dunes, often on calcrite.

Rationale: Known from one subpopulation of 400 seedlings, in an area of ± 300 m² in the Kleinrivier Mountains. Declining because of invasive alien pines and hakeas.
Plate 57

*Erica junonia var. junonia* VU

*Erica gerhardii* CR

*Erica patersonii* EN

*Erica helogena* CR

*Erica foliatea subsp. foliatea* EN

*Erica abietina subsp. diabolis* CR
Habitat: Rocky, grassy, high-altitude, south-facing slopes.

Rationale: A rare, high-altitude species, known from two subpopulations ± 75 km apart, with very low total population numbers (less than 100 plants are known). There is a potential threat from frequent fires and drought-related mortality events.

Erica gracilipes Guthrie & Bolus
Status: CR B2ab(iii,v)
R.C. Turner, E.G.H. Oliver & D. Pillay

Distribution: WC. Southern Agulhas Plain.
Habitat: Limestone pavements and depressions on limestone ridges.
Rationale: EOO < 210 km², AOO < 10 km². Known from three severely fragmented subpopulations, all of which are severely threatened by invasive alien Acacia cyclops encroachment.

Erica granulatifolia H.A.Baker
Status: VU D2
R.C. Turner & E.G.H. Oliver

Distribution: WC. Langeberg Mountains.
Habitat: Sandstone slopes in fynbos.
Rationale: A rare species, known from two locations, with an EOO < 40 km². Potentially threatened by invading alien plants, frequent fires and drought-related mortality events.

Erica greyi Guthrie & Bolus
Status: DDD
R.C. Turner & E.G.H. Oliver

Distribution: WC. Kouebokkeveld.
Habitat: Sandy, quartzitic, montane plateaus in fynbos.
Rationale: Not recorded since 1897. The type locality has been searched at least five times. Intact habitat remains, therefore this species is presumed to be extant but possibly very cryptic.

Erica haematocodon T.M.Salter
Status: Rare
R.C. Turner & D.A. Kamundij

Distribution: WC. Table Mountain National Park.
Habitat: Permanently moist, peaty ledges, often on inaccessible vertical cliffs.
Rationale: A range-restricted species (EOO 65 km²) occurring in localised and sometimes dense stands.

Erica hanekomii E.G.H.Oliv.
Status: VU D1 + 2
E.G.H. Oliver & R.C. Turner

Distribution: WC. Citrusdal.
Habitat: Rocky mountain ridges in fynbos.
Rationale: An extremely localised, high-altitude species (EOO and AOO < 1 km²), known from less than 500 plants. Potentially threatened by too frequent fires.

Erica hansfordii E.G.H.Oliv.
Status: CR B1ab(i,ii,iii,v) + 2ab(i,ii,iii,v)
E.G.H. Oliver & R.C. Turner

Habitat: Fynbos, in wetlands or in peaty soil with quartzitic gravel and sand on lower mountain slopes and valleys.
Rationale: EOO and AOO < 2 km². This is an extremely localised, cryptic, wetland-dwelling species severely threatened by expansion of vineyards and draining of wetlands.

Erica hebdomadalis E.G.H. & I.M.Oliv.
Status: Rare
R.C. Turner

Distribution: WC. Klein Swartberg Mountains.
Habitat: Drier northern slopes and rocky plateaus.
Rationale: Restricted to the highest parts at the eastern end of the Klein Swartberg Mountains (EOO < 10 km²). No known threats.

Erica hendricksei H.A.Baker var. hendricksei
Status: VU D2
E.G.H. Oliver & R.C. Turner

Distribution: WC. Kleinrivier Mountains between Hermanus and Stanford.
Habitat: Seepage areas and streambanks in coastal mountains.
Rationale: EOO < 26 km². Only two subpopulations are known. Potentially threatened by encroachment from invasive alien pines and Hakea drupacea.

Erica hermani E.G.H.Oliv.
Status: CR B1ab(ii,iii) + 2ab(ii,iii)
R.C. Turner, E.G.H. Oliver & D. Pillay

Distribution: WC. Hermanus.
Habitat: Fynbos, on sandy flats, lower mountain slopes and plateaus in coastal mountains.
Rationale: Much of the habitat has been lost to urban development and dense stands of invasive alien vegetation. It persists at one location, in an area of 2.5 km², where plants occur in a firebreak below electricity pylons on the margin of the residential area/reserve boundary. Regular brush cutting of the firebreak is detrimental to this delicate, single-stemmed species.

Erica hexensis E.G.H.Oliv.
Status: Rare
R.C. Turner

Distribution: WC. Hex River Mountains.
Habitat: Fynbos, on southwest- to southeast-facing sandstone slopes that are cool and moist.
Rationale: A high-altitude montane species (EOO 55 km²), known from one population. No known threats.
Erica hibbertii Andrews
Status: CR B1ab(ii,iii,v)+2ab(ii,iii,v); C2a(j); D
R.C. Turner, E.G.H. Olivier & E. Marinus
Distribution: WC. Franschhoek Pass and Stettynsberg.
Habitat: Fynbos, occurs on rocks, in crevices and small pockets of soil.
Rationale: EOO 30 km². Known from two small, severely fragmented subpopulations and a total of less than 30 remaining mature individuals. Declining as a result of invasion by alien plants. In addition, there was a 30% decline in the Franschhoek Pass subpopulation as a result of road expansion over the past 20 years.

Erica hillburttii (E.G.H.Oliv.) E.G.H.Oliv.
Status: CR B1ab(ii,iii,v)+2ab(ii,iii,v)
R.C. Turner, O.R. & D. Pillay
Distribution: EC. Southern Drakensberg Mountains, between Elliot and Maclear.
Habitat: Southeast-facing slopes below summit rock faces.
Rationale: One known population, with an EOO < 20 km² and AOO < 1 km². Declining as a result of frequent fires and overgrazing by cattle.

Erica hippurus Compton
Status: EN B1ab(iii,iv)+2ab(i,iii,iv)
E.G.H. Oliver & R.C. Turner
Distribution: WC. Paardeberg.
Habitat: Streambanks and seepage areas on south-facing slopes in fynbos.
Rationale: EOO 6 km². Four known locations. Declining as a result of the extraction of water, invading alien plants and expansion of vineyards.

Erica inamoena Dufler
Status: Rare
R.C. Turner

Erica inconstans Wahlbr.
Status: VU B1ab(ii,iii,v)+2ab(ii,iii,v)
J.H. Vlok, D. Raimondo & R.C. Turner
Distribution: WC. Klein Swartberg and Groot Swartberg Mountains.
Habitat: Fynbos, on rocky ridges and summit slopes at high altitude, in peaty accumulate over rock.
Rationale: A high-altitude habitat specialist known from three sites. Not declining.

Erica involucrata E.G.H.Oliv.
Status: Rare
R.C. Turner

Erica inflaticalyx E.G.H.Oliv.
Status: Rare
R.C. Turner

Erica inordinata H.A.Baker
Status: Rare
R.C. Turner & E.G.H. Oliver
Distribution: WC. Uniondale.
Habitat: Fynbos, on rocky slopes at high altitudes.
Rationale: EOO 50 km². Not declining.

Erica ingeana E.G.H.Oliv.
Status: Rare
R.C. Turner & D. Raimondo
Distribution: EC. WC. Groot Swartberg, Anthoniesberg Mountains and Kouga Mountains.
Habitat: Seasonally wet seepage areas.
Rationale: EOO 135 km². Locally abundant with no known threats.

Erica innovans E.G.H.Oliv.
Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
R.C. Turner
Distribution: WC. Gansbaai to Quoin Point.
Habitat: Sandy coastal flats, neutral to acid soils.
Rationale: EOO < 145 km². Extant at four locations. Some 20% of its total habitat has been destroyed by dense invasive alien acacia infestations, from Dunefontein to Pearly Beach. Potentially threatened by habitat loss for the establishment of protea orchards at Heidehof. Two subpopulations are conserved in Waterford and Groot Hægkalraa Private Nature Reserves, but population decline outside these reserves is continuing.

Erica inconstans Wahlbr.
Status: VU B1ab(ii,iii,v)+2ab(ii,iii,v)
J.H. Vlok, D. Raimondo & R.C. Turner
Distribution: WC. Klein Swartberg and Groot Swartberg Mountains.
Habitat: Fynbos, on rocky ridges and summit slopes at high altitude, in peaty accumulate over rock.
Rationale: A high-altitude habitat specialist known from three sites. Not declining.

Erica involucrata E.G.H.Oliv.
Status: Rare
R.C. Turner

Erica inordinata H.A.Baker
Status: Rare
R.C. Turner & E.G.H. Oliver
Distribution: WC. Uniondale.
Habitat: Fynbos, on rocky slopes at high altitudes.
Rationale: EOO 50 km². Not declining.
Erica insignis E.G.H.Oliv.

Status: Rare
R.C. Turner & E.G.H. Oliver

Distribution: WC. Anysberg, Prins se Kloof and Groot Swartberg Mountains.
Habitat: Rock faces and among large boulders and cracks on rocks.

Rationale: Localised habitat specialist, known from four large, naturally disjunct subpopulations. Not declining.

Erica insolitanthera H.A.Baker

Status: VU D2
R.C. Turner & E.G.H. Oliver

Distribution: WC. Rivieronsderend Mountains.
Habitat: Rocky, peaty slopes in fynbos. One location (EOO 9 km²), with less than 10 000 plants known. Potentially threatened by invading alien plants.

Erica intermedia Klotzsch ex Benth. subsp. albiflora E.G.H.Oliv. & I.M.Oliv.

Status: Rare
R.C. Turner

Distribution: WC. Outeniqua Mountains near George.
Habitat: Mountain slopes in fynbos.

Rationale: A range-restricted taxon (EOO 150 km²). Forestry plantations in the Robinson Pass area undoubtedly had an impact on the habitat of this taxon in the past, but it is no longer declining and subpopulations are conserved in the Ruitersbos Nature Reserve.

Erica interrupta (N.E.Br.) E.G.H.Oliv.

Status: CR B1ab(i,ii,iii,v)+2ab(i,ii,iii,v)
E.G.H. Oliver & R.C. Turner

Distribution: WC. Southern Agulhas Plain.
Habitat: Sandy, quartzitic and neutral soils between limestone ridges and on seaward flats.

Rationale: Known from three severely fragmented subpopulations within an EOO of 10 km². Destruction of its habitat is ongoing, caused by coastal development, invasion by alien plants and cultivation of proteas.

Erica intricata H.A.Baker

Status: VU D2
E.G.H. Oliver & R.C. Turner

Distribution: WC. Du Toit’s Kloof and Hex River Mountains.
Habitat: Fynbos, seepage areas on shale bands in mountains.

Rationale: EOO 195 km². Restricted to a habitat that is generally easily invaded by alien species of Hakea, but the particular areas where this species grows have not yet been invaded. Potentially threatened by alien invasion and a deleterious fire regime.

Erica involvens Benth.

Status: DDD
R.C. Turner

Distribution: WC. Caledon district and Worcester district.
Habitat: Unknown.

Rationale: Known from only two herbarium records with imprecise locality details, last collected in 1943. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.
Erica keeromsbergensis E.G.H.Oliv. & I.M.Oliv.

Status: Rare
R.C. Turner

Distribution: WC. Swartberg near Oudtshoorn.
Habitat: Fire-protected, rocky habitats in fynbos.
Rationale: A range-restricted species (EOO < 500 km²) with only two known subpopulations. No known threats.

Erica junonia E.G.H.Oliv. & E.G.H.Oliv.

Status: EN D
R.C. Turner & E.G.H. Oliver

Distribution: WC. Outeniqua Mountains.
Habitat: Fynbos, on cool, moist, south-facing summits and upper slopes.
Rationale: One subpopulation of less than 100 plants is known. Invasive alien pines and species of Hakea spreading from the Robinson Pass is a potential threat.

Erica juniperina E.G.H.Oliv.

Status: EN D
R.C. Turner & E.G.H. Oliver

Distribution: WC. Outeniqua Mountains.
Habitat: Fynbos, on cool, moist, south-facing summits and upper slopes.
Rationale: A range-restricted species (EOO < 500 km²) with only two known subpopulations. No known threats.

Erica karwyderi E.G.H.Oliv.

Status: EN D
R.C. Turner & E.G.H. Oliver

Distribution: WC. Karwyderskraal.
Habitat: Granular, quartzitic sand over ferricrete or shale and ferricrete soils.
Rationale: An extremely localised, high-altitude, slow-growing taxon (EOO < 8 km², AOO < 1 km²). Potentially threatened by too frequent fires and drought-related mortality events.

Erica kammanassiaeae E.G.H.Oliv.

Status: Critically Rare
R.C. Turner, J.H. Vlok & E.G.H. Oliver

Distribution: WC. Mannetjiesberg, in the Kammanassie Mountains.
Habitat: Arid fynbos on north-facing slopes.
Rationale: Only one subpopulation is known, but it is not threatened.

Erica kougabergensis E.A.Baker var. kougabergensis

Status: Rare
R.C. Turner

Distribution: EC. Uniondale district, Kouga Mountains.
Habitat: Presumably south-facing slopes above Genadendal.
Rationale: Not recorded since the type collection made 100 years ago. Possibly extinct as it is likely to have occurred on the south-facing slopes above Genadendal, an area that has been severely degraded as a result of pine plantations and too frequent fires over the past 30 years. Searches have thus far failed to relocate this species.

Erica kraussiana Klotzsch

Status: CR PE
E.G.H. Oliver, R.C. Turner & D. Pillay

Distribution: WC. Riviersonderend Mountains.
Habitat: Presumably south-facing slopes above Genadendal.
Rationale: Not recorded since the type collection made 100 years ago. Possibly extinct as it is likely to have occurred on the south-facing slopes above Genadendal, an area that has been severely degraded as a result of pine plantations and too frequent fires over the past 30 years. Searches have thus far failed to relocate this species.

Erica lageniformis Salisb.

Status: EN D
E.G.H. Oliver & R.C. Turner

Distribution: WC. Onrus Mountains.
Habitat: Fynbos, on rocky or sandy south- to southeast-facing slopes, on low coastal mountains.
Rationale: Known from one small population where there are less than 250 mature individuals. Possibly threatened by invasive species of Hakea and Pinus, which have infested surrounding slopes.

Erica langebergensis H.A.Baker

Status: Rare
R.C. Turner

Distribution: WC. Langeberg Mountains from Montagu to Leeurivierberg.
Habitat: South-facing sandstone slopes in fynbos.
Rationale: A range-restricted species (EOO < 100 km²).

Erica lateriflora E.G.H.Oliv.

Status: VU D2
E.G.H. Oliver & R.C. Turner

Distribution: WC. Northeastern Kouebokkeveld.
Habitat: Sandy, quartzitic mountain plateaus and valley floors.
Rationale: Three locations are known that are confined to the northern Kouebokkeveld (EOO < 400 km²). Some habitat has been transformed to fruit orchards and this remains a potential threat.
Erica latiflora L. Bolus
Status: CR B1ab(iii)+2ab(iii)
R.C. Turner & D.A. Kamundi
Distribution: WC. Elgin Valley.
Habitat: Shale soils.
Rationale: EOO 6 km², AOO < 1 km². Only one location remains. Threatened by expansion of orchards and vineyards, invasion by alien plants and a lack of fire due to habitat fragmentation by orchards and plantations.

Erica lerouxiae Bolus
Status: EN B1ab(i),ii,iii
R.C. Turner & E.G.H. Oliver
Distribution: WC. Jonkershoek and Franschhoek.
Habitat: Granite middle slopes in fynbos.
Rationale: A range-restricted species (EOO 55 km²) with two known locations. Threatened by pine plantations, invasion by alien plants, too frequent fires, dam construction and expansion of vineyards.

Erica leucosiphon L. Bolus
Status: Rare
R.C. Turner, E.G.H. Oliver & D. Pillay
Distribution: WC. Witzenberg Mountains.
Habitat: Fynbos, in rock crevices among large boulders.
Rationale: A rare montane species (EOO 80 km²) that occurs in a specialised habitat affording it protection from fire and agriculture.

Status: Critically Rare
P.A. Manyama
Distribution: WC. Paardeberg Mountains northeast of Kleinmond.
Habitat: Along streams or in seeps in fynbos.
Rationale: Confined to the upper reaches of the Paardeberg Mountains. Not threatened.

Erica lignosa H.A.Baker
Status: Rare
R.C. Turner & J.E. Victor
Distribution: WC. Groot Swartberg Mountains.
Habitat: Rocky, upper mountain slopes and summits in fynbos.
Rationale: EOO 50 km². A habitat specialist of rocky sites at high altitudes. Not threatened.

Erica limnophila E.G.H.Oliv.
Status: Rare
R.C. Turner
Distribution: WC. Du Toit’s Kloof and Wemmershoek Mountains.
Habitat: Edges of marshy or swampy areas in montane fynbos.
Rationale: A rare, localised montane species, known from two sites ± 8 km apart. No known threats.

Erica limosa L. Bolus
Status: VU D2
R.C. Turner & E.G.H. Oliver
Distribution: WC. Cape Peninsula, Constantiaberg to Muizenberg.
Habitat: Peaty accumulate with quartzitic sand in seepage areas and wetlands associated with mountain streams.
Rationale: EOO 7.5 km², AOO < 1 km². Four known locations. The population has declined owing to dam construction, the construction of gravel jeep tracks and severe encroachment from invasive alien pines. Acacia saligna and A. mearnsii in drainage lines. It remains potentially threatened by too frequent fires. E. salteri is included under E. limosa for purposes of this assessment, as the taxonomy will be revised in the near future.

Erica lowryensis Bolus var. lowryensis
Status: Rare
E.G.H. Oliver & R.C. Turner
Distribution: WC. Sir Lowry’s Pass to Betty’s Bay.
Habitat: Steep slopes in shady, moist kloofs, mostly on seaward side of mountains.
Rationale: A habitat specialist that is rarely seen. EOO 450 km². The population is protected in the Kogelberg Biosphere Reserve.

Erica macowanii Cufino subsp. laceolata (Bolus) E.G.H.Oliv. & I.M.Oliv.
Status: Rare
D. Raimondo & P.A. Manyama
Distribution: WC. Kleinrivier Mountains above Hermanus.
Habitat: Rocky sandstone slopes in fynbos.
Rationale: A range-restricted taxon (EOO < 50 km²) with no known threats.

Erica macrophylla Klotzsch ex Benth.
Status: Rare
R.C. Turner
Distribution: WC. Langeberg Mountains between Swellendam and Riversdale.
Habitat: Wet cliffs and rock ledges, above 900 m.
Rationale: A range-restricted species (EOO 310 km²) occurring in fire-protected habitats, locally common. No known threats.

Erica madida E.G.H.Oliv.
Status: Rare
R.C. Turner
Distribution: WC. Tradouw Pass and Rooiberg Mountain.
Habitat: Sandstone slopes in fynbos.
Rationale: Known from two disjunct subpopulations (EOO < 450 km²). Not threatened.

Erica magnisylvae E.G.H.Oliv.
Status: VU D2
R.C. Turner, E.G.H. Oliver & D. Pillay
Habitat: Sandstone fynbos.
Rationale: Localised along one mountain ridge, EOO and AOO 2 km². The entire population was burnt in early 2006 during extensive fires in the southern Overberg. Frequent fires and invasion by alien plants pose a potential threat.

Erica malmesburiensis E.G.H.Oliv.
Status: CR B1ab(iii)+2ab(iii)
E.G.H. Oliver & R.C. Turner
Distribution: WC. Malmesbury.
Habitat: Fynbos, sandy, quartzitic flats.
Rationale: EOO 10 km², AOO < 250 m². Only two severely fragmented subpopulations remain. Severe habitat destruction, mainly as a result of crop cultivation, has occurred over the past 100 years. The population is still declining as a result of invasion by alien plants, grazing by livestock and cultivation of pasture and wheat.
Erica marifolia Sol.
Status: VU D2
R.C. Turner
Distribution: WC. Cape Peninsula, eastern slopes of Table Mountain and Disa Gorge, at Constantiaberg and the cliffs above Kalk Bay and St James.
Habitat: Damp cliff and rock faces, usually within a mostly shaded habitat.
Rationale: AOO < 20 km². Four locations. Occurs along the eastern side of the Cape Peninsula where some subpopulations have been affected by forestry plantations in the past. Potentially threatened by erosion following clearing of invasive alien plants.

Erica melanacme Guthrie & Bolus
Status: EN B1ab(ii,iii,iv,v)
R.C. Turner & D.A. Kamundi†
Distribution: WC. Hermanus to Bredasdorp.
Habitat: Low-altitude sandstone slopes in fynbos.
Rationale: EOO < 1 600 km². Four known locations. Fragmentation and destruction of habitat by agriculture as well as extensive encroachment from invasive alien Hakea drupacea, Acacia cyclops, A. mearnsii and pines are ongoing.

Erica micrandra Guthrie & Bolus
Status: DDD
R.C. Turner
Distribution: WC. Ceres district.
Habitat: Probably rocky slopes and flats in fynbos.
Rationale: Known from three old herbarium collections made before 1954. It is likely to be threatened by urban and agricultural expansion in the Ceres Valley. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Erica miniscula E.G.H.Oliv.
Status: VU DD
R.C. Turner, E.G.H. Oliver & D. Pillay
Distribution: WC. Riversdale and Garcia’s Pass.
Habitat: Unknown.
Rationale: Collected only once in 1814. No habitat or population information is available.

Erica mellifera Dulfen
Status: Rare
R.C. Turner
Distribution: WC. Riversonderend Mountains, from Jonaskop to Galgeberg.
Habitat: Sandy, stony lower slopes in fynbos.
Rationale: Only one location with ± 550 plants is known. Potentially threatened by too frequent fires.

Erica montis-hominis E.G.H.Oliv.
Status: VU D1 + 2
E.G.H. Oliver, R.C. Turner, D. Raimondo & J.H. Vlok
Distribution: WC. Mannetjiesberg in the Kammanassie Mountains, southeast of Oudtshoorn.
Habitat: Rocky, upper mountain slopes and summits in fynbos.
Rationale: Only one location with ± 550 plants is known. Potentially threatened by too frequent fires.

Erica multiflexuosa E.G.H.Oliv.
Status: VU A2c; D2
R.C. Turner, D. Raimondo & D.A. Kamundi†
Distribution: WC. Kogelberg.
Habitat: Sandy, stony lower slopes in fynbos.
Rationale: Extremely localised around the Steenbras Dam (EOO and AOO < 3 km²). At least 50% of the habitat was flooded when the dam was constructed. Remaining habitat has been fragmented by forestry plantations. It is estimated that at least 30% of the total habitat loss has taken place over the past 45 years (less than three generations). The remaining individuals are potentially threatened by too frequent fires.

Erica nana Salisb.
Status: VU D2
E.G.H. Oliver & R.C. Turner
Distribution: WC. Hottentots Holland Mountains.
Erica natalensis Dulfer
Status: DDD
R.C. Turner
Distribution: KZN. KwaZulu-Natal Drakensberg Mountains.
Habitat: Unknown.
Rationale: Known only from the type collection, which came from an unspecified locality in the KwaZulu-Natal Drakensberg. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Erica navigatoris E.G.H.Oliv.
Status: VU D2
E.G.H. Oliver & R.C. Turner
Distribution: WC. Matroosberg and Kouebokkeveld Mountains.
Habitat: Fynbos, in rock outcrops on mountain summits.
Rationale: A high-altitude species known from only two locations. There has been no recorded decline, but this species is potentially threatened by too frequent fires—Matroosberg has burnt twice within the last six years.

Erica nematophylla Guthrie & Bolus
Status: VU D2
R.C. Turner, E.G.H. Oliver & D. Pillay
Distribution: WC. Stormsvlei near Riviersonderend and Garcia’s Pass near Riversdale.
Habitat: Stony slopes in fynbos.
Rationale: Known only from two disjunct locations, potentially threatened by invading alien plants at both.

Erica nevillei L.Bolus
Status: Rare
R.C. Turner & D.A. Kamundji
Distribution: WC. Cape Peninsula, Noordhoek Peak, Chapman’s Peak, Constantiaberg and the Kalk Bay Mountains.
Habitat: Fynbos, on rocky slopes, often growing against boulders.
Rationale: A range-restricted (EOO < 40 km²) resprouter stimulated by fire. Not likely to decline as a result of too frequent fires on Table Mountain.

Erica niveniana E.G.H.Oliv.
Status: VU D2
R.C. Turner & E.G.H. Oliver
Distribution: WC. Hottentots Holland Mountains.
Habitat: Fynbos, stony slopes and mountain summits.
Rationale: Three locations are known. At one location, part of the subpopulation declined as a result of the construction of the N2 Houwhoek Pass road. The other two of have been very frequently burnt over the past decade. Frequent fires are a potential threat to all three locations.

Erica oakesiorum E.G.H.Oliv.
Status: EN B1ab(ii,iii,v)+2ab(ii,iii,v)
R.C. Turner, R. Koopman & E.G.H. Oliver
Distribution: WC. Riviersonderend Mountains, from Genadendal to Pilaarkop.

Habitat: Fynbos, on south-facing slopes, 400–1 400 m.
Rationale: A range-restricted species (EOO 82 km², AOO < 5 km²). There are six known locations, but the species is possibly locally extinct at two of them because of too frequent fires. Subpopulations are typically small, consisting of less than 250 plants. We suspect that the total population is less than 2 500 individuals. Invasive alien pines and too frequent fires are causing a continuing decline.

Erica oblongiflora Benth.
Status: CR B1ab(ii,iii,v)+2ab(ii,iii,v)
E.G.H. Oliver & R.C. Turner
Distribution: WC. Southern Agulhas Plain.
Habitat: Limestone pavements and depressions on limestone ridges.
Rationale: Occurs at a single location along a limestone ridge, EOO < 8 km², AOO < 2 km². Declining as a result of dense invasive alien Acacia cyclops encroachment as well as brush cutting and grazing by livestock.

Erica occultula E.G.H.Oliv.
Status: VU D2
R.C. Turner & E.G.H. Oliver
Distribution: WC. Southern Agulhas Plain, Groot Hagelkraal.
Habitat: Southwest- to southeast-facing limestone boulders and cliffs.
Rationale: An extremely localised species (EOO and AOO < 6 km²) potentially threatened by alien invasive Acacia cyclops infestations of the habitat and the construction of a nuclear power plant as a large part of the population is on land owned by Eskom.

Erica oligantha Guthrie & Bolus
Status: EN B1ab(ii,iii,v)+2ab(ii,iii,v)
R.C. Turner, E.G.H. Oliver & D. Pillay
Distribution: WC. Van Der Bijlberg and Akkedisberg Mountains.
Habitat: Fynbos, in montane marshes, seepage areas and along streams on steep, south-facing slopes.
Rationale: EOO < 6.5 km², AOO < 0.5 km². Known from two locations. This species occurs in a sensitive habitat that is vulnerable to disturbance and is currently declining as a result of alien invasive infestations of the habitat at both locations.

Erica omninoglabra H.A.Baker
Status: Rare
R.C. Turner
Distribution: WC. Langeberg Mountains.
Habitat: Fynbos, in seepage areas on moist, south-facing slopes.
Rationale: A range-restricted, cryptic, high-altitude habitat specialist. No known threats.

Erica onusta Guthrie & Bolus
Status: CR B1ab(ii,iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Knysna.
Habitat: Coastal fynbos patches between forest.
Rationale: Restricted to a small area east of Knysna, EOO 98 km². Much of the former habitat has been transformed to forestry plantations. Remaining subpopulations are severely fragmented and occur in isolated remnants among plantations. Habitat quality in fragments is declining because of a lack of fire and alien invasive infestations.
Erica oophylla Benth.
Status: Critically Rare
E.G.H. Oliver & R.C. Turner

Distribution: WC. Langeberg Mountains.
Habitat: Rocky mountain summits, slopes and ridges in fynbos.
Rationale: This rare, range-restricted (EOO 10 km²), high-altitude habitat specialist is not likely to be threatened.

Erica orthiocola E.G.H.Oliv.
Status: EN D
E.G.H. Oliver & R.C. Turner

Distribution: WC. Endemic to Pilaarkop, Riviersonderend Mountains.
Habitat: Fynbos, on damp, south-facing rock ledges.
Rationale: An extremely localised (EOO 2.75 km²), high-altitude habitat specialist. Only one small subpopulation of less than 200 plants is known. Potentially threatened by invading alien pines and too frequent fires.

Erica outeniquae (Compton) E.G.H.Oliv.
Status: VU D2
R.C. Turner & E.G.H. Oliver

Distribution: WC. Outeniqua and Tsitsikamma Mountains.
Habitat: High-altitude, stony slopes in fynbos.
Rationale: A rare species, only four locations known. Subpopulations are small and not often seen. Potential threats include invasive alien pines and too frequent fires.

Erica oxyandra Guthrie & Bolus
Status: DDD
R.C. Turner & E.G.H. Oliver

Distribution: WC. Langeberg Mountains.
Habitat: Moist upper slopes in fynbos.
Rationale: Not recorded since 1952, and known from only three collections from unspecified localities in the Langeberg Mountains above Swellendam.

Erica oxysepala Guthrie & Bolus
Status: VU D2
R.C. Turner & D.A. Kamundi†

Distribution: WC. Clanwilliam to Tulbagh.
Habitat: Fynbos, in seepage areas on mountain slopes above 600 m.
Rationale: This species occurs in a rare, specialised habitat and only five locations are known, scattered over a large area (EOO 4 900 km²). Two of the five locations are potentially threatened by invading alien plants and a deleterious fire regime.

Erica pageana L.Bolus
Status: Rare
R.C. Turner

Distribution: WC. Kogelberg.
Habitat: Sandstone slopes in fynbos.
Rationale: Extremely localised (EOO 40 km²), but well conserved in the Kogelberg Biosphere Reserve.

Erica paludicola L.Bolus
Status: VU A2ac; D2
R.C. Turner & E.G.H. Oliver

Distribution: WC. Cape Peninsula, Noordhoek Peak to Silvermine Valley.

Habitat: Peaty soil with quartzitic sand in seepage areas associated with mountain streams, and also on damp, vertical rock faces.
Rationale: Known from two locations. Notes on early collections from Silvermine indicate that the subpopulation there was large, but it is now numbering less than 150 plants. Road construction, invasion by alien species, polluted road runoff and fires in 2000 have caused at least a 30% reduction in the population over the past three generations (30 years). This species remains potentially threatened by infrastructure development, pollution from road runoff and further invasion by alien plants.

Erica pannosa Salisb.
Status: Rare
R.C. Turner

Distribution: WC. Riviersonderend Mountains.
Habitat: Cool, south-facing middle and lower slopes in fynbos.
Rationale: A range-restricted species (EOO < 30 km²). No known threats.

Erica passerinoides (Bolus) E.G.H.Oliv.
Status: VU B1ab(iii)
R.C. Turner, J.E. Victor & A.P. Dold

Distribution: EC. Sneeuberg in the Kowdleveld Mountains, Katberg Pass and Cata Forest Reserve.
Habitat: Karoo-fynbos ecotone, on south-facing slopes.
Rationale: EOO < 6 250 km². Three locations are known from herbarium collections. Recent field surveys indicated that it is locally extinct on the Sneeuberg because of overgrazing and alien invasions. Remaining locations are threatened by expanding forestry plantations and encroachment by invasive aliens.

Erica patersonii Andrews
Status: EN D
R.C. Turner & N.A. Helme

Distribution: WC. Groenlandberg Mountains above Elgin.
Habitat: Base of vertical, south-facing cliffs on steep, peaty rock ledges.
Rationale: An extremely localised species, recently rediscovered after not being recorded for nearly 200 years. One population of around 250 plants is restricted to an area of 1 500 m². A slow-growing, long-lived reseeded potentially threatened by too frequent fires and expanding alien pine and hakes infestations of its habitat.

Erica patersonii Andrews
Plate 57
Status: EN B1ab(i,ii,iii,iv,v)
R.C. Turner & E.G.H. Oliver

Distribution: WC. Cape Point to Kleinmond.
Habitat: Fynbos, in wet or marshy, reed-covered flats on coastal plains and mountains.
Rationale: EOO 165 km². Four known locations. Less than 15% of the population is protected in the Table Mountain National Park. All other subpopulations are declining as a result of coastal housing development (at Kleinmond, Betty’s Bay and Rooiels), as well as by dense Acacia saligna and Leptospermum laevigatum encroachment (Kleinmond).

Erica paucifolia (J.C.Wendl.) E.G.H.Oliv. subsp. ciliata (Klotzsch) E.G.H.Oliv.
Status: EN B1ab(i,ii,iii,iv,v)
R.C. Turner

Habitat: Sandy, quartzitic hill slopes and gentle mountain slopes and plateaus in fynbos.
ANGIOSPERMS: DICOTYLEDONS

ERICACEAE Erica paucifolia subsp. ciliata

Status: VU D2
D. Raimondo, R.C. Turner & P.A. Manyama

Distribution: WC. Onrus River Mountains to Stanford.
Habitat: Fynbos, in seepage areas on low foothills and lowland flats.

Rationale: Declined in the past because of urban expansion of Hermanus and Stanford. Two subpopulations remain that are unlikely to be affected by further urban expansion, but are potentially threatened by invasive alien infestations of the habitat and too frequent fires.

Erica paucifolia subsp. ciliata

Status: EN B1ab(i,ii,iii,iv,v)
R.C. Turner

Distribution: WC. Houwhoek and Kleinrivier Mountains.
Habitat: Fynbos, on sandy flats and slight slopes at foot of mountains.

Rationale: EOO 127 km². Seven locations are known through herbarium collections, but this taxon is locally extinct at all but two. Subpopulations at Hermanus and Stanford declined to local extinction because of urban development, and a large portion of the Kleinmond subpopulation has already declined as a result of urban development, and decline is ongoing. One other subpopulation at Honingklip is also likely to be locally extinct owing to dense alien infestation.

Erica paucifolia subsp. squarrosa

Status: EN B1ab(i,ii,iii,v)
R.C. Turner

Distribution: WC. Caledon to Rivieronderend.
Habitat: Fynbos, on open rocky or sandy slopes between restioind and ericoid shrublets.

Rationale: EOO 360 km². Four locations are known through herbarium collections, but it is likely to be locally extinct at two. Declining as a result of dense alien invasive infestations of the habitat on Caledon Swartberg.

Erica pauciovulata H.A.Baker

Status: VU D1 + 2
R.C. Turner, E.G.H. Oliver & T. de Villiers

Distribution: WC. Southern Overberg.
Habitat: Montane seepage areas and streambanks in fynbos.

Rationale: Localised habitat specialist occurring at only one location (EOO < 10 km²). The total population is less than 1000 plants. Potentially threatened by too frequent fires and invasive alien infestation of the habitat.

Erica penduliflora E.G.H.Olivi

Status: EN B1ab(ii,iii,v)
R.C. Turner & E.G.H. Oliver

Distribution: WC. Pearly Beach to Soetanyssberg.
Habitat: Sandstone, in lateritic soils.

Rationale: EOO < 300 km²), five small, severely fragmented subpopulations are known. Declined extensively in the past as a result of wildflower harvesting for the cut flower industry, and harvesting is still causing a decline. It is also threatened by invasive alien acacia infestations of the habitat.

Erica perplexa E.G.H.Olivi

Status: CR D
R.C. Turner, E.G.H. Oliver & D. Pillay

Distribution: WC. Groenlandberg near Grabouw.
Habitat: Seepage areas on southwest-facing slopes in kloofs.

Rationale: Restricted to a single kloof, with a population of ± 20 plants.

Erica perspicua J.C.Wendl. subsp. latifolia

Benth.) E.G.H.Oliv. & I.M.Oliv.

Status: VU D2
D. Raimondo, R.C. Turner & P.A. Manyama

Distribution: WC. Hakea, Pinus, Acacia and Eucalyptus has already led to the degradation of ± 40% of the habitat and alien species continue to spread, causing a continuing decline in habitat and number of mature individuals. A further 10% of the habitat has been transformed to orchards and vineyards.

Erica petricola E.G.H.Olivi

Status: Rare
R.C. Turner

Distribution: WC. Rivieronderend Mountains.
Habitat: Fire-protected cliff faces at middle to high altitude.

Rationale: A range-restricted habitat specialist (EOO < 140 km²). No known threats.

Erica philippioides Compton

Status: Rare
R.C. Turner

Distribution: NC WC. Kamiesberg and northern Cederberg Mountains.
Habitat: Moist, shaded rock faces.

Rationale: Rare habitat specialist with only four known subpopulations. No known threats.

Erica physanthe Benth.

Status: CR B1ab(i,ii,iii,iv)
R.C. Turner & E.G.H. Oliver

Distribution: WC. Platkop near Riversdale.
Habitat: Dry, loamy silcrete hills.

Rationale: A single location remains, where ± 3000 plants occur within a 0.01 km² road verge. Declining as a result of invasive alien infestations, brush cutting, overgrazing and erosion.

Erica physophylla Benth.

Status: Rare
R.C. Turner

Distribution: WC. Rivieronderend Mountains above Greyton and on Pilaarkop.
Habitat: Damp, shady rock faces.

Rationale: A rare, cryptic, dwarf species with an EOO of 30 km². Often growing on fire-protected, inaccessible cliffs. No known threats.

Erica pilaarkopensis H.A.Baker

Status: Rare
R.C. Turner

Distribution: WC. Rivieronderend Mountains, on Pilaarkop.

Rationale: Restricted to a single kloof, with a population of ± 20 plants.

Rationale: EOO < 50 km². Two known locations. Invasion by alien species of Hakea, Pinus, Acacia and Eucalyptus has already led to the degradation of ± 40% of the habitat and alien species continue to spread, causing a continuing decline in habitat and number of mature individuals. A further 10% of the habitat has been transformed to orchards and vineyards.
Erica pilansii Bolus subsp. fervida (L. Bolus)
E.G.H. Oliv. & I.M. Oliv.
Status: Rare
R.C. Turner & E.G.H. Oliver
Distribution: WC. Kogelberg Biosphere Reserve.
Habitat: Seepage areas on wetter slopes.
Rationale: The type ‘collection’ of this range-restricted endemic (EOO 48 km²) came from a flower seller’s bucket in Adderley Street, Cape Town, but harvesting of this taxon has ceased and it is now protected within the Kogelberg Biosphere Reserve. The population currently consists of more than 5 000 plants and is not declining.

Erica pilansii Bolus subsp. pilansii
Status: Rare
R.C. Turner, D. Raimondo & E.G.H. Oliver
Distribution: WC. Kogelberg Biosphere Reserve.
Habitat: Streambanks and marshy areas on shale bands on mountain slopes.
Rationale: A habitat specialist known from a few dense, localised subpopulations. It was harvested as a cut flower in the past. The type specimen was ‘collected’ from a flower seller’s bucket in Adderley Street, Cape Town, but harvesting has ceased and this taxon is now protected within the Kogelberg Biosphere Reserve.

Erica pilosiflora E.G.H. Oliv. subsp. pilosiflora
Status: VU B1ab(i,ii,iii,iv)
R.C. Turner & N.A. Helme
Distribution: WC. Grabouw to Villiersdorp.
Habitat: Low altitude quartzite slopes.
Rationale: EOO 2 450 km². Fewer than 10 remaining locations. Subpopulations on lower slopes have declined and are continuing to decline because of wheat and vineyard cultivation, grazing by livestock and invasive alien infestations of the habitat. A few subpopulations at slightly higher altitudes are protected in reserves.

Erica pilosiflora E.G.H. Oliv. subsp. purpurea
E.G.H. Oliv.
Status: VU B2
R.C. Turner
Distribution: WC. Grabouw to Villiersdorp.
Habitat: Deep, shifting sands.
Rationale: EOO 80 km². Two known locations. Potentially threatened by crop cultivation.

Erica pilulifera L.
Status: VU D2
R.C. Turner & E.G.H. Oliver
Distribution: WC. Table Mountain.
Habitat: Seepage areas in fynbos.
Rationale: A range-restricted habitat specialist, EOO and AOO < 4 km². Five known locations. Parts of the habitat are frequented by hikers, and one subpopulation near a hikers’ hut has declined because of trampling. It is not currently declining; but further trampling remains a potential threat.

Erica piquetbergensis (N.E. Br.) E.G. Oliv.
Status: CR C2a(i)
R.C. Turner & E.G.H. Oliver
Distribution: WC. Piketberg and Engelsman se Baken.
Habitat: Sandy montane plateaus in fynbos.
Rationale: Four small, isolated subpopulations, each with less than 50 mature individuals, are declining because of too frequent fires—most of the small range (EOO < 160 km²) has burnt three times in 12 years. The establishment of citrus and protea orchards has also caused habitat loss and they continue to expand. The development of mountain holiday cottages on Engelsman se Baken is likely to have resulted in the extinction of one subpopulation.

Erica platycalyx E.G.H. Oliv.
Status: EN B1ab(i,ii,iii,iv)
R.C. Turner & E.G.H. Oliver
Distribution: WC. Riversdale and Albertinia.
Habitat: Aeolian sand on and between limestone ridges.
Rationale: EOO < 625 km². Four known locations. Declining because of invasive alien *Acacia cyclops* infestation of the habitat, wheat and pasture cultivation, thatch collecting and grazing and trampling by livestock.

Erica plena L. Bolus
Status: Rare
R.C. Turner
Distribution: WC. Akkedisberg near Caledon.
Habitat: Seepage areas on upper south-facing slopes.
Rationale: A range-restricted habitat specialist, EOO 30 km². Localised subpopulations consist of several thousand plants and are protected in the Akkedisberg Conservancy. Invasive alien species of *Hakea* occur at low densities in its habitat but are regularly cleared.

Erica podophylla Benth.
Status: Rare
R.C. Turner
Distribution: WC. Langeberg Mountains.
Habitat: Localised on steep, moist, south-facing slopes and rock ledges.
Rationale: A range-restricted habitat specialist (EOO 425 km²), with only four known subpopulations. Locally common. No known threats.

Erica procaviana (E.G.H. Oliv.) E.G.H. Oliv.
Status: DDD
R.C. Turner & E.G.H. Oliver
Distribution: WC. Robertson.
Habitat: Rock crevices.
Rationale: An extremely rare species known only from the type collection, made in 1961. Specific habitat and population data are not available.

Erica prolata E.G.H. Oliv. & I.M. Oliv.
Status: EN B1ab(ii,iii,v)
R.C. Turner
Distribution: WC. Cape Infanta to Still Bay.
Habitat: Limestone-derived soils, ferricrete and sandy gravels.
Rationale: EOO 3 300 km², AOO < 20 km². Five locations are likely to remain. Only one small subpopulation is protected in the Bontebok National Park. Subpopulations at all other locations are declining because of alien invasive *Acacia cyclops* infestation and agricultural expansion.
Erica propendens Andrews  
Status: CR B1ab(iii,v)  
R.C. Turner & D. Raimondo  
Distribution: WC. Hottentots Holland to Kleinrivier Mountains.  
Habitat: Marshy seeps in fynbos.  
Rationale: Five locations are known through herbarium records. Three of them are now locally extinct as a result of habitat degradation by invasive alien species and agriculture. The two remaining subpopulations are small, isolated and severely fragmented and continue to decline because of alien invasion. Current EOO is 27 km².  

Erica psittacina E.G.H.Oliv. & I.M.Oliv.  
Status: EN D  
R.C. Turner & L. von Staden  
Distribution: KZN. Donnybrook, KwaZulu-Natal Midlands.  
Habitat: Steep, southeast-facing slopes in long, narrow belts of dense, shrubby vegetation close to the margins of indigenous forest.  
Rationale: A single subpopulation of ± 100 plants is known at present. It is potentially threatened by a delterious fire regime.  

Erica pulchelliflora E.G.H.Oliv.  
Status: DDD  
R.C. Turner & E.G.H. Oliver  
Distribution: WC. Napier.  
Habitat: Unknown, possibly lower sandstone slopes.  
Rationale: Known only from the type collection, made in 1896 at an unspecified locality near Napier. Specific habitat and population data are not available.  

Erica pulvinata Guthrie & Bolus  
Status: CR B1ab(iii,v)+2ab(iii,v)  
R.C. Turner, E.G.H. Oliver & N.A. Helme  
Distribution: WC. Soetansberg.  
Habitat: South-facing limestone cliff faces.  
Rationale: EOO and AOO < 3 km². One location. Declining because of alien Acacia cyclops invasion of the habitat. Alien clearings is in progress, but at present alien vegetation is spreading faster than it can be cleared.  

Erica purgatoriensis H.A.Baker  
Status: VU D1+2  
R.C. Turner, E.G.H. Oliver & D. Pillay  
Distribution: WC. Franschhoek.  
Habitat: Marshy wetlands.  
Rationale: About 500 plants of this species occur in a single roadside wetland (AOO 100 m²). It is likely that the population has declined in the past because of road construction. It is currently potentially threatened by too frequent fires.  

Erica pyramidalis Sol. var. pyramidalis  
Status: EX  
E.G.H. Oliver & D. Pillay  
Distribution: WC. Cape Flats.  
Habitat: Peaty hollows and marshes.  
Rationale: Formerly occurred on the western side of the Cape Flats, but its entire habitat has been lost to urban development.  

Erica quadriraculata L.Bolus  
Status: Rare  
R.C. Turner  
Distribution: WC. Southern Cape Peninsula.  
Habitat: Fynbos, on rocky or sandy slopes and in rock crevices.  
Rationale: A range-restricted species occurring as one large, continuous population in an area of 12 km². No alien species have invaded the area and it is protected in the Table Mountain National Park.  

Erica radicans (L.Guthrie) E.G.H.Oliv. subsp. schlechteri (N.E.Br.) E.G.H.Oliv.  
Status: EN B1ab(i,ii,iii,v)  
R.C. Turner  
Distribution: WC. Stanford to Cape Agulhas.  
Habitat: Coastal limestone hills.  
Rationale: EOO < 700 km². Three known locations, two of which are declining as a result of dense alien acacias invading the habitat. The other is protected in a nature reserve.  

Erica recurvata Andrews  
Status: CR B1ab(iii)+2ab(iii); D  
R.C. Turner  
Distribution: WC. Soetmuisberg above Napier.  
Habitat: In rock crevices on low, rocky outcrops on mountain tops and plateaus.  
Rationale: This species was thought to be a European garden hybrid known only from a drawing published in the early 1800s. It had not been recorded or collected in the wild until rediscovered by Ross Turner on 30 August 2007. This species is now known from one wild population of 28 plants (EOO and AOO 1.26 km²) and is threatened by invasive alien infestation and too frequent fires.  

Erica regia Bartl. subsp. regia  
Status: EN B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)  
R.C. Turner & E.G.H. Oliver  
Distribution: WC. Elim to Viljoenshof.  
Habitat: Fynbos, lowland ferricrete areas.  
Rationale: EOO and AOO < 320 km². Several small, severely fragmented subpopulations are declining as a result of road construction and maintenance, agriculture and alien Acacia cyclops and Eucalyptus cornuta invasion of the habitat.  

Erica rehmii Dulfer  
Status: VU D2  
R.C. Turner  
Distribution: WC. Elandskloof.  
Habitat: Sandstone fynbos.  
Rationale: Extremely localised (EOO < 10 km²), known from one location. Potentially threatened by invasive species of Hakea.

Plate 56
Erica remota (N.E.Br.) E.G.H.Oliv.
Status: CR B1ab(ii,iii,iv,v) + 2ab(i,ii,iii,iv,v)
R.C. Turner

Distribution: WC. Riviersonderend Mountains.
Habitat: Deep alluvial soils on lower slopes below kloofs.
Rationale: Known from one location with less than 250 plants. EOO and AOO < 1 km². The particular habitat of this species is densely invaded by alien species of Acacia, Hakea and Pinus, causing a continuing decline in the population.

Erica rhodopis (Bolus) Guthrie & Bolus
Status: CR B1ab(ii,iii,iv,v) + 2ab(i,ii,iii,iv,v)
R.C. Turner & E.G.H. Oliver

Distribution: WC. Bot River and Perdekloof.
Habitat: Sandy soils over clay.
Rationale: EOO < 100 km², AOO < 10 km². Only two severely fragmented subpopulations are known, both declining because of vineyard expansion, alien invasions of the habitat and polo field development.

Erica ribisaria Guthrie & Bolus
Status: CR B1ab(ii,iii,iv,v) + 2ab(i,ii,iii,iv,v)
R.C. Turner & E.G.H. Oliver

Distribution: WC. Houwhoek to Kleinmond.
Habitat: Fynbos, in sandy soils on flats.
Rationale: EOO < 100 km², AOO < 2 km². Three remaining subpopulations are severely fragmented and are declining because of alien invasions of the habitat at two and firebreak and road maintenance at the other.

Erica richardi E.G.H.Oliv. & I.M.Oliv.
Status: Rare
R.C. Turner & E.G.H. Oliver

Distribution: WC. Dry mountain ridges north of the Groot Swartberg mountain range at Klaarstroom.
Habitat: Cliffs and in rocky, fire-protected areas in fynbos.
Rationale: A range-restricted species (EOO 10 km²), with only 25 plants known. We suspect that there may be a number of undiscovered subpopulations. It has no known threats.

Erica riparia H.A.Baker
Status: EN B1ab(ii,iii,iv,v)
R.C. Turner, E.G.H. Oliver, D. Pillay & F. Daniels

Distribution: WC. Betty’s Bay to Soetansyberg.
Habitat: Marshy seeps and wetlands in fynbos.
Rationale: EOO < 500 km². Three known locations. Declining at two locations owing to dense alien invasion of the habitat, the other is potentially threatened by coastal housing development.

ERICACEAE Erica remota

Erica rivularis L.E.Davidson
Status: EN B1ab(iii)
M. Lötter, L. von Staden & J.E. Victor

Distribution: MP. Blyde River Canyon and Graskop.
Habitat: Margins of clear, high-altitude perennial streams over quartzitic rocks.
Rationale: A range-restricted species (EOO 74 km²), five known locations. The habitat is being degraded at two locations by dense encroachment from invasive alien Acacia mearnsii (black wattle).

Erica roseoloba E.G.H.Oliv.
Status: Rare
R.C. Turner & J.E. Victor

Distribution: WC. Klein Swartberg Mountains.
Habitat: Cool, south-facing rock ledges and cliffs in fynbos.
Rationale: A rare, high-altitude habitat specialist. No known threats.

Erica rufescens Klotzsch
Status: Rare
R.C. Turner, E.G.H. Oliver & D. Pillay

Distribution: WC. Riviersonderend Mountains.
Habitat: Fynbos, on mountain summits.
Rationale: A rare resprouter, with a restricted, high-altitude distribution (EOO 80 km²) in the Riviersonderend Mountains. Not declining.

Erica rupicola Klotzsch
Status: DDD
R.C. Turner

Distribution: WC. Riviersonderend Mountains, Appelskraal, Stormvallei and Hassaquas Kloof.
Habitat: Probably sandstone slopes in fynbos.
Rationale: Not collected in over 100 years. Not enough is known about the specific habitat or population status of this species to determine its status.

Erica russakiana E.G.H.Oliv.
Status: DDD
R.C. Turner

Distribution: WC. Kleinrivier and Caledon Swartberg Mountains.
Habitat: Northern sandstone fynbos slopes.
Rationale: Known from two herbarium collections. Specific habitat and population status not known.

Erica rusticula E.G.H.Oliv.
Status: Rare
R.C. Turner

Distribution: WC. Kouebokkeveld.
Habitat: Rocky ridges in fynbos.
Rationale: Extremely localised, but locally common (EOO 10 km²), with several thousand plants in the population. No known threats.

ERICACEAE Erica remota

ERICACEAE Erica roseoloba

ERICACEAE Erica rufescens

ERICACEAE Erica rupicola

ERICACEAE Erica russakiana

ERICACEAE Erica rusticula

ERICACEAE Erica sagittata Klotzsch ex Benth.
Status: DDD
E.G.H. Oliver, R.C. Turner & D. Pillay
Distribution: EC. Van Stadens and Eldlandsriver Mountains.
**Erica salicina** E.G.H.Oliv.

**Status:** Rare

R.C. Turner

**Distribution:** WC. Hex River Mountains.

Habitat: Fynbos, on moist rock ledges on cliffs.

**Rationale:** An extremely localised, montane species (EOO < 100 km²), growing on the margins of a fire refuge. Only 10 plants are known and there is no known decline, but it is potentially vulnerable to frequent fires, as it is a slow-growing, long-lived reseeder.

**Erica schumannii** E.G.H.Oliv.

**Status:** EN D

R.C. Turner & E.G.H. Oliver

**Distribution:** WC. Villiersdorp.

Habitat: Fire-protected habitats on rocky mountain slopes.

**Rationale:** Only one subpopulation of ± 50 plants is known, but it is suspected that there may be other small subpopulations on the Stettynsberg and therefore the total population is estimated as < 250 plants. Potentially threatened by invasive alien pines.

**Erica setulosa** Benth.

**Status:** Rare

R.C. Turner

**Distribution:** WC. Langeberg, Klein Swartberg and Rooiberg Mountains.

Habitat: Fynbos, on moist rock ledges and slopes at high altitude.

**Rationale:** A rare, high-altitude habitat specialist, occurring on at least three different mountain ranges, in small, localised subpopulations. No known threats.

**Erica sicifolia** Salisb.

**Status:** VU D2

R.C. Turner

**Distribution:** WC. Riviersonderend Mountains.

Habitat: Fynbos, moist areas at the base of rocky outcrops.

**Rationale:** A rare, high-altitude habitat specialist, known to occur at only four locations. Potentially threatened by invasive alien pines.

**Erica sociorum** L.Bolus

**Status:** CR B1ab(iii); D

R.C. Turner & E.G.H. Oliver

**Distribution:** WC. Cape Peninsula, Noordhoek Peak.

Habitat: Fynbos, on steep, peaty, south-facing rock ledges and cliff faces.

**Rationale:** The most localised of all Cape Peninsula endemic ericas. About 50 plants occur at a single location (EOO and AOO 0.1 km²) and numbers are declining as a result of alien pines that invade the habitat.

**Erica sperata** E.G.H.Oliv.

**Status:** Rare

R.C. Turner

**Distribution:** WC. Ridge north of De Hoop.

Habitat: Calcareous ridges in fynbos.

**Rationale:** A localised, but locally common range-restricted endemic, EOO 80 km². Most of the population is protected in De Hoop Nature Reserve and the individuals outside the reserve boundary are not currently threatened.

**Erica squarrosa** Salisb.

**Status:** VU D2

R.C. Turner & D.A. Kamundi

**Distribution:** WC. Hottentots Holland Mountains and Groenlandberg.

Habitat: Rocks and rock pavement on mountain summits and slopes.

**Rationale:** A rare species, EOO 500 km². With only four known locations. Potentially threatened by invasive alien pines at all locations.

**Erica stokoeanthus** E.G.H.Oliv.

**Status:** VU D2

R.C. Turner & E.G.H. Oliver

**Distribution:** WC. Somerset Sneeukop, Hottentots Holland Mountains.

Habitat: High-altitude shale bands in montane fynbos.

**Rationale:** A highly restricted endemic, known from only one location. Potentially threatened by invasive pines.

**Erica stylaris** Spreng.

**Status:** VU B1ab(iii) + 2ab(iii)

R.C. Turner, E.G.H. Oliver & N.A. Helme

**Distribution:** EC WC. Mossel Bay to Humansdorp.

Habitat: Fynbos, on moist slopes.

**Rationale:** EOO 980 km², AOO < 980 km². Ten known locations. Declining as a result of habitat degradation caused by invasive alien pines.

**Erica subverticillaris** Diels ex Guthrie & Bolus

**Status:** VU D2

M. Lötter, L. von Staden & J.E. Victor

**Distribution:** MP. Long Tom Pass.

Habitat: High-altitude, short grassland, among rocky outcrops on mountain summits, 1 900–2 200 m.

**Rationale:** Between two and five locations remain. This species has declined because of afforestation in the past and it is currently potentially threatened by invasive alien plants.

**Erica tarantulae** E.G.H.Oliv.

**Status:** VU D2

R.C. Turner & A.N. Hitchcock

**Distribution:** WC. Hex River Mountains.

Habitat: Fynbos, in stony areas at high altitudes above 1 200 m.

**Rationale:** EOO 22 km², AOO < 0.5 km². Two known locations. Potentially threatened by too frequent fires.

**Erica tentuipes** Guthrie & Bolus

**Status:** Rare

R.C. Turner

**Distribution:** WC. Franschhoek and Du Toit’s Kloof Mountains.

Habitat: Fynbos, on southern sandstone slopes.

**Rationale:** A rare, range-restricted high-altitude habitat specialist, known from only three sites, but not recorded for several decades. It is, however, unlikely to be threatened.
Erica tetraphloides Benth.
Status: VU D2
Distribution: WC. Langeberg Mountains, Garcia’s Pass.
Habitat: Fynbos, in seepage areas or along streambanks on south-facing slopes.
Rationale: One large subpopulation from a restricted area around Garcia’s Pass (EOO ± 20 km²) is potentially threatened by expanding forestry plantations and alien pines that invade the habitat at five locations.

Erica trigonomontana R. C. Turner
Status: VU D2
R. C. Turner
Distribution: WC. Central Koue Boskoeveld, Skurweberg and Bokberg Mountains.
Habitat: Rocky, sandy, quartzitic mountain slopes, often with shale alluvium, on southwest- to southeast-facing slopes, usually in nonperennial seepage areas.
Rationale: Four known locations are potentially threatened by too frequent fires.

Erica trichophylla Benth.
Status: VU D2
R. C. Turner & E. G. H. Oliver
Distribution: WC. Riviersonderend Mountains.
Habitat: Middle slopes in montane sandstone fynbos.
Rationale: Locally abundant, range-restricted endemic (EOO < 40 km²), and known from only two locations. Potentially threatened by invading alien pines.

Erica trichostigma Salter
Status: VU B1a(ii,iii,iv)+2ab(ii,iii,iv,v)
D. Raimondo
Distribution: WC. Hopefield and Langebaan to Mamre.
Habitat: Coastal sands.
Rationale: EOO and AOO < 900 km². Fewer than 10 known locations. Declining as a result of continued expansion of crop cultivation, coastal development and alien plants invading the habitat.

Erica turgida Salisb.
Status: EW
E. G. H. Oliver, R. C. Turner & D. Pillay
Distribution: WC. Cape Flats.
Habitat: Seasonally wet depressions and streambanks in fynbos.
Rationale: Formerly occurred on the Cape Flats around Rondesbosch, Kenilworth and on the Royal Cape Golf Course in the Wynberg area. Extinct at all sites as a result of urban development. It survives as a cultivated species at Kirstenbosch National Botanical Garden.

Erica turrisbabylonica H. A. Baker
Status: VU D2
R. C. Turner, E. G. H. Oliver & D. Raimondo
Distribution: WC. Kleinmond to Caledon.
Habitat: Fynbos, on steep, south-facing summit slopes.
Rationale: EOO 33 km². Only two known locations. Potentially threatened by alien pine and Hakea drupacea invasions and too frequent fires at one location.

Erica umbratica E. G. H. & I. M. Oliv.
Status: Critically Rare
R. C. Turner & E. G. H. Oliver
Distribution: WC. Meiringspoort, in the Groot Swartberg Mountains.
Habitat: Northeast-facing, dry, shady crevices of sheer cliff faces.
Rationale: Only one site with ± 100 plants is known, but there may be more individuals on unexplored areas of the inaccessible habitat of this species. Although highly range restricted, it is not threatened.

Erica unicolor J. C. Wendl. subsp. georgensis E. G. H. Oliv. & I. M. Oliv.
Status: Critically Rare
P. A. Manyama
Distribution: WC. between Mossel Bay, Herbertsdale and George.
Habitat: Lowlands and lower south- and north-facing slopes in fynbos.
Rationale: EOO < 1 000 km². Five known locations. Habitat quality is declining because of fragmentation by forestry plantations and alien invasions. Crop cultivation is also causing continuing habitat loss in some areas.

Erica unna-viridis Bolus
Status: Rare
R. C. Turner, E. G. H. Oliver & D. Pillay
Distribution: WC. Cape Peninsula, Silvermine and Muizenberg Mountain.
Habitat: Rocky summit slopes in fynbos.
Rationale: Locally common, range-restricted endemic, EOO 6 km². Not threatened or declining.

Erica ustulescens Guthrie & Bolus
Status: CR B1a(ii,iii,ij); C2a(ii)
R. C. Turner, E. G. H. Oliver & N. A. Helme
Distribution: WC. Bot River.
Habitat: Sandy slopes and sometimes lateritic gravel.
Rationale: EOO 24 km². Only four small, severely fragmented subpopulations remain in road verges. The total population numbers less than 150 plants, with no subpopulation having more than 50 mature individuals. The habitat has been extensively transformed by agriculture and the population continues to decline because of road construction and maintenance and invasive alien infestations.

Erica uysii H. A. Baker
Status: VU D2
R. C. Turner, E. G. H. Oliver & D. Pillay
Distribution: WC. De Hoop Nature Reserve.
**Erica valida** H.A.Baker

- **Status:** Rare
- **Rationale:** A naturally rare, high-altitude habitat specialist that can be locally common.
- **Distribution:** WC. Kogelberg Biosphere Reserve.

**Erica vallis-aranearum** E.G.H.Oliv.

- **Status:** CR D
- **Rationale:** This taxon has not been recorded for at least 20 years, despite repeated searches. Almost 100% of its habitat is under pine plantations and it is probably extinct.

**Erica vallis-fluminis** E.G.H.Oliv.

- **Status:** Rare
- **Rationale:** A range-restricted (EOO < 100 km²) habitat specialist. No known threats.

**Erica vallis-gratiae** Guthrie & Bolus

- **Status:** Rare
- **Rationale:** A range-restricted, high-altitude habitat specialist. No threat.

**Erica velatiflora** E.G.H.Oliv.

- **Status:** VU D1 + 2
- **Rationale:** Only one subpopulation of ± 500 plants occur in part of De Hoop Nature Reserve that is affected by alien *Acacia cyclops* invasions, but it is not declining at present.

- **Distribution:** WC. Groenlandberg east of Grabouw.

- **Habitat:** Lowland fynbos in damp, acid sandy soils.

**Erica viridiflora** Andrews subsp. *redacta*

- **Status:** DD
- **Rationale:** A Cape Flats endemic that went extinct as a result of harvesting for cut flowers and urban development. It has been reintroduced at two sites: Kenilworth Racecourse in 2006 and Rondevlei between 2002 and 2005. Both reintroduced subpopulations have yet to prove to be self-sustaining.

**Erica viridimontana** E.G.H. & I.M.Oliv.

- **Status:** EN D
- **Rationale:** Only one subpopulation of ± 500 plants occurs within an area that is highly transformed by wheat cultivation, the actual silcrete outcrops on which it grows are not ploughed as they are too steep and rocky. Grazing and erosion from trampling by livestock are potential threats at all locations.

**Erica venustiflora** E.G.H.Oliv. subsp. *glandulosa*

- **Status:** VU D2
- **Rationale:** A range-restricted (EOO < 100 km²) habitat specialist. No known threats.

**Erica venustiflora** E.G.H.Oliv. subsp. *venustiflora*

- **Status:** EN B1ab(iii) + 2ab(iii); D
- **Rationale:** A naturally rare species, well conserved within the Kogelberg Biosphere Reserve, but known from only one subpopulation that has 15 mature individuals.

**Erica verticillata** P.J.Bergius

- **Status:** EW
- **Rationale:** A single population of ± 100 plants is known.

**Erica viridimontana** E.G.H. & I.M.Oliv. subsp. *nivicola*

- **Status:** EN
- **Rationale:** A Cape Flats endemic that went extinct as a result of harvesting for cut flowers and urban development. It has been reintroduced at two sites: Kenilworth Racecourse in 2006 and Rondevlei between 2002 and 2005. Both reintroduced subpopulations have yet to prove to be self-sustaining.

**Erica viscaria** L. subsp. gallorum (L.Bolus)

- **Status:** CR PE
- **Rationale:** This taxon has not been recorded for at least 20 years, despite repeated searches. Almost 100% of its habitat is under pine plantations and it is probably extinct.
**Erica viscaria** L. subsp. **pendula** E.G.H.Oliv. & I.M.Oliv.

*Status:* VU D2

R.C. Turner & E.G.H. Oliver

*Distribution:* WC. Kleinmond, Paardeberg range west of Bot River.

*Habitat:* Sandstone slopes.

*Rationale:* An extremely localised taxon (EOO 4 km²), with only one known location which is protected in the Fernkloof Nature Reserve. Too frequent fires, however, are a potential threat—the site has burnt twice over the past 10 years.


*Status:* VU D2

R.C. Turner

*Distribution:* WC. Kleinrivier Mountains, Hermanus.

*Habitat:* Sandstone slopes in fynbos.

*Rationale:* This taxon is known from one location. It is locally abundant, with no decline, but potentially threatened by scattered invasive alien pines from adjacent forestry plantations.

**Erica viscidiflora** Esterh.

*Status:* VU D2

R.C. Turner

*Distribution:* WC. Riviersonderend Mountains, Drakenstein Peak and Pilaarkop.

*Habitat:* Middle and lower south-facing slopes in fynbos.

*Rationale:* A range-restricted species (EOO 250 km²), with two known locations. Potentially threatened by invasive alien pines.

**Erica viscosissima** E.G.H.Oliv.

*Status:* VU B1ab(iii,v)+2ab(iii,v)

D. Raimondo, A.L. Schutte-Vlok & N.A. Helme

*Distribution:* WC. Kleinmond, Paardeberg range west of Bot River.

*Habitat:* Sandstone slopes.

*Rationale:* This taxon is known from one location. It is locally abundant, with no decline, but potentially threatened by scattered invasive alien pines from adjacent forestry plantations.

**Erica vlokii** E.G.H.Oliv.

*Status:* EN B1ab(iii,v)+2ab(iii,v)

J.H. Vlok & D. Raimondo

*Distribution:* WC. Herold and George.

*Habitat:* Arid fynbos slopes.

*Rationale:* EOO and AOO < 10 km². Five known locations. Declining as a result of too frequent fires and alien plants invading the habitat. Some habitat has also been transformed by forestry plantations.

**Erica williamsiorum** E.G.H.Oliv.

*Status:* VU D2

R.C. Turner

*Distribution:* WC. Southern Overberg from Hermanus to Napier.

*Habitat:* Cool, moist, peaty, southern slopes, in dense restioid-ericoid vegetation.

*Rationale:* EOO < 213 km², AOO < 10 km². A locally common habitat specialist recorded at 10 locations. Potentially threatened by alien hekka and pine invasions at all locations.

**Erica wittebergensis** Dulfer var. **zitzikammensis**

*Status:* DDD

R.C. Turner, E.G.H. Oliver & D. Raimondo

*Distribution:* WC. Tsitsikamma Mountains.

*Habitat:* Fynbos, southern slopes below summits.

*Rationale:* Only one herbarium collection from 1957 is known. There is no recent information available for this taxon.
ANGIOSPERMS: DICOTYLEDONS

ERICACEAE Erica zwartbergensis

Status: Rare
R.C. Turner, E.G.H. Oliver & D. Raimondo

Distribution: WC. Swartberg Mountains to Outeniqua Mountains.

Habitat: Seasonal seepage areas in montane fynbos.

Rationale: A habitat specialist known from five sites, but a few more small, isolated subpopulations probably exist.

EUPHORBIACEAE

Acalypha L.

Acalypha entumenica Prain

Status: EN A2c
L. von Staden & C.R. Scott-Shaw

Distribution: KZN. Qudeni and Entumeni, central Kwazulu-Natal.

Habitat: Mistbelt and Ngongoni Grassland on dolerite, 850–1 600 m.

Rationale: A long-lived, suffrutescent grassland forb, generation length at least 50 years. Known from two well-separated locations that have been extensively transformed by cultivation and forestry plantations. A population reduction of at least 50% is estimated based on habitat loss at these locations since the first collection was made in 1888 (two or three generations). Probably extinct at one location, and searches of areas of suitable habitat between the two sites have failed to locate other subpopulations.

Euphorbia L.

Euphorbia albertensis N.E.Br.

Status: Rare
L. von Staden

Distribution: EC. NC WC. Great Karoo between Prince Albert, Willowmore and Britstown.

Habitat: Unknown, Germishuizen & Retief 20 (PRE) was collected at the edge of a pan.

Rationale: Known from four collections in the last 100 years, scattered over an area of ≥ 28 000 km² in the Great Karoo. Possibly a rare habitat specialist, but may also be merely overlooked.

Euphorbia albipollinifera L.C.Leach

Status: NT D2
R.H. Archer & J.E. Victor

Distribution: EC. Springbokvlakte southeast of Steytlerville and Steenbokvlakte west of Kirkwood.

Habitat: Low, dry, stony hill slopes with sparse shrubby Karoo vegetation.

Rationale: EOO estimated 2 900 km². With 5–10 locations. Potentially threatened by illegal collecting and degradation of the habitat by overgrazing and trampling in some areas.

Euphorbia astrophora Marx

Status: VU D2
R.H. Archer, A.P. Dold, J.E. Victor & L. von Staden

Distribution: EC. Klipplaat.

Habitat: Shade of karroid shrubs on low stony hillsides.

Rationale: Known only from the type locality. Potentially threatened by habitat degradation as a result of overgrazing, trampling and removal of mature individuals for horticultural purposes. According to recent molecular work on the genus (Bruyns et al. 2006), E. astrophora is probably a synonym of E. decepta.

Euphorbia barnardii A.C.White, R.A.Dyer & B.Sloane

Status: EN A2ace; B1ab(ii,iii,iv,y) + 2ab(ii,iii,iv,y)

Distribution: WM. Sekhukhuneland, from the Strydoop Mts southwards along the Leolo Mts to Steelpoort.

Habitat: Savanna and closed woodland, rocky slopes and summits, mainly norite outcrops, with one subpopulation on banded ironstone. At most sites the habitat has been degraded to a shrubby, succulent-dominated vegetation with low grass and tree cover.

Rationale: EOO 500 km², AOO 0.3–1 km². Known from 3–5 subpopulations and locations and the total population estimated to be less than 10 000 mature individuals. Threatened by overgrazing, trampling, habitat degradation, erosion, disease and mining. Monitoring over the last 15 years recorded extensive declines in three subpopulations, with two formerly large subpopulations not being relocated and one showing > 80% decline in the number of mature individuals. A 60–70% decline in the total population over last 15 years is estimated (generation length 10–20 years).

Euphorbia bayeri L.C.Leach

Status: CR A2c; B1ab(ii,iii,iv,y) + 2ab(ii,iii,iv,y);

C2a(ii)

J.H. Vlok & D. Raimondo

Distribution: WC. Mossel Bay.

Habitat: Grassy fynbos on shallow, sandstone-derived soils.

Rationale: Only two locations are known. One on the outskirts of Mossel Bay was destroyed by an expanding settlement, which resulted in an 80% decline in the total population. The other location contains ≥ 200 mature individuals within an EOO and AOO of < 10 km². Urban expansion and invasive alien plants are causing a continuing decline. Recent molecular work by Bruyns et al. (2006) indicates that E. bayeri may be a synonym of E. rhombifolia.

Euphorbia brunnssii L.C.Leach

Status: Critically Rare
J.E. Victor

Distribution: EC. Steytlerville.

Habitat: Nama-Karoo, among small shrubs on low, stony conglomerate hills.

Rationale: Known from the type locality, where it was discovered in 1978. Not threatened.

Euphorbia bupleurifolia Jacq.

Status: Declining
J.E. Victor, R.H. Archer & A.P. Dold

Distribution: EC KZN. Grahamstown to Pietermaritzburg.

Habitat: Open grassland, usually in shallow soils with a thin cover of grass.

Rationale: A widespread and relatively common species that is being harvested in large volumes for medicinal use in the western part of its range. There are concerns that the volumes harvested may be unsustainable.

Euphorbia clivicola R.A.Dyer

Status: CR A2ace; B2ab(ii,iii,iv,y)

M.F. Pfaf, P.F. Matlamela, M. Leroy & L. von Staden

Distribution: LM. Polokwane and near Mokopane.

Habitat: Gentle slopes of quartzite ridges in savanna.
Rationale: A 91% decline was observed in two known subpopulations between 1987 and 2007 as a result of urban expansion, poor fire management, high levels of herbivory and harvesting for horticultural purposes. The two subpopulations are severely fragmented and declining, AOO 0.05 km². A population viability model incorporating four different management scenarios was developed for the subpopulation protected within the nature reserve based on demographic data collected between 1987 and 1996 (Pfab & Witkowski 2000). The model predicted an 88% probability of extinction within 20 years based on the management practices in place at the time. Recommendations were that fire frequency should be increased, herbivores excluded and ex situ individuals introduced into the population to bring down the extinction risk to 2% within 100 years. The reserve management, however, conceded only to increase the fire frequency in the reserve, still meaning a 58% probability of extinction within 50 years. By 2008, this subpopulation has declined to fewer than 10 mature individuals because of the ongoing impact of herbivory by native antelope and rodents (R.H. Archer, pers. comm.) and possibly disease (M. Leroy, pers. comm.) The other remaining subpopulation is under severe development pressure and is continually being degraded by human activities as a result of its situation on the urban edge.

**Euphorbia colliculina** A.C. White, R.A. Dyer & B. Sloane

Status: EN B1ab(iii,iii,v)+2ab(ii,iii,iv,v)


*Distribution*: WC. Between Oudtshoorn, Calitzdorp and De Rust.

Habitat: Stony limestone ridges in succulent shrubland.

*Rationale*: EOO 455 km², AOO < 455 km². Only four known locations remaining. The habitat has been severely degraded by ostrich farming in general; two locations are directly affected by degradation as a result of ostrich farming and one subpopulation is now extinct. Other threats include urban development, gravel quarrying and road construction.

**Euphorbia fasciculata** Thunb.

Status: VU B1ab(v)+2ab(v)

L. von Staden

*Distribution*: WC. Endemic to the Knysnaflakte.

Habitat: Succulent karoo, occurs among short bushes on sandy flats and sparsely vegetated quartz-strewn flats.

*Rationale*: EOO 900 km². With 6–10 locations. A very popular collector’s species that has become rare in easily exploited areas and habitat quality and as a result of continued levels of exploitation for traditional medicinal use.

**Euphorbia franksiae** N.E. Br.

Status: VU A2cd

V.L. Williams & D. Raimondo

*Distribution*: KZN. Port Shepstone to Mahlabatini.

Habitat: Savanna and coastal grassland, 100–800 m.

*Rationale*: At least a 30% reduction in the population is estimated, based on decline in the area of occupancy and habitat quality and as a result of continued levels of exploitation for traditional medicinal use.

**Euphorbia globosa** (Haw.) Sims

Status: EN B1ab(ii,iii,v)

J.E. Victor & A.P. Dold

*Distribution*: EC. Port Elizabeth to Uitenhage.

Habitat: Low, stony hills not further than 20 km from the coast, in full sun.

*Rationale*: AOO 1 200 km². Fewer than five remaining locations. Continuing to decline because of coastal development.

**Euphorbia grandialata** R.A. Dyer

Status: Rare

P.J.D. Winter, J.E. Victor & L. von Staden

*Distribution*: IM. Sekhukhuneland, Olifants River and Steelpoort River Valleys.

Habitat: Mixed bushveld, occurs on dolomite and ironstone ridges, 600–700 m.

*Rationale*: EOO 360 km². Total population estimated as < 5 000 mature individuals, based on surveys of 14 sites in the Olifants and Steelpoort River Valleys. Not affected by mining or grazing, not declining.

**Euphorbia groenewaldii** R.A. Dyer

Status: CR A2ac

L. von Staden

*Distribution*: IM. East of Polokwane.

Habitat: Gentle, northwest-facing slopes of small granite hills and ridges between bands of schist or in gritty red sandy loam soil, 1 100–1 500 m.

*Rationale*: Population surveys in 1986 and 2007 recorded a 96% reduction in the number of mature individuals as a result of urban development, quarrying, severe overgrazing and harvesting for horticultural purposes.

**Euphorbia hallii** R.A. Dyer

Status: Rare

R.H. Archer & J.E. Victor

*Distribution*: NC. Botterkloof to Biedouw.

Habitat: Lower slopes and flats, on sandy, gravelly clay.

*Rationale*: Known from five subpopulations in the Biedouw Valley area. The habitat is not cultivated.

**Euphorbia louwii** L.C. Leach

Status: Rare

P.J.D. Winter & J.E. Victor

*Distribution*: IM. Northern margins of the Waterberg range around Merken in the Mokopane district.

Habitat: Wedged among rocks in open woodland on sandstone and conglomerate hills and ridges, 1 000–1 300 m.

*Rationale*: EOO 300 km². Although there is surrounding habitat degradation by overgrazing and flat sandy areas are cultivated, this species grows in very rocky areas, which are protected from these pressures. Not threatened.

**Euphorbia lumbricalis** L.C. Leach

Status: VU D2

R.H. Archer & J.E. Victor

*Distribution*: WC. Koekenaap.

Habitat: Succulent karoo, grows under and among shrubs in deep, red, sandy soil.

*Rationale*: Known only from the type locality. Potentially threatened by crop cultivation and habitat degradation as a result of overgrazing.

**Euphorbia meloformis** Aiton subsp. meloformis

Status: NT B1ab(i,iii,iv,v)

D. Raimondo, A.P. Dold, W. Berrington, R.H. Archer, J.E. Victor & L. von Staden

*Distribution*: EC. Port Elizabeth to Grahamstown and eastwards to Peddie.
ANGIOSPERMS: DICOTYLEDONS
EUPHORBIACEAE Euphorbia meloformis subsp. meloformis

**Euphorbia meloformis** Aiton subsp. *valida*
(N.E.Br.) G.D.Rowley

**Status:** NT B1ab(v)
R.H. Archer, A.P. Dold, J.E. Victor & L. von Staden

**Distribution:** EC. Steyterville to Somerset East and Bedford and southeast to Carlisle Bridge, northwest of Grahamstown.

**Habitat:** Sandy soils in grassland and karroid shrubland.

**Rationale:** EOO 5 500 km². Known from more than 10 locations, but subpopulations are small and isolated and therefore considered severely fragmented. Local declines due to collecting for horticultural purposes were reported in the 1980s, but the population is not declining at present. Removal of mature individuals from the wild for horticultural purposes remains a potential threat.

**Euphorbia nesemannii** R.A.Dyer

**Status:** NT B1ab(ii,iii,iv,v)
N.A. Helme, E.J. van Jaarsveld & D. Raimondo

**Distribution:** WC. Worcester to Robertson and Swellendam.

**Habitat:** Karroid scrub on low gravel slopes.

**Rationale:** EOO 2 320 km². Suspected to occur at 20 locations. Declining because of ongoing habitat loss to vineyard expansion.

**Euphorbia obesa** Hook.f. subsp. *obesa*

**Status:** EN B1ab(i,v)+2ab(ii,v); C2a(i)
R.H. Archer, A.P. Dold, J.E. Victor & L. von Staden

**Distribution:** EC. Graaff-Reinet.

**Habitat:** Open karroid shrubland, stony slopes and flats, in loose sandy soils under small shrubs, or wedged among stones.

**Rationale:** EOO 17 km², but it may be as large as 640 km² if, according to a new taxonomy proposed by Bruyns et al. (2006), all subspecies are to be combined into a single taxon. There are two locations (three if *E. obesa* subsp. *symmetrica* is included). The total population is estimated to be less than 500 mature individuals, with a number of small subpopulations consisting, on average, of ≥30 mature individuals. Decline is continuing because of the collecting of wild individuals for horticultural purposes.

**Euphorbia obesa** Hook.f. subsp. *symmetrica*
(A.C.White, R.A.Dyer & B.Sloane)

**Status:** Plate 60
G.D.Rowley

**Distribution:** EC. Willowmore.

**Habitat:** Low, open karroid shrubland, on very stony substrates, hidden among rocks or under low shrubs.

**Rationale:** Known only from the type locality, EOO < 1 km². Declining as a result of harvesting for horticultural purposes. Should possibly be included as a synonym under *E. obesa*.

**Euphorbia oxyystegia** Boiss.

**Status:** DDD
L. von Staden

**Distribution:** NC. Namaqualand, Stinkfontein Mountains to Komaggas.

**Habitat:** Unknown, this species is known mainly from cultivated material and very old herbarium specimens that do not indicate habitat.

**Rationale:** A very poorly known species, last collected in 1957. EOO derived from localities on herbarium specimens is 2 500 km². It is quite likely very rare, but not enough is known about the habitat and population structure to place it in a threatened category at present. It occurs in a remote and sparsely populated area of South Africa where there is very little impact from land use on the natural vegetation. Unlikely to be threatened, but surveys are needed to determine this for certain.

**Euphorbia pedemontana** L.C.Leach

**Status:** VU D2
R.H. Archer & J.E. Victor

**Distribution:** NC. Endemic to Namaqualand, occurring between Port Nolloth, Steinkopf, Komaggas and Kamieskroon.

**Habitat:** Succulent karoo.

**Rationale:** Known only from the type locality, EOO ±17 km². Potentially threatened by agriculture and grazing by livestock.

**Euphorbia pentops** A.C.White, R.A.Dyer & B.Sloane

**Status:** Rare
R.H. Archer & J.E. Victor

**Distribution:** NC. Endemic to Namaqualand, occurring between Port Nolloth, Steinkopf, Komaggas and Kamieskroon.

**Habitat:** Succulent karoo, on gravelly banks, in deep, well-drained, sandy soils on plains, as well as rocky quartzitic ridges.

**Rationale:** EOO 6 490 km². There are about nine known subpopulations, which tend to be small. A relatively rare species that is potentially threatened by harvesting for horticultural purposes as it has very attractive flowers, but it is too wide ranging and there are too many sites to qualify under VU D2.

**Euphorbia perangusta** R.A.Dyer

**Status:** EN A2ace; B1ab(iii,v)+2ab(iii,v)
L. von Staden

**Distribution:** NW. Marico district north of Zeerust.

**Habitat:** Woodland and thornveld, wedged among large rocks on the slopes of quartzitic ridges, 1 000–1 200 m.

**Rationale:** Assessment includes *E. knobellii*, which overlaps in range with *E. perangusta* and is extremely difficult to distinguish from *E. perangusta*, and which should be placed in synonymy under this taxon (R.H. Archer, pers. comm.). A reduction of 60% in the population of *E. perangusta* has been documented over a period of only 13 years (one generation). Detailed monitoring data are not available for *E. knobellii* subpopulations, but drastic declines have been reported. The overall reduction in the combined population is probably >50%. EOO 437 km². All remaining subpopulations are extremely small (several have fewer than 10 plants), severely fragmented and decline is continuing.
Euphorbia polycephala
Marloth
Status: VU A2ac
L. von Staden

Distribution: EC. Between Pearston, Cradock and Somerset East.
Habitat: Karroid shrublands and thicket, on rocky hills and flats.
Rationale: At least 30% reduction in the population over the last two generations is inferred from severe declines that have been noted within the historical range of this species, with 40–50% of subpopulations recorded as declining or extinct. Monitoring of a subpopulation on a farm near Pearston recorded a 90% decline in 10 years. Reasons for declines include drought, damage by browsing livestock and burrowing ground squirrels. However, a number of relatively large, healthy subpopulations have been discovered recently and they appear to be stable.

Euphorbia pseudoglansa
Marloth
Status: VU B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Touwsrivier to Barrydale.
Habitat: Gravely slopes or flats on shale, often in quartz patches.
Rationale: EOO 500 km², AOO < 500 km². Fewer than 10 remaining locations. Declining as a result of removal of mature individuals by succulent collectors and invasions by alien plants.

Euphorbia quadrata
Nel
Status: Rare
L. von Staden

Distribution: NC. Richtersveld, Eksteenfontein to Kuboes.
Habitat: Succulent shrubland, among rocks and under bushes on south- to southwest-facing slopes.
Rationale: EOO 213 km². Known from only four collections, but quite likely to be overlooked owing to its occurrence in a remote area.

Euphorbia restricta
R.A.Dyer
Status: Rare
P.J.D. Winter, J.E. Victor & L. von Staden

Distribution: LM. East of Mokopane and along the Strydpoort Mountains to the Drakensberg Escarpment and southwards to the Olifants River Valley near Penge.
Habitat: Montane mistbelt grassland, in shallow, humus-rich soils wedged among boulders of dolomite outcrops at around 1 500 m.
Rationale: EOO 1 900 km². A habitat specialist restricted to a few mountain peaks. Not threatened.

Euphorbia rowlandii
R.A.Dyer
Status: NT D2
L. von Staden

Distribution: LM. North of Punda Maria in the Kruger National Park and adjacent areas outside the park, along the Mutale River and also Pesu River gorge in southern Zimbabwe.
Habitat: Mixed woodland, on riverbanks and sandstone ridges. 300–450 m.
Rationale: EOO 418 km². Known from six locations in South Africa. Four subpopulations in the Kruger National Park are not threatened. Two locations outside park boundaries are potentially threatened by expanding human settlements and mining. The global range of this species is very small and most of it falls within South Africa. Regional assessment is not downgraded.

Euphorbia schoenlandii
Pax
Status: VU B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: NC. Vanrhynsdorp to Vredendal.
Habitat: Sandveld areas with deep, red aeolian sands, on lower, loamy slopes, where it often occurs in fairly dense vegetation.
Rationale: EOO 1 200 km². Known from fewer than 10 locations. Declining as a result of habitat destruction by expanding vineyards.

Euphorbia sekukuniensis
R.A.Dyer
Status: Rare
P.J.D. Winter, J.E. Victor & L. von Staden

Distribution: LM MP. Sekhukhuneland, Steelpoort River Valley and along the summit of the Leolo Mountains as far as the Olifants River Valley.
Habitat: Closed woodland and thicket, in shallow noraite soils on rocky outcrops among large boulders, 900–1 300 m.
Rationale: EOO 2 300 km². A habitat specialist occurring in small, isolated subpopulations scattered over a wide area that seldom consists of more than 50 mature individuals. Potentially threatened by highly destructive opencast mining of noraite substrates, but at present too widespread to qualify under VU D2.

Euphorbia susannae
Marloth
Status: Rare
L. von Staden

Distribution: NC. Richtersveld.
Habitat: Karroid scrub on gentle slopes, often in quartz patches.
Rationale: EOO 290 km², AOO < 290 km². Four known locations. Declining as a result of removal of mature individuals from the wild by succulent collectors and habitat degradation due to overgrazing and trampling.

Euphorbia umfoloziensis
Peckover
Status: VU D2
L. von Staden

Distribution: KZN. White Umfolozi River Valley.
Habitat: Valley bushveld, on well-drained, sandy, north-facing slopes in river valleys.
Rationale: Two known subpopulations are potentially threatened by habitat degradation as a result of overgrazing and trampling.

Euphorbia versicolores
G.Will.
Status: Critically Rare
L. von Staden

Distribution: NC. Richtersveld.
Habitat: Succulent semidesert shrublands, pebbly, stony loam plains.
Rationale: Known only from the type locality, where there are two small colonies of ± 20 plants. However, the area where it occurs is very poorly explored and there may be other subpopulations. Taxonomic status uncertain. Bruyns et al. (2006) consider this taxon a synonym of E. fulgida, but Williamson (1995) lists several differences between them.

Euphorbia waterbergensis
R.A.Dyer
Status: Rare
P.J.D. Winter, J.E. Victor & L. von Staden

Distribution: LM. Northern Waterberg between Lephale, Marongwe and the Lephalale River.
Habitat: Quartzite ridges and outcrops, mixed bushveld, 900–1 100 m.
Rationale: EOO 730 km². Until 1978 this species was known from only three subpopulations and it was placed on the list of threatened species of the former Transvaal Province. However, subsequent surveys indicated that although restricted in range, the species is locally very common and there are more than 10 subpopulations. Isolated cases of habitat destruction have affected a few subpopulations in the past, but there is no evidence of continuing decline. Subpopulations appear healthy and are recruiting successfully. However, occasional monitoring is still necessary, because if further declines are detected this species would qualify under NT B.

**Distribution:**

**Status:** EN A4cd

Euphorbia woodii N.E.Br. Plate 60

**Stages:**


**Distribution:** NC. EC KZN. KwaZulu-Natal south coast to Mazeppa Bay.

**Habitat:** Coastal grasslands and low dune bush, mainly on sandstones, 40–800 m.

**Rationale:** There has been a minimum of 40% reduction of the population because of habitat loss and medicinal plant harvesting in the KwaZulu-Natal South Coast region over the past 100 years (generation length 40 years). An additional 10–15% decline is expected over the next 20 years as a result of the N2 road construction through the Wild Coast in the Eastern Cape, which will cause additional habitat loss and allow access for medicinal plant harvesters.

**FABACEAE**

Acacia Mill.

**Acacia ebutsiniorum** P.J.H.Hurter

**Status:**

EN D

M. Lötter, J.E. Burrows, L. von Staden & D. Raimondo

**Distribution:** MP. Steynsdorp.

**Habitat:** Exposed, open grassland, on steep, southeast-facing slopes, apparently on serpentine soils, 1 100 m.

**Rationale:** Known from a single, stable subpopulation of ± 120 individuals. It may decline in future if the current low pressure of firewood collection is to increase.

**Acacia erioloba** E.Mey.

**Status:** Declining

L. von Staden & D. Raimondo

**Distribution:** FS LM NC NW. Widespread in the arid northern provinces of South Africa, also Namibia, Botswana, Zimbabwe, southern Angola and southwestern Zambia.

**Habitat:** Savanna, semidesert and desert areas with deep, sandy soils and along drainage lines in very arid areas, sometimes in rocky outcrops.

**Rationale:** Concerns have been raised over the large volumes of A. erioloba wood being removed for commercial sale of firewood. Many trees are also killed as a result of bush encroachment control through pesticides. A study conducted in the Northern Cape (Powell 2001) indicated that at present only dead trees are being harvested for firewood and only a very small percentage of the study area (< 2%) was affected by clearing of A. erioloba.

**Acacia ormocarpoides** P.J.H.Hurter

**Status:** NT D2

L. von Staden, P.J.D. Winter, D. Raimondo & PA. Manyama

**Distribution:** 1M. Northern Leolo Mountains, Sekhukhuneland.

**Habitat:** Sandy or loamy soils between norite boulders.

**Rationale:** EOO 300 km². Locally quite common (estimated 5–10 locations). Potentially threatened by harvesting for firewood and habitat degradation as a result of overgrazing and mining, but no continuing decline has been observed or is suspected.

**Acacia sekukhunensis** P.J.H.Hurter

**Status:** CR B1ab(ii,iii)

P.A. Manyama

**Distribution:** 1M. Northeastern boundary of Sekhukhuneland.

**Habitat:** Open woodlands and wooded grassland on quartzite ridges.

**Rationale:** EOO < 100 km². One known location. At least 60% of the surrounding habitat has already been transformed and there is ongoing habitat loss as a result of mining, overgrazing, informal settlement expansion, and subsistence farming. It is also potentially threatened by harvesting of firewood.

**Albizia Durazz.**

**Albizia sulensis** Gerstner

**Status:** EN B1ab(ii,iii,v)+2ab(ii,iii,v); C2a(ii)

C.R. Scott-Shaw, J.E. Victor, L. von Staden & A.E. van Wyk

**Distribution:** KZN. Hlabisa to Hluhluwe.

**Habitat:** Scarp forest, riverine thicket and open woodland, often along streams, usually along the upper altitudinal perimeter and on steep slopes.

**Rationale:** EOO 330–400 km². All the trees in the various forest patches are considered to be a single subpopulation, as these areas are interconnected and gene flow by means of pollination and seed dispersal is possible. There are two locations: the portion of the subpopulation that is protected inside the Hluhluwe-Umfolozi Game Reserve, and the trees in forest patches outside the reserve, which are all affected by harvesting for firewood, building materials and medicine. Population estimated to be 1 000–2 500 mature individuals and is declining.

**Amphithalea** Eckl. & Zeyh.

**Amphithalea alba** Granby

**Status:** NT B1ab(ii,iii)

A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Agulhas to Still Bay.

**Habitat:** Lowland fynbos on limestone.

**Rationale:** EOO 1 550 km². Ten known locations, but suspected to occur at a few more. Its habitat is declining as a result of coastal development and invasions by alien plants.

**Amphithalea axillaris** Granby

**Status:** Rare

A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Langeberg Mountains and Outeniqua Mountains.

**Habitat:** Montane fynbos, sandy soils, 360–1 200 m.

**Rationale:** Always occurs as small, isolated subpopulations with fewer than five mature individuals in each. Not threatened.
Amphithalea bodkinii (Dummer) A.L.Schutte
Status: VU D2
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Wemmershoek and Franschhoek Mountains, Grabouw Peak and between Louwshoek Peak and Villiersdorp.
Habitat: Fynbos, on marshy, south-facing slopes above 1 000 m.
Rationale: A high-altitude habitat specialist, known from five locations. Potentially threatened by invading alien plants and too frequent fires. A very rare and possibly cryptic species that has not been collected for 35 years.

Amphithalea bowiei (Benth.) A.L.Schutte
Status: VU D2
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Houwhoek to Kleinmond.
Habitat: Montane fynbos, 300–600 m.
Rationale: A range-restricted species (EOO 1 630 km²), with only two known locations. Potentially threatened by invading alien plants.

Amphithalea bullata (Benth.) A.L.Schutte
Status: DDD
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Langeberg Mountains, Kareekop.
Habitat: Mountain summit.
Rationale: Known only from the type collection from the early 1800s.

Amphithalea concava Granby
Status: Rare
N.A. Helme
Distribution: WC. Wemmershoek Mountains.
Habitat: High-alpine montane fynbos on rocky crests, 1 650–2 000 m.
Rationale: A range-restricted species (EOO 8 km²), known from two subpopulations. Not declining.

Amphithalea cymbifolia (C.A.Sm.) A.L.Schutte
Status: EN D
N.A. Helme & D. Raimondo
Distribution: WC. Northern Langeberg.
Habitat: Sandy and rocky soils.
Rationale: Known from two collections: one made in 1926 and a recent collection by N.A. Helme, from a small subpopulation of ± 20 plants. It is possible that a few other subpopulations exist, but not many as it has not been found by A.L. Schutte-Vlok (Amphithalea expert) who lives in this area and has explored extensively. It is therefore estimated that less than 250 plants exist.

Amphithalea dahlgrenii (Granby) A.L.Schutte
Status: VU D2
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Matroosberg and Keeromsberg Mountains.
Habitat: Fynbos, dry, north-facing ridges, 1 000–1 300 m.
Rationale: EOO 21 km². Two known locations. Potentially threatened by alien hakea and pine invasions, which already occur as scattered plants within the habitat at one location.

Amphithalea ericifolia (Granby) A.L.Schutte
Status: CR B2ab(ii,iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Outeniqua, Klein Swartberg and Langeberg Mountains.
Habitat: Arid montane fynbos.
Rationale: EOO 4 160 km², AOO 10 km². Historically occurred between the Cape Flats, Malmesbury and Hopefield. Over 98% of its habitat has been transformed by urban expansion and wheat cultivation. Only four small, severely fragmented subpopulations remain. Declining because of dense invasions of alien plants and too infrequent fires.

Amphithalea ericifolia (L.) Eckl. & Zeyh. subsp. minuta Granby
Status: Critically Rare
D. Raimondo
Distribution: WC. Riviersonderend Mountains, Skilpadkop.
Habitat: Fynbos, on rocky, south-facing slopes, 1 300 m.
Rationale: EOO < 5 km². Known from one high-altitude site. Not threatened.

Amphithalea esterhuyseniae (Granby) A.L.Schutte
Status: Rare
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Riviersonderend to Hottentots Holland Mountains.
Habitat: Steep stony or grassy slopes, 975–1 500 m.
Rationale: A range-restricted taxon (EOO < 460 km²), known from six high-altitude subpopulations. Not threatened.

Amphithalea flava (Granby) A.L.Schutte
Status: VU D2
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Hex River Mountains.
Habitat: Steep, rocky, south-facing slopes in fynbos.
Rationale: EOO 50 km². Only two known locations. Potentially threatened by too frequent fires.

Amphithalea imbricata (L.) Druce
Status: Rare
A.L. Schutte-Vlok, D. Raimondo & F. Daniels
Distribution: WC. Cape Peninsula to Hottentots Holland Mountains.
Habitat: Ravines at high altitudes.
Rationale: A rare, long-lived resprouter that always occurs as small subpopulations with often only single plants seen.
Amphithalea minima (Granby) A.L.Schutte
Status: CR PE
A.L. Schutte-Vlok & D. Raimondo
Distribution: NC. Glen Ridge on the Bokkeveld Escarpment near Nieuwoudtville.
Habitat: Fynbos on rocky outcrops.
Rationale: Over 90% of the habitat of this species at its only known location has been transformed for rooibos tea cultivation. Remaining habitat at this site is severely degraded because of overgrazing. It is therefore highly likely that this species is extinct.

Amphithalea obtusiloba (Granby) A.L.Schutte
Status: EN D
N.A. Helme & D. Raimondo
Distribution: NC. Endemic to the Kamiesberg.
Habitat: Rocky granitic slopes, 1 500 m.
Rationale: Population consists of less than 100 plants. Potentially threatened by too frequent fires and overgrazing.

Amphithalea oppositifolia L.Bolus
Status: Rare
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Kogelberg to Betty’s Bay.
Habitat: Fynbos, in sandy soil among rocks on the lower southwestern slopes, 330–500 m.
Rationale: A range-restricted species (EOO < 500 km²). Not threatened as it occurs above 300 m and is therefore not likely to be affected by urban expansion.

Amphithalea pageae (L.Bolus) A.L.Schutte
Status: VU B1ab(iii)
A.L. Schutte-Vlok, D. Raimondo & N.A. Helme
Distribution: WC. Montagu to Swellendam.
Habitat: Dry Karoo shales.
Rationale: EOO 2 220 km². Six known locations. Some habitat has been transformed by vineyard expansion. The species is currently declining as a result of grazing by livestock. Potentially threatened by urban and agricultural development.

Amphithalea rostrata A.L.Schutte & B.-E.van Wyk
Status: EN B1ab(iii,iii,v) + 2ab(ii,iii,v)
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Carruthers Hill, southeast of Pearly Beach.
Habitat: Fynbos, sandy, stony south-facing slopes, 120 m.
Rationale: A highly range-restricted species (EOO and AOO < 10 km²), with two known locations. Some habitat has been lost to quarrying and the population is currently declining as a result of alien plants invading the habitat.

Amphithalea sericea Schltr.
Status: VU B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
A.L. Schutte-Vlok, N.A. Helme & D. Raimondo
Distribution: WC. Pearly Beach to Still Bay.
Habitat: Lowland fynbos, sandy limestone hills, 60–500 m.
Rationale: EOO < 2 200 km². Eight known locations. Declining as a result of invasions by alien plants, cereal crop cultivation and coastal development.

Amphithalea speciosa Schltr.
Status: VU B1ab(ii,iii,v)
N.A. Helme, A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Elim to Bredasdorp.
Habitat: Montane fynbos and renosterveld-fynbos scrub, rocky sandstone hills.
Rationale: EOO 2 000 km². Six known locations continue to decline because of invasive alien Acacia cyclops and A. saligna encroachment. This long-lived resprouter is also threatened by protea and vineyard expansion and coastal development.

Amphithalea spinosa (Harv.) A.L.Schutte
Status: VU B1ab(iii,v)
N.A. Helme, A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Hex River Valley to Witteberg.
Habitat: Fynbos, in sandy soils between rocks, 325–500 m.
Rationale: EOO < 3 000 km². Fewer than 10 locations are known. Some habitat has been transformed to vineyards and the population is currently declining because of grazing by livestock.

Amphithalea stokoei L.Bolus
Status: NT D2
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Kogelberg to De Hoop.
Habitat: Lower mountain slopes and coastal fynbos vegetation.
Rationale: EOO 9 000 km². With 20 known locations. Declining as a result of coastal development and invasion by alien plants.

Amphithalea virgata Eckl. & Zeyh.
Status: EN B1ab(iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Witteberg and Cederberg Mountains.
Habitat: Transitional arid fynbos, often confined to shale bands.
Rationale: EOO < 2 800 km². Seven small, severely fragmented subpopulations are known. Declining as a result of grazing by livestock.
Argyrolobium vlokii (A.L. Schutte & B.-E. van Wyk)
A.L. Schutte

**Status:** EN A2c
J.H. Vlok, A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Uniondale.

**Habitat:** Renosterveld-fynbos scrub on clayish soil.

**Rationale:** Known from one location, a municipal commonage near Uniondale and where > 50% of the habitat have been lost to quarrying and the construction of a cellular telephone mast over the past 50 years (generation length 30 years).

Argyrolobium Eckl. & Zeyh.

Argyrolobium aciculare Dummer

**Status:** Rare
T.J. Edwards, D. Raimondo & N.A. Helme

**Distribution:** WC. Kogelberg.

**Habitat:** Exposed, rocky sandstone ridges.

**Rationale:** This conspicuous species with very distinctive flowers has not been collected for more than 100 years at its only known location, despite the site being very well explored. It is possibly extinct.

Argyrolobium angustissimum (E.Mey.) T.J. Edwards

**Status:** CR PE
T.J. Edwards & D. Raimondo

**Distribution:** WC. Paarl Mountain.

**Habitat:** Granite fynbos.

**Rationale:** This species has a large range (EOO 45 000 km²), known from three subpopulations that are protected within the Kogelberg Biosphere Reserve.

Argyrolobium barbatum Walp.

**Status:** VU A2c
T.J. Edwards & D. Raimondo

**Distribution:** EC. Paterson and Addo to Port Elizabeth.

**Habitat:** Bushveld, limestone outcrops.

**Rationale:** There are six known locations, two of which have been lost to urban and industrial development and a large proportion of the subpopulation at another location at Coega Kop declined over the past 100 years. This decline is estimated to represent a 30% reduction in the population over two generations—this is a long-lived resprouter and generation length is suspected to be at least 50 years.

Argyrolobium campicola Harms

**Status:** NT A2c
T.J. Edwards & D. Raimondo

**Distribution:** FS G KZN. Pretoria to Dundee.

**Habitat:** Highveld grassland.

**Rationale:** A species with a large range (EOO 45 000 km²) but with highly disjunct, small subpopulations. At least 37% of the habitat has been transformed for agriculture and urban expansion over the past 100 years. It is a long-lived resprouter with an average generation length of longer than 50 years. As there is not necessarily a linear relationship with habitat loss and sites, we estimate that at least 20% of existing subpopulations have been lost as a result of habitat transformation. Two of nine subpopulations are highly likely to be locally extinct (100% transformed), equating to a 22% loss over the past three generations.

Argyrolobium crassifolium Eckl. & Zeyh.

**Status:** EN A2c; B1ab(i,iii,iv,v)
T.J. Edwards, D. Raimondo & A.P. Dold

**Distribution:** EC. Humansdorp to Uitenhage.

**Habitat:** Grassland, below 300 m.

**Rationale:** A population reduction of at least 50% is estimated based on habitat loss to agriculture over the past 100 years (generation length of this long-lived resprouter is suspected to be > 50 years). EOO < 2 400 km². Six locations remain. Subpopulations are severely fragmented and threatened by loss of pollinators and too infrequent fires.

Argyrolobium crinitum (E.Mey.) Walp.

**Status:** CR A2c; B1ab(iii)+2ab(ii); C2a(ii)
J.H. Vlok & D. Raimondo

**Distribution:** WC. Barrydale.

**Habitat:** Renosterveld on shale.

**Rationale:** Previously known only from the type specimen, but relocated near Barrydale in a small fragment of renosterveld in 1995. At the time there were 60 plants, but in 2004 during a second survey of the same site no plants were found. We suspect that this may be due to veld not being burnt for a while, but it may also be the result of overgrazing. Almost 88% of the vegetation unit where this species occurs has been cultivated for wheat. This decline in habitat has taken place over the past 70 years, less than three generations of this long-lived resprouter (generation length is suspected to be over 50 years).

Argyrolobium harmsianum Schltr. ex Harms

**Status:** EN B1ab(ii,iii)
T.J. Edwards & D. Raimondo

**Distribution:** WC. Agulhas to Mossel Bay.

**Habitat:** Coastal limestone.

**Rationale:** EOO < 1 000 km². Four known locations. Declining because of invasion by alien plants and coastal development.

Argyrolobium longifolium (Meisn.) Walp.

**Status:** VU B1ab(i,iii,v)
T.J. Edwards & D. Raimondo

**Distribution:** KZN. Pietermaritzburg to Tugela and Port Shepstone.

**Habitat:** Ngongoni Grassland, Highland Sourveld and Dohne Sourveld.

**Rationale:** EOO < 9 700 km². Six known locations. Some habitat has been transformed to forestry plantations and decline is continuing because of too frequent fires and overgrazing.

Argyrolobium megarrhizum Bolus

**Status:** NT B1ab(ii,iii,iv)
T.J. Edwards & D. Raimondo

**Distribution:** G MP. Pretoria to Bronkhorstspruit.

**Habitat:** Mixed bushveld.

**Rationale:** Although it has a highly restricted range (EOO 2 500 km²), there are currently estimated to be 10–20 locations. It is likely to have lost habitat to agriculture, and its habitat is being transformed rapidly because of urban expansion between Pretoria and Bronkhorstspruit. This species relies on pollination by carpenter bees and the ongoing habitat loss will have an impact on the population dynamics of these insects and is likely to affect pollination rates. In addition, changes in fire regimes as a result of habitat loss and degradation will have an impact on this species as it only flowers profusely after fire.
Argyrolobium muddii
Status: EN A2c; B1ab(iii)
T.J. Edwards & D. Raimondo

Distribution: LM MP. Haenertsburg to Pilgrim’s Rest.
Habitat: Mistbelt Grassland
Rationale: EOO 4 200 km². Five locations remain. Extensive areas of the habitat have been transformed to forestry plantations over the last 100 years, a period shorter than three generations of this long-lived species (generation length estimated to be > 50 years). The estimate of > 50% reduction in the population is based on > 80% habitat loss in the Woodbush area (Limpopo Province) and > 50% habitat loss around Graskop and Pilgrim’s Rest, Mpumalanga. Decline is continuing because of habitat degradation caused by invading alien plants and poor fire management.

Argyrolobium pachyphyllum Schltr.
Status: EN A2c; B1ab(iii)
T.J. Edwards & D. Raimondo

Distribution: WC. Bredasdorp.
Habitat: Renosterveld.
Rationale: A population reduction of > 80% is estimated, based on > 84% habitat loss to wheat cultivation since 1940 (less than three generations of this long-lived resprouter, generation length suspected to be 50 years). EOO < 4 000 km². Seven locations are known through herbarium collections, but two are now locally extinct because of agriculture. Remaining subpopulations are declining as a result of invasion by alien plants and overgrazing by livestock.

Argyrolobium parviflorum T.J.Edwards
Status: Rare
T.J. Edwards, D. Raimondo & L. Potter

Distribution: EC. Baviaanskloof Mountains.
Habitat: Renosterveld.
Rationale: A range-restricted species (EOO < 100 km²), known from only two sites but it probably occurs elsewhere in the vast, unexplored areas within the Baviaanskloof Wilderness Area, where it is not likely to be threatened.

Argyrolobium petiolare (E.Mey.) Steud.
Status: DDD
T.J. Edwards & L. Potter

Distribution: WC. Namaqualand, Kamiesberg.
Habitat: Unknown, possibly mountain renosterveld.
Rationale: Known only from the type collection, made in the early 1800s. This species is too poorly known to be assessed.

Argyrolobium rarum Dummer
Status: Rare
T.J. Edwards & D. Raimondo

Distribution: WC. Montagu to Oudtshoorn.
Habitat: Arid montane fynbos.
Rationale: Subpopulations are generally small, consisting of fewer than 10 plants, and occur sparsely over a large range (EOO < 18 700 km²). No known threats.

Argyrolobium splendens (E.Mey.) Walp.
Status: CR PE
T.J. Edwards & D. Raimondo

Distribution: WC. Kleinrivier Mountains.
Habitat: Mountain slopes, exact altitude unknown.
Rationale: This species has not been collected for more than 100 years, and is known only from one collection at an unspecified altitude on the Kleinrivier Mountains. If it was collected on the foothills, it is quite likely to be extinct as a result of urban expansion of Hermanus.

Argyrolobium velutinum Eckl. & Zeyh.
Status: EN B1ab(i,iii,iv,v)
N.A. Helme, T.J. Edwards & D. Raimondo

Distribution: WC. Lambert’s Bay to Cape Peninsula.
Habitat: Sandveld and sandveld-strandveld ecotone, alkaline coastal sands.
Rationale: EOO 3 000 km². Altogether 15 locations are known through herbarium collections, but suitable habitat remains only at nine. Remaining subpopulations are severely fragmented, occurring on isolated vegetation remnants. Locations on the Cape Flats have declined because of urban development, while ± 30% of a subpopulation at Jacobsbaai was lost to coastal development. Potato cultivation between Lambert’s Bay and Dwarskersbos is causing a continuing decline in available habitat.

Aspalathus L.

Aspalathus acanthiloba R.Dahlgren
Status: VU D2
D. Raimondo

Distribution: WC. Cape Hangklip to Gordon’s Bay.
Habitat: Montane fynbos, sandy or rocky sandstone soils, 0–200 m.
Rationale: EOO < 50 km². Three known locations. Potentially threatened by coastal development, too frequent fires and invasion by alien plants.

Aspalathus acanthoclada R.Dahlgren
Status: VU B1ab(ii,iii,iv,v)
N.A. Helme, D. Raimondo & J.E. Victor

Distribution: WC. Worcester to Villiersdorp.
Habitat: Renosterveld-fynbos scrub, 300 m.
Rationale: EOO < 700 km². Seven known locations. Declining because of urban expansion around Worcester, invading alien plants along the Breede River, and vineyard expansion throughout the Breede River Valley.

Aspalathus acanthophylla Eckl. & Zeyh.
Plate 62
Status: VU B1ab(ii,iii,iv,v)
D. Raimondo & N.A. Helme

Distribution: WC. Hopefield to Tygerberg.
Habitat: Renosterveld on red clay soils (does not occur on sandy marine soils), 200–300 m.
Rationale: EOO < 1 350 km². Nine locations remain. Available habitat has been extensively transformed to wheat cultivation and this species is still declining as a result of urban expansion, invasion by alien plants and too infrequent fires in remaining renosterveld fragments.

Aspalathus acilioba R.Dahlgren
Status: VU D2
N.A. Helme, D.I.W. Euston-Brown & D. Raimondo

Distribution: WC. Bredasdorp to Agulhas.
Habitat: Lowland fynbos on white sandy soils and clay soils over shales mixed with limestone fragments.
Rationale: Four locations remain, with one subpopulation lost to road construction. Potentially threatened by invading alien plants.
Aspalathus aculeata Thunb.

Status: EN B1ab(iii,v)
N.A. Helme, A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Malmesbury to Riebeek-Kasteel.

**Habitat:** Renosterveld-fynbos transition on shale soils.

**Rationale:** EOO 1 088 km². With 5–10 small, severely fragmented subpopulations remaining. More than 98% of the habitat has been transformed for the cultivation of wheat, olives and vineyards. It is currently declining because of the impact of fragmentation, including too infrequent fires.

Aspalathus acutiflora R. Dahlgren

Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
A.L. Schutte-Vlok, J.H. Vlok & D. Raimondo

**Distribution:** WC. Still Bay and Albertinia.

**Habitat:** Sand plain fynbos, marine sands between limestone outcrops, but not on limestone.

**Rationale:** EOO 400 km², AOO < 400 km². With 5–10 severely fragmented subpopulations remaining. Declining as a result of invasion by alien plants and habitat degradation caused by thatch harvesting.

Aspalathus albens L.

Status: VU B1ab(ii,iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Klawer to Cape Peninsula.

**Habitat:** Sandy areas on flats in lowland and coastal fynbos.

**Rationale:** EOO 6 000 km². A formerly widespread and common species, now much reduced because of extensive habitat loss. All Cape Flats subpopulations are likely to be extinct because of urban development and it probably survives only in the area around Mamre and Pella. A few subpopulations along the base of the Piketberg and the area south of Klawer are rapidly declining as a result of the expansion of rooibos tea and potato cultivation, and only ± 5–10 locations remain.

Aspalathus amoena (R. Dahlgren) R. Dahlgren

Status: CR PE
A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Breede River Valley around Wolseley.

**Habitat:** Lowland fynbos, in sand that accumulates on riverbanks.

**Rationale:** Most of the habitat has been transformed for vineyard and orchard cultivation. The remaining fragments are densely invaded by alien Acacia mearnsii. It has not been recorded for 40 years and is quite likely to be extinct.

Aspalathus angustifolia (Lam.) R. Dahlgren subsp. robusta (E. Phillips) R. Dahlgren

Status: VU D1 + 2
N.A. Helme & J.E. Victor

**Distribution:** NC. Namaqualand, Kamiesberg.

**Habitat:** Granite slopes and flats, 1 000–1 600 m.

**Rationale:** Less than 1 000 mature individuals occur at four locations. Potentially threatened by grazing by goats, donkeys and dassies. It is a robust reseeding shrub that grows up to 2 m. Grazing affects reproduction as it causes loss of flowers, pods and seedlings, but mature individuals do not appear to be declining at present.

Aspalathus araneosa L.

Status: VU B1ab(iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Malmesbury to Cape Peninsula.

**Habitat:** Sandy sandstone soils at low altitudes.

**Rationale:** EOO 705 km². Ten locations remain. Declining as a result of coastal development around Still Bay, invasion by alien plants and crop cultivation.

Aspalathus arenaria R. Dahlgren

Status: VU B1ab(ii,iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Malmesbury to Riebeek-Kasteel.

**Habitat:** Fynbos-thickets on coastal marine sands.

**Rationale:** EOO 2 450 km². Five disjunct locations are known. Declining as a result of continued expansion of the cultivation of wheat, vineyards and deciduous fruit, afforestation, quarrying, urban development and invasion by alien plants.

Aspalathus attenuata R. Dahlgren

Status: EN B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

**Distribution:** WC. Tulbagh to Houwhoek.

**Habitat:** Fynbos, in sandy areas on lower slopes, 100–350 m.

**Rationale:** EOO 2 450 km². Five disjunct locations are known. Declining as a result of continued expansion of the cultivation of wheat, vineyards and deciduous fruit, afforestation, quarrying, urban development and invasion by alien plants.

Aspalathus barbigera (Lam.) R. Dahlgren

Status: VU D2
A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Bredasdorp.

**Habitat:** Renosterveld-fynbos scrub, 60 m.

**Rationale:** AOO < 8 400 km². More than 70% of the habitat has been transformed by wheat cultivation and only seven locations remain. Declining because of a loss of habitat quality through invasion by alien plants, overgrazing and too infrequent fires.

Aspalathus bidouwensis Garab. ex R. Dahlgren

Status: EN B1ab(iii,v)
T. Nkonki & J.E. Victor

**Distribution:** WC. Cederberg area, Biedouw Mountains.

**Habitat:** Arid fynbos, 660–1 000 m.

**Rationale:** EOO < 2 000 km². Four known locations. Declining because of overgrazing by livestock.

Aspalathus borbionifolia R. Dahlgren

Status: VU D2
T. Nkonki & J.E. Victor

**Distribution:** WC. Cape Peninsula, endemic to Table Mountain.
Aspalathus bowieana (Benth.) R.Dahlgren
Status: EN B1ab(i,ii,iii,iv,v)
J.H. Vlok & D. Raimondo
distribution: WC. Outeniqua Mountains.
Habitat: Montane fynbos on slopes and foothills below 850 m.
rational: EOO < 700 km². Three known locations continue to decline because of invading alien plants and too infrequent fires. Some habitat has been lost to plantations at Karatara.

Aspalathus burchelliana Benth.
Status: EN B1ab(ii,iii)
D. Raimondo
distribution: WC. Riviersonderend to Swellendam and around Robertson.
Habitat: Renosterveld-fynbos transition scrub at low altitude, 150–300 m.
rational: EOO < 4 000 km². More than 60% of the habitat has already been transformed by agriculture and fewer than five locations are likely to remain. Habitat decline is continuing as a result of vineyard expansion, especially around Robertson, and because of grazing by livestock throughout the range. There are no recent collections of this species, except from the Bontebok National Park, which might be the only remaining location.

Aspalathus caespitosa R.Dahlgren
Status: Rare
N.A. Helme
distribution: WC. Stettynsberg and Du Toit’s Mountains.
Habitat: Fynbos, on upper sandstone slopes, 1 250–1 500 m.
rational: EOO < 300 km². Known from two high-altitude peaks. Not threatened.

Aspalathus calcarea R.Dahlgren
Status: VU B1ab(i,ii,iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo
distribution: WC. Elim to Bredasdorp and Still Bay.
Habitat: Limestone rock.
rational: EOO 5 200 km². Some 15 small severely fragmented subpopulations are known. Declining as a result of invasion by alien plants, crop cultivation, urban expansion and road construction.

Aspalathus campestris R.Dahlgren
Status: VU B1ab(ii,iii,v)
D. Raimondo
distribution: WC. Montagu and Riviersonderend to Mossel Bay.
Habitat: Renosterveld-fynbos transition on clay hills and flats.
rational: EOO < 3 200 km². At least 60% of the habitat is already transformed by wheat and vineyard cultivation. Only 10 locations remain on small fragments and decline is continuing. All locations are grazed by sheep and many are overgrazed, possibly negatively affecting this palatable species.

Aspalathus candicans Aiton f.
Status: EN B1ab(ii,iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo
distribution: WC. Breede River Valley, from McGregor to Worcester.

Aspalathus bowieana (Benth.) R.Dahlgren
Status: EN B1ab(i,ii,iii,iv,v)
J.H. Vlok & D. Raimondo
distribution: WC. Outeniqua Mountains.
Habitat: Montane fynbos, 660 m.
rational: EOO < 12 km². Three known locations. A reseeder potentially threatened by too frequent fires.

Aspalathus candidula R.Dahlgren
Status: VU D2
distribution: WC. Riversdale.
Habitat: Lowland fynbos on limestone, 165 m.
rational: Known from three locations. Potentially threatened by alien plants that invade the habitat.

Aspalathus caespitosa R.Dahlgren
Status: Rare
N.A. Helme
distribution: WC. Cape Peninsula, Table Mountain, Constantiaberg and Muizenberg.
Habitat: Slopes in sandstone fynbos.
rational: EOO 90 km². Fewer than five known locations. Subpopulations are small and the population consists of less than 1 000 plants.

Aspalathus chenopoda L. subsp. gracilis (Eckl. & Zeyh.) R.Dahlgren
Status: VU D1
A.L. Schutte-Vlok, D.A. Kamundii & D. Raimondo
distribution: WC. Cape Peninsula, Table Mountain, Constantiaberg and Muizenberg.
Habitat: Fynbos scrub on sandy substrates.
rational: Fewer than five locations are known. Potentially threatened by invading alien plants.

Aspalathus chrysantha R.Dahlgren
Status: VU A2c; D2
A.L. Schutte-Vlok, N.A. Helme & D. Raimondo
distribution: WC. Piketberg.
Habitat: Sandy and gravelly flats above 450 m and on sandstone slopes.
rational: A population reduction of at least 30% is estimated based on habitat loss to crop cultivation over the past 70 years (generation length of this long-lived resprouter is at least 30 years). Two remaining locations are potentially threatened by further agricultural expansion.

Aspalathus cliffortiifolia R.Dahlgren
Status: CR PE
D. Raimondo & J.E. Victor
distribution: EC. Port Elizabeth.
Habitat: Coastal fynbos.
rational: Known from the type specimen collected in Humewood, now a suburb of Port Elizabeth, in 1911. This species is quite likely to be extinct, but a few remaining fragments of natural habitat in the Humewood area have to be thoroughly searched before it can be declared extinct.
Aspalathus compacta R.Dahlgren
Status: VU D2
N.A. Helme & J.E. Victor
Distribution: WC. Skurweberge.
Habitat: Renosterveld-fynbos ecotones.
Rationale: One location is known that is potentially threatened by expanding fruit orchards.

Aspalathus complicata (Benth.) R.Dahlgren
Status: EX
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Lower slopes of the Piketberg.
Habitat: Slopes near streams.
Rationale: Known only from the type collection from 1934. The site and surrounding areas have been completely transformed to wheat fields.

Aspalathus compostii R.Dahlgren
Status: Rare
T. Nkonki & J.E. Victor
Distribution: WC. Cederberg Mountains, at Middelberg, Sneeuwberg and Heuningvlei.
Habitat: Montane fynbos, 900–1 200 m.
Rationale: A range-restricted species (EOO 145 km²), with three known subpopulations that are protected in the Cederberg Wilderness Area.

Aspalathus concava Bolus
Status: DDD
D. Raimondo, T. Nkonki & J.E. Victor
Distribution: WC. Houwhoek.
Habitat: Montane fynbos, 800 m.
Rationale: Known only from the type collection made at an unspecified locality near Houwhoek in 1896. Parts of the area have been transformed to forestry plantations and agriculture, but this species is too poorly known to determine its status.

Aspalathus congesta (R.Dahlgren) R.Dahlgren
Status: Rare
D. Raimondo
Distribution: WC. Swartberg and Kammanassie Mountains.
Habitat: High-altitude mountain summits.
Rationale: Restricted to the highest peaks of the region. Not threatened but occurs as scattered individuals.

Aspalathus cordicarpa R.Dahlgren
Status: EX
A.L. Schutte-Vlok, J.H. Vlok & D. Raimondo
Distribution: WC. Garcia’s Pass.
Habitat: Sands or sandstone gravel at medium altitudes.
Rationale: Last collected in the 1950s. Jan Vlok (expert field botanist in the southern Cape) has searched this site often, but has not found this species.

Aspalathus corniculata R.Dahlgren
Status: DDD
D. Raimondo
Distribution: WC. Slopes of the Neethlingsberg in the Witzenberg Mountains north of Ceres.
Habitat: Montane fynbos, lower rocky slopes below 830 m in renosterveld-fynbos transition.
Rationale: Known only from the type collection from the 1950s. This species is too poorly known to determine its status. It may be threatened by agriculture if it is confined to lower slopes.

Aspalathus cuspidata R.Dahlgren
Status: VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Brand-se-baai to Vanrhynsdorp.
Habitat: Mixed fynbos and renosterveld on loamy, red clay flats.
Rationale: EOO < 1 200 km². Only five locations are known, but this species is likely to be overlooked and we therefore estimate that there are at least 10. One subpopulation was lost to heavy-mineral sand mining and decline is continuing. Other subpopulations are also potentially threatened by vineyard and tomato cultivation.

Aspalathus dasyantha Eckl. & Zeyh.
Status: CR B1ab(ii,iii,iv,v)
A.L. Schutte-Vlok, J.H. Vlok & D. Raimondo
Distribution: WC. West of Still Bay.
Habitat: Limestones on coastal marine flats, 160–300 m.
Rationale: EOO 100 km². Five subpopulations are known through herbarium records, but only two remain. They are in severely fragmented remnant habitat patches and the species is declining because of invading alien acacias, habitat degradation through thatch harvesting and too infrequent fires.

Aspalathus decora R.Dahlgren
Status: Rare
D. Raimondo
Distribution: WC. Cederberg Mountains.
Habitat: Growing in sand derived from Table Mountain Sandstone or directly in rock crevices in fynbos.
Rationale: A range-restricted species (EOO < 300 km²) that is protected within the Cederberg Wilderness Area.

Aspalathus densifolia Benth.
Status: DDD
D.A. Kamundi† & D. Raimondo
Distribution: WC. Witzenberg and Waaihoek Mountains.
Habitat: Montane fynbos, 500–1 000 m.
Rationale: This species was last collected in 1924. It is too poorly known to determine its conservation status.

Aspalathus desertorum Bolus
Status: NT D2
T. Nkonki, D. Raimondo & J.E. Victor
Distribution: WC. Gydo Pass and Karooopoot.
Habitat: Compact clay weathered from shales, in renosterveld-fynbos scrub, 330–1 060 m.
Rationale: Eight locations are known. Some habitat has been transformed to fruit orchards and further expansion of orchards is a potential threat.

Aspalathus digitifolia R.Dahlgren
Status: VU A2c; D2
J.H. Vlok & D. Raimondo
Distribution: WC. Outeniqua Mountains near Mossel Bay.
Habitat: South-facing sandstone slopes.
Rationale: A population reduction of at least 30% is estimated based on habitat loss to pine plantations within 30 years (generation length suspected to be 10 years), but plantations are no longer expanding. Two known remaining locations are potentially threatened by invasive alien plants.
Aspalathus excelsa R.Dahlgren
Status: VU D2
T. Nkonki, N.A. Helme & J.E. Victor
istribution: WC. Hermanus.
abitat: Lowland fynbos, 50 m.
ationale: Only one location is known. Parts of the surrounding habitat has been lost to urban expansion and invasion by alien plants. The population is not declining, but is potentially threatened by further habitat loss.

Aspalathus fasciculata (Thunb.) R.Dahlgren
Status: DDD
D. Raimondo & I. Ebrahim
istribution: WC. Groot Winterhoek Mountains.
abitat: Montane fynbos on lower slopes, 200–450 m.
ationale: The lower slopes of the Groot Winterhoek Mountains are infested with alien plants and threatened by the development of vineyards and orchards. However, this species was last collected in 1956, no precise locations are known and the impact of these threats on the species cannot be determined.

Aspalathus ferox Harv.
Status: CR PE
D. Raimondo
istribution: WC. Breede River Valley.
abitat: Renosterveld.
ationale: Known from the type locality, indicated only as 'bosjesveld'. Where exactly this is, is uncertain; it is probably an old place name most probably referring to the property 'Aan de Bosjesman'. The lowland renosterveld on this property has been almost completely transformed for vineyards, hence it is highly likely that this species is extinct.

Aspalathus florulenta R.Dahlgren
Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
istribution: WC. Boskevelo to Nardous Mountain.
abitat: Montane fynbos on flat sands over sandstone.
ationale: EOO < 5 000 km². Three locations are known, but there are probably up to 10. Its habitat is being converted throughout its range for cultivation of rooibos tea, causing a rapid, continuing decline.

Aspalathus fourcadei L.Bolus
Status: Rare
T. Nkonki & J.E. Victor
istribution: WC. Tsitsikamma and Kouga Mountains.
abitat: Montane fynbos, 350 m.
ationale: A range-restricted species (EOO < 100 km²), known from three sites. Not declining.

Aspalathus gerrardi L. Bolus
Status: VU A2c
L. von Staden
istribution: EC KZN. Between Richards Bay, St Lucia and Ngoye Forest and in the south from Oribi Gorge and along the coast to Port St Johns.
abitat: Coastal grasslands, forest margins, often in damp or marshy sites, on sandstones and Msikaba Formation Sandstone in the south, 0–500 m.
ationale: Although widespread (EOO 10 000 km²), the range of this species coincides with some of the most highly transformed areas of KwaZulu-Natal. A shrubvescent grassland forb or small tree, generation length likely to be longer than 50 years. Population reduction within the last three generations is estimated at > 30% based on a 48% habitat loss, mainly as a result of sugarcane cultivation, urban and coastal development and forestry plantations.

Aspalathus glabra R.Dahlgren
Status: CR B1ab(ii,iii,v) + 2ab(iii,v)
D. Raimondo
istribution: WC. Darling.
abitat: Montane fynbos on dry hill slopes, in reddish clay sand soil.
ationale: EOO < 100 km², AOO < 1 km². Two severely fragmented subpopulations remain. They are on small fragments (< 10 ha each) along a roadside that is being degraded by alien grass invasion, too infrequent fires and clearing of road verges, resulting in a continuing decline in the number of mature individuals.

Aspalathus glabrata R.Dahlgren
Status: EN A2c
J.H. Vlok & D. Raimondo
istribution: WC. Outeniqua Mountains.
abitat: Disturbed renosterveld-fynbos scrub in dry, pebbly, loamy soil on north-facing slopes.
ationale: A population reduction of > 50% is estimated based on habitat loss to crop cultivation and invasion by alien plants over the past 40 years (generation length suspected to be 15 years). Decline due to unmanaged alien invasion is continuing.

Aspalathus globulosa E.Mey.
Status: VU B1ab(ii,iii,v)
T. Nkonki & J.E. Victor
istribution: WC. Betty’s Bay to De Hoop. Formerly occurred on the Cape Flats, but now locally extinct.
abitat: Coastal fynbos on marine sand.
ationale: EOO 6 000 km². Fewer than 10 locations are known. Subpopulations on the Cape Flats are extinct because of urban development and alien plants that invade the habitat. Remaining subpopulations are declining as a result of ongoing coastal development.

Aspalathus glossoides R.Dahlgren
Status: VU D2
D. Raimondo & N.A. Helme
istration: WC. Piketberg Mountain.
abitat: Sandy plateau in montane fynbos.
ationale: EOO 50 km², AOO < 20 km². Five known locations. At least 70% of the habitat has been transformed to fruit orchards, but over a period longer than three generations. There is no current decline, but further agricultural expansion remains a potential threat.

Aspalathus grobleri R.Dahlgren
Status: EN B1ab(iii,v); C2a(i)
D. Raimondo & I. Ebrahim
istration: WC. Swellendam.
abitat: Renosterveld-fynbos scrub.
ationale: EOO < 510 km². Four known locations remain. Agriculture has caused extensive habitat loss for this species, when large areas were converted to wheat during the 1950s and 1960s. A population of less than 500 mature individuals, consisting of small subpopulations of less than 250 mature individuals, is restricted to small areas of nutrient-rich soils in two reserves, where overgrazing by high concentrations of game is causing a continuing decline.
Aspalathus incompta
Status: CR B2ab(iii,v)
A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Moorreesburg to Blouberg.
Habitat: Clay soils or in a thin layer of sand on clay.
Rationale: EOO < 900 km², AOO < 1 km². Three small, severely fragmented subpopulations remain in isolated remnants of natural vegetation, each no more than 10 ha in size. The habitat within these remnants is continuously being degraded by invasive alien species and a lack of fire.

Aspalathus humilis
Status: Rare
T. Nkonki & J.E. Victor

Distribution: WC. Cape Peninsula and Stellenbosch.
Habitat: On sand in rocky montane fynbos, 600–1 100 m.
Rationale: Previously thought to be endemic to Table Mountain, Cape Peninsula, but found at Jonkershoek in 1983 (EOO 200 km²). It occurs only on sandy deposits on sandstone pavements. Both subpopulations are within reserves.

Aspalathus hypnoides
Status: VU D2
D. Raimondo

Distribution: WC. Langeberg Mountains.
Habitat: Montane fynbos on lower slopes.
Rationale: Three known locations are potentially threatened by alien acacia and hakea invasions and forestry plantations, which have affected at least 50% of the southern lower slopes of the Langeberg.

Aspalathus incurva
Status: Rare
J.E. Victor & N.A. Helme

Distribution: WC. Klein Swartberg Mountains.
Habitat: Shale band on sandstone slopes, above 1 250 m.
Rationale: A range-restricted (EOO 30 km²), high-altitude habitat specialist that is protected within provincial conservation areas.

Aspalathus inops
Status: Rare
D. Raimondo & A.L. Schutte-Vlok

Distribution: WC. Langeberg Mountains.
Habitat: Sandy soils in fynbos.
Rationale: A range-restricted species (EOO < 322 km²) that is protected in the Table Mountain National Park.

Aspalathus horizontalis
Status: CR B2ab(iii,v)
A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Moorreesburg to Blouberg.
Habitat: Clay soils or in a thin layer of sand on clay.
Rationale: EOO < 900 km², AOO < 1 km². Three small, severely fragmented subpopulations remain in isolated remnants of natural vegetation, each no more than 10 ha in size. The habitat within these remnants is continuously being degraded by invasive alien species and a lack of fire.

Aspalathus interrallaris
Status: NT A2c; B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
D. Raimondo & A.L. Schutte-Vlok

Distribution: WC. Hangklip to Hermanus.
Habitat: Sand at the foot of mountains or on mountain slopes in low fynbos vegetation, up to 750 m.
Rationale: EOO 160 km², AOO < 160 km². Less than 15 locations are known, around half of which are above 200 m and are protected within reserves. Coastal locations are declining as a result of coastal development and invasion by alien plants. Coastal development has already led to > 30% habitat loss, 25% of which occurred over the past 20 years (generation length suspected to be 10 years).

Aspalathus joubertiana
Status: Rare
D. Raimondo & D.A. Kamundii

Distribution: WC. Witteberg Mountains near Laimingsburg and Cydo Pass near Ceres.
Habitat: Low- to medium-altitude arid fynbos slopes.
Rationale: Known from two disjunct subpopulations. Not known to be threatened.

Aspalathus isolata
Status: EN B1ac(ii,iii)
N.A. Helme & D. Raimondo

Distribution: NC WC. Matsikamma Mountains and Bokkeveld Escarpment near Nieuwoudtville.
Habitat: Montane fynbos, in deep acid sands on sandstone mountain plateaus, 800 m.
Rationale: EOO < 500 km². Habitat at two known locations is declining because of rooibos tea cultivation. In addition, the location on the Matsikamma Mountain is too frequently burnt, while the Bokkeveld Escarpment location is infested by alien pines.

Aspalathus joubertiana
Status: EN A2ac; B1ab(ii,iii)
A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Potberg Reserve.
Habitat: Mixed fynbos-renoesterveld scrub, in clay soil at low altitude.
Rationale: A population reduction of > 50% is estimated based on habitat loss to agriculture over the past 60 years (a long-lived resprouter, generation length at least 30 years). EOO < 1 900 km². Six severely fragmented subpopulations remain and the number of mature individuals is declining because of too infrequent fires.

Aspalathus karrooensis
Status: Critically Rare
J.H. Vlok & D. Raimondo

Distribution: WC. Rooihoek Mountain.
Habitat: Rocky outcrops in montane fynbos.
Rationale: Occurs only on the Rooihoek, where two known subpopulations are protected in the Rooihoek Nature Reserve.

Aspalathus keeromsbergensis
Status: Rare
D.A. Kamundii & D. Raimondo

Distribution: WC. Keeromsberg Mountains.

Habitat: Dry rocky fynbos on north-facing slopes.
Rationale: Known from two sites, but no significant threats.
Aspalathus lactea Thunb. subsp. breviloba

R. Dahlgren

Status: VU D2
N.A. Helme & D. Raimondo

Distribution: WC. Breede River and Hex River Valleys.
Habitat: Renosterveld on fine-grained, mainly clay soils in valleys and on plains below 800 m.
Rationale: The habitat of this taxon has been affected by cultivation of vineyards and urban expansion around Worcester. Individuals at four known locations are not declining, but further agricultural and urban expansion remain potential threats.

Aspalathus lamarkiana R. Dahlgren

Status: Rare
T. Nkonki & J.E. Victor

Distribution: WC. Witteberg and Klein Swartberg Mountains.
Habitat: Arid fynbos, 660 m.
Rationale: Restricted to a small area near the Laingsburg–Ladismith Division border, at Wittepoort. Not threatened.

Aspalathus lanceicarpa R. Dahlgren

Status: Rare
D. Raimondo & W. Berrington

Distribution: EC. Van Stadens Mountains.
Habitat: Southern slopes in montane fynbos.
Rationale: More than 10 000 plants occur in a small area of < 35 km². Its mountainous habitat is not threatened and it can be dominant after fire.

Aspalathus latifolia Bolus

Status: VU D2
N.A. Helme & D. Raimondo

Distribution: WC. Piketberg Mountain.
Habitat: Montane fynbos, 660–1 330 m.
Rationale: Five known locations are potentially threatened by agriculture (orchard cultivation), invading alien plants and afforestation.

Aspalathus lebeckioides R. Dahlgren

Status: VU B1ab(ii,iii,iv,v)
D. Raimondo & N.A. Helme

Distribution: WC. From Mamre to the Cape Peninsula to Agulhas Plain.
Habitat: Lowland clay flats.
Rationale: EOO 7 800 km². Fewer than 10 known locations are declining as a result of crop cultivation, coastal development and invasion by alien plants.

Aspalathus lenticula Bolus

Status: CR B1ab(iii)+2ab(iii)
D. Raimondo & K. Marais

Distribution: WC. Tulbagh to Paarl.
Habitat: Renosterveld-fynbos scrub, 230 m.
Rationale: Until recently this species was known only from the type collection, made in 1896 in the Tulbagh Valley, an area now extensively transformed to vineyards. It was thought extinct until a subpopulation was discovered on a small renosterveld fragment near Paarl in 2007. EOO and AOO 2 km². Individuals at this location are declining as a result of dense invasions of alien plants and fertiliser and herbicide runoff from surrounding agricultural fields.

Aspalathus longifolia Benth.

Status: VU B1ab(ii,iii,v)+2ab(ii,iii,v)
J.H. Vlok, N.A. Helme & D. Raimondo

Distribution: WC. Langeberg Mountains, Garcia’s Pass to Gourits River.
Habitat: Shale bands on renosterveld-fynbos ecotones on northern slopes.
Rationale: EOO and AOO < 200 km². Fewer than 10 known locations are declining because of invasion by alien plants and grazing by livestock too soon after fire.

Aspalathus lotoides Thunb. subsp. lotoides (Thunb.) R. Dahlgren

Status: VU B1ab(ii,iii)
N.A. Helme & D. Raimondo

Distribution: WC. Jacobsbaai to Dassenberg.
Habitat: Coastal and inland granite outcrops.
Rationale: EOO 2 020 km². Habitat at fewer than 10 known locations is declining as a result of crop cultivation, coastal development and invasion by alien plants.

Aspalathus macrantha Harv.

Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv)
D. Raimondo

Distribution: WC. Cape Peninsula and Hottentots Holland Mountains.
Habitat: Montane fynbos, 200–350 m.
Rationale: EOO 400 km², AOO < 400 km². Four known locations are threatened by urban expansion and consequent changes in fire regime. This reseeder requires fire for regeneration but fires are generally suppressed close to urban areas.

Aspalathus macracarpa Eckl. & Zeyh.

Status: VU D2
D. Raimondo

Distribution: WC. Langeberg Mountains.
Habitat: Dry montane fynbos on shale.
Rationale: Three known locations are potentially threatened by expansion of vineyards.

Aspalathus millefolia R. Dahlgren

Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo

Distribution: WC. Houwhoek to Riversdale.
Habitat: Shale slopes and flats.
Rationale: EOO 5 145 km². Ten locations are known, but some may already be locally extinct. Declining as a result of habitat loss to the cultivation of wheat, deciduous fruit and proteas and expansion of vineyards.
Aspalathus obtusifolia
Status: EN B1ab(ii,iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo

distribution: WC. Piketberg to Worcester.
Habitat: Mixed renosterveld-fynbos scrub, fine-grained clay soils.
Rationale: More than 80% of the habitat has been transformed by agriculture over the past 100 years (more than three generations) and only seven severely fragmented subpopulations remain. EOO 3 200 km². The population continues to decline because of further ploughing and too infrequent fires.

Aspalathus obtusata

Aspalathus oblongifolia
Status: B1ab(ii,iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo

distribution: NC. Bokkeveld Escarpment.
Habitat: Montane fynbos, 600–700 m.
Rationale: This species is known only from the type collection, made on a farm on the Bokkeveld Escarpment near Nieuwoudtville in 1830. Most of the land on this farm is cultivated and the rest is grazed by sheep. This is a palatable species and it has quite likely been negatively affected by heavy grazing on fragments of natural vegetation, as numerous visits to the area and a thorough search of the farm in 2002 failed to locate any individuals. It is quite likely to be extinct.

Aspalathus pallescens

Aspalathus pendula
Status: VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

distribution: WC. Piketberg and northwestern Olifants River Mountains.
Habitat: Lowland fynbos, up to 130 m.
Rationale: EOO < 3 000 km². Known from fewer than 10 locations. Experiencing a continuing decline as a result of invasion by alien plants, urban expansion and agriculture.

Aspalathus orbiculata
Status: EN B1ab(iii)+2ab(iii)
D. Raimondo

distribution: WC. Albertinia.
Habitat: Lowland fynbos, below 10 m.
Rationale: EOO and AOO < 500 km². Habitat quality is declining at three known locations because of invasions by alien species of Pinus and Eucalyptus and destructive thatch harvesting.

Aspalathus oliveri
Status: DD
D. Raimondo

distribution: WC. Matroosberg.
Habitat: Lower slopes in montane fynbos.
Rationale: One known site is protected within a provincial nature reserve.

Aspalathus olivieri

Aspalathus orbiculata
Status: CR PE
D. Raimondo & E. Marinus

distribution: WC. Matroosberg.
Habitat: Shale bands at 1 250 m.
Rationale: A rare, high-altitude habitat specialist that is not threatened.

Aspalathus orbiculata
subsp. rugulicarpa
Status: CR PE
D. Raimondo

distribution: WC. Matroosberg.
Habitat: Lower slopes in montane fynbos.
Rationale: Known to occur at a single site where it is not threatened.

Aspalathus pachyloba
Status: VU D2
D. Raimondo, N.A. Helme & D.I.W. Euston-Brown

distribution: WC. De Hoop.
Habitat: Lowland fynbos, limestone ridges, 200 m.
Rationale: One known location is potentially threatened by invading alien acacias.

Aspalathus patens
Status: Rare
D. Raimondo

distribution: WC. Swartberg and Kammanassie Mountains.
Habitat: Mountain summits.
Rationale: A high-altitude habitat specialist known from three sites where it is not threatened.

Aspalathus pendula
Status: VU B1ab(ii,iii)
N.A. Helme & D. Raimondo

distribution: WC. Piketberg and northwestern Olifants River Mountains.
Habitat: Shales and sandy middle to lower slopes.
Rationale: EOO < 2 000 km². Habitat at 10 known locations is declining because of expanding wheat and rooibos cultivation.
**Aspalathus pilantha** R.Dahlgren

**Status:** Critically Rare

N.A. Helme, T. Nkonki & J.E. Victor

**Distribution:** WC. Matroosberg.

**Habitat:** Montane fynbos, 700 m.

**Rationale:** One site is known, but this species is not threatened.

**Aspalathus pinguis** Thumb. subsp. *occidentalis* R.Dahlgren

**Status:** VU B1ab(ii,iii,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Langebaan to Piketberg.

**Habitat:** Renosterveld on clay flats.

**Rationale:** EOO < 1 859 km². Eight locations are known. A few subpopulations are protected within the West Coast National Park but all other locations are declining as a result of urban development, agricultural expansion and invasions of alien plants.

**Aspalathus polyccephala** E.Mey. subsp. *polyccephala*

**Status:** Rare

D.A. Kamundį & D. Raimondo

**Distribution:** WC. Cederberg.

**Habitat:** Stony fynbos slopes.

**Rationale:** A range-restricted taxon (EOO 350 km²) with three known subpopulations that are protected in the Cederberg Wilderness Area.

**Aspalathus potbergensis** R.Dahlgren

**Status:** VU D2

D. Raimondo

**Distribution:** WC. Potberg.

**Habitat:** Montane fynbos, 400–500 m.

**Rationale:** EOO < 150 km². A locally common species known from fewer than five locations. Despite its occurrence in a reserve, it is potentially threatened by invasions of alien plants, as the financial resources to clear aliens are not readily available.

**Aspalathus proboscidea** R.Dahlgren

**Status:** CR B1ab(ii,iii,v)+2ab(ii,iii,v)

D. Raimondo

**Distribution:** NC. Bokeveld Mountains.

**Habitat:** Arid montane fynbos in sand, 700–800 m.

**Rationale:** EOO and AOO < 10 km². Declining because of habitat loss to rooibos tea cultivation at its only known location.

**Aspalathus prostrata** Eckl. & Zeyh.

**Status:** VU D2


**Distribution:** WC. Arniston.

**Habitat:** Lowland fynbos on limestone, 50–100 m.

**Rationale:** Three known locations are potentially threatened by invasions of alien plants and infrastructure development at an airfield.

**Aspalathus psoraleoides** (C.Presl) Benth.

**Status:** EN B1ab(iii)

D. Raimondo & D.A. Kamundį

**Distribution:** WC. Cape Peninsula and Babilonstoring Mountain.

**Habitat:** Low fynbos in sands weathered from sandstone.

**Rationale:** EOO < 700 km². Three known locations. Two subpopulations on the Cape Peninsula are protected, but one other disjunct site on the Babilonstoring Mountain is declining as a result of alien plants that invade the habitat.

**Aspalathus puberula** (Eckl. & Zeyh.) R.Dahlgren

**Status:** CR PE

A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Tygerberg to Darling.

**Habitat:** Clay soils.

**Rationale:** Last collected in 1956, 10 of the 11 subpopulations known through herbarium records are from sites that have now been transformed. The species has lost most (98%) of its habitat to wheat and vineyard expansion, invading alien plants and urban expansion. In addition, it is very likely that the lack of fire of renosterveld fragments has resulted in this species disappearing from most of its remaining habitat. There is one unconfirmed record from the Tygerberg Hills and it is possible that this species is still extant here. Urgent surveys are needed to establish whether or not this species is extinct.

**Aspalathus pycnantha** R.Dahlgren

**Status:** VU A2c; B1ab(iii,v)+2ab(iii,v)

N.A. Helme, D.I.W. Euston-Brown & D. Raimondo

**Distribution:** WC. Bredasdorp.

**Habitat:** Gravelly shale lowlands.

**Rationale:** A population reduction of at least 40% is estimated based on habitat loss to wheat, vineyard and protea cultivation over the past 40 years (generation length suspected to be 15 years). Current EOO and AOO < 1 200 km². About eight remaining locations are declining because of ongoing habitat degradation caused by invading alien plants and grazing by livestock.

**Aspalathus quadragata** L.Bolus

**Status:** VU B1ab(iii,v)+2ab(iii,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Albertinia.

**Habitat:** Lowland fynbos, 300 m.

**Rationale:** EOO and AOO < 2 000 km². Habitat degradation due to destructive thatch harvesting and invasion by alien plants is causing a continuing decline in numbers of mature individuals at fewer than 10 known locations. None of the remaining subpopulations are in protected areas.

**Aspalathus ramosissima** R.Dahlgren

**Status:** Rare

N.A. Helme, J.H. Vlok & D. Raimondo

**Distribution:** WC. Groot Swartberg Mountains and Anysberg.

**Habitat:** Rocky outcrops on montane fynbos, 1 300–1 700 m.

**Rationale:** A high-alpine habitat specialist known from three collecting records. It not suspected to be declining.

**Aspalathus rectistyla** R.Dahlgren

**Status:** CR B2ab(iii)

D. Raimondo

**Distribution:** WC. Piketberg to Porterville.

**Habitat:** Renosterveld, shale soils.

**Rationale:** Wheat cultivation has caused a > 90% loss of habitat and only a few severely fragmented subpopulations are likely to remain on small fragments, with an estimated AOO < 2 km². Declining as a result of grazing by livestock and the negative effects of fragmentation, including pesticide drift, loss of pollinators and poor reproduction.
Aspalathus recurva Benth.
   Status: VU B1ab(ii,iii,iv,v)
   N.A. Helme & D. Raimondo
   Distribution: WC. Piketberg to Swellendam.
   Habitat: Renosterveld-fynbos scrub, 40–300 m.
   Rationale: EOO 5 300 km². The 10 known locations are declining as a result of expanding agriculture (vineyards and cultivation of deciduous fruit), urban expansion and invasions of alien plants.

Aspalathus recurvispina R.Dahlgren
   Status: CR B1ab(iii)+2ab(iii); C2a(ii)
   I. Ebrahim, D. Raimondo & A.L. Schutte-Vlok
   Distribution: EC. Port Elizabeth.
   Habitat: Coastal fynbos below 100 m.
   Rationale: All six locations known through historical records are in areas now transformed to suburbs of Port Elizabeth, and it was thought extinct until a small subpopulation of ± 200 plants was found in a 1.5 ha roadside fragment of natural vegetation in Humewood. This subpopulation is likely to continue to decline as a result of the effects of fragmentation and degradation of the habitat as well as invasion by alien plants.

Aspalathus repens R.Dahlgren
   Status: CR B1ab(ii,iii)+2ab(iii); C2a(ii)
   D. Raimondo, N.A. Helme & D.I.W. Euston-Brown
   Distribution: WC. Bredasdorp.
   Habitat: Lowland fynbos on limestone, 90 m.
   Rationale: EOO 5 km², AOO < 1 km². Three severely fragmented subpopulations are declining as a result of alien plants that invade the habitat. One subpopulation is potentially threatened by railway construction. The population consists of ± 230 mature individuals, 200 of which are in a single subpopulation.

Aspalathus retroflexa L. subsp. bicolor
   (Eckl. & Zeyh.) R.Dahlgren
   Status: CR PE
   N.A. Helme & D. Raimondo
   Distribution: WC. Cape Flats to Mamre.
   Habitat: Mountain and lowland fynbos on sandy flats, 100–300 m.
   Rationale: All five locations known through herbarium collections are either transformed or degraded and this taxon is quite likely extinct.

Aspalathus rosea Garab. ex R.Dahlgren
   Status: EN A2c; B1ab(iii,v)
   Distribution: WC. Bot River to Elim.
   Habitat: Lowland fynbos, 100–200 m.
   Rationale: A population reduction of at least 50% is estimated based on habitat loss to wheat and vineyard expansion over the past three generations (45 years). EOO < 1 400 km². Seven severely fragmented remaining subpopulations are declining because of agricultural expansion, invasion by alien plants and grazing by livestock.

Aspalathus rostrata Benth.
   Status: Rare
   T. Nkonki & J.E. Victor
   Distribution: WC. Langeberg Mountains near Robertson.
   Habitat: Dry montane fynbos or renosterveld-fynbos scrub, 1 000 m.
   Rationale: EOO < 250 km². Only five subpopulations are known that are not threatened.

Aspalathus rostripetala R.Dahlgren
   Status: CR B1ab(iii,v)+2ab(iii,v)
   D. Raimondo & D.A. Kamundi†
   Distribution: WC. Oliefants River Valley north of Citrusdal.
   Habitat: Sandy flat area in arid fynbos.
   Rationale: EOO 10 km², AOO < 10 km². One location remains. The habitat is fragmented by citrus cultivation and habitat quality in fragments continues to decline because of pesticide runoff and the exclusion of fire.

Aspalathus rycroftii R.Dahlgren
   Status: CR B1ab(ii,iii,iv,v)+2ab(i,i,ii,iii,iv,v)
   D. Raimondo, I. Ebrahim & E. Marinus
   Distribution: WC. Malmesbury.
   Habitat: Renosterveld in clays on low hills.
   Rationale: EOO 42 km², AOO < 10 km². More than 80% of the renosterveld habitat of this species has been transformed by wheat cultivation and urban expansion of Malmesbury. It was probably formerly more common, but recent surveys located only three subpopulations, one of which was lost to a housing development in 2005. Two severely fragmented remaining subpopulations continue to decline because of invading alien plants and too infrequent fires.

Aspalathus salteri L.Bolus
   Status: NT B1ab(ii,iii,iv,v)
   D. Raimondo & A.L. Schutte-Vlok
   Distribution: WC. Cape Peninsula to Cape Infanta.
   Habitat: Fynbos, on coastal sands mostly associated with limestone.
   Rationale: EOO 8 400 km². Some 18 known locations are declining as a result of invasion by alien plants throughout its range, agriculture on the Agulhas Plain, and urban expansion on the Cape Flats and at Infanta.

Aspalathus sanguinea Thunb. subsp. foliosa
   R.Dahlgren
   Status: VU B1ab(ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
   D. Raimondo & A.L. Schutte-Vlok
   Distribution: WC. Riversdale plain.
   Habitat: Coastal sands.
   Rationale: EOO and AOO < 2 000 km². The 8–10 known locations are declining because of invasion by alien plants, agriculture and urban expansion around Still Bay, Riversdale and Albertinia.

Aspalathus sanguinea Thunb. subsp. sanguinea
   Status: VU B1ab(ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
   D. Raimondo & A.L. Schutte-Vlok
   Distribution: WC. Bredasdorp to Still Bay.
   Habitat: Calcareous fynbos scrub on limestone rocks along coastal deposits.
   Rationale: EOO 490 km², AOO < 490 km². Fewer than 10 known locations are declining as a result of alien plants that invade the habitat.

Aspalathus secunda E.Mey.
   Status: DDD
   D. Raimondo & A.L. Schutte-Vlok
   Distribution: WC. Riebeek-Kasteel Mountain.
   Habitat: Mountain slopes, altitude unknown.
   Rationale: Last collected before 1950. The specific habitat of this species is not known. It could be affected by vineyard expansion if it occurs on lower slopes.
Aspalathus shawii L. Bolus subsp. glabripetala (R. Dahlgren) R. Dahlgren
Plate 62

Status: Rare
A.L. Schutte-Vlok, D. Raimondo & D.A. Kamundi

Distribution: WC. Langeberg Mountains near Montagu.
Habitat: Mountain slopes and summits.
Rationale: A range-restricted taxon (EOO < 50 km²) that is not threatened.

Aspalathus singuliflora R. Dahlgren
Status: CR PE
D. Raimondo & I. Rogers

Distribution: WC. Breede River Valley near Touwsrivier.
Habitat: Lowland fynbos on alluvial soils.
Rationale: Alluvial soils around Smousbos Hill, where this species was last collected in 1920, are all cultivated and it is quite likely to be extinct.

Aspalathus smithii R. Dahlgren
Status: EN B1ab(i,ii,iii,v)
N.A. Helme

Distribution: WC. From Caledon to Bredasdorp and Swellendam.
Habitat: Renosterveld, 100–120 m.
Rationale: EOO < 1 200 km². Ten small, severely fragmented subpopulations remain on isolated fragments as most of the renosterveld habitat of this species has been transformed by wheat cultivation. Declining because of grazing by livestock and alien plants that invade fragments.

Aspalathus steudeliana Brongn.
Status: VU A2c
N.A. Helme & D. Raimondo

Distribution: WC. Ashton and Agulhas to Mossel Bay.
Habitat: Renosterveld with fynbos elements, on shale and silcrete flats with clay soil.
Rationale: More than 80% of the habitat has been transformed for the cultivation of wheat, at least 40% of which occurred since 1970, within the past three generations of this slow-growing reseder (generation length ± 15 years).

Aspalathus stokoei L. Bolus
Status: Rare
T. Nkonki & J.E. Victor

Distribution: WC. Kogelberg.
Habitat: Montane fynbos, streamside, 350–900 m.
Rationale: A range-restricted (EOO < 400 km²) habitat specialist that is protected in the Kogelberg Biosphere Reserve.

Aspalathus stricticlada (R. Dahlgren) R. Dahlgren
Status: EN B1ab(i,ii,iii,iv,v)
A.L. Schutte-Vlok, D. Raimondo & D.A. Kamundi

Distribution: WC. Malmesbury and Vredenburg.
Habitat: Renosterveld-fynbos transitional veld.
Rationale: EOO 2 064 km². Three remaining locations are declining because of habitat loss to urban and coastal development.

Aspalathus suaveolens Eckl. & Zeyh.
Status: Rare
T. Nkonki & J.E. Victor

Distribution: WC. Groot Winterhoek Mountains.
**Aspalathus tulbaghensis** R.Dahlgren  
Status: CR B1ab(ii,iii)+2ab(ii,iii)  
N.A. Helme & J.E. Victor  
<Distribution: WC. Wolseley.  
Habitat: Sandy flats and lower slopes.  
*Rationale: EOO and AOO < 10 km². This species occurs in an area that is > 80% transformed to agriculture. There is a single known location, where a recent change of land ownership resulted in the expansion of fruit orchards and continued habitat loss.*  

**Aspalathus vacciniifolia** R.Dahlgren  
Status: EN B1ab(i,ii,iii,iv,v)  
A.L. Schutte-Vlok & D. Raimondo  
<Distribution: WC. Cape Flats to Albertinia.  
Habitat: Lowland marine flats and sandy areas below 400 m.  
*Rationale: This formerly common species is known from at least 22 locations through herbarium specimens. It was already locally extinct on the Cape Peninsula by 1998 and only six small, severely fragmented subpopulations remain in an EOO that has been reduced by > 50% to 3 500 km². Habitat and number of subpopulations continue to decline as a result of urban development, agriculture and invasions of alien plants.*  

**Aspalathus varians** Eckl. & Zeyh.  
Status: Critically Rare  
T. Nkonki & J.E. Victor  
<Distribution: WC. Somerset Sneekoup, Hottentots Holland Mountains.  
Habitat: Subalpine montane fynbos, on steep, stony, windswept slopes, 1 000–1 300 m.  
*Rationale: This species occurs at only one known site that is not threatened.*  

**Aspalathus tylodes** Eckl. & Zeyh.  
Status: EN B1ab(i,ii,iii,iv,v)  
J.E. Victor & A.E. van Wyk  
<Distribution: WC. Bellville to Ceres.  
Habitat: Renosterveld-fynbos transition.  
*Rationale: EOO 4 900 km². Of 18 subpopulations known from herbarium records, only six severely fragmented subpopulations are likely to remain. Most collections are very old, dating from pre-1966. There is a continuing decline in habitat quality because of mismanagement of renosterveld fragments. Members of the genus require fire to recruit and most fragments are not regularly burnt.*  

**Aspalathus variegata** Eckl. & Zeyh.  
Status: EX  
T. Nkonki & J.E. Victor  
<Distribution: WC. Cape Flats.  
Habitat: Lowland fynbos, in acid sands.  
*Rationale: Last collected in 1898. Extinct because of urban expansion on the Cape Flats.*  

**Aspalathus venosa** E.Mey.  
Status: Rare  
N.A. Helme & D. Raimondo  
<Distribution: WC. Botkeveld Escarpment, Gifberg and Matskamma Mountains.  
Habitat: Pockets of sandy soils in rocky sandstone pavements.  
*Rationale: EOO 250 km². A habitat specialist of areas that are sheltered from rooibos tea cultivation and too frequent fires, therefore unlikely to be threatened.*  

**Aspalathus verbasciformis** R.Dahlgren  
Status: Rare  
D. Raimondo  
<Distribution: WC. Langeberg Mountains, from Montagu to Swellendam.  
Habitat: Lower slopes and foothills.  
*Rationale: EOO 360 km². Not threatened.*  

**Aspalathus vulpina** Garab. ex R.Dahlgren  
Status: VU B1ab(iii,v)+2ab(iii,v); C1  
J.H. Vlok & D. Raimondo  
<Distribution: WC. Northern slopes of the Langeberg Mountains.  
Habitat: Renosterveld-fynbos transition on lower slopes, on thin sands mixed with gravel on horizontal sandstone rocks, 600 m.  
*Rationale: EOO and AOO < 10 km². Fewer than 10 locations and less than 10 000 mature individuals remain. At least 10% of the habitat has been transformed to pasture and degraded by invading alien plants and grazing by livestock over the past 30 years (generation length 10 years). Decline continues.*  

**Aspalathus wurmbeana** E.Mey.  
Status: EN B1ab(ii,iii,iv,v)  
A.L. Schutte-Vlok, J.H. Vlok & D. Raimondo  
<Distribution: WC. Gifberg to Paarl.  
Habitat: Renosterveld.  
*Rationale: EOO 1 550 km². A formerly common species, known from at least 19 subpopulations through herbarium collections. Extensive habitat loss to wheat and citrus cultivation resulted in only six severely fragmented subpopulations remaining. Further habitat loss to rooibos tea cultivation is causing a continuing decline.*  

**Aspalathus zeyheri** (Harv.) R.Dahlgren  
Status: VU B1ab(ii,iii,iv,v)  
A.L. Schutte-Vlok & D. Raimondo  
<Distribution: WC. Cape Flats to Albertinia.  
Habitat: Renosterveld.  
*Rationale: EOO 5 200 km². Only 11 severely fragmented subpopulations remain. This species was formerly common on the Riversdale plain but most of its habitat has been transformed by agriculture and subpopulations occur on small fragments, many of which are poorly managed—burnt too frequently and overgrazed.*  

**Bauhinia L.**  

**Bauhinia bowkeri** Harv.  
Status: NT D2  
J.E. Victor & A.E. van Wyk  
<Distribution: EC KZN. Mzimvubu to Kei River.  
Habitat: Riverbanks.  
*Rationale: Known from five locations but likely to occur at a few more. Potentially threatened by subsistence agriculture.*  

**Caesalpinia L.**  

**Caesalpinia bracteata** Germish.  
Status: VU D1  
J.E. Victor, P.G. Desmet & A.E. van Wyk  
<Distribution: NC. Augrabies Falls.  
Habitat: Granite.  
*Rationale: Occurs on two farms below Augrabies Falls and known from less than 1 000 mature individuals. Not threatened.*
Plate 64

*Liparia racemosa* Rare

*Liparia confusa* Rare

*Liparia bonaesperi* EN

*Liparia striata* EN

*Liparia striata* (pods) EN

*Xiphotheca gutthriei* EN

*Liparia keevigata* VU

*Xiphotheca lanceolata* EN
Plate 66

*Psoralea trullata* Rare

*Psoralea impalata* EN

*Psoralea repens* NT

*Psoralea sp. nov. 'Stirton & Zantovska' 11568* Rare

*Tephrosia bachmannii* VU

*Psoralea sp. nov. 'Muir 1850'* EN

*Psoralea sp. nov. 'Stirton & Zantovska' 11582* EN

*Tephrosia pondensis* EN

*Psoralea peratica* EN
**Caesalpinia rostrata** N.E.Br.

Status: VU A2c; B1ab(ii,iii,iv,v)

J.E. Burrows, M. Lötter & D. Raimondo

**Distribution:** MP. Mpumalanga lowveld, possibly also occurs in Mozambique.

**Habitat:** Bushveld, often along river valleys and drainage lines.

**Rationale:** A population reduction of at least 40% is estimated based on habitat loss to sugarcane cultivation over the past 60 years (three generations) and habitat loss is continuing. EOO 700 km², AOO < 700 km². Fewer than 10 locations remain. The only collection from Mozambique is very old and possibly refers to an area within South Africa.

**Calpurnia E.Mey.**

**Calpurnia reflexa** A.J.Beaumont

Status: Rare

D.A. Kamundi & J.E. Victor

**Distribution:** EC FS. Mountains of the northern parts of Eastern Cape, through Lesotho to eastern parts of the Free State.

**Habitat:** Ravines above 1 800 m.

**Rationale:** A high-altitude habitat specialist that occurs as scattered subpopulations. Known from fewer than 10 sites where it is not threatened.

**Calpurnia woodii** Schinz

Status: VU D2

J.E. Victor & C.R. Scott-Shaw

**Distribution:** KZN. Bushmans River Valley near Estcourt.

**Habitat:** Grassland and grassland-woodland transitions on steep, dry, southeast-facing slopes with loose shale soils, 1 500 m.

**Rationale:** A highly range-restricted species (EOO ± 20 km²), known from two locations, one inside a nature reserve. Individuals outside the reserve are potentially threatened by severe overgrazing, resulting in erosion and too frequent fires.

**Crotalaria L.**

**Crotalaria lebeckioides** Bond

Status: Rare

D. Raimondo & R.C. Turner

**Distribution:** WC. Groot Swartberg and Kammanassie Mountains.

**Habitat:** Subalpine montane fynbos occurring on shale bands, 1 500–2 000 m.

**Rationale:** Subpopulations are small, consisting of fewer than 10 mature individuals and are restricted to a small area (EOO 710 km²). The total population is estimated to be less than 1 000 mature individuals.

**Crotalaria monophylla** Germish.

Status: VU D2

M. Lötter, J.E. Burrows & L. von Staden

**Distribution:** MP. Steenkampsberg.

**Habitat:** Quartzite.

**Rationale:** A highly range-restricted species (EOO 684 km²), occurring in small subpopulations or as scattered individuals, but not threatened.

**Crotalaria pearsonii** Baker f.

Status: Rare

L. Potter

**Distribution:** NC. Richtersveld.

**Habitat:** Ravines and cliffs.

**Rationale:** A habitat specialist known from five sites. Not threatened.

**Cullen Medik.**

**Cullen holubii** (Burtt Davy) C.H.Stirt.

Status: VU B1ab(iii)

L. von Staden

**Distribution:** LM. Between the Pienaars River, Bela-Bela and Nylsvley.

**Habitat:** Springbokvlei Thornveld.

**Rationale:** EOO 1 200–1 480 km². Five locations are known, but they are all from roadsides and there are likely to be up to 10 locations in total, as its vegetation type is quite widespread. About 60% of the habitat has been transformed in the past, mainly for agriculture, but the generation length of this species is unknown and therefore it cannot be listed under Criterion A. There is ongoing habitat loss because of expanding rural settlements, overgrazing and invasion by alien plants.

**Cyclopia Vent.**

**Cyclopia alopecuroides** A.L.Schutte

Status: EN B1ab(v)

J.H. Vlok & D. Raimondo

**Distribution:** WC. Groot Swartberg and Kammanassie Mountains.

**Habitat:** Subalpine fynbos.

**Rationale:** Subpopulations are small, consisting of fewer than 10 mature individuals and are restricted to a small area (EOO 710 km²). The total population is estimated to be less than 1 000 mature individuals.

**Cyclopia bolusii** Hofmeyr & E.Philips

Status: VU D1

D. Raimondo & A.L. Schutte-Vlok

**Distribution:** WC. Groot Swartberg.

**Habitat:** Subalpine fynbos.

**Rationale:** Subpopulations are small, consisting of fewer than 10 mature individuals and are restricted to a small area (EOO 710 km²). The total population is estimated to be less than 1 000 mature individuals. Potentially threatened by harvesting for tea at fewer than five known locations.

**Cyclopia burtonii** Hofmeyr & E.Philips

Status: VU D1 + 2

A.L. Schutte-Vlok & E. Daniels

**Distribution:** WC. Groot Swartberg Mountains.

**Habitat:** Rocky, sandy soil on crests and upper mountain slopes, 1 600–2 070 m.

**Rationale:** A highly range-restricted endemic (EOO 350 km²). The population is estimated to have less than 1 000 mature individuals. Potentially threatened by harvesting for tea at fewer than five known locations.

**Cyclopia filiformis** Kies

Status: EX

J.E. Victor & A.P. Dold

**Distribution:** EC. Van Stadens River.

**Habitat:** Coastal fynbos on riverbanks, 100 m.

**Rationale:** Not recorded since the type collection was made in 1897. Repeated searches in the area have failed to relocate it. Afforestation and invasion by alien plants have possibly led to extinction of this species.
Cyclopia latifolia DC.

**Status:** CR D

A.L. Schutte-Vlok, N.A. Helme & F. Daniels

**Distribution:** WC. Cape Peninsula, Constantiaberg and Table Mountain.

**Habitat:** Marshy, rocky, sandstone seeps, 900–1 000 m.

**Rationale:** Only 23 plants are known. The population is potentially threatened by poor fire management.

Cyclopia laxiflora

**Status:** EX

A.L. Schutte-Vlok & F. Daniels

**Distribution:** WC. Knysna and Plettenberg Bay.

**Habitat:** Sandy flats.

**Rationale:** Known from two specimens collected in the 1800s. Habitat loss to coastal development and commercial forestry plantations probably caused its extinction.

Cyclopia longifolia Vogel

**Status:** CR B1ab(ii;i) + 2ab(iii); C2a(i)


**Distribution:** EC. Van Stadens Mountains.

**Habitat:** Moist, sandy soil along riverbanks, 300–600 m.

**Rationale:** EOO < 100 km², AOO < 10 km². Three small, severely fragmented subpopulations remain after much of the habitat has been transformed to forestry plantations. Each subpopulation consists of between 30 and 40 mature individuals, with the total population being no more than 150 mature individuals. Declining as a result of alien plants that invade the habitat and a deleterious fire regime.

* Cyclopia maculata (Andrews) Kies

**Status:** NT B1ab(iii,v)

J.H. Vlok & D. Raimondo

**Distribution:** WC. Bain’s Kloof to Riversdale.

**Habitat:** Streamsides in lowland fynbos.

**Rationale:** EOO 4 300 km². The 15 known locations are declining as a result of water abstraction and invading alien acacias, as it occurs in a habitat that is particularly prone to dense invasions. This species is also harvested for the honey bush tea industry.

Cyclopia plicata Kies

**Status:** EN B1ab(iii,v)

J.H. Vlok & D. Raimondo

**Distribution:** WC. Kammanassie and Kouga Mountains.

**Habitat:** Montane fynbos on shale bands in loamy rocky soil, 1 000–1 700 m.

**Rationale:** EOO 760 km². Two known locations are declining because of harvesting for honey bush tea and an altered fire regime.

Cyclopia pubescens Eckl. & Zeyh.

**Status:** CR B1ab(ii;iii,iv,v) + 2ab(i;iii,iv,v)

D. Raimondo, A.P. Dold & W. Berrington

**Distribution:** EC. Port Elizabeth.

**Habitat:** Lowland fynbos in marshy drainage lines, 300 m.

**Rationale:** EOO 24 km², AOO < 5 km². Seven small, severely fragmented subpopulations remain after > 80% of the habitat has been transformed by urban expansion, agriculture and invasion by alien plants. These threats, as well as damage by vlei rats and mowing by landowners, are causing a continuing decline.

Cyclopia squamosa A.L.Schutte

**Status:** CR D

N.A. Helme

**Distribution:** WC. Wemmershoek Peak.

**Habitat:** Deep, peaty soils on upper, south-facing sandstone slopes.

**Rationale:** This species occurs at extremely low densities. Only three plants occurring at a single site are currently known, and they are vulnerable to too frequent fires.

Eriosema (DC.) G.Don

* Eriosema fasciculatum Schinz

**Status:** DDD

D. Raimondo, P.F. Matlamela & D.A. Kamundji

**Distribution:** IM. Northeastern Drakensberg Escarpment, Shiluwane mission.

**Habitat:** Unknown.

**Rationale:** This species is known only from the type collection, from an area that is partly severely disturbed, but intact natural vegetation remains. The species may be threatened, but as its exact location is not known, no assessment of its threat status can be made.

Eriosema latilofolium (Benth. ex Harv.) C.H.Stirt.

**Status:** VU D2

C.R. Scott-Shaw & D. Raimondo

**Distribution:** EC KZN. Izingloweni to Lusikisiki.

**Habitat:** Pondoland coastal grassland.

**Rationale:** A range-restricted Pondoland endemic, known from four herbarium collections and last collected in 1979. We suspect it may be vulnerable to the ongoing degradation of its habitat by grazing livestock. It is also potentially threatened by the proposed N2 highway to be built through the middle of its range, which may also result in further habitat loss to expansion of human settlements along the new road.

Eriosema naviculare C.H.Stirt.

**Status:** EN B1ab(iii) + 2ab(iii)

M. Lötter, J.E. Burrows & L. von Staden

**Distribution:** MP. Between Hazyview and Numbi Gate, Kruger National Park.

**Habitat:** Bushveld and grassland.

**Rationale:** EOO 22 km², AOO < 22 km². Fewer than five locations are known. Habitat at locations outside the Kruger National Park is declining because of urban and agricultural expansion.

* Eriosema populifolium Bent. ex Harv. subsp. populifolium

**Status:** EN A2c; B1ab(i;iii,iv)

L. von Staden & D. Raimondo

**Distribution:** KZN. Southern KwaZulu-Natal, from Umlaas Road to Hlokozzi-Highflats.

**Habitat:** Moist grassland, restricted to areas of deep black soils, 400–1 100 m.

**Rationale:** A population reduction of at least 50% is estimated based on 54% habitat loss to sugarcane cultivation and forestry plantations over the last 80 years (generation length 30–50 years). EOO 1 600–3 000 km². Many subpopulations now locally extinct in the southern parts of the range. Remaining severely fragmented subpopulations are now isolated because of the fragmentation of the habitat and they continue to decline as a result of poor recruitment in small subpopulations.
Eriosema umtamvunense C. H. Stirt.
Status: VU A2c
L. von Staden
Distribution: EC KZN. The plateau above the Umtamvuna River gorge.
Habitat: Pondoland coastal grasslands, Msikaba Formation Sandstone, 50–600 m.
Rationale: At least a 30% reduction in the population within the last three generations of this long-lived, suffrutescent grassland forb, based on a 37% habitat loss within the range of this locally common, but highly range-restricted species (generation length estimated to be > 50 years, EOO 75 km²). There is ongoing loss of habitat, mainly because of coastal development, but a large area of the range is protected within the Umtamvuna Nature Reserve.

Erythrophleum Afzel. ex G. Don

Indigofera amitina N. E. Br.
Status: Rare
J. E. Burrows, M. Lötter & L. von Staden
Distribution: MP. Between Barberton, Waterval Boven and Amsterdam. Also occurs in northeastern Swaziland.
Habitat: Riparian habitats in grassland and bushveld.
Rationale: A habitat specialist, known from only six collections, but it is not threatened.

Indigofera hantamensis Diels
Status: Rare
D. Raimondo
Distribution: NC. Roggeveld to Calvinia.
Habitat: Scree slopes.
Rationale: A rare species, known from only three subpopulations scattered over a large area. Not threatened.

Indigofera hispida Eckl. & Zeyh.
Status: VU B1ab(iii)
D. Raimondo
Distribution: EC WC. Uniondale to Port Elizabeth.
Habitat: Montane fynbos, 100–1 000 m.
Rationale: EOO < 12 600 km². Most of the seven known locations are declining because of invasion by alien plants.

Indigofera limosa L. Bolus
Status: DDD
L. Potter
Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Seasonally moist, grassy areas.
Rationale: Known only from the type collection, made in 1911 at an unspecified locality. This species is too poorly known to assess.

Indigofera platypoda E. Mey.
Status: CR
C. R. Scott-Shaw & J. E. Victor
Distribution: KZN. Upper Loteni Valley, Impendle.
Habitat: Montane grassland, 2 000 m.
Rationale: Known only from the type collection. Not threatened.

Indigofera psoraloides (L.) L.
Status: VU A2c; B1ab(i,ii,iii,iv,v)
D. Raimondo, N. A. Helme & R. Koopman
Distribution: WC. Citrusdal to the Cape Peninsula.
Habitat: Lowland fynbos on heavy clay soils.
Rationale: A population reduction of at least 30% is estimated based on habitat loss to crop cultivation over the past 80 years (generation length 50 years).
EOO 9 900 km². Eight locations are known, but it is now locally extinct at three on the Cape Peninsula because of urban development. Alien invasive plants and urban expansion around Gordon’s Bay are causing a continuing decline.

Indigofera superba C. H. Stirt.
Status: Rare
L. Potter
Distribution: WC. Kleinrivier Mountains.
Habitat: Montane fynbos, lower slopes, 100–400 m.
Rationale: A range-restricted species (EOO < 100 km²). Two known subpopulations are protected in reserves.

Indigofera thesioides Jarvie & C. H. Stirt.
Status: EN
D. Raimondo & J. H. Vlok
Distribution: WC. Groot Swartberg, Meiringspoort.
Habitat: Arid fynbos, karroid scrub, 700 m.
Rationale: A naturally rare, range-restricted species (EOO < 1 km²) with a population of less than 250 mature individuals.
**Lebeckia bowieana** Benth.

Status: CR A2bc; C2(ai); D

A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Between Piketberg, Malmesbury and Tulbagh.

**Habitat:** Renosterveld-fynbos scrub, 200–400 m.

**Rationale:** EOO < 5 600 km². Habitat at 5–10 locations continues to decline as a result of expanding wheat, vineyard, rooibos tea and olive cultivation.

**Lebeckia Thunb.**

**Lebeckia gracilis** M.M. le Roux & D. Raimondo

**Distribution:** WC. Breede River Valley, 19 of 24 locations known through herbarium collections and ± 75% of the habitat of this species is extremely common in the area north of the mouth of the Olifants River. Only ± 5% of the habitat is currently transformed by heavy-mineral sand mining; but decline is continuing.

**Lebeckia lotonoides** Schltr.

Status: NT B1ab(ii,iii)

N.A. Helme, S. Boatwright & D. Raimondo

**Distribution:** NC WC. Hondeklip Bay to Brand-se-baai.

**Habitat:** Well drained sandy soils, often moving sand dunes.

**Rationale:** EOO 5 050 km². Altogether 11 locations are known, but there are likely to be many more as this species is extremely common in the area north of the mouth of the Olifants River. Only ± 5% of the habitat is currently transformed by heavy-mineral sand mining; but decline is continuing.

**Lebeckia melilotoides** R.Dahlgren

**Distribution:** WC. Southern Tanqua Karoo between Ceres and Touwsrivier.

**Habitat:** Sandy soils in the Tanqua Karoo.

**Rationale:** The population consists of less than 1 000 individuals, occurring at three known locations. Potentially threatened by overgrazing and infrastructure expansion of an army base outside the town of Touwsrivier.

**Lebeckia meyeriana** Eckl. & Zeyh.

Status: EN A2b

M. le Roux, N.A. Helme & D. Raimondo

**Distribution:** WC. Cape Peninsula.

**Habitat:** Lower mountain slopes, 80–600 m.

**Rationale:** A Cape Peninsula endemic (EOO < 570 km²). The urban development of Cape Town has resulted in the loss of 22 of the 36 known locations (61%) over the past 120 years. As this is a long-lived resprouter (generation length 50–80 years), loss has taken place over less than three generations.

**Lebeckia plukenetiana** E.Mey.

**Distribution:** WC. Darling and Worcester to the Cape Peninsula.

**Habitat:** Renosterveld on shales and granites.

**Rationale:** Once common in the Swartland and upper Breede River Valley, 19 of 24 locations known through herbarium collections and ± 75% of the habitat of this species have been lost to urban expansion and wheat, vineyard and deciduous fruit cultivation over the past 150 years. It is a resprouter and we suspect it has a generation length of 50–80 years.

**Lebeckia uniflora** B.-E.van Wyk & M.M. le Roux

**Distribution:** WC. Kogelberg and Palmiet River Mountains near Caledon.

**Habitat:** Montane fynbos, 500–1 250 m.

**Rationale:** A range-restricted species (EOO < 95 km²) that appears only after fire. Protected in the Kogelberg Biosphere Reserve.
Lessertia dykei L.Bolus
Status: CR PE
D. Raimondo & M. le Roux

Distribution: WC. Swartland, Klipfontein.
Habitat: Renosterveld on shale soils.
Rationale: Known only from the type, collected more than 100 years ago. The farm and surrounding areas are now extensively transformed for wheat cultivation and searches of small habitat fragments failed to locate any surviving individuals. It is quite likely to be extinct.

Lessertia DC.

Lessertia dykei L.Bolus
Status: DDD
J.E. Victor & C.R. Scott-Shaw

Distribution: WC. Swartberg Mountains.
Habitat: Stony, lower slopes in mesic renosterveld.
Rationale: EOO 31 km². Two known locations are declining as a result of grazing by livestock, agriculture and road construction.

Liparia l.

Liparia angustifolia (Eckl. & Zeyh.) A.L.Schutte
Status: EN B1ab(ii,iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Swartberg Mountains to Palmiet River.
Habitat: Restricted to marshy areas below 130 m.
Rationale: EOO < 2 600 km². Five known locations are declining as a result of invasion by alien plants and urban and coastal development. Owing to its wetland habitat, it is also potentially threatened by extraction of groundwater.

Liparia bonaespei A.L.Schutte
Status: EN D
N.A. Helme & D. Raimondo

Distribution: WC. Swartberg Mountains.
Habitat: Fynbos, occurs at altitudes above 1 400 m on north-facing slopes.
Rationale: A rare, high-altitude habitat specialist, EOO < 60 km². Recent observations indicated that subpopulations are small, consisting of fewer than 10 mature individuals, and the total population is likely to be less than 250 mature individuals.

Liparia boucheri (E.G.H.Oliv. & Fellingham) A.L.Schutte
Status: EN D
A.L. Schutte-Vlok, M. Johns & D. Raimondo

Distribution: WC. Kogelberg.
Habitat: Fynbos, in rocky, shallow sandstone, 1 120–1 330 m.
Rationale: A range-restricted species (EOO < 10 km²), known from only one site where less than 100 plants occur.

Liparia calycina (L.Bolus) A.L.Schutte
Status: Rare
A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Hottentots Holland and Kleinrivier Mountains.
Habitat: Rocky, shady places along stream sides, 460–1 000 m.
Rationale: A habitat specialist occurring mostly within nature reserves. Not threatened.

Liparia capitata Thunb.
Status: Rare
D. Raimondo

Distribution: WC. Hex River to Riviersonderend Mountains and Kouga Mountains.
Habitat: Mountain slopes on shale or granite bands.
Rationale: A habitat specialist, known from seven subpopulations. No recorded threats.

Liparia confusa A.L.Schutte
Status: Rare
A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Swartberg Mountains.
Habitat: Subalpine fynbos in deep, humic sandy-loamy soils, above 1 500 m.
Rationale: A range-restricted (EOO < 350 km²) habitat specialist. Not threatened.

Liparia congesta A.L.Schutte
Status: VU B1ab(iii,v)
A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Cederberg to Swartruggens Mountains and Katbakkies Pass.
Habitat: Arid fynbos amongst boulders in deep sandy soils, 1 600–1 800 m.
Rationale: A slow-growing reseeder occurring at only six known locations within an EOO of < 5 000 km². It is declining because of too frequent fires in the Wupperthal and Clanwilliam areas.

Liparia genistoides (Lam.) A.L.Schutte
Status: EN B1ab(ii,iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Kammanassie and Kouga Mountains.
Habitat: Banks of perennial streams, 1 300–1 660 m.
Rationale: EOO < 1 000 km². Habitat quality at two known locations is declining because of extraction of water.

Liparia graminifolia L.
Status: EX
F. Daniels

Distribution: WC. Cape Flats.
Habitat: Acid lowland sands.
Rationale: Last collected in 1829 at ‘Doornhoogte’ (present-day Mowbray) on the Cape Flats. It is extinct as a result of urban development.

Liparia laevigata (L.) Thunb.
Status: VU D1 + 2
N.A. Helme, A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Cape Peninsula.
Habitat: Marshy places, 740–1 030 m.
Rationale: EOO < 20 km². Five known subpopulations are all small, consisting of less than 70 plants and there are not likely to be more than 1 000 individuals in the population. Potentially threatened by invading alien plants and too frequent fires.
**Liparia parva** Vogel ex Walp.  
**Status:** VU D1+2  
A.L. Schutte-Vlok & D. Raimondo  
**Distribution:** WC. Southern Cape Peninsula.  
**Habitat:** Fynbos, in rocky places below 300 m.  
**Rationale:** AOO 20 km². Subpopulations are small and scattered, and the population is probably less than 1 000 mature individuals. Potentially threatened by urban development, invasion by alien plants and too frequent fires.

**Liparia racemosa** A.L. Schutte Plate 64  
**Status:** Rare  
A.L. Schutte-Vlok & J.E. Victor  
**Distribution:** WC. Swartberg Mountains.  
**Habitat:** Sandy soils along streamsides, 1 600 m.  
**Rationale:** A habitat specialist known from only five sites that are protected in reserves.

**Liparia rafnioides** A.L. Schutte  
**Status:** VU D2  
A.L. Schutte-Vlok, M. Johns & D. Raimondo  
**Distribution:** WC. Hottentots Holland and Groot Drakenstein Mountains.  
**Habitat:** Streamsides, 500–1 600 m.  
**Rationale:** A range-restricted species (EOO < 200 km²), but not likely to be threatened.

**Liparia splendens** (Burm.f.) Bos & de Wit subsp. splendens  
**Status:** VU D2  
A.L. Schutte-Vlok & D. Raimondo  
**Distribution:** WC. Cape Peninsula and Cape Flats.  
**Habitat:** Fynbos, on rocky slopes.  
**Rationale:** AOO < 20 km². Potentially threatened by invading alien plants and too frequent fires.

**Liparia striata** A.L. Schutte Plate 64  
**Status:** EN A2c; B1ab(iii,v)+2ab(iii,v)  
A.L. Schutte-Vlok & D. Raimondo  
**Distribution:** WC. Southern Overberg between Heidelberg and Swellendam.  
**Habitat:** Clay loam soil on silcrete above 200 m.  
**Rationale:** A population reduction of at least 50% is estimated based on habitat loss to wheat cultivation between 1940 and 1960. Generation length is > 50 years. EOO and AOO < 400 km². Four remaining locations are declining as a result of grazing by livestock and alien plants that invade the habitat.

**Lotononis** (DC.) Eckl. & Zeyh.  
**Lotononis acocksii** B.-E.van Wyk  
**Status:** EN B1ab(iii,v)+2ab(iii,v)  
J.H. Vlok, A.L. Schutte-Vlok & D. Raimondo  
**Distribution:** WC. Rooiberg and Swartberg Mountains.  
**Habitat:** Renosterveld-fynbos scrub.  
**Rationale:** EOO < 2 800 km². Three known locations remain after most of the habitat has been transformed by wheat cultivation. Subpopulations on fragments are declining because of heavy grazing and too infrequent fires. This species requires fire to recruit.

**Lotononis acuminata** Eckl. & Zeyh.  
**Status:** VU B1ab(ii,iii,iv,v)  
D. Raimondo  
**Distribution:** EC. Humansdorp to Port Elizabeth.  
**Habitat:** Disturbed renosterveld and grassy fynbos.  
**Rationale:** EOO 2 100 km². Fewer than 10 locations remain after habitat was lost to urban expansion of Humansdorp and Port Elizabeth. Declining as a result of continued habitat loss to agriculture, and grazing and harvesting for medicinal purposes.

**Lotononis acutiflora** Bentham.  
**Status:** EN B1ab(ii,iii,iv,v)+2ab(iii,v)  
A.L. Schutte-Vlok & D. Raimondo  
**Distribution:** NC. Kamiesberg, between Groot Tuin and Leliefontein.  
**Habitat:** Renosterveld flats on granite loams.  
**Rationale:** EOO < 50 km², AOO < 2 km². Habitat quality at one known location is declining because of grazing by sheep, cattle and wild donkeys that roam the area in large herds. In addition it has lost 50% of its habitat to crop cultivation over the past 70 years, but generation length is unknown.

**Lotononis amajubica** (Burtt Davy) B.-E.van Wyk  
**Status:** Rare  
M. Lötter, J.E. Burrows & L. von Staden  
**Distribution:** FS KZN MP. High mountain peaks of southern Mpuimalanga, northwestern KwaZulu-Natal and eastern Free State.  
**Habitat:** Well-drained, high-altitude grassland, 1 600–1 800 m.  
**Rationale:** A habitat specialist that can be very common locally.

**Lotononis anthyllopsis** B.-E.van Wyk  
**Status:** Rare  
D. Raimondo & L. Potter  
**Distribution:** NC. Namaqualand, Steinkopf region.  
**Habitat:** Arid succulent karoo shrubland.  
**Rationale:** Known range is small (EOO 300 km²), but it is not likely to be threatened.

**Lotononis arenicola** Schltr.  
**Status:** Rare  
D. Raimondo  
**Distribution:** NC. Namaqualand, Steinkopf.  
**Habitat:** Arid succulent karoo shrubland.  
**Rationale:** A range-restricted species (EOO < 200 km²) that is not threatened.

**Lotononis argentea** Eckl. & Zeyh.  
**Status:** VU D2  
D. Raimondo & A.L. Schutte-Vlok  
**Distribution:** WC. Barrydale to Waboomsberg.  
**Habitat:** Karroid scrub, on southwest-facing slopes of koppies, 300–1 000 m.  
**Rationale:** Four known locations are potentially threatened by grazing livestock.

**Lotononis azureoides** B.-E.van Wyk  
**Status:** Rare  
D. Raimondo  
**Distribution:** WC. Nuweveld Mountains.  
**Habitat:** Karroid scrub, on southwest-facing slopes of koppies, 300–1 000 m.  
**Rationale:** A range-restricted species (EOO < 500 km²), known from two collections. No significant threats.

**Lotononis bachmanniana** Dummer  
**Status:** NT A4c; B1ab(iii)+2ab(iii)  
L. von Staden  
**Distribution:** EC KZN. Umtamvuna to Ntsubane.
Habitat: Damp sites in Pondoland coastal grassland.
Rationale: This range-restricted, but locally common species (EOO 900 km²) appears to persist in spite of heavy grazing over most of its range, and more than 10 locations remain. More than 20% of its habitat, however, has been irreversibly transformed, mainly for cultivation and forestry plantations, over the past 100 years, which is less than three generations for this long-lived, suffrutescent grassland forb (generation length at least 50 years). Ongoing habitat loss to coastal development, especially in the northern parts of the range, may bring the total population reduction to 30% within the next 50 years.

Lotononis bolusii Dummer
Status: CR PE
A.L. Schutte-Vlok, D.A. Kamundi & D. Raimondo
Distribution: WC. Olfants River Valley to Hopefield.
Habitat: Lowland fynbos.
Rationale: Of four herbarium collections, only two have detailed locality descriptions that can be retraced. One site occurs near Aurora and was collected in 1969, but the area has subsequently been ploughed for potato cultivation. The second is Piekensierkloof, where the subpopulation was lost to road construction. The other two were both collected before 1896 and do not have specific locality information. As most lowland fynbos within the range of this species has been converted for crop cultivation, it is possibly extinct.

Lotononis carnea B.-E.van Wyk
Status: DDD
D. Raimondo & L. Potter
Distribution: NC. Kamiesberg and Nieuwoudtville.
Habitat: Karroid scrub, 800–1 200 m.
Rationale: This species is known only from three herbarium collections, two of which were collected over 70 years ago. It is too poorly known to determine its status, but it may be threatened by expansion of rooibos tea cultivation in the Nieuwoudtville area.

Lotononis carnosa (Eckl. & Zeyh.) Benth. subsp. condensata (Harv.) B.-E.van Wyk
Status: DDD
J.E. Victor
Distribution: EC. Kentani and Kokstad.
Habitat: Unknown.
Rationale: This taxon, which is known only from two collections made over 70 years ago, might be threatened by overgrazing and too frequent fires, but is currently too poorly known to assess.

Lotononis carnosa (Eckl. & Zeyh.) Benth. subsp. latifolia B.-E.van Wyk
Status: DDD
D. Raimondo
Distribution: EC. Engcobo, Keiskammahoek and Alice.
Habitat: Unknown.
Rationale: This taxon has not been collected since the 1940s, and is too poorly known to assess.

Lotononis complanata B.-E.van Wyk
Status: EN A2c
A.L. Schutte-Vlok, F. Daniels & D. Raimondo
Habitat: Fynbos-renosterveld ecotone in an alluvial fynbos lowland habitat where soils are a mixture of shale and sandstone.
Rationale: A population reduction of > 50% is estimated based on habitat loss to wheat cultivation since 1940 (generation length 30 years) and a single subpopulation of ± 1 000 mature individuals remain, protected in a private nature reserve and not declining.

Lotononis comptoni B.-E.van Wyk
Status: EN B1ab(iii,v)+2ab(iii,v)
D. Raimondo, A.L. Schutte-Vlok & J.H. Vlok
Distribution: WC. Bantamskop to Seweweekspoort in the Swartberg.
Habitat: Dry fynbos, on shallow, rocky soil.
Rationale: EOO and AOO < 500 km². One of four known locations was lost to road construction over the last 10 years; the others are declining as a result of overgrazing by livestock.

Lotononis dahlgrenii B.-E.van Wyk
Status: VU D2
J.H. Vlok & D. Raimondo
Distribution: WC. Little Karoo, Rooiberg.
Habitat: Arid, rocky mountain summits.
Rationale: EOO and AOO < 20 km². One known location is potentially threatened by grazing livestock.

Lotononis densa (Thunb.) Harv. subsp. congesta B.-E.van Wyk
Status: VU D2
D. Raimondo & N.A. Helme
Distribution: WC. Moorreesburg to Paarl.
Habitat: Shale soils in renosterveld, 200 m.
Rationale: Three known locations are potentially threatened by expansion of wheat, olives and vineyards.

Lotononis densa (Thunb.) Harv. subsp. densa
Status: VU D2
D. Raimondo
Distribution: WC. Mooresburg to Paarl.
Habitat: Shale soils in renosterveld, 200 m.
Rationale: Three known locations are potentially threatened by expansion of wheat cultivation. More than 80% of the habitat of this taxon has already been transformed, but generation length is not known.

Lotononis dichiloides Sond.
Status: CR PE
L. von Staden & D. Raimondo
Distribution: KZN. Durban.
Habitat: Grassland.
Rationale: This species was last collected in the 1930s. Its habitat is > 90% transformed because of urban expansion, agriculture and is degraded as a result of overgrazing and too frequent fires. It is likely to be extinct.

Lotononis difformis B.-E.van Wyk
Status: VU D2
M. Lötter & L. Potter
Distribution: MP. Piet Retief.
Habitat: Grassland.
Rationale: Known from a single location, where part of the habitat has been transformed to forestry plantations. Expansion of plantations is a potential threat.
Lotononis elongata (Thunb.) D.Dietr.
Status: EN B1ab(iii)
D. Raimondo, D.A. Kamundi & J.H. Vlok

Distribution: WC. Swartberg and Outeniqua Mountains to the Langkloof.
Habitat: Fynbos on deep loamy soils.
Rationale: EOO 3 500 km². Three known locations remain after much of the habitat has been lost to crop cultivation. Subpopulations on the Outeniqua Mountains near Herold are declining as a result of dense alien Hakea sericea invasion of the habitat.

Lotononis esterhuysseniana B.-E.van Wyk
Status: Rare
D. Raimondo & L. Potter

Distribution: WC. Swartruggens, Stompiesvlei.
Habitat: Sandy flats in fynbos at high altitudes, 1 000–1 330 m.
Rationale: A rare, high-altitude habitat specialist with a restricted range (EOO < 100 km²). Not likely to be declining.

Lotononis extipulata L.Bolus
Status: EN B1ab(ii,iii,v) + 2ab(ii,iii,v)
D. Raimondo & A.L. Schutte-Vlok

Distribution: WC. Worcester, Hottentots Kloof and Baviaansberg.
Habitat: Renosterveld, 1 200 m.
Rationale: EOO and AOO < 500 km². Four known locations are declining because of grazing by livestock, agricultural expansion and road construction.

Lotononis filiformis B.-E.van Wyk
Status: EN B1ab(iii)
J.H. Vlok & D. Raimondo

Distribution: WC. Oudtshoorn to Mossel Bay.
Habitat: Renosterveld-fynbos scrub in arid fynbos, 430–530 m.
Rationale: EOO 610 km². Three known locations are declining as a result of dense invasions of alien hakea in the habitat.

Lotononis glabrescens (Dummer) B.-E.van Wyk
Status: DDD
D.A. Kamundi

Distribution: KZN. Nkandla.
Habitat: Unknown.
Rationale: Known from only one collection at an unspecified locality in the Nkandla district.

Lotononis globulosa B.-E.van Wyk
Status: VU D2
D. Raimondo & A.L. Schutte-Vlok

Distribution: WC. Ceres to Witteberg.
Habitat: Karroid scrub, 1 050 m.
Rationale: Four known locations are potentially threatened by expanding crop cultivation.

Lotononis gracilifolia B.-E.van Wyk
Status: EN B1ab(ii,iii,iv)
D. Raimondo & N.A. Helme

Distribution: WC. Laingsburg and Worcester.
Habitat: Stony flats.
Rationale: EOO < 1 050 km². Fewer than five locations are declining because of ongoing habitat loss to vineyard expansion and urban development around Worcester.

Lotononis harveyi B.-E.van Wyk
Status: DDD
J.E. Victor & A.P. Dold

Distribution: EC. Winterberg, Hogsback.
Habitat: Unknown.
Rationale: Known from the type collection. The habitat and population status of this species are not known.

Lotononis involucrata (P.J.Bergius) Benth. subsp. bracteata B.-E.van Wyk
Status: VU D2
D. Raimondo

Distribution: WC. Potberg.
Habitat: Sandy soils.
Rationale: One known location (EOO < 10 km²) is potentially threatened by invading alien plants.

Lotononis involucrata (P.J.Bergius) Benth. subsp. digitata B.-E.van Wyk
Status: VU D2
D. Raimondo

Distribution: WC. Between Worcester and Robertson.
Habitat: Breede Alluvium Renosterveld.
Rationale: Known from one location. Vineyard expansion was a past and is a potential threat.

Lotononis lamprifolia B.-E.van Wyk
Status: CR B1ab(iii)
D. Raimondo & J.H. Vlok

Distribution: WC. Langeberg Mountains between Muis-kraal and Lemoenshoek.
Habitat: Arid fynbos on northern slopes, 300 m.
Rationale: EOO < 20 km². Less than 500 mature individuals at a single location are declining because of grazing by livestock and habitat loss to erosion.

Lotononis laticeps B.-E.van Wyk
Status: Critically Rare
D. Raimondo

Distribution: WC. Stompiesvlei, Swartruggens.
Habitat: Sandy, stony plateau.
Rationale: A rare, high-altitude habitat specialist known only from the type locality, but it is unlikely to be threatened.

Lotononis macrocarpa Eckl. & Zeyh.
Status: EN B2ab(ii,iii,iv,v)
D. Raimondo

Distribution: WC. Clanwilliam, Vredenburg, Saldanha and Hermon.
Habitat: Renosterveld on seasonally moist/damp clays.
Rationale: More than 50% of known locations are now locally extinct because of crop cultivation. Four remaining locations, with an AOO of < 100 km², are declining as a result of urban expansion and invasion by alien plants.

Lotononis magnifica B.-E.van Wyk
Status: CR PE
N.A. Helme & D. Raimondo

Distribution: NC. Summit of the Kamiesberg.
Habitat: Renosterveld on granite flats.
Rationale: Known from only one location, where it was last collected more than 70 years ago. Subsequently > 50% of the habitat has been converted to crop fields and the remainder is severely overgrazed and eroded. B.-E. van Wyk and N.A. Helme have searched the site but were unable to locate any surviving individuals. The species is quite likely to be extinct.
Lotononis minor Dummer & Jenn.
Status: Rare
D. Raimondo
Distribution: EC. Barkly East district, southern Drakensberg Mountains.
Habitat: Grassland on mountain slopes.
Rationale: A rare, range-restricted species known from only two collections.

Lotononis mollis (E.Mey.) Benth.
Status: VU D1+2
J.H. Vlok, N.A. Helme & D. Raimondo
Distribution: NC WC, Kamiesberg and Nuweveld Mountains.
Habitat: Karroid shrubland.
Rationale: Known from one location, adjacent to a plantation, where its habitat is being degraded and numbers of individuals are declining because of a lack of fire.

Lotononis monophylla Harv.
Status: CR B1ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: EC. Van Staden's Mountains.
Habitat: Stony places.
Rationale: Known from the type collection. The distribution, habitat and population status of this species are too poorly known to determine its status.

Lotononis nutans B.-E.van Wyk
Status: VU D2
D.A. Kamundi† & D. Raimondo
Distribution: WC. Touwsberg to Uniondale.
Habitat: Renosterveld, 700 m.
Rationale: Two known locations are potentially threatened by agricultural expansion.

Lotononis oligocephala B.-E.van Wyk
Status: DDD
L. Potter
Distribution: NC. Springbok.
Habitat: Unknown.
Rationale: Known from the type collection. The distribution, habitat and population status of this species are too poorly known to determine its status.

Lotononis pallens (Eckl. & Zeyh.) Benth.
Status: DDD
L. Potter
Distribution: WC. Clanwilliam.
Habitat: Sandstone slopes.
Rationale: Known from the type collection from the 1830s. The distribution, habitat and population status of this species are too poorly known to determine its status.

Lotononis pariflora N.E.Br.
Status: Critically Rare
D. Raimondo
Distribution: LM. Wolkberg Mountains, The Downs.
Habitat: Mistbelt grassland, gentle slopes, 1 900 m.
Rationale: EOO < 30 km². Known from a single population protected within a nature reserve.

Lotononis perplexa (E.Mey.) Eckl. & Zeyh.
Status: DDD
L. von Staden
Distribution: WC. Cape Peninsula.
Habitat: Mountain and lowland fynbos, mostly on granite soils, 100–830 m.
Rationale: This species was often collected before 1970, but has not been recorded for nearly 40 years. There is not enough known about this species and its management needs to determine its status. It may have been affected by altered fire cycles.

Lotononis plicata B.-E.van Wyk
Status: VU D2
D. Raimondo
Distribution: WC. Vanrhynsdorp to Bitterfontein.
Habitat:Namaqualand Klipkoppie Shrubland.
Rationale: Two known locations are potentially threatened by overgrazing by livestock.

Lotononis polypephala Benth.
Status: EN A2ac; B1ab(iii,v)+2ab(iii,v)
N.A. Helme, D. Raimondo & J.E. Victor
Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Renosterveld flats with seasonally wet granite loams, 1 000–1 200 m.
Rationale: A range-restricted species (EOO < 600 km²) that has lost > 50% of its habitat to crop cultivation over the past 60 years (generation length estimated to be 30 years). Ongoing habitat degradation as a result of overgrazing by large herds of feral donkeys and domestic sheep and cattle is causing a continuing decline at four known locations.

Lotononis prostrata (L.) Benth.
Status: NT A2c
N.A. Helme & D. Raimondo
Distribution: WC. Tulbagh to Stellenbosch.
Habitat: Shale flats and lower slopes in Swartland Shale Renosterveld and low-lying fynbos, 100–320 m.
Rationale: More than 80% of the habitat has been transformed over the past 100 years and is now highly fragmented by agriculture and urban development. A population reduction of 25% is estimated based on habitat loss over the past 30 years (generation length ± 10 years) and the population is still declining as a result of overgrazing by livestock, lack of fire and invasion by alien plants.

Lotononis purpurescens B.-E.van Wyk
Status: Rare
D. Raimondo
Distribution: WC. Montagu.
Habitat: Sandstone fynbos, mountain kloofs.
Rationale: A range-restricted species (EOO < 50 km²) with only two known subpopulations. Occurs in rocky mountainous areas and is not threatened.

Lotononis racemiflora B.-E.van Wyk
Status: CR PE
D. Raimondo
Distribution: WC. Bokwater west of Clanwilliam.
Habitat: Sandy slopes.
Rationale: Known only from the type locality, where it was collected in 1948. This area has subsequently been extensively transformed for citrus and rooibos tea cultivation and it is therefore possibly extinct.
\textit{Lotononis rigida} (E.Mey.) Benth.

Status: VU B1ab(ii,iii,iv,v)
J.H. Vlok & D. Raimondo

\textbf{Distribution}: WC. Worcester to Oudtshoorn.

\textbf{Habitat}: Renosterveld-fynbos scrub, 330–460 m.

\textbf{Rationale}: EOO < 5 600 km$^2$. This palatable species is declining at fewer than 10 known locations owing to overgrazing by livestock and habitat loss to urban expansion.

\textit{Lotononis trichodes} (E.Mey.) B.-E.van Wyk

Status: VU D2
J.E. Victor & A.P. Dold

\textbf{Distribution}: EC. Katberg.

\textbf{Habitat}: Montane grassland.

\textbf{Rationale}: One known location is potentially threatened by invading alien plants and afforestation.

\textit{Lotononis virgata} B.-E.van Wyk

Status: VU D2
D. Raimondo

\textbf{Distribution}: WC. Klein Roggeveld Mountains.

\textbf{Habitat}: Open karroid scrub on sandy clay alluvium.

\textbf{Rationale}: EOO < 100 km$^2$. Two known locations. Some of the habitat has been transformed for crop cultivation in the past. Further agricultural expansion and overgrazing by livestock are potential threats.

\textit{Lotononis venosa} B.-E.van Wyk

Status: VU D2
D. Raimondo

\textbf{Distribution}: WC. Montagu to Bredasdorp.

\textbf{Habitat}: Shale.

\textbf{Rationale}: EOO < 2 045 km$^2$. Four known locations remain after large areas of the habitat have been transformed for crop cultivation. Habitat loss is continuing and habitat degradation through overgrazing is also causing a decline.

\textit{Lotononis villosa} (E.Mey.) Steud.

Status: VU D2
D. Raimondo

\textbf{Distribution}: WC. Piketberg to Caledon.

\textbf{Habitat}: Coastal renosterveld, 180 m.

\textbf{Rationale}: Five known locations are potentially threatened by expanding crop cultivation.

\textit{Lotononis viborgioides} Benth.

Status: EN B1ab(ii,iii,v)
N.A. Helme, D. Raimondo & F. Daniels

\textbf{Distribution}: WC. Montagu to Bredasdorp.

\textbf{Habitat}: Shale.

\textbf{Rationale}: EOO < 2 045 km$^2$. Four known locations remain after large areas of the habitat have been transformed for crop cultivation. Habitat loss is continuing and habitat degradation through overgrazing is also causing a decline.

\textit{Lotononis trichodes} (E.Mey.) B.-E.van Wyk

Status: Rare
T.J. Edwards & D. Raimondo

\textbf{Distribution}: KZN. Drakensberg Mountains, Giant’s Castle to Van Reenen’s Pass.

\textbf{Habitat}: Streambanks or on rocky dolerite outcrops.

\textbf{Rationale}: A rare habitat specialist that occurs in small subpopulations of only a few individuals. Most of the habitat is protected.

\textit{Otholobium} (Wight & Arn.) Verdc.

\textit{Otholobium accrescens} C.H.Stirt.

Status: NT A2c
D. Raimondo

\textbf{Distribution}: EC. Eastern foothills of the Elandsberg and Groot Winterhoek Mountains.

\textbf{Habitat}: Fynbos, 550–650 m.

\textbf{Rationale}: Two locations are known, but this is an overlooked species that is likely to be more common. A population reduction of 20% is estimated based on habitat loss to forestry plantations over the past 100 years. This is a long-lived resprouter, generation length > 50 years.

\textit{Otholobium argenteum} (Thunb.) Harv.

Status: DD
D. Raimondo & C.H. Stirton

\textbf{Distribution}: NC. Namaqualand, Kamiesberg.

\textbf{Habitat}: Karroid scrub.

\textbf{Rationale}: One of the rarest species of \textit{Otholobium}, known only from the type collection, and not recorded for more than 100 years. C.H. Stirton (Otholobium expert) searched for this species on three visits to the site, but failed to locate it.

\textbf{Melolobium Eckl.} & Zeyh.

\textbf{Melolobium stipulatum} (Thunb.) Harv.

Status: VU D2
N.A. Helme & D. Raimondo

\textbf{Distribution}: WC. Touwsrivier.

\textbf{Habitat}: Stony clays above 900 m.

\textbf{Rationale}: Three known locations are potentially threatened by urban and vineyard expansion.

\textbf{Melolobium subspicatum} Conrath

Status: VU D2
J.E. Victor & M.F. Pfab

\textbf{Distribution}: G NW. Krugersdorp to Pretoria, possibly occurs as far as Brits.

\textbf{Habitat}: Grassland.

\textbf{Rationale}: Very small pockets of suitable habitat remain within the Gauteng Province (AOO estimated < 20 km$^2$). Development is currently prohibited on any locations where it occurs, and although most of the habitat has already been lost, there is no continuing decline. Habitat fragmentation, however, has resulted in an altered fire regime (fires occur either too frequently or not at all), which may potentially affect the remaining subpopulations.

\textbf{Newtonia} Baill.

\textbf{Newtonia hildebrandtii} (Vatke) Torre var. hildebrandtii

Status: Declining
J.E. Victor & A. Krige

\textbf{Distribution}: KZN. In South Africa restricted to Maputaland, northern KwaZulu-Natal, but is widespread in southern Africa including Swaziland, Mozambique, Zimbabwe, Tanzania, Zambia and Kenya.

\textbf{Habitat}: Sand forest.

\textbf{Rationale}: This taxon is locally very common, often dominant in its habitat, but it reproduces very slowly and recruitment is very low. Harvesting for firewood in northern KwaZulu-Natal, along with overgrazing of saplings by game within protected areas, is causing a continuing decline, but population reduction is not estimated to exceed 30%.

\textbf{Newtonia} Baill.

\textbf{NEWTONIA HILDEBRANTII} (Vatke) Torre var. hildebrandtii

Status: Declining
J.E. Victor & A. Krige

\textbf{Distribution}: KZN. In South Africa restricted to Maputaland, northern KwaZulu-Natal, but is widespread in southern Africa including Swaziland, Mozambique, Zimbabwe, Tanzania, Zambia and Kenya.

\textbf{Habitat}: Sand forest.

\textbf{Rationale}: This taxon is locally very common, often dominant in its habitat, but it reproduces very slowly and recruitment is very low. Harvesting for firewood in northern KwaZulu-Natal, along with overgrazing of saplings by game within protected areas, is causing a continuing decline, but population reduction is not estimated to exceed 30%.

\textbf{Otholobium} C.H.Stirt.

\textbf{Otholobium accrescens} C.H.Stirt.

Status: NT A2c
D. Raimondo

\textbf{Distribution}: EC. Eastern foothills of the Elandsberg and Groot Winterhoek Mountains.

\textbf{Habitat}: Fynbos, 550–650 m.

\textbf{Rationale}: Two locations are known, but this is an overlooked species that is likely to be more common. A population reduction of 20% is estimated based on habitat loss to forestry plantations over the past 100 years. This is a long-lived resprouter, generation length > 50 years.

\textbf{Otholobium argenteum} (Thunb.) Harv.

Status: DD
D. Raimondo & C.H. Stirton

\textbf{Distribution}: NC. Namaqualand, Kamiesberg.

\textbf{Habitat}: Karroid scrub.

\textbf{Rationale}: One of the rarest species of \textit{Otholobium}, known only from the type collection, and not recorded for more than 100 years. C.H. Stirton (Otholobium expert) searched for this species on three visits to the site, but failed to locate it.
Status: NT B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: WC. Cederberg to Paarl.
Habitat: Mesic montane fynbos and West Coast renosterveld.
Rationale: EOO < 10 000 km². About 20 locations are known. Some habitat has been transformed for wheat cultivation and remaining subpopulations are declining as a result of grazing by livestock and continued expansion of crop cultivation.

Otholobium bowieanum (Harv.) C.H.Stirt.
Status: EN A2ac; B1ab(ii,iii,iv,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Langeberg.
Habitat: Montane to lowland fynbos on loamy to clay soils, 60–650 m.
Rationale: A population reduction of > 50% is estimated based on habitat loss to crop cultivation over the past 110 years (generation length > 50 years). EOO < 500 km². Four remaining locations continue to decline because of invasive alien plants and further habitat loss to agriculture.

Otholobium carneum (E.Mey.) C.H.Stirt.
Status: Rare
D. Raimondo

Distribution: EC. Kouga and Baviaanskloof Mountains.
Habitat: Sandstone slopes.
Rationale: All known subpopulations are protected in nature reserves and wilderness areas where they are not threatened.

Otholobium hamatum (Harv.) C.H.Stirt.
Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo

Distribution: NC WC. Kamiesberg and the Cederberg.
Habitat: Floodplains, 800–1 200 m.
Rationale: EOO < 5 000 km². Fewer than 10 known locations are declining because of habitat loss to crop cultivation, road construction and grazing by livestock.

Otholobium heterosepalum (Fourc.) C.H.Stirt.
Status: Rare
D. Raimondo

Distribution: EC WC. Langkloof to Humansdorp.
Habitat: Montane fynbos on forest margins, 400–600 m.
Rationale: A habitat specialist known from only five subpopulations.

Otholobium incanum C.H.Stirt.
Status: VU D2
N.A. Helme & D. Raimondo

Distribution: WC. Vredendal to Lambert’s Bay.
Habitat: Calcareous soils, 80–120 m.
Rationale: Four known locations are potentially threatened by coastal development, and expanding potato and vineyard cultivation.

Otholobium macradenum (Harv.) C.H.Stirt.
Status: Rare
D. Raimondo & L. von Staden

Distribution: WC. Langeberg and Swartberg Mountains.
Habitat: Dry mountains, fynbos slopes, 1 100–1 500 m.

Otholobium pungens C.H.Stirt.
Status: EN B1ab(iii)+2ab(iii)
D. Raimondo

Distribution: WC. Kleinmond to Potberg.
Habitat: Renosterveld-fynbos scrub and coastal renosterveld, 20–160 m.
Rationale: EOO 675 km². Two known locations are declining as a result of invasion by alien plants. Until 1986 this rare species was known only from the vicinity of Potberg Mountain, but it was recently discovered near Hawston, substantially increasing the known range. It was probably more common in the intervening areas, which are now under wheat cultivation.

Otholobium racemosum (Thunb.) C.H.Stirt.
Status: Rare
L. Potter

Distribution: NC. Springbok.
Habitat: Mountain renosterveld, 700–800 m.
Rationale: A range-restricted species (EOO < 35 km²), known from two subpopulations, but not threatened.

Otholobium rotundifolium (L.f.) C.H.Stirt.
Status: VU A2ac; B1ab(iii)+2ab(iii)
N.A. Helme & D. Raimondo

Distribution: WC. Jonkershoek to Kleinrivier Mountains.
Habitat: Montane fynbos on granite or shale (possibly sandstone) on middle mountain slopes, 430–530 m.
Rationale: A population reduction of > 30% is estimated based on habitat loss to vineyard and deciduous fruit cultivation over the past 120 years (generation length > 50 years). EOO and AOO < 2 000 km². Habitat quality at six known locations is declining as a result of invasive alien plants.

Otholobium rubicundum C.H.Stirt.
Status: CR B1ab(iii,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Langeberg Mountains, Garcia’s Pass.
Habitat: Renosterveld and arid montane fynbos, 650 m.
Rationale: EOO < 100 km². Fewer than five severely fragmented subpopulations remain on isolated renosterveld fragments after most of the habitat has been transformed for crop cultivation. Decline is continuing as a result of overgrazing by livestock.

Otholobium saxosum C.H.Stirt.
Status: EN D
J.H. Vlok & D. Raimondo

Distribution: WC. Langeberg Mountains, Garcia’s Pass.
Habitat: Moist loamy soils on south-facing slopes.
Rationale: Less than 250 mature individuals remain at two known locations after the habitat of this species was lost to forestry plantations and invasion by alien plants, but it is not currently declining.
Otholobium sp. nov.
Voucher: Drewe 450 HER, K
Status: VU D2
N.A. Helme & D. Raimondo

Distribution: WC. Kleinriviers above Her-"
oran. Habitat: Montane fynbos on shale bands, 400 m. Rationale: One known location is potentially threatened by invasive alien plants.

Otholobium sp. nov.
Voucher: Esterhuysen 11381 K
Status: CR B1ab(iii,v); C2a(i)
D. Raimondo

Distribution: WC. Lower slopes of Shaw’s Mountain. Habitat: Stony clay slopes, on transitions between sandstone and shale soils. Rationale: Known from one location. This very rare species has lost most of its habitat to wheat cultivation. Its habitat is currently being degraded by grazing livestock and ongoing invasion of alien species of *Eucalyptus*, *Hakea* and *Acacia*. The only known location is a municipal council and future housing or agricultural development is therefore a potential threat.

Otholobium sp. nov.
Voucher: Esterhuysen 33240a BOL
Status: VU B1ab(ii,iii,iv,v)
D. Raimondo & C.H. Stirton

Distribution: WC. Hawston to De Hoop. Habitat: Coastal limestone soils. Rationale: EOO 9 000 km². Eight locations remain after much of the habitat has been transformed for crop cultivation. Declining as a result of invasive alien plants and coastal development.

Otholobium sp. nov.
Voucher: Stirton, Vlok & Zantovska 11561 NBG
Status: VU D2
D. Raimondo


Otholobium sp. nov.
Voucher: Stirton & Zantovska 11281 NBG
Status: VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Tulbagh to Barrydale and Bot River. Habitat: Renosterveld on shales, 660 m. Rationale: EOO 7 250 km². Seven known locations are declining because of habitat loss to expanding vineyards and olive cultivation.

Otholobium swartbergense C.H. Stirt.
Status: Rare
D. Raimondo

Distribution: WC. Groot Swartberg Mountains. Habitat: In short grass on rocky outcrops, in dry, loamy soils. Rationale: A range-restricted species (EOO 350 km²), known from six sites, but not threatened.

Otholobium thomii (Harv.) C.H. Stirton.
Status: EN B1ab(iii,iv,v)+2ab(iii,iv,v)
D. Raimondo

Distribution: WC. Kleinmond to Bredasdorp Mountains. Habitat: Montane fynbos, 100–600 m. Rationale: EOO 91 km², AOO < 91 km². Declining at two of five known locations because of invasion by alien plants and golf course and coastal development.

Otholobium uncinatum (Eckl. & Zeyh.) C.H. Stirton.
Status: NT B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Piketberg to Hawston. Habitat: Renosterveld. 160 m. Rationale: EOO 7 100 km². The 14 known locations are declining because of continued habitat loss to wheat, vineyards, olive and deciduous fruit cultivation.

Otholobium venustum (Eckl. & Zeyh.) C.H. Stirton.
Status: VU B1ab(ii,iii,iv,v)+2ab(ii,iii,v)
N.A. Helme & D. Raimondo

Distribution: WC. Lambert’s Bay to Langebaan. Habitat: Calcareous sands and clays within 3 km of the coast. Rationale: EOO and AOO < 1 000 km². Eight known locations are declining as a result of continued habitat loss to urban and coastal development.

Pearsonia Dummer

Pearsonia callistoma (Campb.-Young & K. Balkwill
Status: EN B1ab(iii,iv,v)+2ab(iii,iv,v)
D. Raimondo & L. von Staden

Distribution: WC. Cape Flats, Cape Peninsula and Hot-
tentots Holland Mountains. Habitat: Montane grassland on dry dolomites of the Chunchiespoort Formation. Rationale: EOO 200 km², AOO < 200 km². Habitat at two of four known locations is being degraded by overgrazing by livestock and invasion by alien plants, causing a continuing decline in mature individuals.

Pearsonia hirsuta Germish.
Status: VU D2
P.A. Manyama

Distribution: MP. Lydenburg. Habitat: Low grassland between rocks, in humus-rich, sandy soil. Rationale: Four known locations are potentially threatened by the expansion of forestry plantations and agriculture.

Podalyria Willd.

Podalyria argentea Salisb.
Status: EN A2c; B1ab(iii)
A.L. Schutte-Vlok & D. Raimondo

Distribution: WC. Cape Flats, Cape Peninsula and Hot-
tents Holland Mountains. Habitat: Wet, peaty soil below 500 m. Rationale: Most of the habitat of this long-lived res- prouter has been transformed for urban and agricultural development over the past 110 years (generation length > 50 years) and > 50% of known subpopulations are now locally extinct. EOO < 3 600 km². Three remaining locations are declining because of ongoing habitat loss to urban expansion.
Podalyria cordata R.Br.
Status: VU B1ab(iii) + 2ab(iii)
D. Raimondo & A.L. Schutte-Vlok
Distribution: WC. Hottentots Holland Mountains.
Habitat: Sandstone slopes.
Rationale: EOO 800 km², AOO < 100 km². The 10 known locations are declining because of ongoing habitat degradation through invasion by alien plants.

Podalyria velutina
Status: CR A2c; B1ab(i,ii,iii,iv,v)
J.H. Vlok, A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Tygerberg, Klipheuwel and Paarl hills.
Habitat: Shale.
Rationale: Previously listed as Extinct, this species has been rediscovered on three small fragments. More than 90% of the habitat of this long-lived resprouter has been transformed for agriculture and urban development over the past 80 years (generation length 50 years). Current EOO 50 km². Three small, severely fragmented subpopulations are expected to continue declining because of ongoing habitat loss to urban expansion.

Podalyria microphylla E.Mey.
Status: VU B1ab(i,i,ii,iii,iv,v) + 2ab(i,ii,iii,iv,v)
A.L. Schutte-Vlok & D. Raimondo
Distribution: NC WC. Nieuwoudtville and Gifberg.
Habitat: Deep, sandy soil, 830–867 m.
Rationale: EOO < 3,000 km². Fewer than 10 known locations are rapidly declining because of habitat loss to rooibos tea cultivation. This species is a resprouter, is myrmecochorous, and requires fire to germinate. Possibly threatened by a lack of fire because of habitat fragmentation.

Podalyria sericea (Andrews) R.Br. ex Aiton f.
Status: NT B1ab(ii,iii,iv)
A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Saldanha to the Cape Peninsula.
Habitat: Granite outcrops on well-drained, humic, sandy loams below 500 m.
Rationale: EOO < 10,000 km². Less than 25 known locations are declining as a result of invasion by alien plants, too infrequent fires and urban expansion of Cape Town.

Polhillia Canescens C.H.Stirt.
Status: VU A2c; D1 + 2
D. Raimondo, I. Ebrahim & C. Kloppe
Distribution: WC. Bredasdorp.
Habitat: Renosterveld slopes.
Rationale: A population reduction of at least 30% is estimated based on habitat loss to wheat cultivation over the past 60 years (generation length estimated to be 50 years). Less than 1,000 mature individuals remain at two locations. The population is not declining at present, but is potentially threatened by further expansion of wheat cultivation and grazing by livestock.

Polhillia connata (Harv.) C.H.Stirt.
Status: CR B1ab(iii) + 2ab(iii)
D. Raimondo & A.L. Schutte-Vlok
Distribution: WC. Riversdale to lower Breede River Valley.
Habitat: Renosterveld. 300 m.
Rationale: Until recently this species was known from only three collections from the Riversdale area and was thought possibly extinct as all known sites were surveyed repeatedly over the last 20 years but no plants could be located. However, a small subpopulation was discovered in the lower Breede River Valley in August 2008. Current EOO and AOO < 5 km². The subpopulation at the only known location is likely to continue declining as a result of overgrazing by livestock.

Polhillia involucrata (Thunb.) B.-E.van Wyk & A.L. Schutte
Status: Rare
L. Potter
Distribution: NC. Roggeveld Escarpment and Williston.
Habitat: Mountain renosterveld on well-drained, sandy loams.
Rationale: A rare, habitat specialist known from only four subpopulations, but not threatened.

Polhillia obtusa (Harv.) B.-E.van Wyk
Status: EN B1ab(ii,iii,iv) + 2ab(ii,iii,iv)
N.A. Helme, D. Raimondo & J.E. Victor
Distribution: WC. Worcester.
Habitat: Renosterveld, 300–430 m.
Rationale: EOO < 100 km², AOO < 10 km². Fewer than five known locations are declining as a result of urban expansion.
Psoralea fascicularis

Distribution: WC. Bredasdorp to Potberg.
Habitat: Renosterveld in deep clay soils on southwest-facing slopes, 30 m.
Rationale: A population reduction of at least 30% is estimated based on habitat loss to crop cultivation during the 1950s and 1960s, which is within the last three generations for this long-lived species (generation length at least 50 years).

Psoralea L.

Psoralea abbotii C.H.Stirt.

Status: VU B1ab(i,ii,iii,iv,v)
J.E. Victor & A.E. van Wyk

Distribution: EC KZN. Ngele Mountain and Pondoland from Umtamvuna to Mkambati.
Habitat: Pondoland coastal grassland on sandstone, in moist sites, forest margins or open grasslands adjacent to marshes, 300–600 m.
Rationale: EOO 8 000 km². Fewer than 10 known locations are declining because of expanding crop cultivation, too frequent fires and overgrazing.

Psoralea asarina (P.J.Bergius) T.M.Salter

Status: NT B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: WC. Cape Peninsula to Riversdale.
Habitat: Montane fynbos and renosterveld-fynbos lowland scrub.
Rationale: EOO 10 530 km². Altogether 13 locations are known, but it is locally extinct at three. Other subpopulations probably occur, especially on unexplored slopes of the Hottentots Holland Mountains. Declining around Still Bay because of alien plants that invade the habitat.

Psoralea cataracta C.H.Stirt.

Status: EX
D. Raimondo & C.H. Stirton

Distribution: WC. Tulbagh.
Habitat: Streamsides.
Rationale: Known only from the type collection from the late 1700s. Most of the habitat has now been transformed to forestry plantations. Repeated searches have failed to locate surviving individuals.

Psoralea fascicularis DC.

Status: EN A2bc; B1ab(iii)
C.H. Stirton & D. Raimondo

Distribution: WC. Stellenbosch to Caledon.
Habitat: Lowland fynbos, moist areas on granite and shales.
Rationale: Most of the habitat has been transformed to vineyards and lost to urban expansion around Stellenbosch, resulting in the local extinction of > 50% of known subpopulations over the past 100 years (generation length at least 50 years). Current EOO 1 900 km². Three remaining locations are declining as a result of continued habitat loss.

Psoralea filifolia Thunb.

Status: EN B1ab(ii,iii,iv,v)
C.H. Stirton & D. Raimondo

Distribution: WC. Wolseley to Aurora.
Habitat: Sandy seepages.

Psoralea glaucina Harv.

Status: CR B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v); C2a(i)
N.A. Helme & D. Raimondo

Distribution: WC. Cape Flats near Muizenberg.
Habitat: Seasonally damp neutral to alkaline sands below 100 m.
Rationale: EOO < 100 km². Two small, severely fragmented natural subpopulations remain and two have been reintroduced. Declining because of continued habitat loss to urban development and invasion by alien plants.

Psoralea guinii Harv.

Status: EN
C.H. Stirton & D. Raimondo

Distribution: WC. Stellenbosch.
Habitat: Lowland fynbos, marshy places.
Rationale: This species was last collected in 1927, and subsequently > 90% of its habitat has been transformed to vineyards and urban expansion. Remaining fragments are severely degraded by alien plant infestations. Repeated searches have failed to locate surviving individuals.

Psoralea impexa C.H.Stirt.

Status: NT D2
N.A. Helme

Distribution: WC. Du Toit’s Kloof Mountains.
Habitat: Upper, steep, open, rocky slopes of kloofs with western and eastern aspects in fynbos.
Rationale: Less than 100 plants occur at a single known location where they are potentially threatened by invading alien hakeas.

Psoralea odoratissima Jacq.

Status: Rare
C.H. Stirton & D. Raimondo

Distribution: WC. Villiersdorp to Swartberg Mountains.
Habitat: Streamsides, on mountain slopes often associated with shale bands, 300–1 330 m.
Rationale: A high-altitude habitat specialist occurring in small, sparse subpopulations.

Psoralea oreophila Schltr.

Status: Rare
C.H. Stirton & D. Raimondo

Distribution: WC. Bain’s Kloof to Franschhoek.
Habitat: Montane fynbos, 460–1 660 m.
Rationale: A high-altitude habitat specialist occurring in small, sparse subpopulations.

Psoralea peratica C.H.Stirt.

Status: EN B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Piketberg Mountains.
Habitat: Mainly along sandy seepages.
Rationale: EOO 4 695 km². Three locations remain after most of the habitat has been transformed for the cultivation of vineyards, wheat and potatoes. Decline continues.

Psoralea glaucina Harv.

Status: CR B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v); C2a(i)
N.A. Helme & D. Raimondo

Distribution: WC. Cape Flats near Muizenberg.
Habitat: Seasonally damp neutral to alkaline sands below 100 m.
Rationale: EOO < 100 km². Two small, severely fragmented natural subpopulations remain and two have been reintroduced. Declining because of continued habitat loss to urban development and invasion by alien plants.

Psoralea guinii Harv.

Status: EN
C.H. Stirton & D. Raimondo

Distribution: WC. Stellenbosch.
Habitat: Lowland fynbos, marshy places.
Rationale: This species was last collected in 1927, and subsequently > 90% of its habitat has been transformed to vineyards and urban expansion. Remaining fragments are severely degraded by alien plant infestations. Repeated searches have failed to locate surviving individuals.

Psoralea impexa C.H.Stirt.

Status: NT D2
N.A. Helme

Distribution: WC. Du Toit’s Kloof Mountains.
Habitat: Upper, steep, open, rocky slopes of kloofs with western and eastern aspects in fynbos.
Rationale: Less than 100 plants occur at a single known location where they are potentially threatened by invading alien hakeas.

Psoralea odoratissima Jacq.

Status: Rare
C.H. Stirton & D. Raimondo

Distribution: WC. Villiersdorp to Swartberg Mountains.
Habitat: Streamsides, on mountain slopes often associated with shale bands, 300–1 330 m.
Rationale: A high-altitude habitat specialist occurring in small, sparse subpopulations.

Psoralea peratica C.H.Stirt.

Status: EN B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Piketberg Mountains.
Habitat: Mainly along sandy seepages.
Rationale: EOO 4 695 km². Three locations remain after most of the habitat has been transformed for the cultivation of vineyards, wheat and potatoes. Decline continues.
Psoralea repens

**L.**

**Status:** NT A4bc

C.H. Stirton & D. Raimondo

**Distribution:** EC WC. Cape Peninsula to Eastern Cape.

**Habitat:** Coastal fynbos, below 50 m.

**Rationale:** A population reduction of 20% is estimated based on a decline in the number of known locations due to coastal development since 1970 (generation length ≥ 15 years). Population decline as a result of coastal development is highly likely to continue into the future.

**Psoralea sp. nov.**

**Voucher:** Esterhuysen 35181 Bol.

**Status:** Rare

D. Raimondo

**Distribution:** WC. Groot Swartberg Mountains, Swartberg Pass.

**Habitat:** Subalpine montane fynbos, 1 800 m.

**Rationale:** A range-restricted species, known from only one collection at high altitude, but is likely to occur on other high peaks of the Groot Swartberg. However, EOO is not likely to be larger than 500 km².

**Psoralea sp. nov.**

**Voucher:** Helme 3468 NBG.

**Status:** EN B1ab(iii,iv,v) + 2ab(ii,iii,iv,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Redelinghuys.

**Habitat:** Damp sands.

**Rationale:** EOO and AOO < 500 km². Recently discovered at three locations. Most of the habitat has been transformed for potato and rooibos cultivation, and habitat loss is continuing.

**Psoralea sp. nov.**

**Voucher:** Muir 1850 PRE

**Status:** EN B1ab(i,ii,iii,iv,v) + 2ab(ii,iii,iv,v)

C.H. Stirton, J.H. Vlok & D. Raimondo

**Distribution:** WC. Albertinia to Still Bay.

**Habitat:** Soils derived from limestone outcrops.

**Rationale:** EOO 620 km². Fewer than five known locations are declining as a result of invading alien acacias and habitat degradation caused by thatch harvesting.

**Psoralea sp. nov.**

**Voucher:** Stirton 10212 NU

**Status:** Rare

N.A. Helme

**Distribution:** WC. Langeberg and Swartberg Mountains.

**Habitat:** Upper slopes in montane fynbos on streamsides and moist, south-facing slopes.

**Rationale:** A rare, range-restricted (EOO < 500 km²) specialist that is not threatened.

**Psoralea sp. nov.**

**Voucher:** Stirton 11225 NBG

**Status:** Rare

N.A. Helme

**Distribution:** WC. Limietberg to Du Toit’s Kloof Mountains.

**Habitat:** Upper sandstone fynbos slopes.

**Rationale:** A range-restricted mountain species (EOO 320 km²) that occurs as small, scattered subpopulations. Only three sites are known, but it is not threatened.

**Psoralea sp. nov.**

**Voucher:** Stirton & Zantovska 11568 K

**Status:** Rare

C.H. Stirton & D. Raimondo

**Distribution:** WC. Groot Swartberg Mountains.

**Habitat:** Subalpine fynbos gullies above 1 700 m.

**Rationale:** A rare, range-restricted (EOO < 500 km²) specialist that is not threatened.

**Psoralea sp. nov.**

**Voucher:** Stirton & Zantovska 11582 NU

**Status:** EN B1ab(iii,v)

J.H. Vlok & D. Raimondo

**Distribution:** WC. Outeniqua Mountains.

**Habitat:** Seepage areas in montane fynbos, 530–590 m.

**Rationale:** EOO < 250 km². Five known locations are declining as a result of dense alien pine and hakea invasion of the habitat. This species is also likely to be very sensitive to extraction of water.

**Psoralea tenuissima E.Mey.**

**Status:** Rare

D. Raimondo

**Distribution:** WC. Cederberg to Kouebokkeveld and Du Toit’s Kloof Mountains.

**Habitat:** Streamsides in montane fynbos above 960 m.

**Rationale:** Restricted to high-altitude streamsides in the arid mountain ranges. Known from fewer than 10 sites. Not threatened.

**Psoralea trullata C.H.Tirst.**

**Status:** Rare

D. Raimondo

**Distribution:** WC. Langeberg Mountains to Tsitsikamma Mountains.

**Habitat:** Marshy places in montane fynbos.

**Rationale:** Occurs as small, sparse subpopulations. Not threatened.

Rafnia Thunb.

**Rafnia angulata Thunb. subsp. ericifolia** (T.M.Salter) G.J.Campbell & B.-E.van Wyk

**Status:** EN A2c; B1ab(iii)

G. Campbell-Young & D. Raimondo

**Distribution:** WC. Paarl to Durbanville.

**Habitat:** Fynbos or renosterveld-fynbos transition, on gentle, stony slopes, in sandy quartzitic or clay soils, 0–200 m.

**Rationale:** A population reduction of at least 50% is estimated based on > 50% habitat loss to agriculture and urban development over the past 100 years (generation length > 50 years). Current EOO and AOO < 400 km². Three remaining locations are declining as a result of invasion by alien plants and inappropriate fire management.

**Rafnia angulata Thunb. subsp. humilis** (Eckl. & Zeyh.) G.J.Campbell & B.-E.van Wyk

**Status:** CR A2c; B1ab(ii,iii) + 2ab(iii)

D. Raimondo & P.A. Manyama

**Distribution:** WC. Cape Peninsula including the Cape Flats.

**Habitat:** Lowland flats on sand dunes.

**Rationale:** A population reduction of > 80% is estimated based on a > 90% habitat loss to urban expansion and
the local extinction of > 80% of known locations over the past 150 years (generation length 50 years). One known location remains (EOO and AOO < 10 km²) where the habitat is being degraded by invading alien plants.

Rafnia crispa
G.J. Campbell & B.-E. van Wyk
Status: Critically Rare
D. Raimondo & G. Campbell-Young

Distribution: WC. Klein Swartberg Mountains.
Habitat: Alpine montane fynbos, on flat areas or mountain peaks and burnt slopes, 2000 m.
Rationale: Known from one site (EOO < 10 km²) in a protected area. A resprouter that is not threatened by too frequent fires.

Rafnia inaequalis
G.J. Campbell & B.-E. van Wyk
Status: EN A2c; B1ab(iii)+2ab(iii)
P.A. Manyama

Distribution: WC. Worcester district, in the Hex River Valley near De Doorns and along the Breede River.
Habitat: Disturbed roadsides and on fynbos.
Rationale: A population reduction of at least 50% is estimated based on habitat loss to vineyards, deciduous fruit cultivation and urban expansion over the past three generations (90 years). EOO 265 km², AOO < 265 km². Five remaining locations are declining because of ongoing habitat loss.

Rafnia angulata
Thunb. subsp. thunbergii (Harv.)
G.J. Campbell & B.-E. van Wyk
Status: Rare
PA. Manyama

Distribution: WC. Waaihoek and Milner Peak.
Habitat: Montane fynbos, above 1800 m.
Rationale: EOO < 150 km². A high-altitude habitat specialist that is not affected by too frequent fires.

Rafnia capensis
(L.) Schinz subsp. elsieae
G.J. Campbell & B.-E. van Wyk
Status: Rare
D. Raimondo

Distribution: WC. Elandskloof Mountains.
Habitat: Sandy, stony flats or gentle slopes, 200 m.
Rationale: EOO and AOO < 10 km². One known location, surrounded by plantations remain after most of the habitat has been lost to afforestation. Declining as a result of too infrequent fires—this species requires fire to recruit.

Rafnia angulata
Thunb.
G.J. Campbell & B.-E. van Wyk
Status: Critically Rare
D. Raimondo & G. Campbell-Young

Distribution: WC. Klein Swartberg Mountains.
Habitat: Alpine montane fynbos, on flat areas or mountain peaks and burnt slopes, 2000 m.
Rationale: Known from one site (EOO < 10 km²) in a protected area. A resprouter that is not threatened by too frequent fires.

Rafnia rostrata
G.J. Campbell & B.-E. van Wyk
subsp. pluriflora
G.J. Campbell & B.-E. van Wyk
Status: Rare
D. Raimondo & G. Campbell-Young

Distribution: WC. Swartberg Mountains.
Habitat: Montane fynbos.
Rationale: A range-restricted taxon (EOO < 250 km²), known from five sites. Not threatened.

Rafnia vlokii
G.J. Campbell & B.-E. van Wyk
Status: VU D2
D. Raimondo & G. Campbell-Young

Distribution: WC. Outeniqua Mountains.
Habitat: Transitional vegetation between renosterveld and dry, grassy fynbos, along disturbed roadsides or on lower slopes in dry, rocky, loamy or sandy soil.
Rationale: Four known locations are potentially threatened by expanding forestry plantations.

Rhynchosia
Lour.

Rhynchosia arida
C.H. Stirt.
Status: VU D2
D. Raimondo

Distribution: KZN. Camperdown.
Habitat: Unknown, probably valley bushveld.
Rationale: Known only from the type, collected in 1910. This species is too poorly known to determine its status, but it is quite likely to be threatened by agriculture.

Rhynchosia foliosa
Markötter
Status: VU D2
J.E. Victor

Distribution: KZN. Oliviershoek Pass.
Habitat: Grassland.
Rationale: Known only from the type, collected in 1905. This species is too poorly known to determine its status, but it is possibly threatened by agriculture.

Rhynchosia rogersii
Schinz
Status: VU D2
M. Lötter, J.E. Burrows & L. von Staden

Distribution: NC. MP. Barberton.
Habitat: Transvaalgte between renosterveld and dry, grassy fynbos, along disturbed roadsides or on lower slopes in dry, rocky, loamy or sandy soil.
Rationale: Known only from the type, collected in 1905. This species is too poorly known to determine its status, but it is possibly threatened by agriculture.

Rhynchosia vendae
C.H. Stirt.
Status: VU B1ab(i,ii,iii,iv,v)
L. von Staden

Distribution: KZN. Camperdown.
Habitat: Transvaalgte between renosterveld and dry, grassy fynbos, along disturbed roadsides or on lower slopes in dry, rocky, loamy or sandy soil.
Rationale: Known only from the type, collected in 1905. This species is too poorly known to determine its status, but it is possibly threatened by agriculture.
Distribution: WC. Waterkloof and Peak Plaats in the Klein Swartberg.

Habitat: Montane fynbos on streambanks, 800–1,500 m.

Rationale: EOO 4 km². Habitat quality and two known locations are declining because of extraction of water.

Stirtonanthus insignis (Compton) B.-E. van Wyk & A.L. Schutte

Status: NT D2
J.E. Victor & A.L. Schutte-Vlok

Distribution: WC. Swartberg Mountains.

Habitat: Montane fynbos on streambanks, 700–1,500 m.

Rationale: Two known locations are potentially threatened by expansion of crop cultivation.

Stirtonanthus taylorianus (L.Bolus) B.-E. van Wyk & A.L. Schutte

Status: VU D2
A.L. Schutte-Vlok, D. Raimondo & J.E. Victor

Distribution: WC. Swartberg Mountains.

Habitat: Montane fynbos on streambanks, 700–1,500 m.

Rationale: EOO 2,626 km². The number of mature individuals is declining at six known locations because of harvesting for the traditional medicinal trade. Also threatened by expansion of human settlements in places.

Tephrosia

Rationale: EOO 900–1,400 km². Known from 5–8 locations. About 38% of the habitat in the western part of the range is already transformed, mainly by human settlements and subsistence agriculture. Ongoing habitat loss due to expanding human settlements is causing a continuing decline. This species is also potentially threatened by harvesting of rootstocks for medicinal purposes.

Tephrosia pondoensis (Codd) Schrire

Status: EN B1ab(iii,v); C2a(i)
L. von Staden & A.T.D. Abbott

Distribution: EC KZN. Oribi Gorge to the Msikaba River.

Habitat: Pondoland scarp forest and adjacent grassland on sandstone, in forest margins, along drainage lines or on rocky outcrops, 300–600 m.

Rationale: A range-restricted species (EOO 1,250 km²), known from a few small, isolated subpopulations each consisting of less than 100 mature individuals. Total population is estimated not to exceed 2,000 mature individuals. Subpopulations are severely fragmented and there is a continuing decline in the habitat quality and number of mature individuals as a result of too frequent fires, browsing by livestock and harvesting of firewood and wood for building materials.

Umtiza

Rationale: Although still relatively widespread (EOO 17,030 km²) and common (> 20 known locations), this species has lost at least 25% of its habitat to crop cultivation and urban expansion over the past 50 years (generation length 20 years) and continues to decline. Also threatened by overgrazing by livestock in the Little Karoo.

Umtiza listeriana Sim

Status: VU B1ab(v)
V.L. Williams & L. von Staden


Habitat: Forest and thicket.

Rationale: EOO < 1,000 km². Three known locations are declining as a result of coastal housing development, wheat cultivation and industrial development.

Wiborgia

Status: VU B1ab(ii,iii,iv,v)
R.Dahlgren

Distribution: WC. Vredenburg.

Habitat: Granite soils on slopes of granite koppies.

Rationale: EOO < 1,000 km². Three known locations are declining as a result of coastal housing development, wheat cultivation and industrial development.

Wiborgia fusca Thunb. subsp. macrocarpa

R.Dahlgren

Distribution: NC WC. Gifberg to Nieuwoudtville.

Habitat: Montane fynbos near streams, 600–800 m.

Rationale: EOO < 1,500 km². Five known locations remain after most of the habitat has been converted for rooibos tea cultivation. Decline is continuing.

Wiborgia tenuifolia E.Mey.

Status: NT A2c; B1ab(i,ii,iii,iv,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Worcester to Riversdale, including the Little Karoo.

Habitat: Lowland renosterveld-fynbos scrub.

Rationale: Although still relatively widespread (EOO 17,030 km²) and common (> 20 known locations), this species has lost at least 25% of its habitat to crop cultivation and urban expansion over the past 50 years (generation length 20 years) and continues to decline. Also threatened by overgrazing by livestock in the Little Karoo.
Xiphotheca Eckl. & Zeyh.

Xiphotheca canescens (Thunb.) A.L. Schutte & B.-E. van Wyk
Status: VU B1ab(iii,v)+2ab(iii,v)
Distribution: CA. Nieuwoudtville Escarpment.
Habitat: Arid montane fynbos on rocky outcrops, 660–780 m.
Rationale: EOO < 100 km², AOO < 10 km². Six known locations. There is a continuing decline in habitat quality and the number of mature individuals as a result of rooibos tea cultivation. Although the specific habitat of this species is not ploughed, there is a lack of fire as a result of the tea plantations. This species is a reseeder that requires fire to recruit.

Xiphotheca cordifolia A.L. Schutte & B.-E. van Wyk
Status: VU D1+2
Distribution: WC. Hex River Mountains, Milner Peak.
Habitat: Fynbos on shaley scree along streams in kloofs.
Rationale: A range-restricted (EOO and AOO < 2 km²), slow-growing reseeder that is potentially threatened by too frequent fires. Subpopulations are small and the total population is probably less than 1 000 mature individuals.

Xiphotheca elliptica (DC.) A.L. Schutte & B.-E. van Wyk
Status: NT D2
Distribution: WC. Wemmershoek Mountains to Caledon Swartberg.
Habitat: Montane fynbos on sandstone slopes, 360–1 400 m.
Rationale: Seven small, sparse subpopulations are known. This species is likely to have lost subpopulations to vineyards and is now potentially threatened by invasive alien plants.

Xiphotheca fruticosa (L.) A.L. Schutte & B.-E. van Wyk
Status: VU B1ab(iii,v)
Distribution: WC. Cape Peninsula, Hottentots Holland and Hex River Mountains, Montagu and Bredasdorp.
Habitat: Sandstone slopes in fynbos, 100–1 200 m.
Rationale: EOO < 13 200 km². This slow-growing, myrmecochorous species requires fire to germinate. Fewer than 10 known locations are declining as a result of invasion by alien plants and too frequent fires.

Xiphotheca guthriei (L. Bolus) A.L. Schutte & B.-E. van Wyk
Status: EN B1ab(i,ii,iii,iv,v)
Distribution: WC. Kleinrivier Mountains to Potberg.
Habitat: Renosterveld on silcrete soils.
Rationale: EOO 3 350 km². Ten small, severely fragmented subpopulations remain after most of the habitat has been transformed for wheat and vineyard cultivation. It currently continues to decline as a result of alien plants that invade the habitat.

Xiphotheca lanceolata (E.Mey.) Eckl. & Zeyh.

Xiphotheca phylicoides A.L. Schutte & B.-E. van Wyk
Status: CR B1ab(ii,iii)
Distribution: WC. Outeniqua Mountains.
Habitat: Fynbos slopes on shale bands.
Rationale: Crop cultivation has caused extensive habitat loss for this slow-growing resprouter, resulting in the local extinction of 60% of known subpopulations over the past 100 years (generation length > 50 years). EOO 2 389 km². Seven small, severely fragmented subpopulations continue to decline because of invasion by alien plants and ongoing agricultural expansion.

Xiphotheca reflexa (Thunb.) A.L. Schutte & B.-E. van Wyk
Status: EN A2bc; B1ab(i,ii,iii,iv,v); C2a(ii)
Distribution: WC. Piketberg to Elim.
Habitat: Sand plain fynbos.
Rationale: Crop cultivation has caused extensive habitat loss for this slow-growing resprouter, resulting in the local extinction of 60% of known subpopulations over the past 100 years (generation length > 50 years). EOO 2 389 km². Seven small, severely fragmented subpopulations continue to decline because of invasion by alien plants and ongoing agricultural expansion.

Xiphotheca sp. nov.
Voucher: Helme 2086 NBG
Status: CR B1ab(iii,v)+2ab(iii,v); C2a(ii)
Distribution: WC. Lower Breede River Valley.
Habitat: Renosterveld on silcrete outcrops.
Rationale: A recently discovered species known from only one location where less than 100 mature individuals occur. EOO and AOO < 10 km². Additional fieldwork in the area has not located any other subpopulations. The population is declining because of grazing by livestock and inappropriate fire management. It grows in an area with high agricultural potential and is likely to continue to lose habitat to crop cultivation.

GENETIANACEAE

Chironia L.

Chironia albiglora Hilliard
Status: Rare
Habitat: Msikaba Formation Sandstone, in variable habitats including riverine forests, stream margins, scrubby vegetation on rocky outcrops and, rarely, open grassland.
Rationale: EOO 470 km². Known from five subpopulations, but probably overlooked. Rare, occurring as
scattered individuals. Individuals in open grassland sites may be threatened by overgrazing and too frequent fires, a major cause of grassland degradation and loss of grassland forb diversity in KwaZulu-Natal and Pondoland. However, most subpopulations occur on sheltered sites in rocky outcrops and deep within forested ravines, where they are not threatened.

**Chironia stokoei** I. Verdoorn
- **Status:** Rare
- **J.E. Victor**
- **Distribution:** WC. Kogelberg and Kleinrivier Mountains.
- **Habitat:** Sandstone slopes in fynbos.
- **Rationale:** Known from a restricted range (EOO 305 km²), and fewer than five sites. Occurs on mountain slopes within protected areas and is not threatened.

**Geranium**
- **Geranium angustipetalum** Hilliard & B.L. Burtt
- **Status:** VU D2
- **R.C. Turner**
- **Distribution:** WC. Langeberg Mountains between Swellendam and Riversdale.
- **Habitat:** Fynbos, middle to high altitude.
- **Rationale:** Two known locations are potentially threatened by expanding forestry plantations and alien pines that invade the habitat.

**Sebaea** Sol. ex R.Br.
- **Sebaea laxa** N.E. Br.
- **Status:** VU D2
- **R.C. Turner**
- **Distribution:** WC. Cape Peninsula to Albertinia.
- **Habitat:** Sandy flats.
- **Rationale:** EOO 7 300 km². Less than 15 locations remain after much of the habitat has been transformed by urban expansion and agriculture. Decline continues, especially around Albertinia.

**Sebaea scabra** Schinz
- **Status:** NT B1ab(ii,iii,iv,v)
- **D. Raimondo & R.C. Turner**
- **Distribution:** WC. Cape Peninsula to Riversdale.
- **Habitat:** Sandy flats.
- **Rationale:** EOO 7 000 km². Five locations are known, but this species is likely to be overlooked and we suspect that there are at least 15 locations. It is declining because of habitat loss to urban development, agriculture and invasions of alien plants.

**GERANIACEAE**

**Geranium L.**

**Geranium angustipetalum** Hilliard & B.L. Burtt
- **Status:** Critically Rare
- **C.R. Scott-Shaw & J.E. Victor**
- **Distribution:** KZN. Bushman’s Nek.
- **Habitat:** Subalpine grassland, scrub communities in damp ground at the foot of a moist, south-facing cave on sandstone cliffs.
- **Rationale:** Known from one site in southern KwaZulu-Natal Drakensberg. Not threatened.

**Geranium drakensbergensis** Hilliard & B.L. Burtt
- **Status:** Rare
- **D.A. Kamundi & D. Raimondo**
- **Distribution:** KZN. KwaZulu-Natal Drakensberg Mountains, Cobham Forest.
- **Habitat:** Permanently moist environments such as the base of rock outcrops and near streams, 1 220–2 745 m.
- **Rationale:** A habitat specialist, known from six subpopulations, but not threatened.

**Geranium ornithopodioides** Hilliard & B.L. Burtt
- **Status:** EN B1ab(i,ii,iii,iv,v)
- **C.R. Scott-Shaw & L. von Staden**
- **Distribution:** KZN. Pinetown and Umzinto districts, KwaZulu-Natal.
- **Habitat:** Scarp forest on sandstone, in forest margins or along streams, 300–700 m.
- **Rationale:** Known from a few collections from two relatively disjunct areas in KwaZulu-Natal. Nevertheless, the range is extremely small: EOO 400 km², but could be as small as 25 km² if it proves to be locally extinct at an historical location that is extensively transformed. Based on herbarium collections, there are two or three locations, and there is a continuing decline in the habitat quality at present mainly because of dense invasions of alien plants in riparian areas.

**Geranium sparsiflorum** R. Knuth
- **Status:** VU B1ab(iii)
- **L. von Staden**
- **Distribution:** EC KZN. Southern KwaZulu-Natal between Kokstad, Ixopo and Weza. Also around Lusikisiki (Eastern Cape).
- **Habitat:** Moist montane grasslands and Ngongoni Veld, in seasonally moist areas, 500–700 m.
- **Rationale:** EOO 5 500 km². There are only five known locations, four of which are from herbarium collections made in the late 1800s. It is probably extinct at some of these locations, but equally there may be as many as 10 locations, as many areas of the Transkei remain botanically poorly explored. Surveys are required to relocate subpopulations at historical locations. Habitat loss is continuing, especially in the Eastern Cape, it is assumed that this species is declining.

**Monsonia L.**

**Monsonia lanuginosa** R. Knuth
- **Status:** Rare
- **J.E. Victor**
- **Distribution:** IM. Strydoort Mountains.
- **Habitat:** Mountain summits.
- **Rationale:** A rare species known from two collections. Not threatened.

**Monsonia speciosa** L.
- **Status:** EN A2bc
- **D. Raimondo, R.C. Turner & D.A. Snijman**
- **Distribution:** WC. Clanwilliam to Gordon’s Bay.
- **Habitat:** Clay and granite slopes and flats, mostly in renosterveld.
- **Rationale:** A population reduction of > 50% is estimated based on > 70% habitat loss to agriculture and urban development over the past 80 years. This is a long-lived resprouter, generation length is at least 30 years.

**Pelargonium** L’Hér ex Aiton

**Pelargonium album** J.J.A. van der Walt
- **Status:** Rare
- **M. Lötter, J.E. Burrows & D. Raimondo**
- **Distribution:** WC. Cape Peninsula to Riversdale.
- **Habitat:** Grows on humus-rich soils, in shady rock crevices on dolomite hills.
- **Rationale:** A range-restricted species (EOO < 500 km²) that has lost some habitat to forestry plantations but is not declining at present.
Pelargonium appendiculatum (L.f.) Willd.
Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Leipoldtville.
Habitat: Strandveld on deep, calcareous, coastal, sandy soils.
Rationale: EOO 65 km², AOO < 65 km². Three known locations are declining as a result of expanding rooibos and potato cultivation.

Pelargonium attenuatum Harv.
Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Olifants River Valley.
Habitat: Alluvial sands.
Rationale: EOO 250 km², AOO < 250 km². Fewer than five locations remain and the species continues to decline because of its habitat being ideally suited for the cultivation of rooibos, potatoes, onions and citrus.

Status: Rare
D. Raimondo
Distribution: NC. Witputs in the extreme southern part of Namibia and from Steinkopf and Okiep in Namaqualand.
Habitat: Stony places in clay in low succulent vegetation.
Rationale: Four subpopulations are known, but there are likely to be more, as this species occurs in very remote areas. According to the herbarium records plants are localised and occur in small subpopulations.

Pelargonium burgerianum J.J.A.van der Walt
Status: Rare
J.E. Victor
Distribution: WC. Hex River Mountains and Koo Valley.
Habitat: Fynbos, gentle slopes on Table Mountain Sandstone soils.
Rationale: Known from four sites, all in mountainous areas that are not threatened.

Pelargonium caledonicum L.Bolus
Status: CR A2ac; B1ab(ii,iii,iv)
D. Raimondo & D. Pillay
Distribution: WC. Caledon.
Habitat: Renosterveld, on grey loam soils derived from shale.
Rationale: A population reduction of > 80% is estimated based on habitat loss to wheat cultivation within the past 90 years (generation length 30 years). EOO 45 km². Four small, severely fragmented subpopulations remain on isolated habitat fragments and continue to decline because of ongoing expansion of wheat cultivation, inappropriate fire management and invasion by alien plants.

Pelargonium campestrum (Eckl. & Zeyh.) Steud.
Status: DDD
P.A. Manyama & D.A. Kamundi
Distribution: EC. Uncertain, the type was collected near the Swartkops River.
Habitat: Unknown.
Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Pelargonium caroli-henrici B.Nord.
Status: Rare
D.A. Kamundi & D. Raimondo
Distribution: WC. Vanrhynsdorp.
Habitat: Grows in flat ground with quartzite pebbles.
Rationale: A range-restricted species (EOO 520 km²), known from three sites and not threatened.

Pelargonium chelidonium (Houutt.) DC.
Status: EN A2ac; B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Clanwilliam to Riebeek-Kasteel.
Habitat: Renosterveld, clay flats.
Rationale: A population reduction of > 50% is estimated based on habitat loss for the cultivation of citrus (in the Olifants River Valley) and wheat (northern Swartland) over the past 90 years (generation length 30 years). EOO 4 700 km². Five remaining locations are declining as a result of ongoing habitat loss to agriculture and invasion by alien plants.

Pelargonium citronellum J.J.A.van der Walt
Status: Rare
D. Raimondo & N.A. Helme
Distribution: NC. Nieuwoudtville.
Habitat: Hantam karoo vegetation on shales.
Rationale: One known location is potentially threatened by crop cultivation and overgrazing.

Pelargonium connivens E.M.Marais
Status: VU D2
D. Raimondo
Distribution: NC. Nieuwoudtville.
Habitat: Sandy soils in areas with < 300 mm of rain during the winter months.
Rationale: EOO < 2 000 km². Most known subpopulations are now locally extinct owing to crop cultivation and fewer than five locations remain. The species is declining because of continued habitat loss to cash crop, vineyard, and rooibos tea cultivation.

Pelargonium curveandrum E.M.Marais
Status: VU B1ab(ii,iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Montagu to Oudtshoom.
Habitat: Sandstone or clay slopes.
Rationale: EOO 2 500 km². Fewer than 10 known locations are declining because of habitat degradation as a result of ostrich farming.

Pelargonium denticulatum Jacq.
Status: Rare
N.A. Helme
Distribution: WC. Herbertsdale.
Habitat: Ravines.
Rationale: EOO < 500 km². Known to occur at only a few sites in a habitat that is not threatened.
Pelargonium desertorum Vorster
Status: Rare
D. Raimondo, G. Williamson & L. Potter
Distribution: NC. Richterveld.
Habitat: Lower, south-facing slopes on granite-derived soils.
Rationale: A range-restricted species (EOO 156 km²), known from only a few sites in a habitat that is not threatened.

Pelargonium divisifolium Vorster
Status: NT D2
N.A. Helme & D. Raimondo
Distribution: WC. Rivieronderend Mountains.
Habitat: Lower sandstone slopes in fynbos.
Rationale: EOO < 140 km². Fewer than 10 known locations are potentially threatened by alien plants that invade the habitat.

Pelargonium ellaphieae E.M.Marais
Status: EN C2a(i)
D. Raimondo
Distribution: WC. Citrusdal to the Cape Peninsula.
Habitat: Sparse fynbos, growing amongst rocks on sandy mountain foothills.
Rationale: This species historically occurred from Muizenberg to Citrusdal, but is now restricted to a few subpopulations in the greater Citrusdal area. Subpopulations are usually small and scattered with 2–8 plants in isolated groups. It is therefore estimated that the total population consists of less than 2 500 plants and that there are not more than 250 adult individuals per subpopulation. The number of mature individuals is declining as a result of illegal collecting for the specialist horticultural trade.

Pelargonium exhibens Vorster
Status: NT D2
J.E. Victor & A.P. Dold
Distribution: EC. Grahamstown to Graaff-Reinet.
Habitat: Bushveld and succulent mountain scrub.
Rationale: Fewer than 10 known locations are potentially threatened by harvesting for traditional medicine.

Pelargonium fasciculaceum E.M.Marais
Status: NT B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Olfants River Valley to Nieuwoudtville.
Habitat: Deep sands in arid fynbos.
Rationale: EOO < 5 300 km². This species is declining as a result of expansion of rooibos tea and potato cultivation, but more than 10 locations remain at present.

Pelargonium glabriphyllum E.M.Marais
Status: Rare
D. Raimondo & D.A. Kamundii
Distribution: NC. Nieuwoudtville, Bokkeveld Escarpment.
Habitat: Dolerite flats.
Rationale: A range-restricted species, EOO 48 km². About 15% of the habitat has been transformed for wheat cultivation, but agriculture is no longer expanding in its habitat.

Pelargonium heterophyllum Jacq.
Status: CR A2c; B1ab(ii,iii,v) + 2ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Darling.
Habitat: Renosterveld on clay flats or low hills.
Rationale: A population reduction of > 80% is estimated based on habitat loss to wheat cultivation, vineyards and urban expansion over the past 90 years (generation length 30–40 years) and a single location remains, EOO and AOO < 10 km². This species continues to decline because of ongoing habitat loss.

Pelargonium leptum L.Bolus
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: WC. Piketberg.
Habitat: Well-drained soils derived from sandstone.
Rationale: One known location is potentially threatened by agriculture. The habitat is targeted for deciduous fruit cultivation.

Pelargonium nephrophyllum E.M.Marais
Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Du Toit’s Kloof Mountains.
Habitat: Succulent karoo, on sandy and stony lower slopes and flats, which become temporarily inundated during infrequent heavy winter rainfall.
Rationale: EOO and AOO < 50 km². Two known locations are declining as a result of ongoing habitat loss for vineyard and wheat cultivation.

Pelargonium nummulifolium Salisb.
Status: CR, Rare
N.A. Helme & D. Raimondo
Distribution: WC. Matsikamma Mountains and Gifberg.
Habitat: Succulent karoo, on sandy and stony lower slopes and flats, which become temporarily inundated during infrequent heavy winter rainfall.
Rationale: Known from one site in an inaccessible mountainous area.

Pelargonium ocellatum J.J.A.van der Walt
Status: Rare
F. Cholo & D. Raimondo
Distribution: WC. Rivieronderend Mountains.
Habitat: Grows in shallow, well-drained, sandy soil on rocky north-facing slopes.
Rationale: Known from one site (EOO 10 km²). No known threats.

Pelargonium ochroleucum Harv.
Status: VU B1ab(ii,iii,iv,v)
J.H. Vlok & D. Raimondo
Distribution: EC WC. Great Fish River and Oudtshoorn.
Habitat: Deep loamy clays.
Rationale: EOO 10 500 km². Known from three disjunct locations. Two locations in the Grahamstown region are declining as a result of overgrazing. A subpopulation at Oudtshoorn has lost > 80% of its habitat to agriculture (wheat cultivation and ostrich farming) and road construction.
Pelargonium ovale (Burm.f.) L’Hér. subsp. hyalinum Hugo
Status: Rare
D.A. Kamundi & D. Raimondo
Distribution: WC. From Gydo Pass near Ceres to Ge-
Habitat: Occasional in sandy open patches around rest-
tios, in dry river valleys.
Rationale: A habitat specialist known to occur at only a few sites in mountainous areas where it is not threat-

Pelargonium petroselinifolium G.Don
Status: VU D2
D. Raimondo, D.A. Kamundi & R. Koopman
Distribution: WC. Kouebokkeveld to Karooport.
Habitat: Montane fynbos or karroid vegetation.
Rationale: Fewer than five known locations are poten-
tially threatened by agricultural expansion.

Pelargonium plurisectum Salter
Status: VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Unknown, possibly renosterveld areas on gran-
ite flats, 1 200 m.
Rationale: One known location is potentially threatened by crop cultivation and overgrazing by livestock.

Pelargonium pubipetalum E.M.Mareais
Status: VU B1ab(ii,iii,iv,v)
D. Raimondo & N.A. Helme
Distribution: WC. Cape Peninsula to Bredasdorp.
Habitat: Shale flats.
Rationale: EOO 4 700 km². Fewer than 10 known locations remain after > 70% of the habitat has been transformed for agriculture and urban expansion and it continues to decline.

Pelargonium quarciticola Meve & E.M.Mareais
Status: Rare
D.A. Kamundi & D. Raimondo
Distribution: WC. Knervlakte northeast and southeast of Bitterfontein.
Habitat: Succulent karoo shrubland.
Rationale: A range-restricted species, EOO < 500 km². Not known to be declining or threatened.

Status: EN A2ac; B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: NC. Bokkeveld Escarpment around Nieuwoudtville.
Habitat: Fynbos on rocky areas or sandy flats.
Rationale: EOO 25 km². Fewer than five locations remain after > 50% of the habitat has been transformed for urban development and agriculture (over a period longer than three generations). Decline continues.

Pelargonium reniforme Curtis subsp. reniforme
Status: DDD
J.E. Victor, A.P. Dold & A. de Castro
Distribution: EC WC. Eastern Cape from Knysna to Mthatha.

Habitat: Grassland in a variety of habitats.
Rationale: This taxon is undergoing a decline as a result of medicinal harvesting, but sufficient data are not yet available to determine generation length and an overall population decline.

Pelargonium sidoides DC.
Status: Declining
Distribution: EC FS MP NW. From the Eastern Cape, through Lesotho and the Free State as far north as Lich-
tenburg in North West Province and Lydenburg district in Mpu
lamanga.
Habitat: Usually in short grassland, sometimes with oc-
casional shrubs or trees, often in stony soils varying from clay-loam, shale or basalt.
Rationale: Very widespread (EOO 480 000 km²). Tubers are harvested from export for the international medi-
cinal trade. Although the plants coppice after harvesting, local declines occur when harvesting takes place in the absence of rainfall, and plants cannot recover.

Pelargonium suburbanum Clifford ex C.Bocher subsp. suburbanum
Status: VU B1ab(ii,iii,iv)
J.E. Victor & A.P. Dold
Distribution: EC. Humansdorp to Port Elizabeth.
Habitat: Between low scrub and sand dunes on lowland flats in areas with an annual rainfall of 400–800 mm.
Rationale: EOO 2 400 km². Fewer than 10 locations remain after > 30% of the habitat of this taxon has been transformed for urban development and agriculture (over a period longer than three generations). Decline continues.

Pelargonium ternifolium Vorster
Status: NT A2ac; B1ab(ii,iii,iv,v)
D. Raimondo & D.A. Kamundi
Distribution: WC. Moorreesburg to Stellenbosch.
Habitat: Dry renosterveld to wet fynbos over a wide range of altitudes.
Rationale: EOO 9 300 km². Less than 25 locations remain after at least 20% of the habitat has been transformed for wheat cultivation and vineyard expansion over the past 90 years (generation length 20–30 years). Habitat loss continues.

Pelargonium tongaense Vorster
Status: Rare
C.R. Scott-Shaw & L. von Staden
Distribution: KZN. Tongaland.
Habitat: Dense, shady woodland in Sand Forest.
Rationale: A habitat specialist (EOO 2 000 km²), known from six subpopulations. Although the habitat of this species is being degraded by subsistence farming, this species is still locally common so it is not considered threatened.

Pelargonium torulosum E.M.Mareais
Status: Rare
D. Raimondo & D. Pillay
Distribution: WC. Sutherland and Matjiesfontein.
Habitat: Arid areas in sandy soil under shrubs, rainfall 100–200 mm.
Rationale: A range-restricted species (EOO 74 km²) that is not threatened.
Pelargonium tripalatum E.M.Marais
Status: Rare
D.A. Kamundi & D. Raimondo
Distribution: NC. Richtersveld, Eksteenfontein.
Habitat: Succulent karoo shrubland.
Rationale: A range-restricted species (EOO 30 km²) that is not threatened.

Pelargonium vicifolium DC.
Status: EN A2ac; B1ab(ii,iii,iv,v)
D. Raimondo & N.A. Helme
Distribution: WC. Malmesbury to Stellenbosch.
Habitat: Grassy renosterveld or karroid shrubland on shale or sandstone.
Rationale: A population reduction of > 50% is estimated based on habitat loss to wheat cultivation and vineyard and urban expansion over the past 60 years (generation length 30 years). EOO 3 950 km². Eight small, severely fragmented remaining subpopulations continue to decline because of ongoing habitat loss.

Pelargonium violiflorum (Sweet) DC.
Status: EN B1ab(ii,iii,iv,v)
D. Raimondo & D.A. Kamundi
Distribution: WC. Worcester to Stormsvelei.
Habitat: Mountain renosterveld or karroid shrubland on shale or sandstone.
Rationale: EOO 300 km², AOO < 300 km². Six locations are known through herbarium records, but two are likely to be locally extinct owing to habitat loss. It continues to decline as a result of ongoing habitat loss to vineyard expansion.

Pelargonium woodii R.Knuth
Status: DDD
D. Raimondo & F. Cholo
Distribution: KZN. Drakensberg mountain range.
Habitat: Unknown.
Rationale: A poorly known species, last collected in 1912 at an unspecified locality in the KwaZulu-Natal Drakensberg.

GESNERIACEAE

Streptocarpus decipiens Hilliard & B.L.Burtt
Status: Rare
J. Truter, S.J. Smithies & F. Daniels
Distribution: MP. Hebronberg and Pilgrim’s Rest.
Habitat: Grassy renosterveld on shales on grassy hillsides.
Rationale: A poorly known species, last collected in 1912 at an unspecified locality in the KwaZulu-Natal Drakensberg.

Streptocarpus denticulatus Turrill
Status: VU D2
M. Lötter, J.E. Burrows & L. von Staden
Distribution: MP. Nelspruit to Kaapmuiden.
Habitat: Shady woodland, among granite boulders.
Rationale: One known location is potentially threatened by invading alien plants and habitat degradation as a result of deforestation for subsistence use: this shade-dependent species might be affected if its woodland habitat is cleared of woody species.

Streptocarpus fasciatus T.J.Edwards & Kunhardt
Status: VU D2
M. Lötter, J.E. Burrows & L. von Staden
Distribution: MP. God’s Window to Bourke’s Luck mine.
Habitat: Shallow soils in rocky areas in forested gullies.
Rationale: Two known locations are potentially threatened by harvesting for horticultural purposes and trampling by tourists.

Streptocarpus floribundus Weigend & T.J.Edwards
Status: VU D2
J. Truter, S.J. Smithies & F. Daniels
Distribution: KZN. Kranskop.
Habitat: Scarp forest, on dolerite cliffs, 900–1 100 m.
Rationale: Two known locations are potentially threatened by habitat degradation as a result of deforestation for subsistence use and grazing by goats and cattle.

Pelargonium tripalatum is likely to be locally extinct owing to habitat loss.

Streptocarpus decipiens is potentially threatened by invading alien plants.

Streptocarpus denticulatus is a poorly known species, last collected in 1912.

Streptocarpus fasciatus is potentially threatened by invading alien plants and habitat degradation.

Streptocarpus floribundus is potentially threatened by habitat degradation as a result of deforestation for subsistence use and grazing by goats and cattle.
Streptocarpus formosus (Hilliard & B.L. Burtt) T.J. Edwards

Status: Rare
C.R. Scott-Shaw, J.E. Victor & L. von Staden

Distribution: EC KZN. Southern KwaZulu-Natal and northern Pondoland, from the Umzinto district southwards to the Mzamba River.

Habitat: Restricted to Natal Group and Mskaba Formation sandstones, in shaded areas in forested ravines and scarp forest.

Rationale: EOO 565 km². Locally common within a restricted, specialised habitat. Possibly threatened by forest degradation at two sites in the northern part of the range, but most subpopulations occur in inaccessible sites or are protected within reserves.

Streptocarpus hilburtianus T.J. Edwards Plate 68

Status: VU D2
M. Lötter, J.E. Burrows & L. von Staden

Distribution: EC. Kentani and Kei Mouth.

Habitat: Afromontane grassland on lithosols above cliffs, in very exposed positions, sparingly shaded by rock ledges and associated scrub, 2,000 m and above.

Rationale: Two known locations are potentially threatened by invading alien plants and mining.

Streptocarpus kentaniensis L.L. Britten & Story

Status: VU D2
J.E. Victor, E.J. van Jaarsveld & A.P. Dold

Distribution: EC. Kentani and Kei Mouth.

Habitat: Dry forest, among moss and lichen on rocks.

Rationale: Three known locations are potentially threatened by habitat degradation as a result of deforestation for subsistence use.

Streptocarpus latens Hilliard & B.L. Burtt

Status: Rare
J. Truter & F. Daniels

Distribution: MP. Steenkampsberg.

Habitat: Mossy, moist rock crevices, 2,225 m.

Rationale: A range-restricted (EOO < 150 km²) habitat specialist that is not threatened as its habitat is unsuitable for forestry plantations.

Streptocarpus lilliputana D.U. Bellstedt & T.J. Edwards

Status: VU D2
J.E. Victor

Distribution: EC. Pondoland, Lupatana Gorge and Ntsubane Plateau.

Habitat: Rock seepages in deep shade.

Rationale: Three known locations are potentially threatened by habitat degradation as a result of deforestation for subsistence use.

Streptocarpus longiflorus (Hilliard & B.L. Burtt) T.J. Edwards

Status: VU D2
J. Truter, J.E. Victor & L. von Staden

Distribution: LM. Summit of Blouberg.

Habitat: Exposed sites among rocks in northern escarpment afromontane fynbos and mistbelt grasslands above 1,900 m.

Rationale: One known location is potentially threatened by habitat degradation as a result of overgrazing and too frequent fires.

Streptocarpus makabengensis Hilliard

Status: VU D1
L. von Staden & P.J.D. Winter

Distribution: LM. Magkageng Mountain.

Habitat: Steep upper slopes and cliffs, in moist areas under overhanging rocks in the mistbelt, southern aspects, 1,220 m.

Rationale: A range-restricted species endemic to a rare, specialised habitat (EOO < 0.01 km²). Known from two subpopulations and less than 1,000 plants.

Streptocarpus modestus Hilliard

Status: Rare
J. Truter, S.J. Smithies & F. Daniels

Distribution: EC. Mkambati to Magwa Gorge.

Habitat: Wedged in crevices of rocky cliff faces along the lips of some of the forested gorges in Pondoland.

Rationale: A range-restricted Pondoland endemic (EOO < 500 km²) that is not threatened because of the inaccessibility of its habitat.

Streptocarpus molweniensis Hilliard subsp. eshowicus Hilliard & B.L. Burtt

Status: VU D2
C.M. Gibbon, J. Truter & J.E. Victor

Distribution: KZN. Eshowe.

Habitat: Coastal scarp forest at high altitude, in moist areas in crevices on banks.

Rationale: Two known locations are potentially threatened by urban expansion.

Streptocarpus molweniensis Hilliard subsp. molweniensis

Status: VU D2
J.E. Victor

Distribution: KZN. Eskotene Kloof near the Molweni River.

Habitat: Scarp forests in kloofs.

Rationale: Three known locations are potentially threatened by urban expansion.

Streptocarpus montigena L.L. Britten

Status: Rare
J.E. Victor & J. Truter

Distribution: EC. Eastern Cape, Winterberg and Elandsberg.

Habitat: On narrow ledges of cliffs and forested gorges, 1,525 m.

Rationale: A habitat specialist known from three collecting records. Not threatened because of the inaccessibility of its habitat.

Streptocarpus occultis Hilliard

Status: VU D2
M. Lötter, J. Truter & L. von Staden

Distribution: MP. Ermelo to Swaziland border.

Habitat: Grassland, on granite outcrops or boulders.

Rationale: Four known locations are potentially threatened by invading alien plants and inappropriate fire management.

Streptocarpus pogonites Hilliard & B.L. Burtt Plate 68

Status: Rare
M. Lötter & J.E. Victor

Distribution: MP. Barberton Mountains.
**ANGIOSPERMS: DICOTYLEDONS**

**GESNERIACEAE**

Streptocarpus porphyrostachys Hilliard

- Status: NT D2
- C.R. Scott-Shaw & J.E. Victor
- **Distribution:** EC KZN. Umtamvuna River to Lupatana River.
- **Habitat:** Scarp forest, on damp rock faces in gorges and along the lips of the gorges under moist rock overhangs.
- **Rationale:** A range-restricted habitat specialist (AAO < 35 km²), known from fewer than 10 locations and potentially threatened by habitat degradation as a result of deforestation for subsistence use.

Streptocarpus sp. nov.

- **Voucher:** Edwards, Hughes & Mueller 3241 NU
- **Status:** EN B1ab(iii,v)
- T.J. Edwards & D. Raimondo
- **Distribution:** MP. Mariepskop to Clyde.
- **Habitat:** Ecotone between grassland and dry mistbelt forest and in south-facing grassland areas.
- **Rationale:** EOO < 500 km². Three known locations remain after much of the habitat has been converted to forestry plantations. It continues to decline because of alien plants that invade the habitat.

Streptocarpus wendlandii Spreng.

- **Status:** Rare
- J. Truter & F. Daniels
- **Distribution:** KZN. Ngoye Forest.
- **Habitat:** Scarp forest 300–500 m, grows on steep earth banks but is occasionally epiphytic.
- **Rationale:** A range-restricted species (EOO < 200 km²), occurring within a protected area, therefore not threatened.

**GREYIACEAE**

Greyia Hook. & Harv.

Greyia flanaganii Bolus

- **Status:** Rare
- J.E. Victor & A.P. Dold
- **Distribution:** EC. Queensmout and Komga.
- **Habitat:** Exposed rocky slopes in thicket.
- **Rationale:** Occurs as scattered individuals, known from 5–10 subpopulations, and has no known threats.

Grubbia P.J.Bergius

Grubbia roukii Carlquist

- **Status:** Rare
- D. Pillay
- **Distribution:** WC. Kogelberg.

**HYDROSTACHYACEAE**

Hydrostachys Thouars

Hydrostachys polymorpha Klotzsch ex A.Br.

- **Status:** VU D2
- E. Sieben, L. von Staden & D. Raimondo
- **Distribution:** KZN. Several rivers in the KwaZulu-Natal Midlands. Also occurs in the Kunene River on Namibia-Angola border and elsewhere in southern and central Africa as far north as the Congo.
- **Habitat:** Grows on submerged rocks in clear, fast-flowing perennial streams, rapids and waterfalls.
- **Rationale:** A habitat specialist with an AOO < 10 km² in South Africa. It is potentially threatened by habitat degradation due to sedimentation and reduced water flow as a result of extraction of water. The South African subpopulations are isolated from the rest of the global population, and the national assessment is not downgraded.

**ICACINACEAE**

Apodytes E.Mey. ex Arn.

Apodytes abbottii Potgieter & A.E.van Wyk

- **Status:** NT B1ab(iii,v) + 2ab(iii,v)
- L. von Staden & A.T.D. Abbott
- **Distribution:** EC KZN. Oribi Gorge to Port St Johns.
- **Habitat:** Pondoland scarp forest, in forest margins and fire protected crevices and rock cliff faces above forested gorges.
- **Rationale:** A range-restricted species (EOO 900 km², AOO < 900 km²) that occurs in a highly threatened habitat. There are more than 10 locations where the number of mature individuals is declining because of too frequent and intense fires and harvesting for firewood and building materials.
Apodytes geldenhuysii A.E.van Wyk & Potgieter
Status: Rare
C.J. Geldenhuys & J.E. Victor
Distribution: WC. Stellenbosch to Hermanus.
Habitat: Margins of afrotemperate forest.
Rationale: A range-restricted (EOO < 500 km²) habitat specialist. Most subpopulations occur in protected areas.

LAMIACEAE

Plectranthus l’Hér.

1 Plectranthus brevimentum T.J.Edwards
Status: Critically Rare
P.A. Manyama
Distribution: EC. Lupatana River Gorge.
Habitat: Steep sandstone gorges.
Rationale: Restricted to a single river gorge, in an inaccessible habitat where it is unlikely to be threatened.

Plectranthus dolomiticus Codd
Status: Critically Rare
P.A. Manyama
Distribution: LM. Penge Valley.
Habitat: Dolomite endemic, on cliffs.
Rationale: Known from a single site, no serious threats to its inaccessible cliff habitat.

Plectranthus ernstii Codd
Status: NT D2
C.R. Scott-Shaw, E.J. van Jaarsveld & J.E. Victor
Distribution: EC KZN. Oribi Gorge to Mkambati.
Habitat: Scarp Forest, in humus-rich pockets of soil in rock crevices on south-facing cliffs.
Rationale: Fewer than 10 known locations are potentially threatened by invading alien plants.

1 Plectranthus esculentus N.E.Br.
Status: DDD
L. von Staden & D. Styles
Distribution: KZN LM MP. Widely cultivated, but natural range is poorly known.
Habitat: Natural habitat is not well known, possibly sandstone grasslands and the edges of dry woodland.
Rationale: Cultivated as a food crop extensively in the past, but cultivation has declined in favour of more successful domesticated crops. With the decline in cultivation it now appears that this species is exceptionally rare in the wild, and its natural distribution within South Africa is very poorly understood. What appears to be a wild population was recently discovered in threatened grasslands near Durban, but the full extent of the range is at present too poorly known to be able to place this species in a threatened category.

1 Plectranthus hilliardiae Codd subsp. australis
Van Jaarsv. & A.E.van Wyk
Status: VU D2
P.A. Manyama
Distribution: EC. Lusikisiki to Lupatana Gorge.
Habitat: Occurs along forest margins and streambanks.
Rationale: Fewer than five known locations are potentially threatened by expanding forest plantations, deforestation of its forest habitat for subsistence use and agriculture.

1 Plectranthus mzimvubensis Van Jaarsv.
Status: Rare
P.A. Manyama
Distribution: EC. Mzimvubu River, upstream from Port St Johns.
Habitat: Savanna vegetation on south-facing Ecca Group shale cliff faces.
Rationale: Known from one small population. May occur elsewhere in similar habitats within the river valley. Not threatened.

Plectranthus oertendahlii T.C.E.Fr.
Status: Rare
C.R. Scott-Shaw & D. Raimondo
Distribution: EC KZN. Port Shepstone to Umtamvuna.
Habitat: Scarp forest in wooded river valleys near the coast.
Rationale: A range-restricted species (EOO 500 km²) that is not declining.

Plectranthus oribiensis Codd
Status: Rare
E.J. van Jaarsveld & L. Potter
Distribution: KZN. Oribi Gorge to Umtamvuna River.
Habitat: Pondoland scarp forest, on forest margins and wooded kloofs.
Rationale: A range-restricted Pondoland endemic (EOO < 485 km²), known two sites, both within protected areas. Not threatened.

1 Plectranthus porcatus Van Jaarsv. & P.J.D.Winter
Status: VU D2
P.A. Manyama, L. von Staden & P.J.D. Winter
Distribution: LM. Sekhukhuneland, northern Leolo Mountains.
Habitat: Dry savanna, among boulders on southwest-facing, rocky norite slopes.
Rationale: One known location is potentially threatened by habitat degradation, mining and harvesting for medicinal purposes.

Plectranthus praetermissus Codd
Status: Criticaly Rare
J.E. Victor & E. Cloete
Distribution: EC. Port St Johns to Ntsubane.
Habitat: Shaded areas on the floor of coastal subtropical forest.
Rationale: Five known locations are potentially threatened by the degradation of the forest habitat through deforestation for subsistence use and invasion by alien plants.

1 Plectranthus stylesii T.J.Edwards
Status: Rare
C.R. Scott-Shaw & D. Raimondo
Distribution: EC. Msikaba River Gorge.
Habitat: Pondoland scarp forest on Msikaba Formation Sandstone.
Rationale: Known from one site. Not threatened because of the inaccessibility of its habitat.

1 Plectranthus venteri Van Jaarsv. & Hankey
Status: Rare
J.E. Victor, P.J.D. Winter & S.J. Siebert
Distribution: LM. Sekhukhuneland, Leolo Mountains.
Habitat: Among norite boulders, usually in shallow soil and rock pockets.
Rationale: A range-restricted species (EOO 150 km²) known from fewer than 10 sites. The habitat is inaccessible and not threatened.

Rotheca Raf.

Rotheca pilosa (H.Pearson) P.P.J.Herman & Retief
Status: DDD
Distribution: EC. Kentani.
Habitat: Unknown.
Rationale: Known from two herbarium specimens collected between 1900 and 1911 in Kentani. This area is now severely degraded and this species is likely to be threatened but not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Salvia L.

Salvia obtusata Thunb.
Status: VU B1ab(ii,iii,iv,v)
Distribution: EC. Port Elizabeth to Grahamstown.
Habitat: Grassland.
Rationale: EOO 2 300 km². The remaining 6–10 locations are declining because of ongoing habitat loss to urban expansion around Coega, and coastal development east of Port Elizabeth.

Salvia repens Burch. ex Benth. var. keiensis
Hedge
Status: DDD
Distribution: EC. Mount Fletcher to Komga.
Habitat: Grassland.
Rationale: Known from three disjunct records, last collected in 1962. Much of its range has been severely degraded by overgrazing. Field surveys in this poorly explored part of the country are required before the conservation status of this taxon can be determined.

Salvia schlechteri Briq.
Status: DDD
Distribution: EC. Xobo Valley, Transkei.
Habitat: Coastal grasslands.
Rationale: Last collected in 1960, it is likely to be threatened by overgrazing and expanding rural settlements, but this species is too poorly known to determine its threat status.

Salvia thermarum Van Jaarsv.
Status: VU D2
Habitat: North-facing slopes in fynbos amongst quartzitic sandstone rocks and soil.
Rationale: One known location is potentially threatened by spreading alien invasive hakeas.

Satureja L.

Satureja compacta Killick
Status: Rare
Distribution: KZN. KwaZulu-Natal Drakensberg Mountains.

Satureja grandibracteata Killick
Status: Rare
Distribution: KZN. KwaZulu-Natal Drakensberg Mountains, around Cathedral Peak.
Habitat: Montane grassland, 2 300 m.
Rationale: A range-restricted species (EOO 350 km²), known from three subpopulations. No known threats.

Stachys L.

Stachys rivularis J.M.Wood & M.S.Evans
Status: DDD
Distribution: KZN. Mooi River and Lions River districts, KwaZulu-Natal Midlands.
Habitat: Montane grasslands, 1 500 m.
Rationale: Known from a restricted range (EOO < 200 km²) but locally common in the Giant’s Castle area. It is likely to be threatened by forestry, agriculture and urban development, but not enough is known about this species to determine its status.

Syncolostemon E.Mey. ex Benth.

Syncolostemon bolusii (N.E.Br.) D.F.Otieno
Status: Rare
Distribution: KZN. Drakensberg Mountains, Giant’s Castle to Cathkin Peak.
Habitat: Subalpine grassland, 2 000–3 000 m.
Rationale: Known from a restricted range (EOO < 200 km²) but locally common in the Giant’s Castle area. Occurs within a protected area and is not threatened.

Syncolostemon incanus (Codd)
D.F.Otieno
Status: EN A2c
Distribution: MP. Kaapsehoop.
Habitat: Montane grasslands, in shallow sandy soils among outcrops of Black Reef Quartzite, 1 800 m.
Rationale: EOO 25 km². A population reduction of at least 50% over the past 100 years (generation length > 30 years) is estimated based on a 76% habitat loss to forestry plantations and local declines at two of three known locations.

Syncolostemon latidens (N.E.Br.) Codd
Status: VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
Distribution: KZN. Greytown to Kranskop.
Habitat: Rocky grasslands, where grasslands border with thornveld or forest, 900–1 100 m.
Rationale: EOO 730 km², and because of its habitat specificity, AOO is estimated to be < 20 km². Seven known locations are declining because of ongoing habitat loss, mainly due to expanding forestry plantations and invasion by alien plants.
**Syncolostemon ramosus** (Codd) D.F.Otieno  
**Status:** VU D2  
T.J. Edwards & D. Raimondo  
**Distribution:** EC KZN. Port St Johns to Zululand.  
**Habitat:** Evergreen forests along streams and rivers, coastal forests and coastal plateaus.  
**Rationale:** Population decline over the last three generations (120 years) estimated to be ± 20%, due to bare harvesting and habitat destruction. The decline is expected to continue. However, the species is considered to be resilient and survives in some degraded watercourses, and population reduction is not expected to exceed 30% over three generations.

**Tetradenia tuberosa** T.J.Edwards  
**Status:** Rare  
T.J. Edwards & D. Raimondo  
**Distribution:** KZN. KwaZulu-Natal Midlands around Richmond.  
**Habitat:** Valley bushveld on steep slopes and in river gorges.  
**Rationale:** A range-restricted species (EOO 45 km²) that is not threatened.

**Tetradenia longiflora** N.E.Br.  
**Status:** Rare  
E.J. van Jaarsveld, L. von Staden & L. Potter  
**Distribution:** KZN MP. Barberton to northern KwaZulu-Natal.  
**Habitat:** Evergreen forests along streams and rivers, coastal forests and coastal plateaus.  
**Rationale:** Population decline over the last three generations (120 years) estimated to be ± 20%, due to bare harvesting and habitat destruction. The decline is expected to continue. However, the species is considered to be resilient and survives in some degraded watercourses, and population reduction is not expected to exceed 30% over three generations.

**Cryptocarya myrtifolia** Stapf  
**Status:** VU A2cd  
**Distribution:** EC KZN. Scattered from Port St Johns to Zululand.  
**Habitat:** Rocky hillsides, in pockets of humus on rock slabs, 1 200 m.  
**Rationale:** This rare and probably overlooked species was known for a very long time only from the area around the type locality northeast of Barberton. A few recent collections have shown that the range extends through Swaziland into northern KwaZulu-Natal. It occurs as localised subpopulations in a rocky habitat that is not threatened.
Cryptocarya transvaalensis Burtt Davy
Status: Declining

Distribution: EC KZN. Pondoland, from Mtsubane to Oribi Gorge. Scattered subpopulations occur further north in KwaZulu-Natal as far as Ngoye and Nkandla.
Habitat: Scarp forest. Occurs on forest margins, in fringes of riverine forest, thicket and coastal bush.
Rationale: To the patchy distribution of the species and the recent exploitation of some subpopulations in Mpumalanga for bark harvesting, an overall continuing decline in the species is suspected, but population reduction is unlikely to exceed 30% over three generations.

Cryptocarya wyliei Stapf
Status: NT B1ab(iii,v)

Distribution: EC KZN. Pondoland, from Mtsubane to Oribi Gorge. Scattered subpopulations occur further north in KwaZulu-Natal as far as Ngoye and Nkandla.
Habitat: Scarp forest. Occurs on forest margins, in fringes of riverine forest, thicket and coastal bush.
Rationale: A naturally rare species in South Africa, with probably less than 1 000 mature plants. No bark harvesting or population decline has been observed. The species has not been assessed globally, but it is recorded as being Critically Endangered in Zimbabwe because of habitat destruction by forestry plantations. The South African population is unlikely to be significantly affected by dispersal from other regional subpopulations, especially since the natural habitat is highly fragmented, and the national assessment is not downgraded.

Dahlgrenodendron j.J.M.van der Merwe & A.E.van Wyk

Dahlgrenodendron natalense (J.H.Ross) J.J.M.van der Merwe & A.E.van Wyk

Status: EN C2a(i)

Distribution: EC KZN. Pondoland, from Mkambati to Umtamvuna, with isolated occurrences at Umdoni Park, Pinetown and Ozwatinini. Possibly extinct at Ngoye.
Habitat: Scarp forest, most typically on Natal Group and Msikaba Formation sandstones, but also on granite. Usually near streams.
Rationale: A rare tree occurring in isolated forest fragments in KwaZulu-Natal, but more abundant in Pondoland forests. Subpopulations in the northern parts of the range are small and not viable, some consisting of a single individual. These are declining as a result of failed reproduction. Even in healthier subpopulations in the Pondoland region, reproduction occurs mainly through coppicing and seedlings are extremely rare. Pondoland subpopulations contain up to 40–50 mature individuals, and the total population is estimated to be less than 1 000 mature individuals.

Cyphia corylifolia Harv.

Cyphia bolusii E.Phillips

Cyphia kenychensis (Chiov.) Robyns & R.Wilczek

Status: EN A2bd

Distribution: EC KZN LM MP WC. Widespread in South Africa from the Cape Peninsula to the Wolkberg Mountains in Limpopo.
Habitat: High, cool, evergreen afromontane forests.
Rationale: A naturally rare species in South Africa, with probably less than 1 000 mature plants. No bark harvesting or population decline has been observed. The species has not been assessed globally, but it is recorded as being Critically Endangered in Zimbabwe because of habitat destruction by forestry plantations. The South African population is unlikely to be significantly affected by dispersal from other regional subpopulations, especially since the natural habitat is highly fragmented, and the national assessment is not downgraded.

LOBELIACEAE

Cyphia P.J.Bergius

Cyphia corylifolia Harv.

Status: DDD

Distribution: KZN LM. KwaZulu-Natal Midlands, Nkandla and Sbekukhuneland.
Habitat: Mistbelt forest margins and scrub.
Rationale: Known from three herbarium collections made before 1940. Distribution and population status are too poorly known to determine its threat status.
Cyphia latipetala C. Presl in Eckl. & Zeyh.
Status: DDD
D. Raimondo, P.A. Manyama & D.A. Kamundi

Distribution: WC. Palmiet River.
Habitat: Unknown.
Rationale: Known only from the type collection from the 1800s. Not enough is known about the distribution, specific habitat or population status of this species to determine its threat status.

Cyphia longiflora Schltr.
Status: NT B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: NC. Namaqualand, Kamiesberg to Eksteenfontein.
Habitat: Deep sands in mountain renosterveld.
Rationale: EOO 9 300 km². Known from nine locations but suspected to occur at 10–20 locations. Declining as a result of habitat loss to crop cultivation on the Kamiesberg.

Cyphia longilobata E.Phillips
Status: DD
J.E. Victor & D. Raimondo

Distribution: WC. Oudtshoorn, Cango Caves.
Habitat: Unknown.
Rationale: Known only from the type, collected in 1941. This species is too poorly known to determine its threat status.

Cyphia oligotricha Schltr.
Status: VU D2
D. Raimondo

Distribution: WC. Pakhuis Pass, northern Cederberg.
Habitat: Cracks in rock slab.
Rationale: Known only from one subpopulation. Occurs in a rocky habitat within a protected area and is not threatened.

Cyphia ranunculifolia E.Wimm.
Status: Critically Rare
D. Raimondo

Distribution: WC. Cederberg.
Habitat: Fynbos, on middle to upper sandstone slopes.
Rationale: A range-restricted species (EOO < 250 km²) that occurs within a protected area and is not threatened.

Cyphia salteri E.Wimm.
Status: DDD
D. Raimondo

Distribution: WC. Vanrhynsdorp.
Habitat: Unknown.
Rationale: Only known from the type, collected in 1932. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Lobelia L.

† Lobelia ardisiandroides Schltr.
Status: Rare
D. Raimondo

Distribution: EC WC. Rivieronsnderend Mountains and Langkloof.
Habitat: Sheltered rocks at high altitude.
Rationale: A high-altitude habitat specialist that occurs as scattered populations, but is not threatened.

Lobelia barkerae E.Wimm.
Status: CR PE
D. Raimondo

Distribution: WC. Potberg, Albertsdal.
Habitat: Ferricrete fynbos.
Rationale: This species is known from only one location, where it was last collected in 1947. Its habitat has been largely transformed for crop cultivation, and habitat remnants are heavily infested with invasive alien plants.

† Lobelia comptonii E.Wimm.
Status: Rare
N.A. Helme & D. Raimondo

Distribution: WC. Cederberg.
Habitat: Fynbos, on middle to upper sandstone slopes.
Rationale: A poorly known species, known from one herbarium record collected in 1893.

Lobelia dasyphylla E.Wimm.
Status: VU D2
J.E. Victor

Distribution: WC. Langeberg Mountains near Suurbraak.
Habitat: Damp rocks on sandstone slopes in fynbos.
Rationale: A range-restricted species to the Langeberg Mountains (EOO 53 km²). Its entire range falls within the Table Mountain National Park where it is not threatened.

† Lobelia eckloniana (C. Presl) A.DC.
Status: Rare
N.A. Helme & D. Raimondo

Distribution: WC. Cape Peninsula.
Habitat: Cracks in rock slab.
Rationale: Known only from one subpopulation. Occurs in a rocky habitat within a protected area and is not threatened.

Lobelia hypsibata E.Wimm.
Status: Critically Rare
D. Raimondo

Distribution: WC. Bain’s Kloof to Caledon.
Habitat: Cracks in rock slab.
Rationale: A poorly known taxon known from very few herbarium specimens, most of which were collected before 1960.
Lobelia muscoides Cham.
Status: Rare
N.A. Helme
Distribution: WC. Langeberg.
Habitat: Partially shaded, damp areas on upper sandstone fynbos slopes.
Rationale: A range-restricted species (EOO < 20 km²), known from three subpopulations protected within the Marloth Nature Reserve where it is not threatened.

Lobelia nugax E.Wimm.
Status: DD
P.B. Phillipson & J.E. Victor
Distribution: WC. Skurweberg in the Kouebokkeveld Mountains.
Habitat: Unknown.
Rationale: Known only from the type collection, made in 1897. This species is too poorly known to determine its status.

Lobelia trullifolia Hemsl. subsp. delicatula (Compton) Thulin
Status: Rare
M. Lötter, J.E. Burrows & L. von Staden
Distribution: MP. Swaziland and Graskop.
Habitat: Damp, sheltered areas among rocks.
Rationale: Known from one subpopulation in South Africa where it is not threatened. There are three records of this taxon from Swaziland, but the status in Swaziland is unknown.

Lobelia valida L.Bolus
Status: VU
D. Raimondo
Distribution: WC. De Hoop to Still Bay.
Habitat: Coastal limestone hills.
Rationale: EOO 460 km², AOO < 460 km². Fewer than 10 known locations are declining as a result of alien plants that invade the habitat and coastal development.

Lobelia zwartkopensis E.Wimm.
Status: CR PE
J.E. Victor & A.P. Dold
Distribution: EC. Port Elizabeth, Swartkops River.
Habitat: Albany Alluvial Vegetation.
Rationale: Known only from two collections, presumably made at the same site in the early 1800s. Probably extinct as a result of urban development.

Monopsis Salisb.
Monopsis kownyensis E.Wimm.
Status: VU D2
J.E. Burrows, S.M. Burrows, M. Lötter & J.E. Victor
Distribution: MP. Graskop.
Habitat: Mistbelt grassland.
Rationale: Three known locations are potentially threatened by alien plants that invade the habitat.

Monopsis variifolia (Sims) Urb.
Status: EN A2bc; B1ab(iii)+2ab(iii)
N.A. Helme & D. Raimondo
Distribution: WC. Porterville to Wolseley.
Habitat: Renosterveld, in wet clays.
Rationale: A population reduction of at least 50% is estimated based on a > 60% habitat loss to wheat cultivation and vineyards over the past 100 years (generation length 50 years). EOO 205 km², AOO < 205 km². Habitat quality at three known remaining locations continues to decline because of invasion by alien plants.

Wimmerella L.Serra, M.B.Crespo & Lammers
Wimmerella bifida (Thunb.) L.Serra, M.B.Crespo & Lammers
Status: DD
J.E. Victor
Distribution: WC. Gilberg.
Habitat: Unknown.
Rationale: Last collected in 1911, this species is too poorly known to determine its status.

Wimmerella frontidentata (E.Wimm.) L.Serra, M.B.Crespo & Lammers
Status: Rare
D. Raimondo, P.A. Manyama & D.A. Kamundi†
Distribution: WC. Anysberg.
Habitat: Shady rocks, 1,000–1,600 m.
Rationale: A rare, range-restricted species (EOO < 300 km²) that has no known threats.

Wimmerella hedyotidea (Schltr.) L.Serra, M.B.Crespo & Lammers
Status: DD
D. Raimondo, P.A. Manyama & D.A. Kamundi†
Distribution: WC. Bain’s Kloof.
Habitat: Sandstone slopes, 1,000–2,000 m.
Rationale: Known only from one record, collected in 1896. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Wimmerella longitubus (E.Wimm.) L.Serra, M.B.Crespo & Lammers
Status: DD
J.E. Victor
Distribution: WC. Langeberg Mountains near Riversdale.
Habitat: Unknown.
Rationale: Known from a few old herbarium collections.

LYTHRACEAE

Nesaea Kunth
Nesaea alata Immelman
Status: Rare
D. Pillay & L. von Staden
Distribution: LM MP. Limpopo and southeastern Mpumalanga lowveld. Also northeastern Swaziland and possibly Mozambique.
Habitat: Edges of shallow pans in low-lying areas.
Rationale: EOO 3,000–5,000 km². Known from only three sites. Much of the range falls within the Kruger National Park, where it is unlikely to be threatened.

Nesaea wardii Immelman
Status: VU D2
J.E. Victor & A.E. van Wyk
Distribution: KZN. Maputaland.
Habitat: Wetlands.
Rationale: Fewer than five known locations are potentially threatened by wetland destruction.
**MALPIGHIACEAE**

**Acridocarpus** Guill. & Perr.

*Acridocarpus natalitius* A.Juss.

**Status:** Declining


**Distribution:** EC KZN LM MP. Eastern Cape to Limpopo Province, and Swaziland and southern Mozambique.

**Habitat:** Subtropical forest, forest margins, sand forest and bushveld.

**Rationale:** The roots of this species are harvested for traditional medicine, and it is declining in northern KwaZulu-Natal, but there are no signs of destructive harvesting in the Eastern Cape. We suspect that the overall population has declined by less than 20%.

**MALVACEAE**

**Abutilon** Mill.

*Abutilon flanaganii* A.Meeuse

**Status:** DDD

F. Daniels

**Distribution:** EC. Komga.

**Habitat:** Unknown.

**Rationale:** Known only from one record, collected in 1889. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Anisodontea** C.Presl

**Anisodontea dissecta** (Harv.) Bates **Plate 70**

**Status:** CR B2ab(iii,v); C2a(i)

D. Raimondo & N.A. Helme

**Distribution:** WC. Bredasdorp and Swellendam.

**Habitat:** Shale, clay soil.

**Rationale:** EOO < 1 600 km², AOO < 10 km². Five small, severely fragmented subpopulations each consisting of less than 50 plants remain after > 70% of the habitat has been transformed for crop cultivation. The total population of this palatable species is suspected to be less than 250 plants and it continues to decline because of overgrazing.

**Anisodontea gracilis** Bates

**Status:** DDD

F. Daniels & O.A. Leistner

**Distribution:** WC. Cederberg, Matjiesrivier.

**Habitat:** Rocky slopes.

**Rationale:** Known only from the type, collected in 1944. This species is too poorly known to determine its status.

**Anisodontea malvastroides** (Baker f.) Bates

**Status:** Rare

J.E. Victor & A.P. Dold

**Distribution:** EC. Escarpment ranges of Graaff-Reinet and Middelburg.

**Habitat:** Arid escarpments.

**Rationale:** Occurs as scattered subpopulations. Not threatened.

**Anisodontea procumbens** (Harv.) Bates

**Status:** Rare

F. Daniels & O.A. Leistner

**Distribution:** WC. Ceres, Worcester and Robertson.
Hermannia disticha Schrad.

Status: Rare
D. Gwynne-Evans & L. Potter

Distribution: WC. Montagu and Koo Valley.
Habitat: Rocky kloofs.

Rationale: A rare, range-restricted species (EOO 56 km²) that is not threatened as its habitat is inaccessible and nonarable.

Hermannia helicoidea L.Verd.

Status: DDD
D. Gwynne-Evans & D. Raimondo

Distribution: WC. Pakhuis and Olifants River Mountains.
Habitat: Unknown.

Rationale: Last collected in 1940, the exact habitat and locations are unknown. Owing to high levels of ongoing habitat loss within the range of this species, it is likely to be threatened.

Hermannia hispidula Rchb.f.

Status: VU D2
D. Gwynne-Evans & L. Potter

Distribution: WC. Piketberg.
Habitat: Mountain slopes at the foot of sandstone ridges, in humus-rich pockets of sandy soil.

Rationale: Fewer than five known locations are potentially threatened by grazing by livestock and by fruit cultivation.

Hermannia micrantha Adamson

Status: Rare
D. Gwynne-Evans & D. Raimondo

Distribution: WC. Cape Peninsula.
Habitat: Dry southern and western slopes of Table Mountain, generally on lower slopes.

Rationale: EOO < 20 km². Five subpopulations are known, but two are likely to be locally extinct as a result of urban expansion of Cape Town. The remaining subpopulations are protected in the Table Mountain National Park and further decline is unlikely.

Hermannia muirii Pillans

Status: VU B1ab(iii)+2ab(iii)
D. Raimondo & D. Gwynne-Evans

Distribution: WC. Still Bay to Gouritsmond.
Habitat: Sandy valleys between limestone ridges.

Rationale: EOO 275 km², AOO < 275 km². Habitat quality at fewer than 10 known locations is declining because of invasion by alien plants.

Hermannia pillansii Compton

Status: Critically Rare
J.E. Victor & L. van Staden

Distribution: WC. Witteberg near Laingsburg.
Habitat: Fynbos, on high-altitude, arid sandstone slopes above 1 300 m.

Rationale: A range-restricted habitat specialist (EOO 37 km²), known from one subpopulation. Not threatened because of the inaccessibility of its habitat.

Hermannia procumbens Cav. subsp. myrhifolia (Thumb.) De Winter

Status: EN B1ab(ii,iii,iv,v)
D. Gwynne-Evans & D. Raimondo

Distribution: WC. Malmsbury to Clanwilliam and Saldanha Bay to Lambert’s Bay.

Habitat: Sands associated with granite outcrops.

Rationale: EOO < 2 000 km². Several small, severely fragmented subpopulations remain after most of the habitat of this taxon has been transformed for urban and agricultural expansion. Habitat loss as a result of crop cultivation and coastal development continues.

Hermannia procumbens Cav. subsp. procumbens

Status: CR B1ab(ii,iii,iv,v)
D. Gwynne-Evans & D. Raimondo

Distribution: WC. Cape Peninsula and Bokbaai.
Habitat: Coastal sands.

Rationale: EOO < 100 km². Two small, severely fragmented subpopulations are declining as a result of urban and coastal development.

Hermannia repetenda L.Verd.

Status: DDD
J.E. Victor, L. Potter & A.P. Dold

Distribution: EC WC. Clanwilliam and Graaff-Reinet.
Habitat: Shale slopes.

Rationale: This taxon exhibits an unusual disjunction between the Clanwilliam and Graaff-Reinet. Further collections are required to adequately understand its distribution and population status.

Hermannia rugosa Adamson

Status: VU B1ab(ii,iii,iv,v)
D. Gwynne-Evans & D. Raimondo

Distribution: WC. Cape Peninsula to Paarl.
Habitat: Shale and granite slopes in renosterveld.

Rationale: EOO < 3 500 km². Fewer than 10 locations remain and continue to decline because of ongoing habitat loss to urban expansion, crop cultivation and invasion by alien plants.

Hermannia sandersonii Harv.

Status: VU B1ab(iii,v)
D. Raimondo

Distribution: KZN. Camperdown, New Hanover, Pietermaritzburg, Durban, Umgeni and Glenside on the Noodsberg.
Habitat: Natal Group Sandstone, on steep slopes in silty sand.

Rationale: EOO 640 km². Fewer than 10 known locations of this palatable species continue to decline because of overgrazing by livestock. More than 30% of its habitat has been lost to commercial forestry plantations and crop cultivation, but generation length is unknown.

Hermannia violacea (Burch. ex DC.) K.Schum.

Status: Rare
C.L. Bredenkamp, J.E. Victor & D. Raimondo

Distribution: EC. Bruinjieshoogte to the Amathole Mountains.
Habitat: Forest margins.

Rationale: A habitat specialist, known from three sites within a range of 2 500 km². It is likely that a few more undiscovered subpopulations exist.

Melhania Forssk.

Melhania polygama L.Verd.

Status: Rare
J.E. Victor

Distribution: KZN. Umfolozi Game Reserve.
Habitat: Grassy hill slopes.

Rationale: A range-restricted species (EOO < 100 km²) with no known threats.
Sterculia L.

Sterculia alexandri Harv.
Status: Rare
J.E. Victor, A.E. van Wyk & E.J. van Jaarsveld
Distribution: EC. Groendal Nature Reserve to Kouga Dam.
Habitat: Sandstone slopes in fynbos.
Rationale: A range-restricted, but locally common species (EOO 480 km²), known from five subpopulations.

MELIACEAE

Turraea L.

Turraea pulchella (Harms) T.D.Penn. Plate 70
Status: VU A2c; B1ab(ii,iii,iv,v)
C.R. Scott-Shaw & L. von Staden
Distribution: EC KZN. First collected near Kentani, but never found there again. Currently known from around Durban and near the Umtamvuna River in southern KwaZulu-Natal.
Habitat: Sandstone grasslands, often near the boundary with thicket or valley bushveld above river gorges, or on top of sandstone plateau, 300–650 m.
Rationale: A population reduction of > 30% is estimated based on 30–50% habitat loss over the past 100 years (generation length estimated as ± 40 years). Current EOO 2 800–6 500 km² but this estimate is very uncertain and could also be as much as 18 000 km² if more subpopulations are found in the poorly explored Pondoland area. There is a continuing decline in quality of habitat, number of mature individuals, locations and subpopulations mainly as a result of urban expansion and woody encroachment of its grassland habitat. Remaining subpopulations are severely fragmented.

Turraea streyi F.White & Styles
Status: CR PE
L. von Staden
Distribution: KZN. St-Michaels-on-Sea.
Habitat: Coastal grassland, in partial shade in and around the margins of scrub forest and bush clumps, 30–100 m.
Rationale: Two known wild subpopulations disappeared as a result of dense invasive alien encroachment, and one introduced subpopulation of three individuals remains near the type locality. More than 80% of its coastal habitat has been transformed as a result of sugarcane cultivation, coastal development and invasion by alien plants. There is little hope that it could be found elsewhere in the former range.

MENYANTHACEAE

Nymphoides Ség.

Nymphoides forbesiana (Griseb.) Kuntze
Status: DDD
E. Sieben & D. Raimondo
Distribution: KZN. Widespread in tropical Africa, from the Ivory Coast to Sudan, and southwards to Angola and South Africa. The distribution of this species in South Africa is unknown.
Habitat: Temporary pools, ponds and rivers up to 1 660 m.
Rationale: No data available for this species in South Africa.

Villarsia Vent.

Villarsia goldblattiana Ornduff
Status: VU D2
J.E. Victor & D. Raimondo
Distribution: WC. Cape Peninsula.
Habitat: Wet soil and marshes.
Rationale: Very restricted range (EOO < 200 km²) and limited habitat (AOO < 10 km²) with ± 10 locations known. Potentially threatened by invading alien plants.

MESEMBRYANTHEMACEAE

Acrodon N.E.Br.

Acrodon diminutus Klak Plate 71
Status: VU D2
C. Klak, N.A. Helme, D. Raimondo & J.E. Victor
Distribution: WC. Bredasdorp.
Habitat: Clay with overlying quartz pebbles in renosterveld.
Rationale: Four known locations are potentially threatened by trampling and grazing by livestock.

Acrodon parvifolius R.du Plessis Plate 71
Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,v)
C. Klak, N.A. Helme & D. Raimondo
Distribution: WC. Hawston to Bot River and Shaw’s Pass.
Habitat: Silcrete and quartz patches over clays in areas of sparse vegetation cover.
Rationale: EOO 154 km², AOO < 154 km². Six small, severely fragmented subpopulations remain after most of the habitat has been transformed by urban development, wheat cultivation, invasion by alien plants and road construction and maintenance, and decline continues.

Acrodon purpureostylus (L.Bolus) Burgoyne
Status: EN B1ab(ii,iii,iv,v)
J.H. Vlok, P.M. Burgoyne, C. Klak & D. Raimondo
Distribution: WC. Bonnievale to Robertson and McGregor.
Habitat: Dry gravel loams, often stony slopes or flats on shale.
Rationale: EOO 2 500 km². Eight small, severely fragmented subpopulations remain on remnants of natural habitat after most of the habitat has been transformed for the cultivation of wheat. Habitat loss to expanding vineyards is causing a continuing decline.

Acrodon quarcicola H.E.K.Hartmann Plate 71
Status: EN B1ab(ii,iii,iv)
C. Klak, N.A. Helme & D. Raimondo
Distribution: WC. Cape Agulhas.
Habitat: Quartzitic slopes.
Rationale: EOO < 1 500 km². Four known locations continue to decline owing to urban development, invasion by alien plants and crop cultivation.

Acrodon subulatus (Mill.) N.E.Br. Plate 71
Status: EN B1ab(ii,iii); C2a(i)
N.A. Helme, D. Raimondo & C. Klak
Distribution: WC. Bot River to Hermanus.
Habitat: Renosterveld, on shale-derived clays and exposed shales.
Rationale: EOO < 2 000 km². Five known locations continue to decline because of invasion by alien plants, crop cultivation and habitat degradation due to trampling by
livestock. Subpopulations are typically small, ranging from 20–100 mature individuals. The total population consists of less than 270 individuals.

**Aloinopsis Schwantes**

**Aloinopsis rubrolineata** (N.E.Br.) Schwantes

Status: Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** WC. Laingsburg.

Habitat: Gravel slopes, 200–1 000 m.

**Rationale:** A range-restricted species (EOO < 500 km²) with no known threats.

**Antimima** N.E.Br. emend. Dehn

**Antimima androsacea** (Marloth & Schwantes) H.E.K.Hartmann

Status: Critically Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** NC. Sutherland, Roggeveld Escarpment.

Habitat: Rocky slopes, 1 200–1 800 m.

**Rationale:** A range-restricted species (EOO 10 km²), known from one site where it is not threatened.

**Antimima aristulata** (Sond.) Chess. & Gideon F.Sm.

Status: VU B1ab(ii,iii,iv,v)

D. Raimondo, C. Klak & N.A. Helme

**Distribution:** WC. Cape Peninsula to Yzerfontein and Moorreesburg.

Habitat: Shallow shale or granite soils.

**Rationale:** A habitat specialist known from three sites. Not threatened.

**Antimima biformis** (N.E.Br.) H.E.K.Hartmann

Status: Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** WC. Barrydale.

Habitat: Shale-sandstone crevices in Succulent Karoo vegetation, 190–300 m.

**Rationale:** A range-restricted (EOO 50 km²) species, occurring in sites where it is protected from the impact of grazing by livestock and crop cultivation.

**Antimima condensa** (N.E.Br.) H.E.K.Hartmann

Status: Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** WC. Little Karoo, Montagu.

Habitat: Open places in fynbos on decomposed Witteberg quartzite, 500–1 100 m.

**Rationale:** A range-restricted species (EOO < 500 km²) known from fewer than five sites. Occurs in a habitat that is not threatened.

**Antimima emarcenscens** (L.Bolus) H.E.K.Hartmann

Status: Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** NC. Sutherland, Roggeveld Escarpment.

Habitat: Loam between rocks, often in shrubby vegetation, 1 200–1 400 m.

**Rationale:** A range-restricted species (EOO < 500 km²) that occurs as sparsely scattered individuals in the shelter of bushes. Not threatened.

**Antimima fergusoniae** (L.Bolus) H.E.K.Hartmann

Status: Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** WC. Cape Peninsula to Yzerfontein and Moorreesburg.

Habitat: Granite and quartzite crevices, 200–400 m.

**Rationale:** A range-restricted species (EOO < 500 km²) with no known threats.

**Antimima hamatilis** (L.Bolus) H.E.K.Hartmann

Status: Rare

C. Klak & D. Raimondo

**Distribution:** NC. Kimberley district.

Habitat: Limestone soils.

**Rationale:** A habitat specialist known from three sites. Not threatened.

**Antimima leipoldtii** (L.Bolus) H.E.K.Hartmann

Status: VU B1ab(ii,iii,iv,v)

C. Klak & D. Raimondo

**Distribution:** WC. Worcester.

Habitat: Mainly on loamy flats or on gentle quartzitic slopes.

**Rationale:** EOO 2 200 km². Six known locations are declining because of ongoing habitat loss to vineyards.

**Antimima limbata** (N.E.Br.) H.E.K.Hartmann

Status: EN B1ab(ii,iii,iv,v)

N.A. Helme, C. Klak & D. Raimondo

**Distribution:** WC. Langebaan to St Helena.

Habitat: Granite rocks.

**Rationale:** EOO < 560 km². Several small, severely fragmented subpopulations remain on isolated granite outcrops surrounded by agriculture and urban areas and continue to decline because of ongoing habitat loss.

**Antimima lokenbergensis** (L.Bolus) H.E.K.Hartmann

Status: Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** NC. Bokkeveld Escarpment.

Habitat: Granite and quartzite crevices, 200–400 m.

**Rationale:** A rare habitat specialist occurring in sites protected from the impact of grazing by livestock and crop cultivation.

**Antimima lodewykii** (L.Bolus) H.E.K.Hartmann

Status: Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** NC. Kamieskroon.

Habitat: Granite and quartzite crevices, 200–400 m.

**Rationale:** A rare habitat specialist occurring in sites protected from the impact of grazing by livestock and crop cultivation.

**Antimima lokenbergensis** (L.Bolus) H.E.K.Hartmann

Status: Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** NC. Bokkeveld Escarpment.

Habitat: Sandstone pavements, 800–1 500 m.

**Rationale:** A range-restricted species (EOO 320 km²) with no known threats.
Antimima mucronata (Haw.) H.E.K.Hartmann
Status: VU B1ab(iii)
N.A. Helme, C. Klak & D. Raimondo
Distribution: WC. Moorreesburg, Hopefield, Malmesbury and Vredenburg.
Habitat: Well-drained, clay, stony soils in open patches amongst shrubs.
Rationale: EOO < 3 000 km². Fewer than 10 locations remain after at least 94% of the habitat has been transformed for the cultivation of wheat. Further habitat loss to agriculture is causing a continuing decline.

Antimima nordenstamii (L.Bolus)
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi
Distribution: WC. Venrhynsdorp, Hol River near Vredendal.
Habitat: Quartz ridges, 200–400 m.
Rationale: A poorly known species. Insufficient data on its distribution, specific habitat and population status prevent an assessment of its threat status.

Antimima piscodora (L.Bolus) H.E.K.Hartmann
Status: DDD
D. Raimondo, P.F. Matlamela & D.A. Kamundi
Distribution: NC WC. Prince Albert.
Habitat: Unknown.
Rationale: A poorly known species. Insufficient data on its distribution, specific habitat and population status prevent an assessment of its threat status.

Antimima subtruncata (L.Bolus) H.E.K.Hartmann
Status: DDD
D. Raimondo, P.F. Matlamela & D.A. Kamundi
Distribution: NC. Calvina and Sutherland.
Habitat: Shale soils with high loam contents, in shrub associations with only few succulents.
Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Argyroderma N.E.Br.

Argyroderma framesii L.Bolus subsp. hallii (L.Bolus) H.E.K.Hartmann
Status: Rare
P.M. Burgoyne
Distribution: WC. Koekenaap to Venrhynsdorp.
Habitat: Quartz patches.
Rationale: A rare, range-restricted taxon (EOO 483 km²) known from only a few collections.

Argyroderma subalbun (N.E.Br.) N.E.Br.
Status: Rare
E.J. van Jaarsveld, L. Potter & D. Raimondo
Distribution: WC. Knysnvlakte.
Habitat: Quartz patches.
Rationale: A range-restricted species (EOO < 300 km²) that is not threatened.

Argyroderma testiculare (Aiton) N.E.Br.
Status: Rare
D. Raimondo & E.J. van Jaarsveld
Distribution: WC. Knysnvlakte.
Habitat: Quartz patches.
Rationale: A rare, range-restricted species (EOO < 300 km²) that is not threatened.

Argyroderma theartii Van Jaarsv.
Status: Rare
P.A. Manyama & P.M. Burgoyne
Distribution: WC. Northern Knysnvlakte.
Habitat: Gentle hill slopes, in quartz gravel.
Rationale: A range-restricted habitat specialist (EOO 30 km²), known from two subpopulations. It has no known threats.

Astridia Dinter

Astridia herrei L.Bolus
Status: Rare
J.E. Victor
Distribution: NC. Richtersveld.
Habitat: Central Richtersveld Mountain Shrubland.
Rationale: A range-restricted species (EOO < 20 km²), known from only three subpopulations. No known threats.

Astridia speciosa L.Bolus
Status: Rare
J.E. Victor
Distribution: NC. Richtersveld to southern Namibia.
Habitat: Dolomite outcrops.
Rationale: Known from three sites, one of which is in South Africa. No threats are affecting the South African subpopulation.

Bergeranthus Schwantes

Bergeranthus addoenis L.Bolus
Status: VU B1ab(iii)
A.P. Dold, J.E. Victor & L. von Staden
Distribution: EC. Between Port Elizabeth, Uitenhage, Kirkwood and Darlingston Dam.
Habitat: Mesic and xeric succulent thicket, 10–400 m.
Rationale: EOO 1 817 km². Habitat at 8–10 known locations is declining as a result of urban and industrial expansion of Port Elizabeth and Uitenhage, overgrazing and invasion by alien plants.

Bergeranthus albomarginatus A.P.Dold & S.A.Hammer
Status: VU D2
A.P. Dold & J.E. Victor
Distribution: EC. Fort Beaufort, Kat River Dam.
Habitat: Valley thicket on exposed intrusive dolerite sill, 800 m.
Rationale: Part of the population at a single known location declined when the Kat River Dam was constructed and some of the habitat was flooded. Although no longer declining, additional construction around the dam remains a potential threat.
Bergeranthus artus L.Bolus

Status: VU D2
A.P. Dold & J.E. Victor

Distribution: EC. Queenstown to Elliot.
Habitat: Rocky dolerite and sandstone outcrops, 1 400–1 600 m.
Rationale: Two known locations are potentially threatened by grazing and trampling by livestock.

Bergeranthus nanus A.P.Dold & S.A.Hammer

Status: VU D2
A.P. Dold & J.E. Victor

Distribution: EC. Graaff-Reinet to the area between Somerset East and Cradock.
Habitat: Nama-Karoo and montane grassland.
Rationale: Two known locations are potentially threatened by grazing and trampling by livestock.

Bijlia N.E.Br.

Bijlia tugwelliae (L.Bolus) S.A.Hammer

Status: VU A2c; B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Gamka Dam and Prince Albert.
Habitat: Quartzitic sandstone.
Rationale: We suspect that a 30% reduction in the population has taken place over the past 90 years (generation length ± 30 years) as a result of urban expansion around Prince Albert and grazing by livestock throughout its range. EOO 370 km², AOO < 370 km². The remaining 5–10 locations continue to decline because of ongoing overgrazing.

Braunsia Schwantes

Braunsia stayneri (L.Bolus) L.Bolus

Status: Rare
C. Klak & D. Raimondo

Distribution: WC NC. Between Ceres, Sutherland and Calvinia.
Habitat: Sandstone slopes.
Rationale: A range-restricted species (EOO < 350 km²), known from two subpopulations. No known threats.

Braunsia vanrensburgii (L.Bolus) L.Bolus

Status: Rare
N.A. Helme, D.I.W. Euston-Brown & D. Raimondo

Distribution: WC. De Hoop Nature Reserve to Wydgedelegen.
Habitat: Limestone ridges in fynbos.
Rationale: A range-restricted (EOO < 100 km²) habitat specialist with a known population of ± 2 000 mature individuals that is not threatened.


Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
C. Klak & D. Raimondo

Distribution: WC. Robertson.
Habitat: Pebbly clays on gentle, south-facing karroid scrubland.
Rationale: EOO and AOO < 500 km². Fewer than five remaining locations continue to decline because of ongoing habitat loss to expanding vineyards and olive orchards.

Brownanthus Schwantes

Brownanthus fraternus Klak

Status: EN B1ab(iii,v)
C. Klak & J.E. Victor

Distribution: WC. Bot River to Swellendam.
Habitat: Renosterveld, clay with overlying quartz pebbles.
Rationale: EOO < 2 500 km². Five locations are known. One location is threatened by alien Eucalyptus invasion from a nearby plantation, and the others are declining because of grazing and trampling by livestock.

Brownanthus glareicola Klak

Status: VU D2
C. Klak & D. Raimondo

Distribution: WC. Vanrhynsdorp.
Habitat: Flat to gently sloping patches of quartz gravel on clay.
Rationale: Two known locations are potentially threatened by overgrazing and trampling, crop cultivation and mining.

Brownanthus lignescens Klak

Status: VU D1+2
C. Klak, D. Raimondo & J.E. Victor

Distribution: NC. Springbok.
Habitat: Shale, gentle slopes covered in quartz.
Rationale: Less than 300 mature individuals occurring at two known locations are potentially threatened by mining and road construction.

Carpobrotus N.E.Br.

Carpobrotus muirii (L.Bolus) L.Bolus

Status: NT B1ab(ii,iii)+2ab(ii,iii)
P.M. Burgoyne & E. Daniels

Distribution: WC. Still Bay to De Hoop and Riversdale.
Habitat: Lowland areas, primarily within 10 km of the coast.
Rationale: EOO 840 km², AOO < 840 km². The 10–15 locations are declining as a result of ongoing habitat loss to coastal development, wheat cultivation and invasion by alien plants.

Caryophyllaceae

Caryophyllus Leistner

Caryophyllus skiatophytoides Leistner

Status: EN D
P.M. Burgoyne & J.E. Victor

Distribution: WC. Agulhas Plain.
Habitat: Lowland coastal fynbos, on sandy flats.
Rationale: Three known subpopulations of this rare, range-restricted species (EOO < 30 km²) are all small, typically with less than 50 plants. The population, which consists of no more than 150 mature individuals, is not declining, but is potentially threatened by invading alien plants.

Cephalophyllum N.E.Br.

Cephalophyllum diversiphyllum (Haw.) H.E.K.Hartmann

Status: NT B1ab(ii,iii,iv,v)
N.A. Helme, C. Klak & D. Raimondo

Distribution: WC. Bredasdorp to Mossel Bay.
Habitat: Coastal renosterveld or fynbos.
Rationale: EOO < 12 200 km². The 12 known locations are declining because of ongoing habitat loss to wheat cultivation, invasion by alien plants and coastal development.
Cephalophyllum fulleri L.Bolus
Status: Rare
C. Klak & D. Raimondo
*Distribution: NC. Patofadder.
Habitat: Quartz pebble fields overlying sandstone or dolomite.
*Rationale: A habitat specialist known from three subpopulations, but is not threatened.

Cephalophyllum parviflorum L.Bolus
Status: CR B2ab(ii,iii,iv,v)
C. Klak & D. Raimondo
*Distribution: WC. Saldanha to Milnerton.
Habitat: Rock outcrops on renosterveld flats.
*Rationale: This species has a very restricted habitat (AOO < 10 km²) and five subpopulations were known. Three are now locally extinct and the remaining two are severely fragmented and continue to decline because of ongoing habitat loss to agriculture and urban development.

Cephalophyllum parvulum (Schltr.) H.E.K.Hartmann
Status: EX
P.M. Burgoyne & J.E. Victor
*Distribution: WC. Clanwilliam.
Habitat: Likely to have occurred on shale or sandy flats.
*Rationale: Last recorded in 1896. Much of the Clanwilliam area has been developed for urban or agricultural use or was inundated by the Clanwilliam Dam.

Cephalophyllum pulchellum L.Bolus
Status: VU D2
C. Klak & D. Raimondo
*Distribution: WC. Southern Knursvlakte.
Habitat: Quartz patches.
*Rationale: Fewer than five known locations are potentially threatened by mining and grazing by livestock.

Cephalophyllum pulchrum L.Bolus
Status: VU D2
C. Klak & D. Raimondo
*Distribution: WC. Southern Knursvlakte.
Habitat: Succulent karoo in alluvial soils, in washes or on banks of seasonal rivers.
*Rationale: Fewer than five known locations are potentially threatened by mining and grazing by livestock.

Cephalophyllum rostellum (L.Bolus) H.E.K.Hartmann
Habitat: Coastal areas, on limestone and very occasionally on granites.
*Rationale: EOO and AOO < 200 km². Ten small, severely fragmented subpopulations remain after ± 30% of the habitat has been transformed by coastal and industrial development over the past 10 years. Ongoing habitat loss is causing a continuing decline.

Cephalophyllum staminodiosum L.Bolus
Status: Rare
P.M. Burgoyne, C. Klak & J.E. Victor
*Distribution: WC. Richtersveld northwest of Steinkopf.
Habitat: Quartz patches.
*Rationale: A range-restricted species (EOO < 500 km²) that is not threatened.

Cheiridopsis n.E.Br.
Cheiridopsis amabilis S.A.Hammer
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundži
*Distribution: NC. Northern Namaqualand.
Habitat: Quartzite and shale colluviums in renosterveld-valley bushveld transition.
*Rationale: A range-restricted species (EOO < 500 km²) that occurs as localised subpopulations, but is not threatened.

Cheiridopsis campanulata G.Will.
Status: Rare
D. Raimondo & F. Cholo
*Distribution: NC. Richtersveld northwest of Steinkopf.
Habitat: Steep quartz slopes.
*Rationale: A habitat specialist, known from fewer than five subpopulations, but is not threatened.

Chasmatophyllum Dinter & Schwantes
Chasmatophyllum braunsii Schwantes
Status: DDD
L. von Staden
*Distribution: NC. WC. Laingsburg and Victoria West.
Habitat: Nama-Karoo.
*Rationale: A poorly known species. More data on distribution, ecology and population status are required before its status can be determined.

Chasmatophyllum staminodiosum L.Bolus
Habitat: Quartz patches.
*Rationale: A range-restricted species (EOO < 500 km²) that is not threatened.

Cephalophyllum tetrastichum H.E.K.Hartmann
Status: VU
D. Raimondo
*Distribution: NC. Port Nolloth.
Habitat: Sandy areas between rocks in the surf spray zone.
*Rationale: One known location is potentially threatened by mining.

Chasmatophyllum willowmorense (L.Bolus) L.Bolus
Status: Rare
D. Raimondo
*Distribution: NC. Willmowmore.
Habitat: Quartzite and shale colluviums in renosterveld-valley bushveld transition.
*Rationale: A range-restricted species (EOO < 500 km²) that occurs as localised subpopulations, but is not threatened.
**Cheiridopsis delphinoides** S.A.Hammer

Status: VU D2

C. Klak & J.E. Victor

*Distribution*: NC. Bulletrap, in the Springbok region.

**Habitat**: Restricted to a peculiar whitish powdery formation derived from Nama shales.

**Rationale**: One known location is potentially threatened by trampling and overgrazing.

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**Cheiridopsis peculiaris**

C. Klak & J.E. Victor

*Distribution*: NC. Steinkopf.

**Habitat**: Quartz flats.

**Rationale**: A range-restricted (EOO < 100 km²) habitat specialist that is not threatened.

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**Cheiridopsis pearsonii** N.E.Br.

Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)

C. Klak & D. Raimondo

*Distribution*: NC. Namaqualand, Kamiesberg.

**Habitat**: Moist, sandy soils (possibly in riverine habitats) derived from granite in renosterveld.

**Rationale**: EOO an AOO < 100 km². Five known locations continue to decline as a result of expanding cereal crop cultivation, overgrazing and illegal collecting for the specialist succulent horticultural trade.

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**Cheiridopsis rostrata** (L.) N.E.Br.

Status: CR B1ab(ii,iii,v) + 2ab(ii,iii,v)

C. Klak, A.B. Low & D. Raimondo

*Distribution*: WC. Tulbagh to Villiersdorp.

**Habitat**: Shale-sandstone transition areas at ± 500 m.

**Rationale**: Last collected in 1913 and thought to be extinct because of the extensive habitat loss to vineyard and fruit orchard cultivation, but recently rediscovered in Tulbagh. Current EOO and AOO < 10 km². Habitat quality at the only known location is declining because of invasion by alien plants, and the site is earmarked for development of holiday accommodation.

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**Circandra N.E.Br.**

**Circandra serrata** (L.) N.E.Br.

Status: CR B1ab(ii,iii,v) + 2ab(ii,iii,v)

C. Klak, A.B. Low & D. Raimondo

*Distribution*: WC. Tulbagh to Villiersdorp.

**Habitat**: Shale-sandstone transition areas at ± 500 m.

**Rationale**: Last collected in 1913 and thought to be extinct because of the extensive habitat loss to vineyard and fruit orchard cultivation, but recently rediscovered in Tulbagh. Current EOO and AOO < 10 km². Habitat quality at the only known location is declining because of invasion by alien plants, and the site is earmarked for development of holiday accommodation.

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**Cleretum N.E.Br.**

**Cleretum lyratifolium** Ihlenf. & Struck

Status: Rare

P.M. Burgoyne & J.E. Victor

*Distribution*: WC. Roggeveld.

**Habitat**: Succulent karoo veld on shale-derived soils.

**Rationale**: A range-restricted species (EOO < 500 km²) that is not threatened.

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**Conophytum N.E.Br.**

**Conophytum acutum** L.Bolus

Status: VU D2

S.A. Hammer & J.E. Victor

*Distribution*: WC. Bitterfontein.

**Habitat**: Limestone and granite outcrops.

**Rationale**: A range-restricted species (EOO < 500 km²) that is not threatened.

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**Conophytum acutum**

Status: VU D2

S.A. Hammer & J.E. Victor

*Distribution*: WC. Bitterfontein.

**Habitat**: Quiet patches.
Conophytum armianum S.A.Hammer

Status: NT D2
S.A. Hammer & J.E. Victor

Distribution: NC. Umdaus, north of Steinkopf.
Habitat: Deposits of quartzite or feldspar rubble, usually buried amongst stones.
Rationale: Seven known locations are potentially threatened by mining and trampling and overgrazing by livestock.

Conophytum auriflorum Tischer subsp. auriflorum

Status: Rare
S.A. Hammer & J.E. Victor

Distribution: NC. Komaggas.
Habitat: Quartzitic outcrops.
Rationale: A range-restricted (EOO < 100 km²) habitat specialist that is not threatened.

Conophytum auriflorum Tischer subsp. turbiniforme (Rawé) S.A.Hammer

Status: Rare
S.A. Hammer, J.E. Victor & D. Raimondo

Distribution: NC. Springbok.
Habitat: Edge of steep quartz cliffs.
Rationale: A range-restricted taxon (EOO < 40 km²) known from a single site where it is not threatened because of the inaccessibility of its habitat.

Conophytum bachelorum S.A.Hammer

Status: VU D1 + 2
J.E. Victor & P.G. Desmet

Distribution: NC. Port Nolloth.
Habitat: Rocky outcrops.
Rationale: Less than 1 000 plants occur at one known location where it is potentially threatened by illegal collecting for the specialist succulent horticultural trade.

Conophytum blandum L.Bolus

Status: NT D2
S.A. Hammer & J.E. Victor

Distribution: NC. Northwestern Bushmanland.
Habitat: Crevices on tops of arid quartz hills.
Rationale: Between five and 10 locations are potentially threatened by grazing livestock and mining.

Conophytum bolusiae Schwantes subsp. bolusiae

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi†

Distribution: NC. East of Augrabies.
Habitat: Quartzite, plastered to tiered rocks, 500–750 m.
Rationale: A locally abundant, but range-restricted taxon (EOO 10 km²) that is not threatened.

Conophytum burgeri L.Bolus

Status: EN D
S.A. Hammer, J.E. Victor & D. Raimondo

Distribution: NC. Aggeneys.
Habitat: Quartz-covered clays.
Rationale: Less than 250 plants occurring at a single site are potentially threatened by mining and illegal collecting for the specialist succulent horticultural trade.

Conophytum caroli Lavis

Status: Rare
D. Raimondo & S.A. Hammer

Distribution: NC. Kliprand near Loeriesfontein.
Habitat: Calcrete soils.
Rationale: A range-restricted species (EOO < 500 km²) that is not threatened.

Conophytum carpinium L.Bolus

Status: Rare
J.E. Victor

Distribution: NC. Richtersveld.
Habitat: Grows in association with lichens on granite outcrops, usually in fissures or crevices of vertical rock faces.
Rationale: A range-restricted (EOO < 10 km²) habitat specialist, known from two small subpopulations, but not threatened because of the inaccessibility of its habitat.

Conophytum chrisolum S.A.Hammer

Status: Critically Rare
D. Raimondo & F. Cholo

Distribution: NC. Richtersveld.
Habitat: Pans of thin quartz scree.
Rationale: A range-restricted habitat specialist, known from one site. It has no known threats.

Conophytum concavum L.Bolus

Status: Rare
D. Raimondo

Distribution: NC. Namaqualand, Riethuis and Oubees.
Habitat: Salty quartz flats.
Rationale: A rare, range-restricted (EOO < 50 km²) habitat specialist that is not threatened.

Conophytum concordans G.D.Rowley

Status: Rare
J.E. Victor & S.A. Hammer

Distribution: NC. Bushmanland, Brakwater.
Habitat: Rocky outcrops.
Rationale: A range-restricted species (EOO < 100 km²) that is not threatened because of the inaccessibility of its habitat.

Conophytum ectypum N.E.Br. subsp. cruciatum S.A.Hammer

Status: Critically Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi†

Distribution: NC. Steinkopf.
Habitat: Deeply shaded crevices, 650–850 m.
Rationale: Known from a single subpopulation but is not threatened.

Conophytum ernstii S.A.Hammer subsp. ernstii

Status: Rare
S.A. Hammer & D. Raimondo

Distribution: NC. Richtersveld.
Habitat: Crevices of gneissic granite rocks, usually on south-facing slopes.
Rationale: A range-restricted taxon (EOO < 10 km²) that is not threatened because of the inaccessibility of its habitat.
Conophytum frutescens Schwantes
Status: Rare
Distribution: NC. Komaggas to Kourkammaberg.
Habitat: Wet quartz hills.
Rationale: A locally abundant, but range-restricted species (EOO < 10 km²) that is not threatened.

Conophytum herreanthus S.A.Hammer
Status: Rare
Distribution: NC. Karoo, west of Anenousberg.
Habitat: Quartz faces or in shallow drifts, in pans of evenly graded detritus.
Rationale: A range-restricted species (EOO < 10 km²) that is not threatened.

Conophytum hermarius (S.A.Hammer) S.A.Hammer
Status: CR PE
Distribution: NC. Umvunzi, Kaffirspruit, west of Anenousberg.
Habitat: Troughs or shaded crevices on quartzite koppies, 1 000–1 200 m.
Rationale: A range-restricted taxon (EOO < 500 km²) that is not threatened.

Conophytum herreanthus S.A.Hammer subsp. herreanthus
Status: Rare
Distribution: NC. Komaggas to Kourkammaberg.
Habitat: Wet quartz hills.
Rationale: A locally abundant, but range-restricted species (EOO < 10 km²) that is not threatened.

Conophytum limpidum S.A.Hammer
Status: NT D2
Distribution: NC. Inselbergs in Bushmanland.
Habitat: Vertical crevices, generally in shaded situations.
Rationale: Fewer than 10 known locations are potentially threatened by mining.

Conophytum lithopsoides L.Bolus subsp. boreale (L.Bolus) S.A.Hammer
Status: Rare
Distribution: NC. Namaqualand, Vioolsdrif.
Habitat: Gentle gravel quartz slopes, 310–650 m.
Rationale: Known from one site where it is not threatened.

Conophytum khamiesbergense (L.Bolus) S.A.Hammer
Status: Rare
Distribution: NC. Khamiesberg, west of Anenousberg.
Habitat: Quartz faces or in shallow drifts, in pans of evenly graded detritus.
Rationale: A range-restricted species (EOO < 10 km²) that is not threatened.

Conophytum limpidum S.A.Hammer
Status: NT D2
Distribution: NC. Inselbergs in Bushmanland.
Habitat: Vertical crevices, generally in shaded situations.
Rationale: Fewer than 10 known locations are potentially threatened by mining.

Conophytum lithopsoides L.Bolus subsp. boreale (L.Bolus) S.A.Hammer
Status: Rare
Distribution: NC. Namaqualand, Vioolsdrif.
Habitat: Gentle gravel quartz slopes, 310–650 m.
Rationale: Known from one site where it is not threatened.

Conophytum herreanthus S.A.Hammer
Status: Rare
Distribution: NC. Komaggas to Kourkammaberg.
Habitat: Wet quartz hills.
Rationale: A locally abundant, but range-restricted species (EOO < 10 km²) that is not threatened.

Conophytum hermarius (S.A.Hammer) S.A.Hammer
Status: CR PE
Distribution: NC. Umvunzi, Kaffirspruit, west of Anenousberg.
Habitat: Troughs or shaded crevices on quartzite koppies, 1 000–1 200 m.
Rationale: A range-restricted taxon (EOO < 500 km²) that is not threatened.

Conophytum herreanthus S.A.Hammer subsp. herreanthus
Status: Rare
Distribution: NC. Komaggas to Kourkammaberg.
Habitat: Wet quartz hills.
Rationale: A locally abundant, but range-restricted species (EOO < 10 km²) that is not threatened.

Conophytum limpidum S.A.Hammer
Status: NT D2
Distribution: NC. Inselbergs in Bushmanland.
Habitat: Vertical crevices, generally in shaded situations.
Rationale: Fewer than 10 known locations are potentially threatened by mining.

Conophytum lithopsoides L.Bolus subsp. boreale (L.Bolus) S.A.Hammer
Status: Rare
Distribution: NC. Namaqualand, Vioolsdrif.
Habitat: Gentle gravel quartz slopes, 310–650 m.
Rationale: Known from one site where it is not threatened.

Conophytum herreanthus S.A.Hammer
Status: Rare
Distribution: NC. Komaggas to Kourkammaberg.
Habitat: Wet quartz hills.
Rationale: A locally abundant, but range-restricted species (EOO < 10 km²) that is not threatened.

Conophytum limpidum S.A.Hammer
Status: NT D2
Distribution: NC. Inselbergs in Bushmanland.
Habitat: Vertical crevices, generally in shaded situations.
Rationale: Fewer than 10 known locations are potentially threatened by mining.

Conophytum lithopsoides L.Bolus subsp. boreale (L.Bolus) S.A.Hammer
Status: Rare
Distribution: NC. Namaqualand, Vioolsdrif.
Habitat: Gentle gravel quartz slopes, 310–650 m.
Rationale: Known from one site where it is not threatened.

Conophytum herreanthus S.A.Hammer
Status: Rare
Distribution: NC. Komaggas to Kourkammaberg.
Habitat: Wet quartz hills.
Rationale: A locally abundant, but range-restricted species (EOO < 10 km²) that is not threatened.

Conophytum limpidum S.A.Hammer
Status: NT D2
Distribution: NC. Inselbergs in Bushmanland.
Habitat: Vertical crevices, generally in shaded situations.
Rationale: Fewer than 10 known locations are potentially threatened by mining.

Conophytum lithopsoides L.Bolus subsp. boreale (L.Bolus) S.A.Hammer
Status: Rare
Distribution: NC. Namaqualand, Vioolsdrif.
Habitat: Gentle gravel quartz slopes, 310–650 m.
Rationale: Known from one site where it is not threatened.

Conophytum herreanthus S.A.Hammer
Status: Rare
Distribution: NC. Komaggas to Kourkammaberg.
Habitat: Wet quartz hills.
Rationale: A locally abundant, but range-restricted species (EOO < 10 km²) that is not threatened.

Conophytum limpidum S.A.Hammer
Status: NT D2
Distribution: NC. Inselbergs in Bushmanland.
Habitat: Vertical crevices, generally in shaded situations.
Rationale: Fewer than 10 known locations are potentially threatened by mining.

Conophytum lithopsoides L.Bolus subsp. boreale (L.Bolus) S.A.Hammer
Status: Rare
Distribution: NC. Namaqualand, Vioolsdrif.
Habitat: Gentle gravel quartz slopes, 310–650 m.
Rationale: Known from one site where it is not threatened.

Conophytum herreanthus S.A.Hammer
Status: Rare
Distribution: NC. Komaggas to Kourkammaberg.
Habitat: Wet quartz hills.
Rationale: A locally abundant, but range-restricted species (EOO < 10 km²) that is not threatened.
Conophytum phoenicium S.A.Hammer
Status: VU D2
J.E. Victor
\*Distribution: NC. Umdaus.
Habitat: Namaqualand Klipkoppe Shrubland.
Rationale: One known location at the side of a road is potentially threatened by road widening.

Conophytum piluliforme (N.E.Br.) N.E.Br. subsp. edwardii (Schwantzes) S.A.Hammer Plate 72
Status: Rare
D. Raimondo, P.F. Matlamela & J.H. Vlok
\*Distribution: WC. Little Karoo, near Eerpoort.
Habitat: Quartzite rubble with a shale substrate, 500–650 m.
Rationale: A locally common, but range-restricted taxon (EOO 270 km²) that is not threatened.

Conophytum ratum S.A.Hammer Plate 72
Status: VU A4acde
J.E. Victor & PG. Desmet
\*Distribution: NC. Ghaamsberg near Aggeneys.
Habitat: Spongy quartz soil.
Rationale: This species had five known subpopulations, one of which is already locally extinct owing to succulent collecting over the past 20 years, and another is likely to decline to local extinction as a result of ongoing mining activities within the next 10 years. This will result in a population reduction of at least 40% within 30 years (generation length 10 years).

Conophytum reconditum A.R.Mitch. subsp. buysianum (A.R.Mitch. & S.A.Hammer)
S.A.Hammer
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi
\*Distribution: NC. Kliprand.
Habitat: Granite domes, chiefly between eroding plates but also at the edge of shallow sandy pans, 980–1 100 m.
Rationale: A rare, range-restricted (EOO 270 km²) habitat specialist that is not threatened.

Conophytum regale Lavis
Status: Critically Rare
S.A. Hammer & D. Raimondo
\*Distribution: NC. Springbok.
Habitat: Quartzite crevices in granite outcrops.
Rationale: A habitat specialist known to occur at one site where it is not threatened.

Conophytum roodiae N.E.Br. subsp. sanguineum (S.A.Hammer) T.Smale
Status: VU D2
S.A. Hammer & J.E. Victor
\*Distribution: NC. Garies.
Habitat: Namaqualand Klipkoppe Shrubland.
Rationale: One known location is potentially threatened by grazing and trampling by livestock.

Conophytum schlechteri Schwantzes
Status: Critically Rare
S.A. Hammer & J.E. Victor
\*Distribution: NC. Between Port Nolloth and Steinkopf.
Habitat: Mud-filled rock crevices amongst very sparse Succulent Karoo shrubland.
Rationale: Known to occur at a single site where it is not threatened.

Conophytum semivestitum L.Bolus
Status: EX
J.E. Victor & P.G. Desmet
\*Distribution: NC. Formerly occurred in the Oernooep Valley north of Steinkopf.
Habitat: Presumably grew on quartzite or feldspar.
Rationale: The only recorded subpopulation was possibly destroyed by feldspar mining activities or by road works.

Conophytum smorenskaduense de Boer
Status: VU D2
J.E. Victor & S.A. Hammer
\*Distribution: NC. East of Springbok.
Habitat: Quartzite rubble.
Rationale: Two known locations are potentially threatened by trampling by livestock.

Conophytum subterraneum T.Smale & T.Jacobs
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi
\*Distribution: NC. Northeastern Richtersveld.
Habitat: Quartz pebble deflation Eksteenfontein, 750–1 100 m.
Rationale: A range-restricted species (EOO < 10 km²) that is not threatened.

Conophytum swanepoelianum Rawé subsp. swanepoelianum
Status: Rare
J.E. Victor & S.A. Hammer
\*Distribution: NC. Bokkeveld Escarpment.
Habitat: Grows on flat moss- and lichen-covered sandstone outcrops.
Rationale: A range-restricted habitat specialist (EOO < 100 km²) that grows in sites where it is protected from the impact of rooibos tea cultivation.

Conophytum tantillum N.E.Br. subsp. eenkokerense (L.Bolus) S.A.Hammer
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi
\*Distribution: NC. Namaqualand, Eenriet.
Habitat: Quartzite outcrops.
Rationale: A range-restricted taxon (EOO < 5 km²) that is not threatened.

Conophytum tantillum N.E.Br. subsp. inexpectatum S.A.Hammer
Status: Rare
D. Raimondo, P.A. Manyama & D.A. Kamundi
\*Distribution: NC. Namaqualand, Umdaus.
Habitat: Quartzite or gneiss.
Rationale: A range-restricted taxon (EOO 3 km²), but locally dominant taxon that is not threatened.

Conophytum tantillum N.E.Br. subsp. tantillum
Status: Rare
P.F. Matlamela & D.A. Kamundi
\*Distribution: NC. Geelvlei Plateau north of Steinkopf.
Habitat: South-facing quartzite cliffs, also in sandy troughs, 1 050–1 150 m.
Rationale: A range-restricted taxon (EOO < 10 km²) that is not threatened.
Conophytum turrigerum (N.E.Br.) N.E.Br. Plate 72
Status: Rare
J.E. Victor, S.A. Hammer & D. Raimondo

Distribution: WC. Swartland between Malmesbury, Paarl Mountain and Klipheuwel.

Habitat: Cracks and depressions in moss- and lichen-covered granite rocks where rainwater collects.

Rationale: A habitat specialist restricted to sites where it is protected from crop cultivation, the main cause of habitat loss in the Swartland.

Corpuscularia Schwantes

Corpuscularia lehmannii (Eckl. & Zeyh.) Schwantes
Status: CR B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
D. Raimondo & N.A. Helme

Distribution: EC. Coega to Port Elizabeth.
Habitat: Quartzite outcrops.

Rationale: EOO 70 km², AOO < 5 km². Six locations are known through herbarium records, but four are now locally extinct because of urban expansion of Port Elizabeth. Two remaining subpopulations are severely fragmented and continue to decline because of ongoing habitat loss. At one of the remaining locations near Coega > 60% of the habitat has been lost to mining over the past five years.

Cylindrophyllum Schwantes

Cylindrophyllum hallii L.Bolus
Status: VU D2
D. Raimondo

Distribution: NC. Loeriesfontein.
Habitat: Gravelly shale in Hantam karoo.

Rationale: Small, localised subpopulations of this palatable species at five locations are potentially threatened by grazing and trampling by livestock.

Delosperma N.E.Br. emend. Lavis

Delosperma alpinum (N.E.Br.) S.A.Hammer & A.P.Dold
Status: Rare
J.E. Victor & A.P. Dold

Distribution: NC. Kourkammaberg.
Habitat: Exposed quartzite formations.

Rationale: A range-restricted species (EOO < 5 km²) that is not threatened.

Cylindrophyllum velutinum Schwantes subsp. velutinum
Status: Rare
J.E. Victor & S.A. Hammer

Distribution: NC. Komaggas.
Habitat: Shaded places on granitic soils, or on exposed quartzite flats.

Rationale: EOO < 25 km². Only five subpopulations are known, but this taxon is not threatened.

Cylindrophyllum verrucosum (Lavis) G.D.Rowley
Status: Rare
J.E. Victor & D. Raimondo

Distribution: NC. Kouberg and Maansepan.
Habitat: Quartz and calcrite.

Rationale: A range-restricted species (EOO 75 km²) that is not threatened.

Delosperma annulare L.Bolus
Status: DDD
L. von Staden

Distribution: MP. Possibly the Steenkampsberg.
Habitat: Ledges on mountains above 2 000 m.

Rationale: The genus is currently under revision and all herbarium specimens need to be re-identified before the range of this species can be determined. The type specimen was collected from the Steenkampsberg in Mpumalanga. If the revision reveals that this species is endemic to high-altitude grasslands in Mpumalanga, it may be threatened, as this habitat type is under pressure from mining, invasion by alien plants and development.

Delosperma calitzdorpense L.Bolus
Status: EN A2c; B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Calitzdorp.
Habitat: Little Karoo shales in gannaveld and gravel apronveld.

Rationale: A population reduction of at least 50% is estimated based on habitat loss and degradation by ostrich farming and crop cultivation over the past 20 years (generation length ± 10 years). EOO 250 km². AOO 13 km². Two remaining locations continue to decline because of ongoing habitat degradation.
Delosperma clavipes Lavis
Status: DDD
J.E. Victor & D. Raimondo
Distribution: WC. Kleinmond to Hermanus.
Habitat: Coastal sands along rocky shores.
Rationale: Five known locations of this range-restricted species (EOO < 185 km²) are potentially threatened by coastal development and invasion by alien plants.

Delosperma guthriei Lavis
Status: VU D2
J.E. Victor & D. Raimondo
Distribution: WC. Southern Ceres Karoo.
Habitat: Rocky grassland, 1 200–1 800 m.
Rationale: A poorly known species. Its threat status cannot be determined at present.

Delosperma inaequale L.Bolus
Status: DDD
J.E. Victor
Distribution: WC. Potberg.
Habitat: Unknown.
Rationale: Known from the type, collected in 1954. If this species occurs on the lower slopes of the Potberg it is likely to be threatened by invading alien plants and ostrich farming.

Delosperma katbergense L.Bolus
Status: Rare
P.F. Matlamela & D.A. Kamundi
Distribution: EC. Hogsback to Katberg.
Habitat: Crevices of sandstone rocks, 1 200–1 700 m.
Rationale: A range-restricted species (EOO < 500 km²) that occurs in a specialised habitat where it is protected from the impact of grazing and forestry.

Delosperma leendertziae N.E.Br.
Status: NT B1ab(iii)+2ab(iii)
J.E. Victor & M.F. Pfaf
Distribution: G MP NW. Magaliesberg.
Rationale: A poorly known species, known only from the type collected in 1934.

Delosperma macrocarpum (N.E.Br.) N.E.Br.
Status: EN D
J.E. Victor & M.F. Pfaf
Distribution: WC. Humansdorp.
Habitat: Rocky grassland, 1 200–1 800 m.
Rationale: A poorly known species. Its threat status cannot be determined at present.

Delosperma macrocarpum var. longiflorum J.E. Victor
Status: NT B1ab(iii)+2ab(iii)
J.E. Victor & M.F. Pfaf
Distribution: WC. Humansdorp.
Habitat: Rocky grassland, 1 200–1 800 m.
Rationale: A poorly known species. Its threat status cannot be determined at present.

Delosperma mariae L.Bolus
Status: VU D2
J.E. Victor & D. Raimondo
Distribution: WC. Bredasdorp.
Habitat: Limestone outcrops.
Rationale: Two known locations are potentially threatened by coastal development, invasion by alien plants and inappropriate fire management.

Delosperma macellum L.Bolus
Status: DD
P.M. Burgoyne
Distribution: LM MP. Sekhukhuneland.
Habitat: Rocky grassland, 1 200–1 800 m.
Rationale: A poorly known species, known only from the type collected in 1934.

Delosperma mariae var. longiflorum J.E. Victor
Status: VU D2
J.E. Victor & D. Raimondo
Distribution: WC. Bredasdorp.
Habitat: Limestone outcrops.
Rationale: Two known locations are potentially threatened by coastal development, invasion by alien plants and inappropriate fire management.

Delosperma mariae var. longiflorum J.E. Victor
Status: NT B1ab(iii)+2ab(iii)
J.E. Victor & M.F. Pfaf
Distribution: WC. Bredasdorp.
Habitat: Limestone outcrops.
Rationale: Two known locations are potentially threatened by coastal development, invasion by alien plants and inappropriate fire management.

Delosperma macellum var. longiflorum J.E. Victor
Status: DD
P.M. Burgoyne
Distribution: LM MP. Sekhukhuneland.
Habitat: Rocky grassland, 1 200–1 800 m.
Rationale: A poorly known species, known only from the type collected in 1934.
Dinteranthus Schwantes

Dinteranthus pole-evansii (N.E.Br.) Schwantes
Status: VU D1 + 2
C. Klak & D. Raimondo & F. Daniels

Distribution: NC. Upington to Prieska.
Habitat: Well-drained, sandy soils associated with quartz stones and pebbles.
Rationale: A population of less than 1 000 mature individuals occurring at two locations is potentially threatened by overgrazing.

Dinteranthus wilmotianus L.Bolus
Status: NT B1ab(ii,iii,v)
P.M. Burgoyne, D. Raimondo & F. Daniels

Distribution: NC. Orange River basin, from Augrabies to Eendoom near Warmbad in southern Namibia.
Habitat: Alluvial gravel soils.
Rationale: EOO < 10 000 km². Suspected to occur at 10–20 locations, declining as a result of crop cultivation and overgrazing by livestock.

Dipsosoma Schwantes

Dipsosoma luckhoffii (L.Bolus) Schwantes ex Ihlenf.
Plate 72
Status: VU D2
C. Klak & D. Raimondo

Distribution: WC. Lutzville.
Habitat: Quartz patches.
Rationale: Four known locations are potentially threatened by mining, trampling by livestock and harvesting for the specialist succulent horticultural trade.

Dipsosoma retrorsum (Kensit) Schwantes
Plate 72
Status: EN B1ab(ii,iii)
C. Klak, E.J. van Jaarsveld & J.E. Victor

Habitat: Malmsbury shales with overlying quartz pebbles.
Rationale: EOO < 3 000 km². Five small, severely fragmented subpopulations remain after most of the habitat has been transformed for wheat cultivation. Subpopulations near Eendekuil are declining as a result of ongoing habitat loss to housing development.

Disphyma N.E.Br.

Disphyma dunsdonii L.Bolus
Status: VU A2c; B1ab(i,i,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Bredasdorp and Elim to Potberg.
Habitat: Ferricrete depressions filled with water in winter and spring, dry in summer.
Rationale: A population reduction of east 30% is estimated based on habitat loss to crop cultivation over the past 30 years (generation length ≤ 10 years). EOO 2 200 km². Fewer than 10 remaining locations continue to decline because of ongoing habitat loss to urban expansion around Bredasdorp, invasion by alien plants and crop cultivation.

Dorotheanthus Schwantes

Dorotheanthus apetalus (L.f.) N.E.Br.
Status: VU B1ab(ii,iii,iv,v)
C. Klak, E.J. van Jaarsveld & D. Raimondo

Distribution: WC. Yzerfontein to Cape Agulhas.
Habitat: Coastal fynbos.
Rationale: EOO 7 086 km². Ten locations are known through herbarium records, two of which are now locally extinct owing to urban expansion. Seven of the remaining locations are declining because of ongoing habitat loss to urban expansion, crop cultivation and invasion by alien plants.

Dorotheanthus booysenii L.Bolus
Status: Rare
J.E. Victor

Habitat: Well-drained, sandy soils associated with quartz stones and pebbles.
Rationale: EOO < 7 200 km². Nine known locations are declining because of invasion by alien plants, coastal development and vineyard and protea cultivation.

Dorotheanthus maughanii (N.E.Br.) Ihlenf. & Struck
Status: VU B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo

Distribution: WC. Hopefield to Cape Flats.
Habitat: Seasonally wet sands.
Rationale: EOO 1 855 km². Only three of 10 known locations remain after most of the habitat has been transformed by crop cultivation and urban expansion. Decline is continuing because of invasion by alien plants and expanding agriculture.

Drosanthemum Schwantes

Drosanthemum anomalum L.Bolus
Status: VU D2
C. Klak & D. Raimondo

Distribution: WC. Montagu to Stormsvlei.
Habitat: Breede Shale Renosterveld.
Rationale: One known location is potentially threatened by vineyard and olive cultivation and by invading alien plants.

Drosanthemum austricola L.Bolus
Status: VU B1ab(iii,iv,v)
C. Klak & D. Raimondo

Distribution: WC. Agulhas Plain.
Habitat: Low-lying areas in renosterveld and fynbos, often on silcrete or ferricrete outcrops.
Rationale: EOO < 7 200 km². Nine known locations are declining because of invasion by alien plants, coastal development and vineyard and protea cultivation.
Drosanthemum bellum L.Bolus
Status: EN B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo

Distribution: WC. Ceres to Worcester.
Habitat: On nutrient-poor, sandy, acidic soils derived from Witteberg quartzite in dry montane fynbos.
Rationale: EOO < 2 000 km². Five locations remain after a number of subpopulations were lost when the Brandvlei Dam was constructed. This species continues to decline because of ongoing habitat loss to vineyard expansion.

Drosanthemum flavum (Haw.) Schwantes
Status: NT B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo

Distribution: WC. Clanwilliam to Koeberg and Riversdale.
Habitat: Lowland shales.
Rationale: A formerly common and widespread species (EOO < 20 000 km²). Altogether 16 locations remain after > 80% of the habitat has been transformed for wheat cultivation over the past 100 years. It continues to decline because of ongoing habitat loss to urban development, invasion by alien plants and crop cultivation.

Drosanthemum capillare (Thunb.) Schwantes
Status: DD
PM. Burgoyne & F. Daniels

Distribution: EC. Swellendam to Humansdorp.
Habitat: Unknown.
Rationale: Known from two very old collections, last recorded in 1803.

Drosanthemum chrysum L.Bolus
Status: Rare
D. Raimondo, P.A. Manyama & D.A. Kamundi

Distribution: WC. Laingsburg.
Habitat: Lower slopes, 750–1 100 m.
Rationale: A rare, range-restricted species (EOO < 500 km²²), known from fewer than 10 subpopulations.

Drosanthemum edwardsiae L.Bolus
Status: DD
C. Klak & D. Raimondo

Distribution: WC. Little Brak River and Mossel Bay.
Habitat: Lowland shales.
Rationale: Known from three collections made before 1938. This area has subsequently been transformed to agriculture and this species is likely to be highly threatened.

Drosanthemum flavum (Haw.) Schwantes
Status: EN D
N.A. Helme, C. Klak & D. Raimondo

Distribution: WC. Caledon to Bredasdorp, Genadendal and Bot River.
Habitat: Clay, shale, rocky slopes in renosterveld.
Rationale: A population of less than 250 mature individuals.

Drosanthemum hallii L.Bolus Plate 74
Status: EN B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo

Distribution: WC. Worcester.
Habitat: Stony slopes on shale-sandstone transition soils.
Rationale: EOO < 657 km². Three known locations are declining as a result of vineyard expansion and invasion by alien plants.

Drosanthemum hispifolium (Haw.) Schwantes
Status: VU B1ab(ii,iii,iv,v)
C. Klak, D. Raimondo & J.E. Victor

Distribution: WC. Clanwilliam to Koeberg.
Habitat: Lowland hills or flats in loamy shale.
Rationale: EOO 14 400 km². Eight locations remain after most of the habitat in the Olifants River Valley and Swartland has been transformed for crop cultivation. It continues to decline because of ongoing habitat loss to urban development, invasion by alien plants and agriculture.

Drosanthemum insolitum L.Bolus
Status: CR PE
C. Klak, N.A. Helme & D. Raimondo

Distribution: WC. Between Houwhoek and Caledon.
Habitat: Unknown.
Rationale: Known only from the type, collected in 1858. The area has now been extensively transformed for wheat cultivation and this species is probably extinct.

Drosanthemum lavisii L.Bolus
Status: EN B1ab(ii,iii,iv,v); C2a(i)
C. Klak, N.A. Helme & D. Raimondo

Distribution: WC. Montagu, Bredasdorp to Albertinia.
Habitat: Ecotone between fynbos and renosterveld, 150–200 m.
Rationale: EOO < 5 000 km². The 13 small, severely fragmented subpopulations are declining as a result of crop cultivation and invasion by alien plants. Subpopulations typically consist of less than 30 mature individuals and the total population is suspected to be around 500 mature individuals.

Drosanthemum leptum L.Bolus
Status: Rare
D. Raimondo, P.A. Manyama & D.A. Kamundi

Distribution: WC. Robertson.
Habitat: Rocky kloofs, 215–300 m.
Rationale: A range-restricted species (EOO < 500 km²) that is not threatened.

Drosanthemum marinum L.Bolus
Status: NT B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
N.A. Helme, C. Klak & D. Raimondo

Distribution: WC. Paternoster to Yzerfontein.
Habitat: Coastal rocks.
Rationale: EOO and AOO < 500 km². The 14 known locations continue to decline as a result of ongoing habitat loss to coastal development.

Drosanthemum micans (L.) Schwantes Plate 74
Status: EN B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo

Distribution: WC. Montagu and Worcester to Swellendam.
Habitat: Rocky alluvial terraces, gravels.
Rationale: EOO and AOO < 500 km². The 2–5 locations are declining because of habitat loss to vineyard expansion.
**Drosanthemum pickhardii** L.Bolus

**Status:** VU D2

C. Klak & D. Raimondo

**Distribution:** WC. Montagu.

Habitat: Shale lowlands.

**Rationale:** Three known locations are potentially threatened by vineyard expansion.

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**Drosanthemum prostratum** L.Bolus

**Status:** VU D2

C. Klak & D. Raimondo

**Distribution:** WC. Clanwilliam.

Habitat: Arid fynbos, 100 m.

**Rationale:** Three known locations are potentially threatened by rooibos tea cultivation.

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**Drosanthemum pulchellum** L.Bolus

**Status:** VU D2

C. Klak & D. Raimondo

**Distribution:** WC. Clanwilliam.

Habitat: Sandy areas, 200–330 m.

**Rationale:** A range-restricted (EOO < 100 km²) habitat specialist known from only two subpopulations, but it is not threatened.

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**Drosanthemum ramosissimum** (Schltr.) L.Bolus

**Status:** Rare

D. Raimondo, P.A. Manyama & D.A. Kamundi

**Distribution:** WC. Vanrhynsdorp, Knersvlakte.

Habitat: Sandy areas, 200–330 m.

**Rationale:** A range-restricted (EOO < 500 km²) habitat specialist that is not threatened.

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**Drosanthemum striatum** (Haw.) Schwantes

**Status:** VU B1ab(ii,iii,v) + 2ab(ii,iii,v)

C. Klak & D. Raimondo

**Distribution:** WC. Clanwilliam.

Habitat: Sandy areas, 200–330 m.

**Rationale:** A range-restricted (EOO < 500 km²) habitat specialist that is not threatened.

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**Erepsia**

**Erepsia babiloniae** Liede

**Status:** VU

E.J. van Jaarsveld, C. Klak & L. Potter

**Distribution:** WC. Cape Town to Macassar.

Habitat: On white clay slopes near watercourses.

**Rationale:** EOO < 1 000 km². Three known locations remain after much of the habitat has been transformed for wheat cultivation. It continues to decline because of overgrazing and trampling by cattle, invasion by alien plants, dumping and erosion.

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**Erepsia dunensis** (Sond.) Klak

**Status:** EN B1ab(ii,iii,v) + 2ab(ii,iii,v)

C. Klak, D. Raimondo & J.E. Victor

**Distribution:** WC. Cape Town to Macassar.

Habitat: Limestone, close to the coast.

**Rationale:** EOO and AOO < 500 km². Five known locations are declining as a result of urban expansion and invasion by alien plants.
Erepsia forficata (L.) Schwantes
Status: Rare
E.J. van Jaarsveld & D. Raimondo

**Distribution:** WC. Cape Peninsula, Table Mountain.
**Habitat:** Rocky cliffs and ridges.
**Rationale:** A locally common, but range-restricted endemic (EOO 150 km²) of Table Mountain. It is not threatened.

Erepsia hallii L.Bolus
Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
C. Klak, D. Raimondo & J.E. Victor

**Distribution:** WC. Atlantic to Darling.
**Habitat:** Granite hills.
**Rationale:** EOO < 60 km², AOO < 10 km². Two known locations are declining because of invasion by alien plants and crop cultivation.

Erepsia insignis (Schltr.) Schwantes
Status: Critically Rare
C. Klak & D. Raimondo

**Distribution:** WC. Observation Peak in the Bain’s Kloof Mountains.
**Habitat:** Steep slopes on shale bands, 1 200–1 700 m.
**Rationale:** A range-restricted species (EOO < 10 km²) and high-altitude habitat specialist known from one site where it is not threatened.

Erepsia oxysepala (Schltr.) L.Bolus
Status: VU D2
N.A. Helme

**Distribution:** WC. Villiersdorp to Riviersonderend Mountains.
**Habitat:** Montane fynbos on sandstone slopes, 200–1 400 m.
**Rationale:** Two known locations are potentially threatened by alien plants that invade the habitat.

Erepsia patula (Haw.) Schwantes
Status: VU B1ab(ii,iii,v)
C. Klak & D. Raimondo

**Distribution:** WC. Wellington to Somerset West, including the Cape Peninsula.
**Habitat:** Shale slopes, 200–500 m.
**Rationale:** EOO < 3 500 km². Fewer than 10 locations remain after most of the habitat has been transformed for crop cultivation and urban expansion. Habitat loss continues. Other threats include alien plants that invade the habitat and too infrequent fires on the lower slopes of Lion’s Head.

Erepsia pentagona (L.Bolus) L.Bolus
Status: NT B1ab(iii,v)
J.H. Vlok, C. Klak, D. Raimondo & J.E. Victor

**Distribution:** WC. Robinson Pass to Garcia’s Pass.
**Habitat:** Wet, montane fynbos and rocky outcrops, 500–1 000 m.
**Rationale:** EOO 3 000 km². Habitat quality at 15 known locations continues to decline because of unmanaged invasion by alien plants.

Erepsia pilansii (Kensit) Liede
Status: VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
N.A. Helme, C. Klak & D. Raimondo

**Distribution:** WC. Piketberg.
**Habitat:** Sandstone fynbos above 700 m.

**Rationale:** EOO and AOO < 900 km². Fewer than 10 locations are declining as a result of fruit, buchu and vineyard cultivation, invading alien pines, resort development, dam construction and too frequent fires.

Erepsia polita (L.Bolus) L.Bolus
Status: CR B1ab(ii,iii)+2ab(iii)
C. Klak & D. Raimondo

**Distribution:** WC. Bredasdorp.
**Habitat:** Moist coastal flats, in limestone fynbos.
**Rationale:** EOO < 10 km², AOO < 1 km². Habitat quality at one known location continues to decline because of invasion by alien plants.

Erepsia promontorii L.Bolus
Status: CR PE
C. Klak & D. Raimondo

**Distribution:** WC. Cape Peninsula and Hermanus.
**Habitat:** Coastal lowlands.
**Rationale:** Formerly on the Cape Peninsula at Cape Point and Sea Point and also at Hermanus. It has not been found since 1950, despite many attempts to relocate it. Habitat still exists at Cape Point, and this species might still be rediscovered.

Erepsia ramosa L.Bolus
Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo

**Distribution:** WC. Piketberg to Cape Flats.
**Habitat:** Shale flats in renosterveld.
**Rationale:** EOO < 6 500 km². A formerly very common species that has lost > 90% of its habitat to wheat cultivation. Remaining subpopulations are severely fragmented, occurring on isolated renosterveld remnants, and continue to decline because of urban expansion on the Cape Flats and at Malmesbury and Paarl.

Erepsia simulans (L.Bolus) Klak
Status: VU D2
C. Klak & J.E. Victor

**Distribution:** WC. Bredasdorp, farm Brandfontein.
**Habitat:** Coastal lowland sands.
**Rationale:** One known location is potentially threatened by invading alien plants.

Erepsia steytlerae L.Bolus
Status: CR B1ab(ii,iii,iv,v)+2ab(iii)
C. Klak & J.E. Victor

**Distribution:** WC. Betty’s Bay to Kleinmond.
**Habitat:** Marine cliffs.
**Rationale:** EOO and AOO < 20 km². Habitat at five known locations is declining as a result of coastal development.

Erepsia villiersii L.Bolus
Status: CR PE
C. Klak & D. Raimondo

**Distribution:** WC. Villiersdorp.
Epretia villiersii

**Faucaria gratiae**

**Faucaria tigrina**

**Faucaria subintegra**

**Esterhuysenia inclaudens** (L.Bolus)

**Faucaria nemorosa** L.Bolus ex L.E.Groen

**Faucaria subintegra** L.Bolus

**Faucaria tigrina** (Haw.) Schwantes

**Faucaria humilis** Burgoyne

**Faucaria pulchra** N.E.Br.

**Gibbaeum angulipes** (L.Bolus) N.E.Br.

**Gibbaeum dispar** N.E.Br.

**Gibbaeum ehmeltianum** (Hartmann) L.Bolus

**Gibbaeum album** N.E.Br.

**Gibbaeum esterhuyseniae** L.Bolus

**Frithia N.E.Br.**

**Frithia humilis** Burgoyne

**Frithia pulchra** N.E.Br.

**Gibbaeum angulipes** (L.Bolus) N.E.Br.

**Gibbaeum dispar** N.E.Br.

**Gibbaeum album** N.E.Br.

**Gibbaeum esterhuyseniae** L.Bolus

**Frithia N.E.Br.**

**Frithia humilis** Burgoyne

**Frithia pulchra** N.E.Br.

**Gibbaeum angulipes** (L.Bolus) N.E.Br.

**Gibbaeum dispar** N.E.Br.

**Gibbaeum album** N.E.Br.

**Gibbaeum esterhuyseniae** L.Bolus

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**Gibbaeum dispar** N.E.Br.

**Gibbaeum album** N.E.Br.

**Gibbaeum esterhuyseniae** L.Bolus

**Frithia N.E.Br.**

**Frithia humilis** Burgoyne

**Frithia pulchra** N.E.Br.

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**Gibbaeum album** N.E.Br.

**Gibbaeum esterhuyseniae** L.Bolus

**Frithia N.E.Br.**

**Frithia humilis** Burgoyne

**Frithia pulchra** N.E.Br.

**Gibbaeum angulipes** (L.Bolus) N.E.Br.

**Gibbaeum dispar** N.E.Br.

**Gibbaeum album** N.E.Br.

**Gibbaeum esterhuyseniae** L.Bolus

**Frithia N.E.Br.**

**Frithia humilis** Burgoyne

**Frithia pulchra** N.E.Br.

**Gibbaeum angulipes** (L.Bolus) N.E.Br.

**Gibbaeum dispar** N.E.Br.

**Gibbaeum album** N.E.Br.

**Gibbaeum esterhuyseniae** L.Bolus

**Frithia N.E.Br.**

**Frithia humilis** Burgoyne

**Frithia pulchra** N.E.Br.

**Gibbaeum angulipes** (L.Bolus) N.E.Br.

**Gibbaeum dispar** N.E.Br.

**Gibbaeum album** N.E.Br.

**Gibbaeum esterhuyseniae** L.Bolus

**Frithia N.E.Br.**

**Frithia humilis** Burgoyne

**Frithia pulchra** N.E.Br.

**Gibbaeum angulipes** (L.Bolus) N.E.Br.

**Gibbaeum dispar** N.E.Br.

**Gibbaeum album** N.E.Br.

**Gibbaeum esterhuyseniae** L.Bolus

**Frithia N.E.Br.**

**Frithia humilis** Burgoyne

**Frithia pulchra** N.E.Br.

**Gibbaeum angulipes** (L.Bolus) N.E.Br.

**Gibbaeum dispar** N.E.Br.

**Gibbaeum album** N.E.Br.

**Gibbaeum esterhuyseniae** L.Bolus

**Frithia N.E.Br.**

**Frithia humilis** Burgoyne

**Frithia pulchra** N.E.Br.

**Gibbaeum angulipes** (L.Bolus) N.E.Br.

**Gibbaeum dispar** N.E.Br.

**Gibbaeum album** N.E.Br.
Gibbaeum haaglenii H.E.K.Hartmann Plate 73
Status: EN B1ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Lower Breede River Valley.
Habitat: White quartz patches overlying shales.
Rationale: EOO < 700 km². A few small, severely fragmented subpopulations remain after most of the habitat has been transformed for wheat cultivation. Decline due to grazing and trampling by cattle and ostriches continues.

Gibbaeum nebrownii F
Status: CR B1ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Eierpoort to Dammetjies, south of Anysberg.
Habitat: Shale bands on hill slopes.
Rationale: EOO < 20 km². Two small, severely fragmented subpopulations are declining because of ongoing loss of habitat quality as a result of trampling by large concentrations of game and collecting for the specialist succulent horticultural trade.

Gibbaeum nebrownii Tischer Plate 73
Status: CR B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Ladismith.
Habitat: Exposed enon over shale.
Rationale: EOO and AOO < 2 km². A population of 500–2 000 mature individuals remains at one location after part of the population declined as a result of road construction. Remaining individuals are declining because of trampling by livestock.

Gibbaeum petrense (N.E.Br.) L.Bolus Plate 73
Status: EN D
J.H. Vlok & D. Raimondo
Distribution: WC. Northern slopes of the Langeberg.
Habitat: White quartz patches overlying clay slopes on shale ridges.
Rationale: EOO and AOO < 10 km². Fewer than 10 locations remain after habitat was lost to road construction. Habitat quality and number of mature individuals continue to decline because of trampling by livestock.

Gibbaeum velutinum (L.Bolus) Schwantes Plate 73
Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
J.H. Vlok & D. Raimondo
Distribution: WC. West of Barrydale, from Springfontein to Soutkloof.
Habitat: Bare shale ridges.
Rationale: EOO and AOO < 100 km². Fewer than 10 known locations continue to decline because of habitat loss to urban expansion around Barrydale, quarrying and trampling by livestock.

Gibbaeum pachypodium (Kensit) L.Bolus Plate 73
Status: CR B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Northern slopes of the Langeberg.
Habitat: White quartz patches overlying clay slopes on shale ridges.
Rationale: EOO and AOO < 10 km². Fewer than 10 locations remain after habitat was lost to road construction. Habitat quality and number of mature individuals continue to decline because of trampling by livestock.

Gibbaeum cruciatum (Haw.) N.E.Br. Plate 76
Status: EN D
J.H. Vlok & D. Raimondo
Distribution: WC. Outdshoorn.
Habitat: Transition between gravel apronveld and gannaveld amongst small shrubs on sandy loam.
Rationale: Less than 250 mature individuals remain on a 1 ha road reserve after all other suitable habitat has been degraded by ostrich farming.

Gibbaeum linguiforme (L.) N.E.Br. Plate 76
Status: NT B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Outdshoorn.
Habitat: Crevices of shales and quartz.
Rationale: EOO 500 km², AOO < 500 km². Four locations are known, but there are likely to be up to 10 others in unexplored areas of the range of this species. Its habitat continues to decline as a result of overgrazing and trampling by livestock.

Gibbaeum fergusoniae L.Bolus Plate 76
Status: NT B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Bellair Dam to Barrydale.
Habitat: Ecotones between spekboomveld and apronveld.
Rationale: EOO 300 km², AOO < 300 km². Habitat quality at 10 known locations is declining because of grazing, trampling and soil erosion caused by ostrich farming.

Gibbaeum regium N.E.Br. Plate 76
Status: EN B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Calitzdorp.
Habitat: Ecotones between apronveld and gannaveld.
Rationale: EOO 550 km². Habitat quality at four known locations continues to decline owing to the impact of ostrich farming.

Gibbaeum pilosulum (N.E.Br.) N.E.Br. Plate 73
Status: EN B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. South of Touwsberg.
Habitat: Brackish quartz in low-lying areas.
Rationale: EOO and AOO < 100 km². Habitat quality and number of mature individuals at 10 known locations continue to decline because of trampling and grazing by livestock.

Gibbaeum schwantesii Tischer Plate 73
Status: VU D2
J.H. Vlok & D. Raimondo
Distribution: WC. Northern slopes of the Langeberg.
Habitat: Loamy renosterveld soils.
Rationale: Two known locations, ± 1 km apart, are potentially threatened by soil erosion and trampling by livestock.
Plate 72

Diplosoma retroversum EN

Diplosoma buckhoffii VU

Conophyton khamiesbergense VU

Conophyton turritgerum Rare

Conophyton auriflorum subsp. auriflorum Rare

Conophyton burgeri EN

Conophyton piluliforme subsp. edwardii Rare

Lithops olivacea VU

Conophyton ratum VU
Plate 74

*Lampranthus aureus* EN

*Lampranthus fergusoniae* VU

*Lampranthus stanfordiae* EN

*Drosanthemum striatum* VU

*Drosanthemum micans* EN

*Drosanthemum hallii* EN
Habitat: Transition from apronveld to gwarrieveld.
Rationale: EOO 300 km², AOO < 300 km². Two locations are known, but the habitat of this species is poorly explored and there are likely to be up to 10 locations. Habitat quality and number of mature individuals are declining as a result of grazing, trampling and soil erosion caused by stock and ostrich farming.

Glottiphyllum suave N.E.Br. Plate 76
Status: NT B1ab(iii,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Western parts of the Little Karoo.
Habitat: Apronveld.
Rationale: EOO 2 000 km². An estimated 20 locations are declining because of overgrazing and trampling by livestock, game and ostriches.

Hereroa (Schwantes) Dinter & Schwantes
Hereroa concava L.Bolus
Status: DDD
P.M. Burgoyne & F. Daniels
Distribution: WC. Beaufort West.
Habitat: Unknown.
Rationale: A poorly known species, last collected in the 1930s.

Jacobsenia L.Bolus & Schwantes emend. Ihlenf.
Jacobsenia hallii L.Bolus
Status: VU D2
C. Klak & D. Raimondo
Distribution: WC. Komkans and Koekenaap.
Habitat: Deep, sandy soils in succulent karoo shrubland.
Rationale: Two known locations are potentially threatened by habitat loss to vineyard and tomato cultivation and mining.

Jacobsenia vaginata (L.Bolus) Ihlenf.
Status: VU D2
C. Klak & D. Raimondo
Distribution: NC. Komaggas.
Habitat: Quartz patches.
Rationale: Part of the habitat at one known location declined as a result of quarrying. The population is not declining at present but continued quarrying and trampling by livestock are potential threats.

Jordaaniella H.E.K.Hartmann
Jordaaniella clavifolia (L.Bolus) H.E.K.Hartmann
Status: VU D2
P.M. Burgoyne & D. Raimondo
Distribution: NC. Kleinsee to Hondeklip Bay.
Habitat: Recent calcareous sands in West Coast strandveld and succulent karoo.
Rationale: Two, possibly three, locations are potentially threatened by diamond mining.

Jordaaniella uniflora (L.Bolus) H.E.K.Hartmann
Status: NT B1ab(ii,iii,iv,v)
D. Raimondo, P.M. Burgoyne & J.E. Victor
Distribution: NC. Between Kleinsee and Hondeklip Bay.
Habitat: Open patches amongst shrubs.
Rationale: EOO 3 000 km². An estimated 15–20 locations are declining as a result of habitat loss to diamond mining.

Khadia N.E.Br.
Khadia alticola Chess. & H.E.K.Hartmann
Status: Rare
J.E. Victor
Distribution: KZN MP. Steenkampsberg, Utrecht and Wakkerstroom.
Habitat: Montane grassland in shallow, sandy, humus-rich soil pockets and crevices between rock plates above 2 000 m.
Rationale: A high-altitude habitat specialist. Not threatened because of the inaccessibility of its habitat.

Khadia beswickii (L.Bolus) N.E.Br.
Status: VU B1ab(iii,v)+2ab(iii,v)
J.E. Victor & M.F. Pfaf
Distribution: G. Nigel.
Habitat: Open shallow soil over rocks in grassland.
Rationale: EOO 475 km², AOO 3–7 km². Ten known locations are declining as a result of habitat loss to urban and infrastructure development, invasion by alien plants, mining and collecting for the specialist succulent horticultural trade.

Khadia borealis L.Bolus
Status: Rare
P.M. Burgoyne
Distribution: LM. Soutpansberg summit, from Lejuma to Mavhode.
Habitat: Mountain summits, dry grasslands or savanna, in crevices of quartzitic rocks.
Rationale: EOO 900 km². Locally common in suitable habitat, but available habitat is restricted. More than 10 subpopulations are known.

Khadia carolinensis (L.Bolus) L.Bolus
Status: VU A3c
M. Lötter, J.E. Burrows, P.M. Burgoyne & L. von Staden
Distribution: MP. Carolina and Belfast.
Habitat: Well-drained, sandy loam soils among rocky outcrops, or at the edge of sandstone sheets, highveld grassland, 1 700 m.
Rationale: Coal reserves are found underneath the sandstones on which this species is found. Coal mining has had a small impact to date, but over the last five years many new applications for coal mining have been received. Should these applications be granted (and many more are likely to be submitted within the next few years), the habitat will be severely affected by opencast mining. We estimate that up to 45% of the range (EOO) of this species could be destroyed within the next 10–20 years should the current applications be approved.

Lampranthus N.E.Br.
Lampranthus acrosepalus (L.Bolus) L.Bolus
Status: VU D2
C. Klak & D. Raimondo
Distribution: WC. Piketberg.
Habitat: Sandy plateaus and gentle slopes.
Rationale: Three locations remain after some habitat has been transformed to fruit orchards. Although no longer declining, agriculture remains a potential threat.
Lampranthus amabilis (L.) N.E.Br.
Status: EN B1ab(ii,iii,v)+2ab(iii,v)
C. Klak & D. Raimondo

Distribution: WC. Lower southern slopes of Potberg Mountain.
Habitat: Shale bands.
Rationale: EOO 35 km², AOO < 35 km². Occurs at three locations, two of which are outside the Potberg Nature Reserve and threatened by coastal development and trampling by livestock. It is also declining as a result of habitat degradation caused by invasion by alien plants at all three locations.

Lampranthus amoens (Salm-Dyck ex DC.) N.E.Br.
Status: EN B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: WC. Cape Flats to Malmesbury.
Habitat: Low-lying sandy flats in Atlantic Sand Fynbos.
Rationale: EOO 2 000 km². A few small, severely fragmented subpopulations remain after most of the habitat has been transformed by urban expansion and crop cultivation. It continues to decline, mainly because of dense invasions of alien plants in habitat remnants.

Lampranthus antonii L.Bolus
Status: CR D
C. Klak & D. Raimondo

Distribution: WC. Citrusdal, Suurbekke.
Habitat: Sandstone soils above 500 m.
Rationale: The only known population of this rare species has less than 50 plants and is threatened by forestry.

Lampranthus aureus (L.) N.E.Br.
Status: EN B1ab(ii,iii)
C. Klak & D. Raimondo

Distribution: WC. Tulbagh, Langebaan to Cape Peninsula.
Habitat: Deep sandy soils in lowland fynbos.
Rationale: EOO < 2 000 km². Habitat at five known locations is declining because of crop cultivation, urban expansion and invasion by alien plants.

Lampranthus bicolor (L.) N.E.Br.
Status: VU B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo

Distribution: WC. Cape Flats and Cape Peninsula to Hermanus and Struisbaai.
Habitat: Sandy soils close to coast, below 500 m.
Rationale: EOO < 3 600 km². Known from five locations, but suspected to occur at a few more. It has declined on the Cape Flats because of urban expansion. Elsewhere in the range there is a continuing decline because of coastal development, crop cultivation and invasion by alien plants.

Lampranthus brownii (Hook.f.) N.E.Br.
Status: DDD
C. Klak, D. Raimondo & P.A. Manyama

Distribution: WC. Unknown.
Habitat: Unknown.
Rationale: Known only from the type, collected at an unspecified locality in South Africa. Distribution uncertain and ecology unknown.

Lampranthus caudatus L.Bolus
Status: EN B1ab(iii)
C. Klak & D. Raimondo

Distribution: WC. Agulhas.
Habitat: Limestone fynbos.
Rationale: EOO < 400 km². Habitat quality at two known locations is declining because of invasion by alien plants. It is also potentially threatened by inappropriate fire management.

Lampranthus ceriseus (L.Bolus) L.Bolus
Status: VU B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo

Distribution: WC. Agulhas Plain to Riversdale.
Habitat: Coastal limestone fynbos.
Rationale: EOO < 8 000 km². Fewer than 10 known locations are declining as a result of habitat loss to crop cultivation, coastal development and invasion by alien plants.

Lampranthus coccineus (Haw.) N.E.Br.
Status: CR D
C. Klak & D. Raimondo

Distribution: WC. Darling.
Habitat: Lowland shale in seasonally moist sites.
Rationale: One subpopulation of less than 50 mature individuals survives in a small private nature reserve after most of the habitat has been transformed for the cultivation of wheat. It is not declining at present, but is potentially threatened by grazing and trampling by livestock and invasion by alien plants.

Lampranthus curvilflorus (Haw.) H.E.K.Hartmann
Status: DDD
C. Klak, D. Raimondo & P.A. Manyama

Distribution: Unknown.
Habitat: Unknown.
Rationale: Known only from the type, collected at an unspecified locality in South Africa. Distribution uncertain and ecology unknown.

Lampranthus curvifolius (Haw.) N.E.Br.
Status: VU D2
C. Klak & D. Raimondo

Distribution: WC. Cape Peninsula.
Habitat: Granite slopes.
Rationale: Two known locations are potentially threatened by invading alien plants.

Lampranthus debilis (Haw.) N.E.Br.
Status: EN B1ab(ii,iii,iv,v)
D. Raimondo & C. Klak

Distribution: WC. Cape Flats to Bredasdorp.
Habitat: Seasonally wet flats.
Rationale: EOO < 5 000 km². Altogether 15 subpopulations are known through herbarium records, but five are now locally extinct because of urban expansion on the Cape Flats. The remaining 10 known subpopulations are severely fragmented and continue to decline as a result of invasion by alien plants, crop cultivation in the Bredasdorp region and further urban expansion on the Cape Flats and around Bredasdorp.

Lampranthus dilutus N.E.Br.
Status: EN B1ab(i,ii,iii,iv,v)
C. Klak & D. Raimondo

Distribution: WC. Tulbagh to Somerset West.
Habitat: Flat gravelly shales.
Rationale: EOO < 4 500 km². Four locations remain after > 94% of the habitat has been transformed for
the cultivation of wheat and urban expansion. Decline continues—a subpopulation was lost to a housing estate development in Malmsbury in 2005. This species is also threatened by overgrazing, inappropriate fire management, crop cultivation and further urban development.

\[ \text{Lampranthus diutius (L.Bolus) N.E.Br.} \]

**Status:** EN B1ab(ii,iii,iv,v)

C. Klak & D. Raimondo

**Distribution:** WC: Mossel Bay to Riversdale.

**Habitat:** Coastal sands.

**Rationale:** EOO > 3 200 km². The 5–7 severely fragmented subpopulations are declining because of ongoing habitat loss to coastal development, invading alien plants and crop cultivation.

\[ \text{Lampranthus drosanthus (L.Bolus) N.E.Br.} \]

**Status:** VU D2

C. Klak, N.A. Helme & D. Raimondo

**Distribution:** WC: Tuulbagh to Wellington.

**Habitat:** Shale-sandstone transitions, 350 m.

**Rationale:** Most of the habitat in the Tuulbagh Valley has been transformed for wheat cultivation, vineyard expansion and forestry plantations, and a few subpopulations remain on fragments (AOO < 10 km²) along the foot of the Elandsberg. Habitat loss is not continuing, but invading alien plants, housing and agricultural development are potential threats.

\[ \text{Lampranthus dubitans (L.Bolus) L.Bolus} \]

**Status:** VU D2

C. Klak, N.A. Helme & D. Raimondo

**Distribution:** WC: Worcester.

**Habitat:** Unknown.

**Rationale:** Not enough is known about the distribution, specific habitat or population status of this species to determine its threat status.

\[ \text{Lampranthus explanatus (L.Bolus) N.E.Br.} \]

**Status:** EN A4c

C. Klak, N.A. Helme & D. Raimondo

**Distribution:** WC: Darling to Cape Peninsula to Struisbaai.

**Habitat:** Lowland sands within 20 km of the coast.

**Rationale:** A formerly common species that is now locally extinct at > 50% of known locations because of habitat loss to crop cultivation, invasion by alien plants and coastal development over the past 120 years. Decline is continuing. Generation length 15 years. We estimate a further 50% population reduction to be reached by 2020, based on past rates of decline since 1975.

\[ \text{Lampranthus fugitans (L.Bolus) L.Bolus} \]

**Status:** VU B1ab(ii,iii,iv,v)

C. Klak, N.A. Helme & D. Raimondo

**Distribution:** WC: Mossel Bay to Gansbaai.

**Habitat:** Limestone pavements.

**Rationale:** EOO < 1 200 km². Four known locations are declining as a result of coastal development and invasion by alien plants.

\[ \text{Lampranthus glaucus (L.) N.E.Br.} \]

**Status:** VU D2

C. Klak & D. Raimondo

**Distribution:** NC WC: Nieuwoudtville to Cape Flats.

**Habitat:** Seasonally waterlogged acid sands.

**Rationale:** EOO < 20 000 km². Altogether 11 locations are known through herbarium records, but four are now locally extinct as a result of urban expansion on the Cape Flats and habitat loss to wheat cultivation elsewhere in the range. Habitat at seven remaining locations continue to decline because of urban expansion, especially in the Durbanville area, as well as invasion by alien grass.

\[ \text{Lampranthus glomeratus (L.)} \]

**Status:** EN B1ab(ii,iii,iv,v)+2ab(iii,v)

D. Raimondo & C. Klak

**Distribution:** WC: Cape Peninsula and Cape Flats.

**Habitat:** Sandy flats and lower slopes in fynbos.

**Rationale:** This species is now locally extinct at nine out of 11 known locations because of urban expansion and invasion by alien plants. Current EOO 95 km², AOO < 95 km². Habitat quality at two remaining locations continues to decline owing to dense invasions of alien plants.

\[ \text{Lampranthus graminifolius (L.) N.E.Br.} \]

**Status:** Rare

C. Klak, D. Raimondo & P.A. Manyama

**Distribution:** WC: Piketberg.

**Habitat:** Shady rock crevices, 300–980 m.

**Rationale:** A range-restricted species (EOO 450 km²) with no known threats.

\[ \text{Lampranthus hallii L.Bolus} \]

**Status:** VU D2

C. Klak & D. Raimondo

**Distribution:** WC: Langeberg Mountains.

**Habitat:** Steep rocky slopes in fynbos.

**Rationale:** Two known locations are potentially threatened by overgrazing and trampling and resultant soil erosion.

\[ \text{Lampranthus hallii L.Bolus} \]

**Status:** VU D2

C. Klak & D. Raimondo

**Distribution:** WC: Langeberg Mountains.

**Habitat:** Steep rocky slopes in fynbos.

**Rationale:** A population reduction of 30% is suspected to have occurred over the past 45 years (generation length 15–20 years), based on the rate of population decline observed over the past 10 years. Crop cultivation has caused extensive habitat loss in the past, and housing development is causing an ongoing loss of remaining habitat.

\[ \text{Lampranthus foliosus L.Bolus} \]

**Status:** EN B1ab(ii,iii,iv,v)

C. Klak, N.A. Helme & D. Raimondo

**Distribution:** WC: Mossel Bay to Gansbaai.

**Habitat:** Limestone pavements.

**Rationale:** EOO < 1 200 km². Four known locations are declining as a result of coastal development and invasion by alien plants.

\[ \text{Lampranthus filicaulis (Haw.) N.E.Br.} \]

**Status:** VU A2c

N.A. Helme, C. Klak & D. Raimondo

**Distribution:** WC: Tulbagh to Cape Flats to Bot River.

**Habitat:** Seasonally wet alluvial sands overlying koffieklip.

**Rationale:** A population reduction of 30% is suspected to have occurred over the past 45 years (generation length 15–20 years), based on the rate of population decline observed over the past 10 years. Crop cultivation has caused extensive habitat loss in the past, and housing development is causing an ongoing loss of remaining habitat.

\[ \text{Lampranthus fergusoniae (L.Bolus) N.E.Br.} \]

**Status:** VU B1ab(ii,iii,iv,v)

C. Klak, N.A. Helme & D. Raimondo

**Distribution:** WC: Mossel Bay to Gansbaai.

**Habitat:** Limestone pavements.

**Rationale:** EOO < 1 200 km². Four known locations are declining as a result of coastal development and invasion by alien plants.

\[ \text{Lampranthus foliosus L.Bolus} \]

**Status:** EN B1ab(ii,iii,iv,v)

C. Klak, N.A. Helme & D. Raimondo

**Distribution:** WC: Mossel Bay to Gansbaai.

**Habitat:** Limestone pavements.

**Rationale:** EOO < 1 200 km². Four known locations are declining as a result of coastal development and invasion by alien plants.

\[ \text{Lampranthus filicaulis (Haw.) N.E.Br.} \]

**Status:** VU A2c

N.A. Helme, C. Klak & D. Raimondo

**Distribution:** WC: Tulbagh to Cape Flats to Bot River.

**Habitat:** Seasonally wet alluvial sands overlying koffieklip.

**Rationale:** A population reduction of 30% is suspected to have occurred over the past 45 years (generation length 15–20 years), based on the rate of population decline observed over the past 10 years. Crop cultivation has caused extensive habitat loss in the past, and housing development is causing an ongoing loss of remaining habitat.
**Lampranthus holensis** (Lam.) N.E.Br.

- **Status:** VU D2
- **Distribution:** WC. Knysnvake.
- **Habitat:** Shale slopes with quartz pebbles in succulent karoo.
- **Rationale:** Three known locations are potentially threatened by mining and agriculture.

**Lampranthus imbricans** (Haw.) N.E.Br.

- **Status:** DDD
- **Distribution:** WC. Unknown.
- **Habitat:** Unknown.
- **Rationale:** Known only from the type, collected at an unspecified locality. Distribution uncertain and ecology unknown.

**Lampranthus immelmaniae** (Lam.) N.E.Br.

- **Status:** EN B1ab(i,ii,iii,iv,v)
- **Distribution:** WC. Yzerfontein and Mamre to Redelinghuys.
- **Habitat:** Deep coastal sands.
- **Rationale:** EOO 3 500 km². Five locations remain after much of the habitat has been transformed for the cultivation of wheat and potatoes. It continues to decline as a result of invasion by alien plants, housing development and ongoing expansion of crop cultivation.

**Lampranthus inaequalis** (Haw.) N.E.Br.

- **Status:** DDD
- **Distribution:** WC. Unknown.
- **Habitat:** Unknown.
- **Rationale:** Known only from the type, collected at an unspecified locality. Distribution uncertain and ecology unknown.

**Lampranthus inconspicuus** (Haw.) Schwantes

- **Status:** DDD
- **Distribution:** WC. Unknown.
- **Habitat:** Unknown.
- **Rationale:** Known only from the type, collected at an unspecified locality. Distribution uncertain and ecology unknown.

**Lampranthus intervallaris** (Lam.) Bolus

- **Status:** DDD
- **Distribution:** WC. Clanwilliam.
- **Habitat:** Sandstone slopes.
- **Rationale:** EOO 1 270 km². Four known locations remain after most of the habitat has been transformed for coastal development. Habitat loss continues, especially around Plettenberg Bay, Mossel Bay and Knysna.

**Lampranthus pauciflorus** (Lam.) N.E.Br.

- **Status:** EN B1ab(i,ii,iii,iv,v)
- **Distribution:** WC. Clanwilliam.
- **Habitat:** Sandstone slopes.
- **Rationale:** EOO 1 270 km². Four known locations remain after most of the habitat has been transformed for coastal development. Habitat loss continues, especially around Plettenberg Bay, Mossel Bay and Knysna.

**Lampranthus peacockiae** (Lam.) Bolus

- **Status:** VU B1ab(i,ii,iii,iv,v)
- **Distribution:** WC. Graafwater.
- **Habitat:** Deep sands.
- **Rationale:** Known from the 1923 type collection from an area threatened by expanding potato cultivation. Taxonomic status is uncertain.
### Lampranthus procumbens Klak

**Status:** VU D2  
C. Klak & D. Raimondo  
**Distribution:** NC. Namaqualand, Koingnaas.  
**Habitat:** Coastal fynbos.  
**Rationale:** Known from one location in a area owned by De Beers. The area is currently a private nature reserve, but mining remains a potential threat.

### Lampranthus profundus (L.) N.E.Br.

**H.E.K. Hartmann**  
Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)  
C. Klak & D. Raimondo  
**Distribution:** WC. Piketberg.  
**Habitat:** Lower slopes and flats in fynbos-renosterveld transition.  
**Rationale:** EOO ≥ 2 200 km², AOO < 2 220 km². Five known locations continue to decline as a result of ongoing loss of habitat loss to crop cultivation.

### Lampranthus promontorii (L.) N.E.Br.

**C. Klak & D. Raimondo**  
Status: Rare  
**Distribution:** WC. Southern parts of the Cape Peninsula.  
**Habitat:** Sandstone fynbos, on lower slopes.  
**Rationale:** A range-restricted Peninsula endemic (EOO < 300 km²). Most subpopulations are protected within the Table Mountain National Park.

### Lampranthus purpureus L. Bolus

**C. Klak, D. Raimondo & P.F. Matlamela**  
Status: DDD  
**Distribution:** WC. Clanwilliam.  
**Habitat:** Hill slopes, 300–600 m.  
**Rationale:** Known only from the type collection. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

### Lampranthus reptans (Aiton) N.E.Br.

**C. Klak, E.J. van Jaarsveld & D. Raimondo**  
Status: EN B1ab(ii,iii,iv,v)  
**Distribution:** WC. Darling to Cape Flats.  
**Habitat:** Seasonally wet flats on fynbos.  
**Rationale:** EOO < 5 000 km². Fewer than 10 severely fragmented remaining subpopulations continue to decline as a result of ongoing habitat loss to crop cultivation, urban expansion and invasive alien plants.

### Lampranthus rupestris (L.) N.E.Br.

**C. Klak & D. Raimondo**  
Status: CR B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)  
**Distribution:** WC. Perdeberg, northwest of Paarl.  
**Habitat:** Lower granite slopes on small rocky outcrops.  
**Rationale:** EOO and AOO < 5 km². One known location remains after > 80% of the lower slopes of the Perdeberg has been transformed for the cultivation of vineyards and fruit orchards. It continues to decline owing to ongoing habitat loss to agriculture and invasive alien plants.

### Lampranthus rustii (A. Berger) N.E.Br.

**J.E. Victor & D. Raimondo**  
Status: DDD  
**Distribution:** WC. Riversdale and Seweweekspoort Mountain.

### Lampranthus scaber (L.) N.E.Br.

**C. Klak & D. Raimondo**  
Status: EN B2ab(i,ii,iii,iv,v)  
**Distribution:** WC. Tulbagh to Cape Flats and Piketberg.  
**Habitat:** Renosterveld, seasonally wet flats on clay.  
**Rationale:** Only small fragments of the habitat of this species remain after extensive transformation for the cultivation of wheat and vineyards. AOO < 20 km². Only five of 14 known locations remain, and habitat loss to urban development, invading alien plants and crop cultivation continues.

### Lampranthus schlechteri (Zahlbr.) L. Bolus

**C. Klak & J.E. Victor**  
Status: DD  
**Distribution:** WC. Pniel, Stellenbosch.  
**Habitat:** Lower slopes in sandstone fynbos.  
**Rationale:** EOO and AOO < 2 km². Previously known from the Groot Drakenstein, Wemmershoek and Franschoek areas, but lost most of its habitat to afforestation and vineyards and was thought to be extinct. It was re-discovered in 2001 and is now known from one location where there are fewer than 10 mature individuals. It is threatened by too frequent fires and the potential expansion of a nearby housing development.

### Lampranthus sociorum (L.) N.E.Br.

**C. Klak & D. Raimondo**  
Status: VU B1ab(i,ii,iii,iv,v)  
**Distribution:** WC. Yzerfontein to Redelinghuys.  
**Habitat:** Renosterveld, on shale on flats and lower slopes of hills.  
**Rationale:** EOO < 5 000 km². Fewer than 10 locations remain after most of the habitat has been transformed for wheat cultivation and vineyards. It continues to decline because of ongoing habitat loss to agriculture, urban expansion and invasive alien plants.

### Lampranthus staminodiosus (L.) Schwantes

**C. Klak, D. Raimondo & P.F. Matlamela**  
**Distribution:** WC. Clanwilliam.  
**Habitat:** Unknown.  
**Rationale:** Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

### Lampranthus stanfordiae (L.) Bolus

**N.A. Helme, C. Klak & D. Raimondo**  
**Distribution:** WC. Yzerfontein to Redelinghuys.  
**Habitat:** Well-drained acid sands in fynbos.  
**Rationale:** EOO 4 900 km². A rare species known to occur at only three locations. It is declining as a result of ongoing habitat loss to invading alien plants, agriculture and coastal development.
Lampranthus stenopetalus (L.Bolus) N.E.Br.  
Status: VU B1ab(i,ii,iii,iv,v)  
C. Klak & D. Raimondo  
Distribution: WC. Graafwater to Cape Flats and Villiersdorp.  
Habitat: Lowland sand fynbos.  
Rationale: EOO 11 500 km². Seven locations remain after > 50% of known subpopulations have now become locally extinct because of urban expansion on the Cape Flats. It continues to decline owing to habitat loss to invading alien plants, further urban development, and potato and wheat cultivation, especially around Graafwater.

Lampranthus stenus (Haw.) N.E.Br.  
Status: EN B1ab(ii,iii,iv,v)  
C. Klak, E.J. van Jaarsveld & L. Potter  
Distribution: WC. Malmesbury to Cape Peninsula and East to Bredasdorp.  
Habitat: Coastal acid sands.  
Rationale: EOO < 2 000 km². Seven known locations are declining as a result of ongoing habitat loss to crop cultivation, coastal development and invasion by alien plants.

Lampranthus stephanii (Schwantes) Schwantes  
Status: DDD  
C. Klak, D. Raimondo & P.F. Matlamela  
Distribution: WC. Uniondale.  
Habitat: Unknown.  
Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Lampranthus subaequalis (L.Bolus) L.Bolus  
Status: DDD  
C. Klak, D. Raimondo & P.F. Matlamela  
Distribution: WC. Uniondale.  
Habitat: Unknown.  
Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Lampranthus sublaxus (L.Bolus) L.Bolus  
Status: DDD  
C. Klak, D. Raimondo & P.F. Matlamela  
Distribution: NC. Calviniad.  
Habitat: Unknown.  
Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Lampranthus tenuifolius (L.) N.E.Br.  
Status: CR A2c; B2ab(ii,iii,iv,v); C1  
N.A. Helme, C. Klak & D. Raimondo  
Distribution: WC. Malmesbury to Struisbaai.  
Habitat: Deep, neutral to alkaline sands.  
Rationale: This species formerly occurred on the Cape Flats, but > 80% of known subpopulations in this area are now locally extinct as a result of habitat loss to crop cultivation and urban expansion over the past 60 years (generation length 20 years). Recent surveys located only four locations between the Cape Peninsula and Struisbaai, but two of them have been lost to coastal development since 2002, resulting in a 25% decline in the population in less than one generation. Two small, severely fragmented subpopulations remain, one at Cape Point consisting of less than 50 plants, the other near Struisbaai with ± 80 plants. AOO < 10 km². Habitat loss continues owing to invasion by alien plants and ongoing coastal development.

Lampranthus vanzijliae (L.Bolus) N.E.Br.  
Status: EX  
C. Klak & J.E. Victor  
Distribution: WC. Cape Peninsula, east to Bredasdorp.  
Habitat: Unknown.  
Rationale: Known from the type, collected in 1921. Despite much collecting in the area since then, it has never been recorded again and much of the potential habitat has now been transformed by crop cultivation and urban development.

Lampranthus verecundus (L.Bolus) N.E.Br.  
Status: DDD  
C. Klak, D. Raimondo & P.F. Matlamela  
Distribution: WC. Riversdale.  
Habitat: Unknown.  
Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Lampranthus vernalis (L.Bolus) L.Bolus  
Status: NT A2ac; B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)  
N.A. Helme, C. Klak & D. Raimondo  
Distribution: WC. Yzerfontein to Saldanha.  
Habitat: Coastal areas, on limestone.  
Rationale: A population reduction of 20–25% is estimated based on habitat loss to coastal development around Saldanha, Jacobsbaai, Paternoster, St Helena, Langebaan and Yzerfontein over the past 25 years (generation length 10 years). EOO and AOO < 100 km². The 15 known locations continue to decline because of ongoing habitat loss.

Lampranthus woodburniae (L.Bolus) N.E.Br.  
Status: DDD  
C. Klak, D. Raimondo & P.F. Matlamela  
Distribution: WC. Cape Peninsula to Cape Flats and Villiersdorp.  
Habitat: Unknown.  
Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Lampranthus wordsworthiae (L.Bolus) N.E.Br.  
Status: DDD  
C. Klak, D. Raimondo & P.F. Matlamela  
Distribution: WC. Caledon.  
Habitat: Unknown.  
Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Lampranthus zeyheri (Salm-Dyck) N.E.Br.  
Status: DDD  
C. Klak, D. Raimondo & P.F. Matlamela  
Distribution: EC. Uitenhage.  
Habitat: Unknown.  
Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.
Leipoldtia L. Bolus

Leipoldtia frutescens (L. Bolus) H.E.K. Hartmann
Status: VU B1ab(ii,iii,v)
C. Klak & D. Raimondo
Distribution: NC. Northern coastal Namaqualand.
Habitat: Arid granite slopes.
Rationale: EOO 1 700 km². A locally common species known to occur at five locations but there are likely to be more in poorly explored parts of the range. It is declining because of ongoing habitat loss to mining.

Leipoldtia klaverensis L. Bolus
Status: EN B1ab(ii,iii,v) + 2ab(ii,iii,v)
C. Klak & D. Raimondo
Rationale: EOO and AOO < 280 km². Habitat at two known locations continues to decline as a result of vineyard expansion.

Lithops N.E. Br.

Lithops aucampiae L. Bolus subsp. euniceae (de Boer) D.T. Cole
Status: VU D2
J.E. Victor & S.A. Hammer
Distribution: NC. Hopetown.
Habitat: Fine-grained, brown sandstone with some amygdaloidal lava.
Rationale: Two known locations are potentially threatened by habitat degradation as a result of dumping.

Lithops coleorum S.A. Hammer & Uijis
Status: VU D1 + 2
J.E. Victor, L. von Staden & D.T. Cole
Distribution: LM. Lephalale.
Habitat: Wedged among sandstone rubble on an eroding conglomerate hilltop.
Rationale: Some 400–500 mature individuals are known to occur at a single location where they are potentially threatened by collecting for the specialist succulent horticultural trade.

Lithops dinteri Schwantes subsp. frederici (D.T. Cole) D.T. Cole
Status: VU D2
J.E. Victor & S.A. Hammer
Distribution: NC. Pella.
Habitat: Einiqua Plains Desert.
Rationale: One known location is potentially threatened by harvesting for the succulent horticultural trade.

Lithops divergens L. Bolus
Status: NT D2
J.E. Victor
Distribution: NC. WC. Loeriesfontein and Vanrhynsdorp.
Habitat: Arid clay flats and slopes.
Rationale: The 5–10 locations are potentially threatened by harvesting for the specialist succulent horticultural trade.

Lithops dorotheae Nel
Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
J.E. Victor, S.A. Hammer & P.G. Desmet
Distribution: NC. Pella to Pofadder.
Rationale: Some 400–500 mature individuals are known to occur at five known locations but there are likely to be more in poorly explored parts of the range. It is declining because of ongoing habitat loss to mining.

Lithops geyeri Nel
Status: Rare
J. E. Victor
Distribution: NC. Vioolsdriif.
Habitat: Quartzite mixed with schist, gneiss or calcrete.
Rationale: A range-restricted species (EOO < 500 km²) that is not threatened.

Lithops helmutii L. Bolus
Status: VU D2
J. E. Victor
Distribution: NC. Klaveren.
Habitat: Succulent karoo shrubland.
Rationale: One known location is potentially threatened by harvesting for the specialist succulent horticultural trade.

Lithops lesliei (N.E. Br.) N.E. Br. subsp. burchellii D.T. Cole
Status: NT D2
J.E. Victor
Distribution: NC. Kimberley.
Habitat: Calcareous, well-drained soil in areas that receive 250–400 mm rainfall per year.
Rationale: Fewer than 10 locations are potentially threatened by harvesting for the medicinal plant trade.

Lithops lesliei (N.E. Br.) N.E. Br. subsp. lesliei
Status: NT A4acd
Distribution: FS G LM MP NC NW. Douglas in the Northern Cape Province to central Limpopo Province and southeastern Botswana.
Habitat: Primarily in arid grasslands, usually in rocky places, growing under the protection of forbs and grasses.
Rationale: We estimate a 15% population reduction due to persistent and destructive harvesting for the medicinal plant trade and as a result of urban expansion and agriculture over the past 10 years (generation length five years). A further decline of at least 10% is expected over the next five years if current rates of harvesting are to continue. This taxon has a wide distribution, but local extirpations are being observed within urban areas.

Lithops meyeri L. Bolus
Status: VU D2
J.E. Victor
Distribution: NC. Richtersveld.
Habitat: White quartzite in succulent karoo shrubland.
Rationale: A habitat specialist (AOO < 20 km²) that is potentially threatened by grazing and trampling by livestock and possibly by harvesting for the specialist succulent horticultural trade.

Lithops naureeniae D.T. Cole
Status: VU D2
J.E. Victor
Distribution: NC. Springbok and possibly the Kamiesberg.
Habitat: Reddish brown, rocky soil derived from gneiss.

Rationale: One or two locations are potentially threatened by harvesting for the specialist succulent horticultural trade.

Lithops olivacea L.Bolus

Status: VU D2
J.E. Victor

Distribution: NC. Aggeneys to Pofadder.
Habitat: Quartzite.
Rationale: A habitat specialist (AOO < 20 km²) that is potentially threatened by grazing and trampling by livestock and possibly by harvesting for the specialist succulent horticultural trade.

Lithops otzeniana Nel

Status: VU D2
J.E. Victor

Distribution: NC. Loeriesfontein to Gamoep.
Habitat: In decomposed granite under shrubs and in open places among stones derived from gneiss.
Rationale: Three known locations are potentially threatened by grazing and trampling by livestock and possibly by harvesting for the specialist succulent horticultural trade.

Lithops viridis H.A.Lückh.

Status: VU D2
J.E. Victor

Distribution: NC. Loeriesfontein.
Habitat: Weathered chert and shale stone.
Rationale: One known location is potentially threatened by trampling by livestock and possibly by harvesting for the specialist succulent horticultural trade.

Machairophyllum Schwantes

*Machairophyllum brevifolium* L.Bolus

Status: VU D2
C. Klak & D. Raimondo

Distribution: WC. Oudtshoorn and De Rust.
Habitat: Red conglomerate hills.
Rationale: Three known locations are potentially threatened by grazing and trampling by livestock.

*Machairophyllum stayneri* L.Bolus

Status: Critically Rare
C. Klak & D. Raimondo

Distribution: EC. Suurberg.
Habitat: Fynbos on shale or quartzite.
Rationale: A range-restricted (EOO < 10 km²) habitat specialist that is not threatened.

Mitrophyllum Schwantes

*Mitrophyllum abbreviatum* L.Bolus

Status: VU D2
G. Williamson, P.M. Burgoyne, F. Daniels & L. Potter

Distribution: NC. Richtersveld.
Habitat: Southwest-facing slopes in quartzitic outcrops.
Rationale: A range-restricted (EOO < 10 km²) habitat specialist that is not threatened.

*Mitrophyllum roseum* L.Bolus

Status: Rare
P.M. Burgoyne & L. Potter

Distribution: NC. Komaggas Mountains.
Habitat: Southwest-facing slopes in quartzitic outcrops.
Rationale: A range-restricted (EOO < 10 km²) habitat specialist that is not threatened.

Monilaria (Schwantes) Schwantes

*Monilaria obconica* Ihlenf. & S.Jörg.

Status: VU D2
C. Klak, J.E. Victor, P.M. Burgoyne & F. Daniels

Distribution: NC. Komaggas Mountains.
Habitat: Southwest-facing slopes in quartzitic outcrops.
Rationale: A range-restricted (EOO < 10 km²) habitat specialist that is not threatened.

Monilaria (Schwantes) Schwantes

*Monilaria pisiformis* (Haw.) Schwantes

Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

Distribution: WC. Vredendal to the mouth of the Olifants River.
Habitat: Quartz patches.
Rationale: EOO 30 km², AOO < 30 km². Two known locations are declining because of ongoing habitat loss to vineyards and tomato cultivation.

Muiria N.E.Br.

*Muiria hortenseae* N.E.Br.

Status: CR A2abc; B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Springfontein and Barrydale.
Habitat: Large quartzite patches, on clay soils in succulent karoo on ridges of low hills.
Rationale: A population reduction of > 80% is estimated based on habitat loss to road construction over the past 50 years and the observed effects of trampling by livestock (generation length 20 years). Only one of five known subpopulations remains (EOO and AOO < 1 km²) and mature individuals at this location continue to decline.

Muiria N.E.Br.

*Muiria hortenseae* N.E.Br.

Status: CR A2abc; B1ab(iii,v)+2ab(iii,v)
J.H. Vlok & D. Raimondo

Distribution: WC. Springfontein and Barrydale.
Habitat: Large quartzite patches, on clay soils in succulent karoo on ridges of low hills.
Rationale: A population reduction of > 80% is estimated based on habitat loss to road construction over the past 50 years and the observed effects of trampling by livestock (generation length 20 years). Only one of five known subpopulations remains (EOO and AOO < 1 km²) and mature individuals at this location continue to decline.
Namaquanthus L.Bolus
- Namaquanthus vanheerdii L.Bolus
  Status: VU D2
  Distribution: NC. Port Nolloth.
  Habitat: Upper slopes of rocky outcrops.
  Rationale: Two known locations are potentially threatened by mining and grazing and trampling by livestock.

Nelia Schwantes
- Nelia pillansii (N.E.Br.) Schwantes
  Status: Rare
  Distribution: NC. Richtersveld.
  Habitat: Quartz fields.
  Rationale: A range-restricted habitat specialist (EOO < 10 km²) that is not threatened.

Neohenricia L.Bolus
- Neohenricia spiculata S.A.Hammer
  Status: Rare
  Distribution: EC. Andriesberg.
  Habitat: In crevices of dolerite domes.
  Rationale: Small, scattered subpopulations occur in an area of ≥ 5 km², but is not threatened because of the inaccessibility of the habitat.

Octopoma N.E.Br.
- Octopoma abruptum (A.Berger) N.E.Br.
  Status: DDD
  Distribution: WC. Clanwilliam, between Pakhuis Pass and Blesiesfontein.
  Habitat: Among rocks.
  Rationale: Not recorded since the type collection in 1933. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

- Octopoma rupigenum (L.Bolus) L.Bolus
  Status: DDD
  Distribution: WC. Clanwilliam, between Pakhuis Pass and Blesiesfontein.
  Habitat: Among rocks.
  Rationale: Not recorded since the type collection in 1933. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Odontophorus N.E.Br.
- Odontophorus angustifolius L.Bolus subsp. angustifolius
  Status: Rare
  Distribution: NC. Richtersveld, Mount Terror and Rosnytjieberg.
  Habitat: Quartzite slopes.
  Rationale: A range-restricted taxon (EOO < 500 km²) that is not threatened because of the inaccessibility of its habitat.

- Odontophorus angustifolius L.Bolus subsp. protoparcoïdes S.A.Hammer
  Status: Rare
  Distribution: NC. Richtersveld, Mount Terror and Rosnytjieberg.
  Habitat: Quartzite slopes.
  Rationale: A range-restricted taxon (EOO < 300 km²) occurring in a remote area where it is not threatened.

Orthopterum L.Bolus
- Orthopterum coegana L.Bolus
  Status: CR B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
  Distribution: EC. Coega.
  Habitat: Rocky sandstone outcrops.
  Rationale: A highly range-restricted species that occurs only at Coega (EOO < 10 km², AOO < 1 km²). There were three isolated, severely fragmented subpopulations, but the habitat of one subpopulation was destroyed as a result of quarrying. Plants from this site were translocated, but appear not to survive the disturbance. The habitat at a second subpopulation is being degraded by dumping, disturbance from vehicles and removal of the quartz rocks on which the plants grow for sale in nurseries and this subpopulation is also declining. A third subpopulation is not threatened.

- Orthopterum quadrisepalum (L.Bolus)
  Status: VU B1ab(iii,v)
  Distribution: WC. Laingsburg to Ladismith.
  Habitat: Open succulent vegetation in loamy soils with some quartzite pebbles in quartz gannavel.
  Rationale: EOO 15 km². Three locations are known, but there are likely to be more in poorly explored areas of the range. The specialised habitat of this species is prone to erosion, and overgrazing and trampling by livestock are probably causing a continuing decline.
**Oscularia Schwantes**

**Oscularia cremnophila** Van Jaarsv., Desmet & A.E.van Wyk

Status: CR D

PA. Manyama

*Distribution*: WC. Lambert’s Bay.

*Habitat*: Quartzitic sandstone inselberg, 122 m.

*Rationale*: A population of 24 mature individuals at a single site is potentially threatened by mining.

**Oscularia vredenburgensis** (L.Bolus) H.E.K.Hartmann

Status: VU A2abc; B1ab(ii,iii,v) + 2ab(ii,iii,v)

N.A. Helme & D. Raimondo

*Distribution*: WC. Stompneus Bay to Langebaan.

*Habitat*: Granite rocks.

*Rationale*: A population reduction of > 30% over the past 15 years is estimated based on observed declines in known subpopulations and habitat loss to coastal development (generation length ± 10 years). EOO and AOO < 500 km². Five locations are known, but there are likely to be a few more in poorly explored areas of the range. Ongoing habitat loss and degradation by coastal development and grazing livestock are causing a continuing decline.

**Ottosonderia L.Bolus**

**Ottosonderia obtusa** L.Bolus

Status: VU D2

C. Klak & J.E. Victor

*Distribution*: NC. Wallekraal and Komaggas.

*Habitat*: Quartz patches.

*Rationale*: Habitat at one of two known locations was lost to quarrying, but the population is stable at present. Further quarrying and trampling and overgrazing by livestock are potential threats.

**Phiambolia Klak**

**Phiambolia franciscii** (L.Bolus) Klak

Status: Rare

C. Klak & D. Raimondo

*Distribution*: WC. Ceres to the Cederberg.

*Habitat*: Sandstone slabs on shallow soil.

*Rationale*: A range-restricted habitat specialist (EOO 450 km²) that is not threatened because of its preference for rocky habitats.

**Phiambolia hallii** (L.Bolus) Klak

Status: Rare

C. Klak & D. Raimondo

*Distribution*: WC. Karooopoor to Katbakkies and the Cederberg.

*Habitat*: Shale or sandstone, often in very rocky areas.

*Rationale*: A habitat specialist known from five sites. It is not threatened because of its preference for rocky habitats.

**Phiambolia incumbens** (L.Bolus) Klak

Status: Rare

C. Klak & D. Raimondo

*Distribution*: WC. Klawer to Clanwilliam to Katbakkies.

*Habitat*: Shallow sand on sandstone pavements.

**Phyllobolus N.E.Br.**

**Phyllobolus congestus** (L.Bolus) Gerbaulet

Status: Rare

D. Raimondo & P.G. Desmet

*Distribution*: WC. Vanrhynsdorp to Bitterfontein.

*Habitat*: Stony soils in Knearsvlakte Quartz Vygies Veld, growing in bushes, 180–350 m.

*Rationale*: A range-restricted (EOO < 500 km²) that is not threatened.

**Phyllobolus amabilis** Gerbaulet & Struck

Status: Rare

D. Raimondo & F. Cholo

*Distribution*: WC. Hex River Valley and Bokkeveld Escarpment.

*Habitat*: Sandy alluvial soils on shale.

*Rationale*: One disjunct subpopulation in the Hex River Valley is now locally extinct as a result of fruit orchard cultivation. Four known locations on the Bokkeveld Escarpment near Nieuwoudtville are potentially threatened by alien grass invasion and trampling and grazing by livestock.

**Phyllobolus chrysophthalmus** Gerbaulet & Struck

Status: Rare

D. Raimondo & P.G. Desmet

*Distribution*: WC. Vanrhynsdorp to Bitterfontein.

*Habitat*: Stony soils in Knearsvlakte Quartz Vygies Veld, growing in bushes, 180–350 m.

*Rationale*: A range-restricted (EOO < 500 km²) habitat specialist that is not threatened.
Habitat: Rocky slopes, 190–1 100 m.
Rationale: A range-restricted endemic to the north-eastern Richtersveld (EOO < 100 km²) with no known threats.

**Pleiospilos rabiei** (L.Bolus) Gerbaulet
Status: DDD
D. Raimondo & F. Cholo

**Distribution:** FS. Fauresmith.
Habitat: Unknown, 1–1–1 450 m.
Rationale: A poorly known species last collected in 1932. It is potentially threatened by grazing livestock.

**Phyllobolus**

**Phyllobolus gariepensis** (L.Bolus) Schwantes
Status: EN B1ab(i,ii,iii,iv,v); D
C. Klak & D. Raimondo

**Distribution:** WC. Riebeeck Kasteel and Moorreesburg to Nardous Pass.
Habitat: On shales in renosterveld.
Rationale: EOO 2 300 km². A population of less than 200 mature individuals at two disjunct locations is declining as a result of ongoing habitat loss to expanding vineyards around Riebeeck Kasteel and to rooibos tea cultivation at Nardous Pass.

**Phyllobolus**

**Rhombophyllum**

**Psilocaulon**

**Prenia vanrensburgii** L.Bolus
Status: NT B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
D. Raimondo & R.C. Turner

**Distribution:** WC. Olifants River Valley.
Habitat: Quartzite outcrops.
Rationale: EOO 102 km², AOO < 102 km². Four locations is declining because of mining.

**Phyllobolus viridiflorus** (Jacq.) Gerbaulet
Status: Rare
C. Klak & D. Raimondo

**Distribution:** WC. Olifants River Valley.
Habitat: Hills or quartzite plains.
Rationale: A range-restricted species (EOO 100 km²) that is not threatened.

**Prenia** N.E.Br.

**Psilocaulon densum** N.E.Br.
Status: DDD
P.M. Burgoyne & F. Daniels

**Distribution:** NC. Steinkopf.
Habitat: Unknown.
Rationale: A poorly known species known from only two collections. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Rhinephyllum** N.E.Br.

**Rhinephyllum inaequale** L.Bolus
Status: EN D
J.H. Vlok & D. Raimondo

**Distribution:** WC. Little Karoo, Prince Albert.
Habitat: Loose gravelly shale.
Rationale: A population of less than 100 mature individuals at one location is potentially threatened by trampling by livestock.

**Rhombothyllum** (Schwantes) Schwantes

**Rhombophyllum**

**Psilocaulon**

**Phyllobolus**
Ruschia amicorum (L.Bolus) Schwantes

Status: VU D2
J.E. Victor

distribution: WC. Montagu to Ladismith.
Habitat: Succulent karoo on shales.
Rationale: A high-altitude habitat specialist that is not threatened.

Ruschia altigena (L.Bolus) L.Bolus

Status: Rare
P.M. Burgoyne, P.G. Desmet & D. Raimondo

distribution: EC WC. Swartberg, Witteberg and Baviaanskloof Mountains.
Habitat: Rocky slopes in sandstone fynbos above 1 700 m.
Rationale: A high-altitude habitat specialist that is not threatened.

Ruschia amicorum (L.Bolus) Schwantes

Status: VU D2
J.E. Victor

distribution: WC. Montagu to Ladismith.
Habitat: Succulent karoo on shales.
Rationale: A high-altitude habitat specialist that is not threatened.

Ruschia ceresiana L.Bolus

Status: Rare
D. Raimondo & F. Cholo

distribution: WC. Tanaqua Karoo.
Habitat: Succulent karoo shrubland.
Rationale: Fewer than five known locations are potentially threatened by crop cultivation and urban development.

Ruschia cupulata (L.Bolus) Schwantes

Status: VU D2
N.A. Helme & D. Raimondo

distribution: WC. Saltmanha to Jacobshai.
Habitat: Low granite rocks along coast.
Rationale: Fewer than five known locations are potentially threatened by coastal development.

Ruschia densiflora L.Bolus

Status: CR B1ab(ii,iii,iv,v)
N.A. Helme, C. Klak & D. Raimondo

distribution: WC. Lambert’s Bay to Clanwilliam.
Habitat: Acid sand fynbos in sandveld.
Rationale: EOO 100 km². Two of three known locations are now locally extinct as a result of habitat loss to potato cultivation. The number of mature individuals at one remaining location in a road verge near Clanwilliam is declining because of habitat degradation as a result of fragmentation.

Ruschia duthiae (L.Bolus) Schwantes

Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

distribution: WC. Kenysna to Nature’s Valley.
Habitat: Garden route shale fynbos.
Rationale: EOO and AOO < 160 km². Five known locations are declining as a result of ongoing habitat loss to coastal development, afforestation, invasion by alien plants and inappropriate fire management as a result of fragmentation of its habitat. This species belongs to a genus that is difficult to identify and may be overlooked in environmental impact assessments.

Ruschia geminiflora (Haw.) Schwantes

Status: VU B1ab(ii,iii,iv,v)
N.A. Helme, D. Raimondo & C. Klak

distribution: WC. Cape Peninsula to Kalkskraal.

Habitat: Clay flats, also in alluvial sands over clay or coastal sands.
Rationale: EOO 13 400 km². Only 15 small, severely fragmented subpopulations remain after > 80% of the habitat has been transformed by crop cultivation, urban and coastal development and invasion by alien plants, and decline is continuing.

Ruschia indecora (L.Bolus) Schwantes

Status: EN B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo

distribution: WC. Mamre to Bloubergstrand.
Habitat: Coastal lowland fynbos in deep sands.
Rationale: EOO 1 350 km². Five remaining locations continue to decline owing to habitat loss to crop cultivation, coastal development and invasion by alien plants.

Ruschia klipbergensis L.Bolus

Status: DDD
D. Raimondo & F. Cholo

distribution: WC. Malmesbury Klipberg.
Habitat: Granite soils in renosterveld, 250–380 m.
Rationale: Last collected in the 1950s. It occurs in an area where it is likely to be threatened, but not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Ruschia lapidicola L.Bolus

Status: Rare
D. Raimondo & F. Cholo

distribution: WC. Northern Cederberg.
Habitat: Rocky sandstone basins, 600–1 070 m.
Rationale: A rare, range-restricted species (EOO < 500 km²) that is not threatened.

Ruschia leptocalyx L.Bolus

Status: EN B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo

distribution: WC. Struisbaai to Mossel Bay.
Habitat: Shale outcrop among Enon conglomerate associated with quartz.
Rationale: EOO < 4 900 km². Five known locations are declining as a result of ongoing habitat loss to crop cultivation, coastal development and invasion by alien plants.

Ruschia nieuwerustensis L.Bolus

Status: Rare
D. Raimondo & F. Cholo

distribution: WC. Nieuwerust.
Habitat: Namaqualand Klipkoppe Shrubland.
Rationale: A range-restricted (EOO < 500 km²) habitat specialist that is not threatened.

Ruschia polita L.Bolus

Status: VU D2
J.H. Vlok & D. Raimondo

distribution: WC. Touwsrivier to Anysberg.
Habitat: Low hills on calcrete soils.
Rationale: Two known locations are potentially threatened by overgrazing and trampling by livestock.

Ruschia promontorii L.Bolus

Status: Rare
E.J. van Jaarsveld, N.A. Helme & L. Potter

distribution: WC. Cape Peninsula.
Habitat: Shallow pockets of sand on narrow rocky ledges and steep precipitous slopes exposed to salt-laden sea breezes, 15–180 m.
Rationale: A range-restricted (EOO < 100 km²) habitat specialist that is not threatened.

*Ruschia rubricaulis* (Haw.) Bolus
Status: VU D2
N.A. Helme & D. Raimondo
*Distribution*: WC. Cape Peninsula.
*Habitat*: Granite boulders on coastal slopes.
*Rationale*: A range-restricted endemic (EOO 70 km²) to the Cape Peninsula. Five known locations are potentially threatened by invading alien plants.

*Ruschia strubeniae* (L.Bolus) Schwantes
Status: VU D2
C. Klak & D. Raimondo
*Distribution*: WC. Piketberg and Perdeberg.
*Habitat*: Basalts of rock outcrops on sandstone slopes.
*Rationale*: Four known locations are potentially threatened by invading alien plants and expansion of vineyards.

*Ruschia tecta* L.Bolus
Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
C. Klak & D. Raimondo
*Distribution*: WC. Darling to Cape Town.
*Habitat*: Sandy coastal flats.
*Rationale*: EOO 240 km², AOO < 240 km². Fewer than five remaining locations continue to decline as a result of ongoing habitat loss to coastal development, crop cultivation and invasion by alien plants.

*Saphesia* N.E.Br.

*Saphesia flaccida* (Jacq.) N.E.Br.
Status: CR B2ab(ii,iii,iv,v)
C. Klak & D. Raimondo
*Distribution*: WC. Malmesbury and Redelinghuys.
*Habitat*: Lowland sand fynbos, in seasonally wet depressions.
*Rationale*: Two small, severely fragmented subpopulations remain on isolated habitat remnants (AOO < 10 km²) after > 50% of known subpopulations were lost to invading alien plants, crop cultivation and urban development. It continues to decline because of ongoing habitat loss to rooibos tea cultivation and invasion by alien plants.

*Sceletium* N.E.Br.

*Sceletium expansum* (L.) L.Bolus
Status: VU B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo
*Distribution*: WC. Malmesbury to Clanwilliam.
*Habitat*: Arid succulent fynbos on sandstone slopes.
*Rationale*: EOO < 2 200 km². Fewer than 10 locations are declining because of ongoing habitat loss to rooibos tea cultivation around Clanwilliam.

*Sceletium strictum* L.Bolus
Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
C. Klak, J.H. Vlok & D. Raimondo
*Distribution*: WC. Ladismith.
*Habitat*: Succulent karoo, among shrubs.
*Rationale*: EOO and AOO < 250 km². Habitat quality at three known locations is declining as a result of grazing and trampling by goats and ostriches. It is also potentially threatened by illegal harvesting for horticultural purposes.

*Sceletium varians* (Haw.) Gerbaulet
Status: VU B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)
J.E. Victor & N.A. Helme
*Distribution*: WC. Worcester and Robertson.
*Habitat*: Lowlands on shale flats.
*Rationale*: EOO and AOO < 500 km². Fewer than 10 locations are declining as a result of ongoing habitat loss to vineyard expansion and urban development.

Schwantesia Dinter

*Schwantesia acutipetala* L.Bolus
Status: VU D2
J.E. Victor
*Distribution*: NC. Richtersveld.
*Habitat*: Kahams Mountain Desert, on quartzite, moderate to steep slopes.
*Rationale*: One known location is potentially threatened by harvesting for the illegal succulent horticultural trade.

*Schwantesia borchersdii* L.Bolus
Status: VU D2
J.E. Victor
*Distribution*: NC. Upington, near Augrabies.
*Habitat*: Succulent karoo, in rocky soils derived from red or black gneiss rocks.
*Rationale*: One known location is potentially threatened by harvesting for the illegal succulent horticultural trade.

*Schwantesia pillansii* L.Bolus
Status: Rare
J.E. Victor
*Distribution*: NC. Bushmanland, Namies Mountain.
*Habitat*: Bushmanland Inselberg Shrubland, well-drained, sandy soil, mostly in crevices of quartzite, steep slopes, 1 000 m.
*Rationale*: A range-restricted species (EOO 30 km²) that is not threatened.

*Skiatophyton* L.Bolus

*Skiatophyton tripolium* (L.) L.Bolus
Status: VU B1ab(ii,iii,iv,v)
C. Klak & D. Raimondo
*Distribution*: WC. Between Clanwilliam, Franschhoek and Cape Town.
*Habitat*: Table Mountain Sandstone sands adjacent to mountain streams or seeps on lower slopes.
*Rationale*: EOO < 13 000 km². Fewer than 10 known locations are declining because of ongoing habitat loss to afforestation, urban development, invasion by alien plants and crop cultivation.

*Stayneria* L.Bolus

*Stayneria neillii* (L.Bolus) L.Bolus
Status: VU D2
J.E. Victor
*Distribution*: WC. Breede River Valley between Worcester and McGregor.
*Habitat*: Rocky sandstone hills or mountain slopes in vegetation transitional between succulent karoo and montane fynbos.
*Rationale*: Three known locations are potentially threatened by vineyard expansion.
Tanquana H.E.K.Hartmann & Liede
Tanquana archeri (L.Bolus) H.E.K.Hartmann & Liede
  Status: VU D2 (J.E. Victor)
  Distribution: WC. Matjiesfontein to Laingsburg.
  Habitat: Gravely soils derived from shales of the Ecca Formation.
  Rationale: One known location is potentially threatened by harvesting for the specialist succulent horticultural trade.

Tanquana hilamarii (L.Bolus) H.E.K.Hartmann & Liede
  Status: CR B1ab(v)+2ab(v)
  D. Raimondo & J.H. Vlok
  Distribution: WC. Little Karoo south of Laingsburg.
  Habitat: In cracks between shale ridges in succulent karoo.
  Rationale: EOO < 100 km². AOO 9.5 km². The number of mature individuals at three severely fragmented sub-populations is declining as a result of harvesting for the specialist succulent horticultural trade. One subpopulation has lost 95% of individuals over the past 20 years.

Trichodiadema Schwantes
Trichodiadema aureum L.Bolus
  Status: VU D2
  D. Raimondo, J.E. Victor & P.M. Burgoyne
  Distribution: EC. Willowmore to Jeffreys Bay.
  Habitat: Karroid vegetation, near alluvial soils.
  Rationale: Three known locations are potentially threatened by urban expansion, crop cultivation and overgrazing and trampling by livestock.

Trichodiadema burgeri L.Bolus
  Status: VU D2
  D. Raimondo & J.H. Vlok
  Distribution: WC. De Rust near Oudtshoorn.
  Habitat: De Rust sandolien-spekboomveld.
  Rationale: One known location is potentially threatened by trampling and overgrazing by sheep and ostriches.

Trichodiadema pygmaeum L.Bolus
  Status: VU D2 (J.E. Victor)
  Distribution: WC. Cape Infanta.
  Habitat: Calcrete flats.
  Rationale: One known location is potentially threatened by coastal development and invasion by alien plants.

Vlokia S.A.Hammer
Vlokia ater S.A.Hammer
  Status: Critically Rare
  C. Klak, A.L. Schutte-Vlok & D. Raimondo
  Distribution: WC. Montagu, Waboomsberg.
  Habitat: Shallow pans on a sandstone plateau.
  Rationale: Known to occur at a single site where it is not threatened.

Wooley L.Bolus
Wooley farinosa (L.Bolus) L.Bolus
  Status: VU B1ab(ii,iii,iv,v)
  C. Klak & D. Raimondo
  Distribution: NC. Hondeklip Bay, Wallekraal and Kleinsee.
Psammotropha Eckl. & Zeyh.

Psammotropha diffusa Adamson
Status: VU D2
D. Raimondo & R.C. Turner
Distribution: WC. Cederberg, Sneeuberg.
Habitat: Shale bands at 1 400 m.
Rationale: One known location is potentially threatened by too frequent fires.

Psammotropha spicata Adamson
Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
D. Raimondo, N.A. Helme & R.C. Turner
Distribution: WC. Gifberg.
Habitat: Deep sands.
Rationale: EOO 60 km², AOO < 60 km². Habitat at two known locations is declining because of rooibos tea cultivation.

MYRICEAE

Morella Lour.

Morella microbracteata (Weim.) Verdc. & Polhill
Status: EN D
M. Lötter, J.E. Burrows & J.E. Victor
Distribution: MP. Lydenburg to Graskop. Also occurs near Nyanga in Zimbabwe.
Habitat: Mistbelt forest.
Rationale: Three small subpopulations, consisting of no more than 250 mature individuals in total, are known to occur in South Africa. The population is not declining, but it is isolated from subpopulations in Zimbabwe, and the national status is not downgraded.

MYRISACEAE

Rapanea Aubl.

Rapanea gilliana (Sond.) Mez
Status: EN B1ab(ii,iii,iv,v)
J.E. Victor
Distribution: EC. St Francis Bay to Port Alfred.
Habitat: Coastal sand dunes.
Rationale: EOO 2 940 km². The 15 small, severely fragmented subpopulations continue to decline because of coastal development, invasion by alien plants and industrial development at Coega.

Rapanea melanophloeos (L.) Mez
Status: Declining
Distribution: EC FS KZN LM MP WC. Cape Peninsula to Malawi.
Habitat: Coastal, swamp and mountain forest, on forest margins and in bush clumps, often in damp areas from coast to mountains.
Rationale: The species is declining as a result of bark harvesting for the medicinal plant trade, especially in KwaZulu-Natal. Tree mortality has been observed as a result of debarking and its vulnerability to fungal and insect attack following bark removal. However, the species is widespread and there is sufficient recruitment for it not to be in danger of extinction.

MOLLUGINACEAE

Hypertelis trachysperma
Status: EN
D. Raimondo, N.A. Helme & R.C. Turner
Distribution: WC. Gifberg.
Habitat: Deep sands.
Rationale: EOO 60 km², AOO < 60 km². Habitat at two known locations is declining because of rooibos tea cultivation.

Eugenia L.

Eugenia erythrophylla Strey
Status: NT B1ab(iii,v)
L. von Staden & A.T.D. Abbott
Habitat: Rocky banks of rivers.
Rationale: EOO < 4 500 km². Known from fewer than 10 locations. There is continuing decline in habitat quality and the number of mature individuals as a result of dam construction and extraction of water for crop irrigation that affect the hydromorphic characteristics of riverbanks.

Eugenia pusilla N.E.Br.
Status: EX
J.E. Victor & A.E. van Wyk
Distribution: MP. Ermelo.
Habitat: KaNgwane Montane Grassland.
Rationale: Last collected in 1920 and never recorded again despite numerous searches. The area where it was last recorded has been transformed to wattle plantations.

Eugenia simii Dummer
Status: VU B1ab(iii,v)
J.E. Victor, C.R. Scott-Shaw & A.E. van Wyk
Distribution: EC KZN. Pondoland, between Umtamvuna and Mtentu Rivers.
Habitat: Pondoland scarp forest. Restricted to the margins of a particular type of kloof or ravine forest that stretch up along narrow drainage lines above the steep cliffs of the deep Pondoland gorges, Mkikaba Formation Sandstone, 300–500 m.
Rationale: EOO 140–660 km², AOO < 50 km². Known subpopulations are small and isolated and therefore considered severely fragmented. This species is restricted to a highly threatened and restricted habitat and continues to decline owing to too frequent and intense grassland fires that have an impact on forest margins, harvesting for firewood and building materials, and invasion by alien plants. Only six subpopulations in three locations are currently known but there may be a few others in inaccessible and unexplored areas of the Pondoland region.

Eugenia umtamvunensis A.E.van Wyk
Status: EN B1ab(iii,v)+2ab(iii,v)
L. von Staden & A.T.D. Abbott
Distribution: EC KZN. Pondoland, between Umtamvuna and Mtentu Rivers.
Habitat: Pondoland scarp forest. Restricted to the margins of a particular type of kloof or ravine forest that stretch up along narrow drainage lines above the steep cliffs of the deep Pondoland gorges, Mkikaba Formation Sandstone, 300–500 m.
Rationale: EOO 140–660 km², AOO < 50 km². Known subpopulations are small and isolated and therefore considered severely fragmented. This species is restricted to a highly threatened and restricted habitat and continues to decline owing to too frequent and intense grassland fires that have an impact on forest margins, harvesting for firewood and building materials, and invasion by alien plants. Only six subpopulations in three locations are currently known but there may be a few others in inaccessible and unexplored areas of the Pondoland region.

ANGIOSPERMS: DICOTYLEDONS

MOLLUGINACEAE

Hypertelis trachysperma
Eugenia verdoorniae A.E.van Wyk
Status: NT B1ab(iii,v)
L. von Staden & A.T.D. Abbott
Distribution: EC KZN. Pondoland, Umtamvuna to Port St Johns.
Habitat: Pondoland scarp forest. Occurs on forest margins and on exposed streambanks and islands of larger rivers, restricted to Msikaba Formation Sandstone.
Rationale: EOO 1 200 km². More than 10 locations occur in a highly threatened and restricted habitat. Habitat quality and number of mature individuals continue to decline because of too frequent and intense grassland fires that have an impact on forest margins.

Syzygium Gaertn.
Syzygium pondoense Engl.
Status: Rare
J.E. Victor & A.E. van Wyk
Distribution: EC KZN. From Umtamvuna to Mlambom-kulu Rivers.
Habitat: Pondoland scarp forest. Rocky islands and sandbanks in streams, restricted to Msikaba Formation Sandstone, 20–200 m.
Rationale: A range-restricted Pondoland endemic (EOO 280 km²) that occurs in an inaccessible habitat where it is not threatened.

OCHNACEAE

Brackenridgea A.Gray
\textsuperscript{1}Brackenridgea zanguebarica Oliv.
Status: CR A2ad; B1ab(ii,v)
V.L. Williams & D. Raimondo
Distribution: LM. One known subpopulation in South Africa occurs in the Thengwe district in Venda. Also occurs in Zimbabwe, Mozambique and northwards to Tanzania.
Habitat: South Africa: stony, light grey and shallow sandy loam in woodland, 655 m, also on the southern aspect of dry mountain bushveld. In East Africa, it is found in deciduous woodland and coastal bush, 0–1 500 m.
Rationale: At one known location in South Africa an 86% population reduction was observed from 1990–1997 due to debarking for the medicinal plant trade, collecting of fuel wood, and habitat destruction for agriculture. South African EOO and AOO < 35 km² and decline continues. The South African national assessment is not downgraded as this population is significantly disjunct from other subpopulations in Africa.

OROBLANCHACEAE

Buchnera L.
\textsuperscript{1}Buchnera remotiflora Schinz
Status: DDD
D. Raimondo, P.A. Manyama & D.A. Kamundiitä
Distribution: LM. Woodbush.
Habitat: Unknown.
Rationale: Known only from the type, collected in 1894 from an area now extensively transformed to forestry plantations. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Graderia Bentham.
\textsuperscript{1}Graderia linearifolia Codd
Status: VU D2
L. von Staden & M. Lötter
Distribution: MP. Steenkampsberg.

Habitat: Sparse montane grassland on poor, gravelly, quartzitic soil, 2 253 m.
Rationale: One known location is potentially threatened by invading alien plants and infrastructure development.

Harveya Hook.
Harveya euryantha Schltr.
Status: DDD
F. Daniels, N.A. Helme & D. Raimondo
Distribution: WC. Bredasdorp.
Habitat: Stony slopes, 400 m.
Rationale: A poorly known species, last collected in 1930. It is likely to be threatened by vineyard expansion and invasion by alien plants, but not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Harveya roseoalba J.C.Manning & Goldblatt
Status: Rare
N.A. Helme & D. Raimondo
Distribution: WC. Gamkaberg and Attakwasberg.
Habitat: Eastern slopes in clay soil, parasitic on Phylica lanigera and Hermannia velutina.
Rationale: A range-restricted species (EOO 143 km²), known from two subpopulations, but not threatened.

Hyobanche L.
\textsuperscript{1}Hyobanche fullerii E.Philips
Status: CR A2c; B1ab(i,i,ii,iii,iv,v)
A. Wolfe & D. Raimondo
Distribution: KZN. Durban to Port Shepstone.
Habitat: Sandy soils within 1 km of the coast.
Rationale: Restricted to the coastline between Durban and Port Shepstone (EOO less than 85 km²). This species has lost over 90% of its habitat to coastal development and associated dune stabilisation over the past 40 years. Plants are long-lived, generation time is estimated to be 15 years. There are two known remaining extant locations. Subpopulations have been fragmented as a result of coastal developments where dunes around development are planted up to prevent erosion. As this species requires fire and flooding to recruit, stabilisation of its dune habitat is detrimental to its ecology and is likely to cause an ongoing decline in the population.

\textsuperscript{1}Hyobanche robusta Schönland
Status: EN B1ab(i,ii,iii,v)
A. Wolfe & D. Raimondo
Distribution: EC WC. Oyster Bay to Kenton on Sea.
Habitat: Deep sand dune systems.
Rationale: EOO 2 200 km². Five known locations are declining because of invading alien acacias and coastal development. This species requires periodic disturbance of its dune habitat to recruit, and both development and invasive plants lead to stabilisation of dune systems.

OXALIDACEAE

Oxalis L.
\textsuperscript{3}Oxalis albiuscula T.M.Salter
Status: DDD
L.L. Dreyer & K.C. Oberlander
Distribution: NC. South of Kamieskroon.
Habitat: Namaqualand blowveld, 152–976 m.
Rationale: Last collected in the 1930s and not recorded since, despite searches. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.
**Oxalis amblyosepala** Schltr.

**Status:** VU D2

J. Zietsman, L.L. Dreyer, K.C. Oberlander, N.A. Helme & D. Raimondo

**Distribution:** NC WC. Gilberg to Pakhuis.

**Habitat:** Seasonally wet, shallow sands on sandstone pavements.

**Rationale:** A habitat specialist (AOO < 20 km²) that is potentially threatened by recruitment failure and invasive alien plants.

**Oxalis anomala** T.M.Salter

**Status:** DDD

L.L. Dreyer, K.C. Oberlander & D. Pillay

**Distribution:** WC. Barrydale, Little Karoo.

**Habitat:** Shale flats.

**Rationale:** Last collected in 1941 and not recorded since, despite searches. Not enough is known about the distribution, specific habitat or population status of the species to determine its status.

**Oxalis aridicola** T.M.Salter

**Status:** Rare

L.L. Dreyer, K.C. Oberlander & D. Pillay

**Distribution:** WC. Clanwillas and Outeniqua Mountains.

**Habitat:** High-altitude, sandstone slopes.

**Rationale:** A range-restricted species (EOO < 500 km²) that is not threatened.

**Oxalis attaquana** T.M.Salter

**Status:** VU D2

N.A. Helme

**Distribution:** WC. Clanwillas and Outeniqua Mountains.

**Habitat:** High-altitude sandstone slopes.

**Rationale:** Last collected in 1938 and not recorded since, despite searches. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Oxalis aurora** Schltr.

**Status:** Rare

L.L. Dreyer, K.C. Oberlander & D. Pillay

**Distribution:** WC. Clanwillis to Doringbos.

**Habitat:** Sandy and clay flats.

**Rationale:** Last collected in the 1930s. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Oxalis blastorrhiza** T.M.Salter

**Status:** VU D2

L.L. Dreyer, K.C. Oberlander & J.E. Victor

**Distribution:** WC. Vansrhydrops.

**Habitat:** Alkaline sandy clay flats.

**Rationale:** One known location is potentially threatened by road construction and mining.

**Oxalis burtoniae** T.M.Salter

**Status:** VU B1ab(ii,iii,v)+2ab(ii,iii,v)

N.A. Helme

**Distribution:** WC. Paternoster to Saldanha Bay.

**Habitat:** Granite and limestone outcrops, 0–100 m.

**Rationale:** EOO 700 km², AOO < 700 km². Habitat at fewer than 10 locations continues to decline as a result of coastal development. Likely to be overlooked in environmental impact assessments.

**Oxalis calvinensis** R.Knuth

**Status:** DDD

L.L. Dreyer, K.C. Oberlander & D. Pillay

**Distribution:** NC, Hantamsberg Mountain.

**Habitat:** Unknown.

**Rationale:** Last collected in 1955. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Oxalis camelopardalis** T.M.Salter

**Status:** VU D2

N.A. Helme

**Distribution:** WC. Villiersdorp to Worcester.

**Habitat:** Renosterveld on shales.

**Rationale:** Two known locations are potentially threatened by urban and agricultural expansion.

**Oxalis cathara** T.M.Salter

**Status:** Rare

L.L. Dreyer, K.C. Oberlander & K. Naidoo

**Distribution:** NC WC. Bitterfontein to Garies.

**Habitat:** Granite flats and slopes.

**Rationale:** A range-restricted species (EOO < 500 km²) that is not threatened.

**Oxalis comptonii** T.M.Salter

**Status:** NT D2

N.A. Helme, L.L. Dreyer & K.C. Oberlander

**Distribution:** WC. Gilberg and Matzikamma Mountain.

**Habitat:** High-altitude sandstone plateau.

**Rationale:** Five to ten locations are potentially threatened by rooibos tea cultivation.

**Oxalis creaseyi** T.M.Salter

**Status:** VU D2

N.A. Helme, L.L. Dreyer & K.C. Oberlander

**Distribution:** NC. Between Garies and Leliefontein, and Kamiesberg.

**Habitat:** Granite flats and slopes, medium elevations.

**Rationale:** Two disjunct locations are potentially threatened by overstocking of livestock on communal lands and ploughing for cereal crops.

**Oxalis crispula** Sond.

**Status:** DDD

L.L. Dreyer, K.C. Oberlander & D. Pillay

**Distribution:** WC. Between Bitterfontein and Eenkoker.

**Habitat:** Granite flats and slopes.

**Rationale:** Last collected in 1941 and not recorded since, despite searches from 2000 to 2006. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Oxalis crocea** T.M.Salter

**Status:** VU D2

N.A. Helme, L.L. Dreyer & K.C. Oberlander

**Distribution:** NC. Port Nolloth to Spektakel Pass.

**Habitat:** Clays and course, gravelly slopes.

**Rationale:** A population of less than 1 000 mature individuals occurring at three known locations is potentially threatened by grazing and trampling by livestock and climate change.
Oxalis cuneata Jacq.
Status: VU D2
L.L. Dreyer, K.C. Oberlander & D. Pillay
Distribution: NC WC. Bitterfontein to Vanrhynsdorp.
Habitat: Quartzite patches.
Rationale: Known from two subpopulations at two locations, one of which has not been recorded since 1937, despite recent searches. The other location, near Vanrhynsdorp, is potentially threatened by mining.

Oxalis davyana R.Knuth
Status: VU D2
K. Naidoo, D. Raimondo & L.L. Dreyer
Distribution: NC WC. Vanrhynsdorp to Clanwilliam and Calvinia.
Habitat: Seasonal pools and pans in clay.
Rationale: EOO < 6 600 km². Less than 20 isolated, severely fragmented subpopulations continue to decline as a result of habitat degradation caused by trampling and grazing by livestock.

Oxalis droseroides E.Mey. ex Sond.
Status: VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Tulbagh to Worcester and Malmesbury to Paarl.
Habitat: Clay slopes, 300–500 m.
Rationale: EOO < 3 500 km². Fewer than 10 remaining locations continue to decline because of ongoing habitat loss to urban development, invasive alien plants and crop cultivation, especially in the upper Breede River Valley.

Oxalis duriuscula Schltr.
Status: NT B1ab(iii,iv)+2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Caledon to Bredasdorp and Swellendam.
Habitat: Renosterveld on sandy flats, 100–500 m.
Rationale: EOO and AOO < 2 000 km². Less than 20 locations are declining as a result of ongoing habitat loss to crop cultivation, urban expansion and invasion by alien plants.

Oxalis extensa T.M.Salter
Status: DDD
L.L. Dreyer, K.C. Oberlander & D. Pillay
Distribution: NC WC. Augrabies Falls.
Habitat: Unknown.
Rationale: Last collected in 1936. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Oxalis falcata T.M.Salter
Status: EN B1ab(ii,iii,iv,v)
D. Raimondo, L.L. Dreyer, K.C. Oberlander & N.A. Helme
Distribution: WC. Cape Peninsula to Paarl.
Habitat: Lower slopes on granites or shales.
Rationale: EOO < 1 000 km². Three locations remain after most of the habitat has been transformed by urban expansion. It continues to decline because of ongoing habitat loss.

Oxalis fourcadei T.M.Salter
Status: Rare
L.L. Dreyer, K.C. Oberlander & D. Pillay
Distribution: EC WC. Kammanassie to Humansdorp.
Habitat: Dry upper slopes.
Rationale: A high-altitude habitat specialist that is not threatened.

Oxalis fragilis T.M.Salter
Status: CR PE
L.L. Dreyer, K.C. Oberlander & D. Pillay
Distribution: WC. Mooresburg.
Habitat: Shale flats, 170 m.
Rationale: Known to occur at only one site where it was last recorded before 1936. The area is now extensively transformed for wheat cultivation. Despite searches between 2000 and 2006 it has not been relocated and is likely to be extinct.

Oxalis hirsuta Sond.
Status: DDD
L.L. Dreyer & K.C. Oberlander
Distribution: WC. Between Rhenosterkop and Beaufort West.
Habitat: Unknown.
Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Oxalis hygrophila Dreyer
Status: CR PE
L.L. Dreyer, K.C. Oberlander & D. Raimondo
Distribution: WC. Pakhuis Pass.
Habitat: Seepage area on shale band.
Rationale: A small flowering population was discovered in 2001 after a fire and good rainfall. Visits to the site during the next five years failed to relocate the population, even in 2006 when similar conditions—a fire followed by good rains—occurred. The ecology of this species is still poorly understood at present, but it appears that the population may have gone extinct for unknown reasons.

Oxalis inconspicua T.M.Salter
Status: Rare
L.L. Dreyer & K.C. Oberlander
Distribution: NC WC. Namaqualand, near Kamieskroon and Steinkopf.
Habitat: Gravelly hill slopes.
Rationale: A naturally rare species that occurs as scattered individuals or small subpopulations, but it is not threatened.

Oxalis involuta T.M.Salter
Status: CR PE
L.L. Dreyer, K.C. Oberlander & D. Pillay
Distribution: WC. Porterville.
Habitat: Renosterveld, 175 m.
Rationale: Known only from the type, collected in 1935. The area where this species was collected has been extensively transformed for wheat cultivation. Despite extensive searches between 1998 and 2006, it has not been relocated and is likely to be extinct.
Oxalis ioeides T.M. Salter & Exell
Status: DDD
L.L. Dreyer, K.C. Oberlander & D. Pillay
eDistribution: WC. Kammanassie Mountains and Robinson Pass in the Outeniqua Mountains.
Habitat: Damp lower slopes, 600 m.
Rationale: Known only from the type, collected in 1932. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Oxalis lasiorrhiza T.M. Salter
Status: VU D2
L.L. Dreyer, K.C. Oberlander & D. Raimondo
eDistribution: NC. Nieuwoudtville.
Habitat: Shallow, damp, muddy loams overlying sandstone.
Rationale: A poorly known taxon recorded at a single location where it was last recorded in 1942. The area is disturbed by road construction and this taxon may be threatened. However, not enough is known about the distribution or population status of this taxon to determine its status.

Oxalis levis T.M. Salter
Status: CR PE
L.L. Dreyer, K.C. Oberlander & D. Pillay
eDistribution: WC. Malmesbury to Mamre.
Habitat: White clay overlain by sands, 120–160 m.
Rationale: The only known location is densely invaded by alien plants and recent searches have failed to locate individuals of this species.

Oxalis lichenoides T.M. Salter
Status: Rare
N.A. Helme, L.L. Dreyer, K.C. Oberlander & D. Pillay
eDistribution: WC. Vanrhynsdorp to Bitterfontein.
Habitat: Shale flats.
Rationale: A range-restricted species (EOO < 500 km²), known from only three subpopulations. No known threats.

Oxalis lineolata T.M. Salter
Status: DDD
K. Naidoo & L.L. Dreyer
eDistribution: WC. Clanwilliam to Doring River.
Habitat: Dry shale flats.
Rationale: Known only from the type, collected in 1935. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Oxalis louisae T.M. Salter
Status: Rare
L.L. Dreyer & K.C. Oberlander
eDistribution: NC. Namaqualand, Kamieskroon.
Habitat: Shady areas.
Rationale: A rare, range-restricted species (EOO 120 km²), known from fewer than five subpopulations. No known threats.

Oxalis macra Schltr.
Status: VU D2
N.A. Helme
eDistribution: NC WC. Piketberg to Nieuwoudtville.
Habitat: Sandy slopes in fynbos.
Rationale: Three known locations are potentially threatened by rooibos tea cultivation.

Oxalis marlothii Schltr. ex R.Knuth
Status: CR PE
L.L. Dreyer, K.C. Oberlander & D. Raimondo
eDistribution: NC. Sutherland.
Habitat: High-altitude shale and sandstone plateaus.
Rationale: Known only from the type, collected in 1920. The area is now extensively transformed for agriculture and searches in the 1930s and 1940s as well as between 1998 and 2006 failed to locate surviving individuals.

Oxalis massoniana T.M. Salter var. flavescens
T.M. Salter
Status: DDD
L.L. Dreyer, K.C. Oberlander & D. Raimondo
eDistribution: NC. Bokkeveld Escarpment, summit of Vanrhyn's Pass.
Habitat: Shallow, damp, muddy loams overlying sandstone.
Rationale: Known to occur at a single location where it was last recorded in 1942. The area is disturbed by road construction and this taxon may be threatened. However, not enough is known about the distribution or population status of this taxon to determine its status.

Oxalis meisneri Sond.
Status: VU B1ab(ii,iii) +2ab(ii,iii)
N.A. Helme
eDistribution: WC. Tulbagh to Robertson.
Habitat: Foothills of south-facing shale slopes.
Rationale: EOO and AOO < 1 800 km². Two locations are known, but up to 10 are estimated to occur in poorly explored parts of the range. It is declining as a result of ongoing habitat loss to crop cultivation and invasive alien plants.

Oxalis melanograpta T.M. Salter
Status: DDD
L.L. Dreyer, K.C. Oberlander & D. Pillay
eDistribution: WC. Summit of Vanrhyn's Pass.
Habitat: Sandstone.
Rationale: A poorly known taxon recorded at a single location where it could not be relocated, despite recent searches. Not enough is known about the distribution, specific habitat or population status of this taxon to determine its status.
Oxalis microdonta T.M.Salter
Status: DDR
L.L. Dreyer, K.C. Oberlander & D. Pillay

Distribution: WC. Montagu.
Habitat: Lowland shales.
Rationale: Known only from the type, collected in 1932. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Oxalis natans L.f.
Status: CR B2ab(iii)
L.L. Dreyer, K.C. Oberlander, B.M. Bayer, J. Zietsman & D. Raimondo

Distribution: WC. Stellenbosch to Somerset West and Elandsberg.
Habitat: Seasonal pools along slow-flowing seasonal streams, 50–200 m.
Rationale: Two small, severely fragmented subpopulations remain after > 90% of known subpopulations were lost when the habitat was transformed by urban expansion on the Cape Flats and vineyard and wheat cultivation in the Swartland and around Somerset West and Stellenbosch. One subpopulation is currently declining because of habitat degradation as a result of eutrophication and invasion of alien grasses. The same subpopulation is also showing signs of inbreeding depression as a result of habitat fragmentation and has very low seed set (< 5%).

Oxalis oculifera E.G.H.Oliv.
Status: Rare
L.L. Dreyer, K.C. Oberlander & D. Raimondo

Distribution: WC. Gifberg and Matsikamma Mountain.
Habitat: Seasonally waterlogged rock flushes and moss pads on sandstone pavement, 600–1 000 m.
Rationale: One large, continuous population stretching over an area of 150 km² is buffered from the threat of habitat loss to rooibos tea cultivation by the fact that it occurs on rock pavements, which cannot be ploughed.

Oxalis oligophylla T.M.Salter
Status: Rare
L.L. Dreyer, K.C. Oberlander & D. Raimondo

Distribution: WC. Gifberg and Matsikamma Mountain.
Habitat: Shady shale and steep sandstone slopes, 500 m.
Rationale: A range-restricted (EOO < 200 km²) habitat specialist that is not threatened.

Oxalis oreithala T.M.Salter
Status: VU D2
N.A. Helme, L.L. Dreyer & K.C. Oberlander

Distribution: WC. Gifberg and Matsikamma Mountain.
Habitat: Seasonally wet, rocky sandstone slopes, 800 m.
Rationale: Two known locations are potentially threatened by agriculture and climate change.

Oxalis oreophila T.M.Salter
Status: Critically Rare
L.L. Dreyer, J. Zietsman & D. Raimondo

Distribution: WC. Pakhuis Pass.
Habitat: Ecotone of renosterveld and fynbos, in seepage band, restricted to grass- and restio-dominated vegetation.
Rationale: A range-restricted habitat specialist (EOO < 5 km²), known from one subpopulation. No known threats.

Oxalis pendulifolia T.M.Salter
Status: critically endangered
L.L. Dreyer, K.C. Oberlander & D. Raimondo

Distribution: WC. Gifberg and Matsikamma Mountain.
Habitat: Upper sandstone plateaus.
Rationale: A range-restricted species (EOO < 400 km²) that is not threatened.

Oxalis pillansiana T.M.Salter & Exell
Status: DDD
N.A. Helme

Distribution: WC. Southern Knysvlakte to Trawal.
Habitat: Shale flats.
Rationale: A surprisingly poorly known species, given that it occurs along the N7 highway. Last collected in 1938. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Oxalis porphyriosiphon T.M.Salter
Status: Critically Rare
L.L. Dreyer, K.C. Oberlander & D. Raimondo

Distribution: WC. Pakhuis Pass.
Habitat: Damp spots, rocky sandstone slopes, 900 m.
Rationale: A range-restricted species (EOO < 100 km²), known from one site. No known threats.
Oxalis psammophila G. Will.

- **Status:** Rare
- **Distribution:** NC. Richtersveld.
- **Habitat:** Dry riverbeds, in coarse, loose, granite-derived sands in full sun, 150–600 m.
- **Rationale:** A range-restricted (EOO 10 km²) habitat specialist that is not affected by heavy grazing.

Oxalis stellata

Oxalis senecta

Oxalis purpurata

Oxalis pseudo-hirta T. M. Salter

- **Status:** CR PE
- **Distribution:** WC. Du Toit’s Kloof to Robertson.
- **Habitat:** Low slopes and valleys.
- **Rationale:** Known to occur at two sites where it was last recorded in 1930. Both sites have been surveyed recently. The natural habitat at these sites has been transformed for vineyards and these subpopulations are locally extinct. Further searches of untransformed suitable habitat within the range of this species are required before it is listed as extinct.

Oxalis purpurata Jacq.

- **Status:** Rare
- **Distribution:** NC. Bokkeveld Escarpment near Nieuwoudtville.
- **Habitat:** Cliff faces, rocky outcrops.
- **Rationale:** A range-restricted species (EOO < 300 km²). Although much of the range of this species is affected by rooibos tea cultivation, a large section of the population is protected in the Oorlogskloof Nature Reserve, and it occurs in a habitat that cannot be ploughed.

Oxalis reflexa T. M. Salter

- **Status:** Rare
- **Distribution:** WC. Foot of the Gifberg and near Klawer.
- **Habitat:** Damp sandy flats, 200–400 m.
- **Rationale:** A range-restricted species (EOO 150 km²) that occurs as small, scattered subpopulations but is not threatened.

Oxalis salteri L. Bolus

- **Status:** Rare
- **Distribution:** WC. Ceres, Michell’s Pass.
- **Habitat:** Sandstone slopes, 700–1 000 m.
- **Rationale:** Three known locations are potentially threatened by climate change.

Oxalis senecta T. M. Salter

- **Status:** VU D2
- **Distribution:** WC. Knorsvlakte.
- **Habitat:** Sandy banks of dry watercourses.
- **Rationale:** Three known locations are potentially threatened by climate change.

Oxalis stellata Eckl. & Zeyh. var. gracilior T. M. Salter

- **Status:** Rare
- **Distribution:** WC. Langkloof, northern slopes of the Outeniqua Mountains.
Oxalis subsessilis L.Bolus

Status: DDD
K.C. Oberlander, L.L. Dreyer & D. Raimondo

Distribution: NC. Steinkopf.
Habitat: Gravelly sands.
Rationale: Last collected in 1950 and not relocated, despite recent searches. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Oxalis tenuipes T.M.Salter var. tenuipes

Status: Rare
L.L. Dreyer & K.C. Oberlander

Distribution: NC WC. Vanrhynsdorp, Gifberg.
Habitat: Shady places, 200–500 m.
Rationale: A range-restricted taxon (EOO < 200 km²) that is not threatened.

Oxalis tenuis T.M.Salter

Status: Rare
L.L. Dreyer, K.C. Oberlander & N.A. Helme

Distribution: WC. Vanrhynsdorp, Gifberg.
Habitat: Succulent karoo and fynbos, shady slopes, 500 m.
Rationale: A range-restricted endemic to the Gifberg Mountains (EOO < 200 km²). No known threats.

Oxalis uliginosa Schltr.

Status: CR B1ab(iii)+2ab(iii)
K.C. Oberlander, L.L. Dreyer, N.A. Helme & D. Raimondo

Distribution: WC. Clanwilliam Valley.
Habitat: Marshy places or in seepage bands.
Rationale: EOO and AOO < 10 km². Three of four known locations are now locally extinct owing to habitat loss to citrus cultivation and dam construction. Habitat quality at the only known location continues to decline as a result of overgrazing and invasion by alien plants.

Oxalis variifolia Steud.

Status: CR PE
D. Raimondo, K.C. Oberlander, L.L. Dreyer & N.A. Helme

Distribution: WC. Northern Swartland.
Habitat: Lower slopes, shale and sand.
Rationale: Most of the habitat has been transformed for wheat cultivation and recent searches failed to locate any of the subpopulations known through herbarium records.

Oxalis virginia Jacq.

Status: Rare
K.C. Oberlander, L.L. Dreyer & N.A. Helme

Distribution: NC. Garies.
Habitat: Granite hills.
Rationale: A rare species that occurs at low densities but is not threatened.

Oxalis xanthea T.M.Salter

Status: DDD
N.A. Helme & D. Raimondo

Distribution: WC. Pakhuis Pass to Doringbos.
Habitat: Clays on flats.
Rationale: Last collected in 1935. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.
Plate 78

*Albira magna* NT

*Adenia gummifera var. gummifera* Declining

*Prunus africana* VU

*Adenia wilmsii* EN
Adenia wilmsii Harms

Status: EN D
L. von Staden, R.H. Archer & S. Krynauw

*Distribution: MP. Lydenburg to Waterval Boven.

Habitat: Dolerite outcrops or red loam soil, in open woodland, 1 300–1 500 m.

Rationale: A rare, range-restricted species (EOO 95 km²), known to occur at two locations. At one location, a thorough search could locate only 20 plants and ± 50 plants have been reported to occur at the other. Two historical subpopulations could not be relocated and are presumed extinct. This species is used in traditional medicine, but only the leaves were confirmed to be used at one site, and harvesting pressure, if any, at the other site is not known.

Schlechterina Harms

Schlechterina mitostemmatoides Harms

Status: VU* B1ab(ii,iii,v)+2ab(ii,iii,v)

Distribution: KZN. Maputaland in northeastern KwaZulu-Natal to Tanzania and Zanzibar.

Habitat: Sand forest and occasionally in lowland coastal forest, 0–700 m.

Rationale: South African EOO 1 100 km², AOO 24 km². Declining at fewer than five locations owing to destructive harvesting for medicinal purposes and because of habitat loss. The national assessment is downgraded to VU as there are healthy subpopulations in southern Mozambique.

PEDALIACEAE

Ceratotheca Endl.

† Ceratotheca saxicola E.A.Bruce

Status: Rare
D. Raimondo & F. Cholo

*Distribution: LM. Northern Kruger National Park and Venda.

Habitat: Crevices in sandstone cliffs, 300–400 m.

Rationale: A range-restricted (EOO < 500 km²) habitat specialist that is not threatened.

PENAEACEAE

Brachysiphon A.Juss.

Brachysiphon mundii Sond.

Status: VU D2

*Distribution: WC. De Hoop Nature Reserve.

Habitat: Limestone cliffs.

Rationale: One known location is potentially threatened by unmanaged invasive alien acacias.

Brachysiphon rupestris Sond.

Status: Rare
J.E. Victor

*Distribution: WC. Kleinrivier Mountains.

Habitat: Sandstone rocks, often in crevices or on small ledges, 30–350 m.

Rationale: A range-restricted species (EOO 20 km²), known from four subpopulations, but not threatened.

Endonema A.Juss.

Endonema lateriflora (L.f.) Gilg

Status: EN B1ab(iii)+2ab(iii); C2a(i); D
N.A. Helme & D. Raimondo

*Distribution: WC. Riiversonderend Mountains above Genadendal.

Habitat: Rocky slopes near watercourses.

Rationale: One known location is potentially threatened by invading alien plants.

Glischrocolla (Endl.) A.DC.

Glischrocolla formosa (Thunb.) R.Dahlgren

Status: VU D2
N.A. Helme & D. Raimondo

*Distribution: WC. Victoria Peak to Hottentots Holland Mountains.

Habitat: Damp, southeast-facing cliffs and ledges, 1 200–1 500 m.

Rationale: Less than 1 000 mature individuals occur at two known sites within a restricted range (EOO < 7 km²) but are not threatened.

Penaea L.

† Penaea acutifolia A.Juss.

Status: Rare
D. Raimondo & R.C. Turner

*Distribution: WC. Outeniqua Mountains, Robinson Pass to George.

Habitat: Damp sandstone slopes.

Rationale: A range-restricted species (EOO < 150 km²) with no known threats.
**Penaea dahlgrenii** Rourke

Status: VU D2  

**Distribution:** WC. Langeberg.  
**Habitat:** Streambanks.  
**Rationale:** Small subpopulations at five known locations are potentially threatened by invading alien pines and the extraction of water.

**Sonderothamnus** R.Dahlgren

**Sonderothamnus petraeus** (W.F.Barker)

R.Dahlgren  

**Status:** Rare  
D. Raimondo  

**Distribution:** WC. Hottentots Holland Mountains to Kleinmond.  
**Habitat:** Narrow crevices in sandstone rocks.  
**Rationale:** A range-restricted habitat specialist (EOO < 490 km²) that is not threatened.

**Sonderothamnus speciosus** (Sond.)

R.Dahlgren  

**Status:** Rare  
J.E. Victor  

**Distribution:** WC. Kleinrivier Mountains, Babilonstoring Mountain and Caledon.  
**Habitat:** Sand, sandstone gravel and crevices of sandstone rock.  
**Rationale:** A range-restricted species (EOO < 500 km²), known from five subpopulations, but not threatened.

**Stylapterus** A.Juss.

**Stylapterus barbatus** A.Juss.

**Status:** EN D  
N.A. Helme & D. Raimondo  

**Distribution:** WC. Hottentots Holland Mountains.  
**Habitat:** Rocky upper slopes.  
**Rationale:** A range-restricted species (EOO < 10 km²) that is not threatened.

**Stylapterus ericifolius** (A.Juss.) R.Dahlgren

**Status:** Rare  
J.E. Victor & N.A. Helme  

**Distribution:** WC. Langeberg Mountains near Swellendam.  
**Habitat:** South-facing slopes, often in moist peaty areas.  
**Rationale:** A range-restricted species (EOO < 20 km²) that is not threatened.

**Stylapterus ericoides** A.Juss. subsp. ericoides

**Status:** Rare  
J.E. Victor & N.A. Helme  

**Distribution:** WC. Tulbagh Waterfall.  
**Habitat:** Bare sand along streams in the mountains.  
**Rationale:** A range-restricted taxon (EOO < 10 km²) that is not threatened.

**Stylapterus ericoides** A.Juss. subsp. pallidus

R.Dahlgren  

**Status:** Rare  
J.E. Victor & N.A. Helme  

**Distribution:** WC. Bain’s Kloof and Du Toit’s Kloof.

**Stylapterus fruticulosus** (L.f.) A.Juss.

**Status:** EN A2c  
N.A. Helme & D. Raimondo  

**Distribution:** WC. Mamre to Cape Peninsula.  
**Habitat:** Alkaline to acid sands.  
**Rationale:** This species was known to occur at two locations, but one was lost as a result of the construction of the Steenbras Dam. The remaining location is potentially threatened by invasive alien plants.

**Stylapterus micranthus** R.Dahlgren

**Status:** Rare  
J.E. Victor & N.A. Helme  

**Distribution:** WC. Du Toit’s Kloof Mountains.  
**Habitat:** Rocky slopes in thicket.  
**Rationale:** One known location is potentially threatened by invasive alien plants and dam construction.

**Lachnostylis** Turcz.

**Lachnostylis sp. nov.**  
**Voucher:** Meyer 1804, 1805 PRE  
**Status:** VU D2  
N.A. Helme & D. Raimondo  

**Distribution:** WC. Hottentots Holland Mountains.  
**Habitat:** Coastal calcaretes and associated sands.  
**Rationale:** A population reduction of 20% due to urban expansion has been observed over the past 10 years (one generation). EOO and AOO < 1 000 km². Known to occur at nine locations, but there is likely to be up to 20 locations as parts of the range are not well explored. Ongoing habitat loss to urban development is causing a continuing decline and fragmentation of subpopulations.

**Afrolimon** Lincz.

**Afrolimon capense** (L.Bolus) Lincz.

**Status:** NT A2a; B1ab(ii,iii,v)+2ab(ii,iii,v)  
N.A. Helme, D. Raimondo, J.E. Victor & L. Mucina  

**Distribution:** WC. Olifants River Mountains.  
**Habitat:** Rocky slopes in thicket.  
**Rationale:** A range-restricted species (EOO < 100 km²) that is not threatened.

**Afrolimon namaquanun** (L.Bolus) Lincz.

**Status:** Rare  
J.E. Victor, A. le Roux & L. Mucina  

**Distribution:** NC. Namaqualand, Riethuis.
Plate 80

*Muraltia satureoides* var. *saltisi* CR

*Muraltia pottebergensis* VU

*Muraltia calycina* VU

*Muraltia brevicornu* EN

*Muraltia chiocortifolia* VU

*Muraltia miror* EN

*Muraltia karroica* VU

*Muraltia macroptela* VU
ANGIOSPERMS: DICOTYLEDONS

PLUMBAGINACEAE Afrolimon namaquanum

Afrolimon purpuratum (L.) Linz.
Status: CR B1ab[i,ii,iii,iv,v]+2ab[i,ii,iii,iv,v]
D. Raimondo, N.A. Helme, L. Mucina
Distribution: WC. Mamre to Durbanville.
Habitat: Sand plain fynbos.
Rationale: A population reduction of > 30% is estimated based on habitat loss to urban development over the past 30 years (generation length 10 years). EOO 1 200 km², AOO < 1 200 km². Remaining subpopulations are severely fragmented and continue to decline because of coastal development. Subpopulations are typically small and we estimate that the total population consists of less than 10 000 mature individuals.

Afrolimon teretifolium (L.) Linz.
Status: Rare
A. le Roux, D. Raimondo, J.E. Victor & L. Mucina
Distribution: WC. Knysnvlakte.
Habitat: Quartz patches.
Rationale: A range-restricted habitat specialist (EOO < 200 km²) that is not threatened.

Limonium Mill.
Limonium acuminatum (Boiss.) Kuntze
Status: VU A2c; B1ab[iii,iv,v]+2ab[iii,iv,v]; C1
N.A. Helme, L. Mucina, D. Raimondo & J.E. Victor
Distribution: WC. Knysnvlakte.
Habitat: Quartz patches.
Rationale: Known from fewer than five subpopulations. Invasion by alien plants and urban expansion are likely to have caused losses but extant subpopulations are safe within the Table Mountain National Park.

Limonium Mill.
Limonium anthericoides (Schltr.) R.A.Dyer
Status: EN B1ab[iii,iv,v]
D. Raimondo & L. Mucina
Distribution: WC. Agulhas Plain.
Habitat: Seasonally wet sands over clays.
Rationale: EOO < 1 100 km². Five locations remain after two have been lost to crop cultivation. It continues to decline as a result of invasion by alien plants and grazing near Elim.

Limonium decumbens (Boiss.) Kuntze
Status: DDD
D. Raimondo & L. Mucina
Distribution: WC. West Coast.
Habitat: Unknown.
Rationale: Known only from the type, collected in 1838. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Limonium depauperatum (Boiss.) R.A.Dyer
Status: EN B1ab[i,ii,iii,iv]
J.E. Victor & L. Mucina
Distribution: WC. Cape Flats and West Coast.
Habitat: River and estuary banks.
Rationale: EOO < 5 000 km². Four known locations are declining because of habitat loss to crop cultivation and urban and coastal development.

POLYGALACEAE

Muralitia DC.

Muralitia acipetala Harv.
Status: Rare
N.A. Helme
Distribution: WC. Cape Peninsula, Red Hill to Bonteberg.
Habitat: Low hills and sandy flats in fynbos.
Rationale: Known from five subpopulations. Invasion by alien plants and urban expansion are likely to have caused losses but extant subpopulations are safe within the Table Mountain National Park.

Muralitia aciphylla Levyns
Status: DDD
J.E. Victor & R.C. Turner
Distribution: WC. Hottentots Holland Mountains, Guardian Peak.
Habitat: Unknown.
Rationale: Last collected more than 30 years ago. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Muralitia alba Levyns
Status: Rare
D. Raimondo & R.C. Turner
Distribution: WC. Jonkershoek and Groot Drakenstein Mountains.
Habitat: Fynbos, mountain slopes, 600–1 372 m.
Rationale: A range-restricted species (EOO < 100 km²) that is not threatened.

Muralitia angustiflora Levyns
Status: DDD
F. Daniels, F. Forest & R.C. Turner
Distribution: WC. Ceres, Gydo Pass.
Habitat: Shale bands and Table Mountain Sandstone scree, 700 m.
Rationale: Last collected in 1961 in an area that has been extensively transformed, this species is likely to be threatened.

Muralitia arachnoidea Chodat
Status: VU B1ab(ii,iii)+2ab(ii,iii)
N.A. Helme & D. Raimondo
Distribution: WC. Piketberg.
Habitat: Fynbos vegetation in sandy places on low sandstone slopes or plateaus.
Rationale: EOO 370 km², AOO < 370 km². Fewer than 10 locations remain after much of the habitat has been transformed for citrus, wheat and rooibos tea cultivation. Ongoing habitat loss to crop cultivation is causing a continuing decline.

Muralitia aspalatha DC.
Status: Rare
N.A. Helme & D. Raimondo
Distribution: WC. Hottentots Holland Mountains to Betty’s Bay.
Habitat: Fynbos, occurring on low to medium-elevation slopes in sand or gravel.
Rationale: A Kogelberg endemic (EOO < 500 km²). Most subpopulations fall within the boundaries of the Kogelberg Biosphere Reserve and are not threatened.
Muraltia barkerae Levyns
Status: EN B1ab(iii)+2ab(iii)
R.C. Turner & D. Raimondo
Distribution: WC. Still Bay to Riversdale.
Habitat: Low limestone hills.
Rationale: EOO and AOO < 250 km². Habitat quality at three known locations continues to decline because of invasion by alien plants.

Muraltia bolusii Levyns
Status: EN B1ab(ii,iii,v)+2ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Kleinmond to Hermanus.
Habitat: Sandy coastal flats.
Rationale: EOO 97 km², AOO < 97 km². Fewer than five known locations continue to decline owing to habitat loss to coastal development, invasion by alien plants, crop cultivation and sand mining.

Muraltia bondii Vlok
Status: Critically Rare
J.E. Victor & R.C. Turner
Distribution: WC. Anysberg.
Habitat: Sandstone outcrops on mountain summits, 1 400–1 600 m.
Rationale: The only known subpopulation is protected in the Anysberg Nature Reserve.

Muraltia brachypetala Wolley-Dod
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: WC. Cape Peninsula, Red Hill.
Habitat: Sandstone ridges and slopes, 200–400 m.
Rationale: One known location is potentially threatened by invading alien plants and inappropriate fire management.

Muraltia brevicornu DC.
Status: EN B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Malmsbury.
Habitat: Lowland acid sands over clay.
Rationale: EOO < 2 500 km². Four severely fragmented subpopulations remain after > 80% of the habitat has been transformed for wheat cultivation. It continues to decline as a result of invasion by alien plants, urban expansion and overgrazing.

Muraltia caledonensis Levyns
Status: EN B1ab(ii,iii,v)+2ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Bot River to Caledon and Shaw’s Pass.
Habitat: Loamy flats and low slopes in renosterveld.
Rationale: EOO and AOO < 200 km². Fewer than five locations remain after > 80% of the habitat has been transformed for wheat cultivation. Ongoing habitat loss to crop cultivation and invading alien plants is causing a continuing decline.

Muraltia calycina Harv.
Status: VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
R.C. Turner & D. Raimondo
Distribution: WC. Gansbaai to De Hoop.
Habitat: Low limestone hills near the sea.

Muraltia capensis Levyns
Status: DDD
F. Daniels & R.C. Turner
Distribution: WC. Viljoen’s Pass to Houwhoek.
Habitat: Unknown.
Rationale: Last collected more than 50 years ago. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Muraltia carnosa E.Mey. ex Harv.
Status: Rare
F. Daniels, D. Raimondo & R.C. Turner
Distribution: WC. Groot Swartberg Mountains.
Habitat: Rocky slopes, 1 220–1 525 m.
Rationale: A range-restricted species (EOO < 500 km²), known from four subpopulations. No known threats.

Muraltia chamaepitys Chodat
Status: VU D2
R.C. Turner & D. Raimondo
Distribution: WC. Houwhoek.
Habitat: Shale-sandstone transitions, 600–915 m.
Rationale: Two known locations are potentially threatened by invading alien plants and too frequent fires.

Muraltia cliffortiifolia Eckl. & Zeyh.
Status: VU D2
J.H. Vlok & D. Raimondo
Distribution: WC. Rooblin and the area between Riversdale and Mossel Bay.
Habitat: Arid fynbos.
Rationale: Fewer than five known locations are potentially threatened by road construction and invasion by alien plants.

Muraltia comptonii Levyns
Status: VU D2
N.A. Helme, F. Forest & D. Raimondo
Distribution: WC. Cape Peninsula, Hout Bay and Klaas Jagersberg.
Habitat: Fynbos, sandy mountain slopes.
Rationale: Two known locations are potentially threatened by too frequent fires and invasion by alien plants.

Muraltia concava Levyns
Status: DDD
F. Forest, F. Daniels & R.C. Turner
Distribution: WC. Riviersonderend Mountains above Genadendal.
Habitat: Fynbos, on mountain slopes, 1 525 m.
Rationale: Known only from the type, collected in the 1930s. The area is densely invaded by alien pines and is being burnt too frequently. This poorly known species is likely to be threatened.

Muraltia curvipes Levyns
Status: Rare
N.A. Helme & D. Raimondo
Distribution: WC. Constantiaberg to Kalk Bay.
Habitat: Fynbos, sandstone slopes, 270–900 m.
Rationale: A range-restricted Table Mountain endemic (EOO 35 km²) that is not threatened.
**Muraltia cuspifolia** Chodat

**Status:** DDD
F. Daniels, F. Forest & R.C. Turner

**Distribution:** WC. Elim.

**Habitat:** Fynbos, 150 m.

**Rationale:** Known only from the type, collected in the 1890s. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Muraltia cyclophala** Chodat

**Status:** VU A2ac; B1ab(ii,iii,v)+2ab(ii,iii,v)
N.A. Helme & D. Raimondo

**Distribution:** WC. Agulhas Plain.

**Habitat:** Elim Ferricrete Fynbos on gravel flats and low slopes.

**Rationale:** A population reduction of > 30% is estimated based on a 42% loss of habitat to crop cultivation over the past 60 years (generation length 20 years). EOO 440 km², AOO < 440 km². Six locations continue to decline because of ongoing habitat loss to agricultural expansion and invasion by alien plants.

**Muraltia decipiens** Schltr.

**Status:** EN B1ab(ii,iii,v)
N.A. Helme & D. Raimondo

**Distribution:** WC. Tygerberg to Franschhoek.

**Habitat:** Clay flats and lower slopes.

**Rationale:** EOO 1 084 km². Five isolated, severely fragmented subpopulations remain after 54% of known locations and > 80% of the habitat of this species have been transformed for vineyard, wheat and citrus cultivation, forestry plantations and urban expansion around Cape Town, Franschhoek and Paarl. It continues to decline because of ongoing habitat loss to agricultural expansion and invasion by alien plants.

**Muraltia elsieae** Paiva

**Status:** Critically Rare
F. Daniels, F. Forest & R.C. Turner

**Distribution:** WC. Klein Swartberg Mountains, Seweweekspoort.

**Habitat:** Fynbos on rocky slopes.

**Rationale:** A rare, range-restricted species (EOO 73 km²) that is not threatened.

**Muraltia ferox** Levyns

**Status:** CR PE
F. Daniels & F. Forest

**Distribution:** WC. Worcester.

**Habitat:** Lower rocky slopes, 300 m.

**Rationale:** Last collected in 1951. Its habitat has been transformed and degraded as a result of expansion of vineyards and overgrazing. It is possibly extinct.

**Muraltia gillettiae** Levyns

**Status:** EN B1ab(ii,iii,iv,v)
R.C. Turner & D. Raimondo

**Distribution:** WC. Elandsberg near Elim.

**Habitat:** Lowland fynbos, on low mountain slopes.

**Rationale:** EOO 240 km², AOO < 240 km². Habitat extent and quality at three known locations are declining as a result of invasion by alien plants, vineyard and orchard expansion and grazing by livestock.

**Muraltia guthriei** Levyns

**Status:** VU D2
F. Daniels & R.C. Turner

**Distribution:** WC. Sir Lowry’s Pass.

**Habitat:** Rocky sandstone slopes in fynbos.

**Rationale:** One known location is potentially threatened by too frequent fires.

**Muraltia harveyana** Levyns

**Status:** VU B1ab(ii,iii,v)+2ab(ii,iii,v)
F. Forest, N.A. Helme, D. Raimondo & F. Daniels

**Distribution:** WC. Darling to Saldanha Bay.

**Habitat:** Calcrete and associated sands.

**Rationale:** EOO and AOO < 630 km². Habitat at 10 known locations continues to decline because of urban development and limestone mining.

**Muraltia hirsuta** Levyns

**Status:** EN B1ab(ii,iii,v)+2ab(ii,iii,v)
R.C. Turner & D. Raimondo

**Distribution:** WC. Hemel-en-Aarde Valley and Houwhoek.

**Habitat:** Granitic soils, 120 m.

**Rationale:** EOO 150 km², AOO < 150 km². Known to occur at three locations. Vineyard expansion and invasion by alien plants are causing a continuing decline in the Hemel-en-Aarde Valley and at Shaw’s Pass. Plants in the Kogelberg Biosphere Reserve near Houwhoek are potentially threatened by too frequent fires.

**Muraltia karroica** Levyns

**Status:** VU B1ab(v)+2ab(v)
J.H. Vlok, A.L. Schutte-Vlok & D. Raimondo

**Distribution:** WC. Klein Swartberg to Rooiberg.

**Habitat:** Arid fynbos on rocky sandstone slopes, 760–1 200 m.

**Rationale:** EOO 1 800 km², AOO < 1 800 km². Mature individuals of this palatable species are declining at 5–10 locations because of grazing by livestock and antelope.

**Muraltia knysnaensis** Levyns

**Status:** VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

**Distribution:** WC. George to Keurbooms River.

**Habitat:** Fynbos, on dry flats and hills.

**Rationale:** EOO 2 300 km². Eight locations remain on fragments of natural habitat after most of the habitat has been transformed for crop cultivation, forestry plantations and coastal development around Knysna and Plettenberg Bay. It continues to decline because of ongoing habitat degradation as a result of the exclusion of fire on small fragments.

**Muraltia langebergensis** Levyns

**Status:** Rare
N.A. Helme & D. Raimondo

**Distribution:** WC. Langeberg Mountains.

**Habitat:** Fynbos, on rocky sandstone slopes above 1 500 m.

**Rationale:** A range-restricted (EOO 30 km²), high-altitude habitat specialist that is not threatened.
**Muraltia lewisiae** Levyns

**Status:** VU D2

J.E. Victor & R.C. Turner

**Distribution:** WC. Gansbaai and Baardskeerdersbos.

**Habitat:** Limestone ridges near the sea.

**Rationale:** Two known locations are potentially threatened by invading alien plants.

**Muraltia macropetala** Harv.

**Status:** VU B1ab(ii,iii,v) + 2ab(ii,iii)

N.A. Helme & D. Raimondo

**Distribution:** WC. Hopefield to Faure.

**Habitat:** Sandy loams and clay flats in renosterveld.

**Rationale:** EOO 6 955 km². Small, isolated, severely fragmented subpopulations remain after > 80% of the habitat has been transformed by crop cultivation and urban expansion. Decline as a result of the ongoing expansion of Kleinmond and invasion by alien plants is continuing.

**Muraltia minuta** Levyns

**Status:** EN B1ab(ii,iii,iv,v)

F. Forest & R.C. Turner

**Distribution:** WC. Betty’s Bay to Kleinmond.

**Habitat:** Rocky and sandy coastal flats.

**Rationale:** EOO and AOO < 4 km². Habitat extent and quality at two known locations continue to decline as a result of the ongoing expansion of Kleinmond and invasion by alien plants.

**Muraltia mitior** (P.J.Bergius) Levyns

**Status:** EN B1ab(i,iii,iv,v)

F. Forest & R.C. Turner

**Distribution:** WC. Cape Peninsula to Agulhas.

**Habitat:** Low-lying sandy flats, usually water-logged during winter.

**Rationale:** EOO 2 625 km². Four known locations remain after most of the habitat has been transformed and degraded by urban development, agriculture and invading alien plants. It is now locally extinct on the Cape Flats and continues to decline around Elim because of invasion by alien plants and grazing by livestock.

**Muraltia mixta** (L.f.) DC.

**Status:** DDD

N.A. Helme & D. Raimondo

**Distribution:** WC. Cape Peninsula.

**Habitat:** Mountain slopes and summits in sandstone fynbos.

**Rationale:** This species was frequently collected during the 1800s, but in a revision of *Muraltia* (Levyns 1954) it was noted that it had become very rare. Last recorded more than 50 years ago, this species is quite likely to be threatened, but its current status cannot be determined.

**Muraltia montana** Levyns

**Status:** Rare

N.A. Helme & D. Raimondo

**Distribution:** WC. Groot Winterhoek and Wemmershoek peaks.

**Habitat:** High-altitude fynbos on mountain peaks.

**Rationale:** A range-restricted species (EOO < 100 km²), high-altitude habitat specialist that is not threatened.

**Muraltia mutabilis** Levyns

**Status:** DDD

N.A. Helme, J.E. Victor & R.C. Turner

**Distribution:** WC. Cape Hangklip.

**Habitat:** Low coastal sandstone slopes.

**Rationale:** A poorly known sandstone slopes.

**Muraltia obovata** DC.

**Status:** VU C2a(i)

N.A. Helme & D. Raimondo

**Distribution:** WC. Olifants River Mouth to Saldanha.

**Habitat:** Sandy flats.

**Rationale:** Subpopulations are small and typically have less than 50 mature individuals. The total population is estimated to be no more than 5 000 mature individuals. It is declining as a result of ongoing habitat loss to potato and rooibos tea cultivation.

**Muraltia occidentalis** Levyns

**Status:** Rare

D. Raimondo, D.A. Kamundi† & J.E. Victor

**Distribution:** WC. Hottentots Holland Mountains to Kogelberg.

**Habitat:** Mountain slopes in sandstone fynbos.

**Rationale:** A range-restricted species (EOO 190 km²) that is not threatened.

**Muraltia orbicularis** Hutch.

**Status:** VU D2

N.A. Helme & D. Raimondo

**Distribution:** WC. Cape Peninsula, Chapman’s Peak.

**Habitat:** Fynbos, on granite and sandstone on west-facing slopes.

**Rationale:** One known location is potentially threatened by road construction and invasion by alien plants.

**Muraltia paludosa** Levyns

**Status:** Rare

N.A. Helme & D.A. Kamundi

**Distribution:** WC. Grabouw to Kleinmond.

**Habitat:** Fynbos, in marshes on sandstone slopes.

**Rationale:** A range-restricted species (EOO < 100 km²) that is protected in the Kogelberg Biosphere Reserve.

**Muraltia pappeana** Harv.

**Status:** NT B1ab(i,ii) + 2ab(ii)

D. Raimondo

**Distribution:** WC. Bredasdorp to Riversdale.

**Habitat:** Low shrubby fynbos on limestone pavements.

**Rationale:** EOO 1 100 km², AOO < 1 100 km². Suspected to occur at 10–15 locations. Habitat quality is declining as a result of invading alien acacias.

**Muraltia pottebergensis** Levyns

**Status:** VU D2

D. Raimondo & F. Forest

**Distribution:** WC. Potberg.

**Habitat:** Fynbos, in coarse sandy soils, interspersed with sandstone rocks.

**Rationale:** One known location is potentially threatened by invading alien plants.

**Muraltia rara** Levyns

**Status:** DDD

D. Raimondo, D.A. Kamundi† & J.E. Victor

**Distribution:** EC. Amathole Mountains, Keiskammahoek.

**Habitat:** Montane grassland.
Rationale: Known only from the type, collected in 1948. This species is possibly threatened by forestry, but not enough is known about the distribution, specific habitat or population status to determine its status.

**Muraltia satureoides** DC. var. *salteri* Levyns

Status: CR PE

R.C. Turner & D. Raimondo

Distribution: WC. Cape Peninsula, Karbonkelberg.

Habitat: Lower sandy slopes.

Rationale: Known to occur at a single location now severely degraded because of invasion by alien plants, spreading housing developments and too frequent fires. It has not been recorded for more than 30 years and is possibly extinct.

**Muraltia schlechteri** Levyns

Status: DDD

D. Raimondo, D.A. Kamundi & J.E. Victor

Distribution: WC. Hottentots Holland and Riviersonderend-Mountains.

Habitat: Unknown.

Rationale: Last collected in the 1940s, not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Muraltia serrata** Levyns

Status: DDD

F. Daniels & R.C. Turner

Distribution: WC. Kleinberg and Hex River Mountains.

Habitat: Montane fynbos on sandstone slopes.

Rationale: Known only from the type, collected in the 1950s. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Muraltia spicata** Bolus

Status: VU D2

R.C. Turner, F. Forest & D. Raimondo

Distribution: WC. Between Napier and Elim.

Habitat: Low hills.

Rationale: One known location is potentially threatened by overgrazing and invasive alien acacias.

**Muraltia stipulacea** (Burm.f.) DC.

Status: DDD

D. Raimondo

Distribution: WC. Cape Peninsula.

Habitat: Low slopes and flats on gravel or sandy soils.

Rationale: Although there are 30 collections of this species in South African herbaria, they were all collected prior to 1965. Many of the collecting localities are from the lower slopes of Table Mountain and have been transformed for urban development, forestry plantations and vineyard cultivation. Not enough is known about this species to determine its status.

**Muraltia stokoei** Levyns

Status: Rare

D. Raimondo, D.A. Kamundi & J.E. Victor

Distribution: WC. Groenlandberg and Kogelberg.

Habitat: Rocky slopes in fynbos.

Rationale: A range-restricted species (EOO 70 km²) that is not threatened.

**Muraltia tenuifolia** (Poir.) DC.

Status: VU D2

N.A. Helme & D. Raimondo

Distribution: WC. Riviersonderend Mountains.

Habitat: Rocky sandstone slopes in fynbos.

Rationale: Three known locations are potentially threatened by alien pines that invade the habitat.

**Muraltia thunbergii** Eckl. & Zeyh.

Status: NT B1ab(ii,iii,v)+2ab(ii,iii,v) CR

N.A. Helme & D. Raimondo

Distribution: WC. Darling to Franschhoek and Cape Peninsula.

Habitat: Low sandy or clay slopes in fynbos or renosterveld.

Rationale: EOO and AOO < 1 400 km². Only 16 locations remain after most of the habitat has been transformed by agriculture and urban expansion. At least 36% of known subpopulations are now locally extinct and this species continues to decline owing to expanding vineyard and olive cultivation and invasion by alien plants.

**Muraltia trinervia** (L.f.) DC.

Status: NT B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v) DD

N.A. Helme & D. Raimondo

Distribution: WC. Porterville to Cape Flats.

Habitat: Granite and shale flats and slopes.

Rationale: EOO and AOO < 1 750 km². Only 12 locations remain after most of the habitat has been transformed for wheat cultivation. It continues to decline because of ongoing habitat loss to urban expansion around Malmesbury and Durbanville.

**Polygala L.**

**Polygala bowkerae** Harv.

Status: DDD

J.E. Victor & A.P. Dold

Distribution: EC. Grahamstown and Koudeveld Mountains near Graaff-Reinet.

Habitat: Montane grassland.

Rationale: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Polygala dasyphylla** Levyns

Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v) D. Raimondo

Distribution: WC. Agulhas Plain.

Habitat: Sandy soil derived from limestone.

Rationale: EOO 108 km², AOO < 108 km². Habitat extent and quality at 2–4 locations continue to decline because of protea cultivation and invading alien acacias.

**Polygala gracilipes** Harv.

Status: DDD

L. Potter

Distribution: WC. Stellenbosch.

Habitat: Unknown.

Rationale: Known only from the type, collected in the early 1800s. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.
Polygala langebergensis Levyns
Status: Rare
D. Raimondo
\textit{Distribution}: WC. Garcia’s Pass.
\textit{Habitat}: Montane fynbos on sandstone slopes.
\textit{Rationale}: A range-restricted resprouter (EOO 16 km²) that is not threatened.

Polygala pottebergensis Levyns
Status: VU D2
D. Raimondo
\textit{Distribution}: WC. Potberg to Cape Infanta.
\textit{Habitat}: Rocky sandstone slopes, 30–390 m.
\textit{Rationale}: Fewer than five locations are potentially threatened by invasive alien plants.

\textbf{Polygala praticola} Chodat
Status: DDD
C.R. Scott-Shaw & L. von Staden
\textit{Distribution}: KZN. Type collection from Dumisa Siding near Ixopo. Possibly also occurs in the KwaZulu-Natal Drakensberg Mountains at Cathedral Peak.
\textit{Habitat}: Montane grassland, 600–800 m.
\textit{Rationale}: Last recorded at the type locality at Dumisa in 1912 and possibly locally extinct as a result of extensive habitat loss. Specimens in the local herbarium indicate that it could also occur in the KwaZulu-Natal Drakensberg. If this species does occur in the Drakensberg, a large, untransformed and well-protected area, it is probably not threatened.

\textbf{Polygala rodriqueana} Paiva
Status: DDD
J.E. Victor
\textit{Distribution}: KZN. Drakensberg foothills, Hoffenthal, in the Bergville district.
\textit{Habitat}: Montane grasslands.
\textit{Rationale}: Known only from the type, collected in the early 1900s. This species is possibly threatened by crop cultivation and overgrazing, but not enough is known about the distribution, specific habitat or population status to determine its status.

\textbf{Polygala woodii} Chodat
Status: DDD
D. Raimondo, C.L. Bredenkamp & L. Potter
\textit{Distribution}: KZN. Oribi Gorge.
\textit{Habitat}: Unknown.
\textit{Rationale}: Known from one site at Oribi Gorge, where it was last collected in the late 1800s. Not enough is known about the distribution, specific habitat or population status of this species to determine its status, but it might be threatened as a result of extensive habitat loss to the cultivation of sugar cane.

\textbf{Koenigia L.}

\textbf{Koenigia sp. nov.}
Voucher: Helme 3468 NBG
Status: EN B1ab(ii,iii,v) + 2ab(ii,iii,v)
N.A. Helme & D. Raimondo
\textit{Distribution}: WC. Graafwater.
\textit{Habitat}: Seasonally wet, deep sands, usually along drainage lines.
\textit{Rationale}: EOO and AOO < 300 km². Habitat quality at two known locations continues to decline owing to extraction of water for potato cultivation, invasion by alien plants, as well as too frequent burning of wetlands to destroy reedbeds that host granivorous birds.

\textbf{PORTULACACEAE}

\textbf{Anacampseros L.}

\textbf{Anacampseros bayeriana} S.A. Hammer
Status: Rare
G. Williamson & L. Potter
\textit{Distribution}: NC. Southern Namibia, Richtersveld and Bushmanland.
\textit{Habitat}: Arid inselbergs.
\textit{Rationale}: A rare habitat specialist known from only three collections.

\textbf{Anacampseros comptonii} Pillans
Status: VU D2
D. Raimondo
\textit{Distribution}: NC WC. Southern Cederberg to the Bokkeveld Escarpment.
\textit{Habitat}: In moss pads on seasonally moist sandstone pavements.
\textit{Rationale}: A habitat specialist occurring at three known locations where it is potentially threatened by illegal succulent collecting and trampling by livestock.

\textbf{Anacampseros pisina} G.Will.
Status: DDD
H. Lesemann & G. Williamson
\textit{Distribution}: NC. Richtersveld.
\textit{Habitat}: Unknown.
\textit{Rationale}: Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

\textbf{Anacampseros scopata} G. Will.
Status: Rare
P.M. Burgoyne, G. Williamson & L. Potter
\textit{Distribution}: NC. Namaqualand, southwestern Richtersveld and Augrabies Mountains.
\textit{Habitat}: Low quartzite cliffs, in narrow, protected, east-facing gorges.
\textit{Rationale}: A habitat specialist that is not threatened because of the inaccessibility of its habitat.

\textbf{Anacampseros subnuda} Poelln. subsp. lubbersii (Bleck) Gerbaulet
\textit{Distribution}: NC. Richtersveld.
\textit{Habitat}: Grassland, on rhylolite boulders.
\textit{Rationale}: A habitat specialist (AOO < 10 km²) that is potentially threatened by mining and urban expansion.

\textbf{Avonia (E.Mey. ex Fenzl) G.D.Rowley}

\textbf{Avonia herreana} (Poelln.) G.D.Rowley
Status: VU D2
G. Williamson & L. Potter
\textit{Distribution}: NC. Richtersveld.
\textit{Habitat}: Quartz outcrops.
\textit{Rationale}: Three known locations are potentially threatened by grazing by livestock.
Avonia mallei G.Will.

Status: Rare
G. Williamson & L. Potter

Distribution: NC. Richtersveld.
Habitat: Sloping hillsides, growing in reddish soil between pegmatite and quartz pebbles.

Rationale: A range-restricted species (EOO < 100 km²) that is not threatened.

Avonia recurvata (Schönland) G.D.Rowley subsp. buderiana (Poelln.) G.Will.

Status: VU D2
G. Williamson & L. Potter

Distribution: NC. Richtersveld, Helskloof.
Habitat: Central Richtersveld Montane Shrubland.

Rationale: One known location is potentially threatened by trampling by livestock.

Avonia recurvata (Schönland) G.D.Rowley subsp. minutula (Gerbaulet) G.D.Rowley

Status: DD
PM. Burgoyne & L. Potter

Distribution: NC. Maraisvlei in Bushmanland west of Kakamas.
Habitat: Bushmanland Arid Grassland.

Rationale: Known from the type collection. Not enough is known about the distribution, specific habitat or population status of this taxon to determine its status.

PROTEACEAE

Aulax P.J.Bergius

Aulax pallasia Stapf

Status: NT A4c

Distribution: WC. Berg River Valley between Franschhoek and Paarl.
Habitat: Largely confined to Swartland Alluvium Fynbos.

Rationale: A population reduction of 90% was observed within one generation when the population declined from 2,500 plants in the 1980s to 250 plants in 2000 (generation length 20 years) as a result of habitat loss to forestry plantations, vineyard expansion, extraction of groundwater, clearing of road verges, golf course developments and invasion by alien plants. EOO 47 km². The population continues to decline and large fire-related fluctuations in number of mature individuals are likely to occur in small subpopulations.

Aulax umbellata (Thunb.) R.Br.

Status: NT A2c+4c

Distribution: WC. Houwhoek, Bredasdorp, Potberg and Mossel Bay.

Habitat: Sandstone and limestone fynbos on mountains and flats.

Rationale: A population reduction of 27% is estimated based on a reduction in range size (EOO) over the past 40 years (reseeder, generation length ± 20 years). Land transformation and climate change models predict a > 50% population reduction by 2025 (Bomhard et al. 2005). Model predictions are considered extreme, but a further population reduction over the next 20 years is likely. Other threats to the species include invasion by alien plants, afforestation, expanding protea and vineyard cultivation and urban expansion.

Diastella Salisb. ex Knight

Diastella buekii (Gand.) Rourke

Status: CR A2a; B1b(i,ii,iii,iv,v)(iv)

Distribution: WC. Franschhoek and Houwhoek.
Habitat: Montane Cape Peninsula.

Rationale: Population continues to decline and large fire-related fluctuations in number of mature individuals are likely to occur in small subpopulations.

Diastella divaricata (P.J.Bergius) Rourke subsp. divaricata

Status: Rare

Distribution: WC. Cape Peninsula.
Habitat: Peninsula Sandstone Fynbos.

Rationale: A range-restricted Cape Peninsula endemic (EOO 241 km²). Large subpopulations are protected in the Table Mountain National Park.

Diastella divaricata (P.J.Bergius) Rourke subsp. montana Rourke

Status: VU A2c

Distribution: WC. Franschhoek and Houwhoek.
Habitat: Sandstone fynbos.

Rationale: A population reduction of 30% is estimated based on a reduction in the range size (EOO) of this taxon over the past 60 years (generation length 20 years) due to habitat loss to pine plantations and invasions of alien pines and hakeas.
**Diastella fraterna** Rourke

**Status:** Rare


**Distribution:** WC. Kogelberg.

**Habitat:** Kogelberg sandstone fynbos.

**Rationale:** A locally common, but range-restricted species (EOO 173 km²) that is protected in the Kogelberg Biosphere Reserve.

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**Diastella myrtelaeoides** (Thunb.) Salisb. ex Knight

**Status:** CR B1ab(i,ii,iii,iv,v)c(iv)


**Distribution:** WC. Groot Winterhoek.

**Habitat:** Among riverbanks in Hawequas sandstone fynbos.

**Rationale:** EOO 29 km². Three severely fragmented subpopulations continue to decline because of ongoing habitat loss to invading alien plants, afforestation, dam construction and infrastructure development and disturbance caused by maintenance of power lines.

Fire-related population fluctuations are likely to occur in small subpopulations fragmented and isolated by forestry plantations.

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**Diastella parilis** Salisb. ex Knight

**Status:** CR B1bj,ii,iii,iv,v)c(iv)


**Distribution:** WC. Elandskloof Mountains to Slanghoek.

**Habitat:** On seasonally damp sites, predominantly in Breede Alluvium Fynbos.

**Rationale:** EOO 53 km². More than 75% of the range of this species has been transformed by vineyard expansion, invasion by alien plants, extraction of groundwater, inappropriate fire management and altered drainage of seasonally damp sites as a result of agricultural expansion.

Ongoing habitat loss is causing a continuing decline, and fire-related population fluctuations are likely to occur in small subpopulations. In addition, it is also likely to be vulnerable to drought-related mortality events.

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**Diastella proteoides** (L.) Druce

**Status:** CR A2c+3c+4c


**Distribution:** WC. Mamre and Paarl to Cape Peninsula.

**Habitat:** Atlantis Sand Fynbos and Cape Flats Sand Fynbos.

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**Diastella thymelaeoides** (P.J.Bergius) Rourke

**subsp. meridiana** Rourke

**Status:** VU A3c+4c


**Distribution:** WC. Southern Kogelberg.

**Habitat:** Largely confined to Kogelberg sandstone fynbos.

**Rationale:** Land transformation models predict > 80% habitat loss by 2025 (Bombhard et al. 2005), mainly as a result of coastal development and invasion by alien plants. However, 60% of the habitat is within conservation areas and alien invasions are actively cleared, and a status of CR is therefore not justified. Some of the largest subpopulations, however, are in an area between Rooiels and Pringle Bay where development is likely to have an extensive impact over the next 20 years and a population reduction of 40–50% can be expected (generation length 20 years). Other threats include inappropriate fire management, road construction, fire-related population fluctuations and invasive alien ants.

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**Faurea Harv.**

**Faurea macnaughtonii** E.Philips

**Status:** Rare

Leucadendron R.Br.

Leucadendron argenteum (L.) R.Br.

**Status:** EN A2c

**Distribution:** WC. Cape Peninsula and Somerset West.

**Habitat:** Granite and shale fynbos on moist, south-facing slopes.

**Rationale:** A population reduction of at least 50% is estimated based on a 74% reduction in range and loss of 55% of the habitat of this species over the past 60 years (generation length 20 years). It is currently threatened by urban expansion, afforestation, inappropriate fire management, invasion by alien plants, habitat fragmentation and susceptibility to root fungal infections. Habitat loss models indicate that the population may decline by > 80% by 2025 (Bombard et al. 2005). However, given that this charismatic species is intensively managed, such drastic declines are unlikely.

Leucadendron bonum I.Williams

**Status:** CR C2a(i); D

**Distribution:** WC. Kouebokkeveld.

**Habitat:** Cederberg sandstone fynbos.

**Rationale:** Three small, severely fragmented subpopulations are known. Fire-related population fluctuations have been observed. In 2005 there were only six known adult plants, and at present the population is less than 50 mature individuals. The population is estimated to fluctuate between five and 100 plants. It continues to decline because of inappropriate fire management and skewed sex ratios and genetic decline in small subpopulations.

Leucadendron brunioides Meisn. var. flumenlupinum I.Williams

**Status:** CR A3c + 4c

**Distribution:** WC. Graafwater to Aurora and Eendekuil.

**Habitat:** Dry montane fynbos in moist habitats such as seeps and river courses on sandy alluvium or sandstone-derived soils.

**Rationale:** At least 55% of its habitat has already been transformed, and it occurs in an area where irrigated crop cultivation is currently rapidly expanding, and a population reduction of > 80% is expected to occur within the next 20 years (generation length 20 years). Climate change models furthermore estimate that this taxon will be extinct by 2025 (Bombard et al. 2005). Other threats include invasion by alien plants, extraction of groundwater and eutrophication.

Leucadendron burchellii I.Williams

**Status:** NT D2

**Distribution:** WC. Riviersonderend Mountains.

**Habitat:** Largely confined to North Sonderend Sandstone Fynbos.

**Rationale:** AOO 65 km². Potentially threatened by habitat loss to expanding protea orchards and hybridisation and genetic contamination by closely related taxa planted near wild subpopulations.

Leucadendron cadens I.Williams

**Status:** Rare

**Distribution:** WC. Witteberg.

**Habitat:** Ridges in dry montane fynbos, amongst quartzitic sandstone rocks of the Witteberg series, around 1 500 m.

**Rationale:** EOO 132 km². A range-restricted habitat specialist that is not threatened.

Leucadendron chamelaea (Lam.) I.Williams

**Status:** CR A4c

**Distribution:** WC. Kouebokkeveld to Franschhoek Valley.

**Habitat:** Occurs most prominently in Breede Alluvium Fynbos.

**Rationale:** A past population reduction of > 60% is estimated based on 55% habitat loss to agriculture and the local extinction of 52% of subpopulations known through herbarium records. Remaining subpopulations are fragmented and largely confined to road verges and adjacent areas. In 2004, > 30% of remaining subpopulations were cleared as part of road verge maintenance programmes and agricultural pest control. Clearing of road verges continues to cause decline, and population reduction is likely to exceed 80% within the next 20 years (generation length 20 years). A few other subpopulations remain on small remnants between agricultural areas, where they are declining as a result of a lack of fire, expanding agriculture, wetland drainage, invasion by alien plants and overgrazing.

Population reduction was previously underestimated (at 55% occupancy) and has been escalating, with an estimated 33% of remaining subpopulations having been...
cleared during 2004 as part of road reserve maintenance programmes and for the agricultural control of 'vaalwurm'. Other subpopulations occur in small isolated pockets between agricultural fields where fires are infrequent. Also threatened by expanding fruit orchards, vineyard expansion, potato and cash crop cultivation, wetland drainage, invasion by alien plants, browsing and overgrazing. Unless the practice of clearing road reserves ceases soon, this species will be confined to a very few remnant patches.

**Leucadendron cinereum** (Sol. ex Aiton) R.Br.

*Status*: VU A2c+3c+4c


*Distribution*: WC. Mouth of the Berg River to Kraainfontein.

*Habitat*: Sand fynbos on flats.

*Rationale*: Some 37% of the range of this species has already been transformed, and habitat loss to rooibos tea and potato cultivation continues at an estimated 0.5% per year. This is likely to lead to a 30% population reduction within 60 years (generation length 20 years). A number of formerly large subpopulations have been reduced as a result of habitat loss. Subpopulations are being increasingly fragmented and are also threatened by invading alien plants.

**Leucadendron comosum** (Thunb.) R.Br. subsp. *homaephyllum* (Meisn.) I.Williams

*Status*: CR B1ab(i,ii,iii,iv)c(iv)+ 2ab(i,ii,iii,iv) c(iv); D


*Distribution*: WC. Stettynsberg and Du Toit’s Kloof Pass.

*Habitat*: Sandstone fynbos at high altitude and granite fynbos at medium altitudes.

*Rationale*: EOO 33 km², AOO 6 km². Three small, isolated subpopulations occur within a single location where the number of mature individuals continues to decline because of agricultural expansion, wildflower harvesting, invasion by alien plants and inappropriate fire management. Fire-related population fluctuations occur, and at present the population consists of less than 50 mature individuals. One harvested subpopulation is probably locally extinct as no seedlings emerged after the last fire.

**Leucadendron conicum** (Lam.) I.Williams

*Status*: NT A4c


*Distribution*: EC WC. Tsitsikamma and Kouga.

*Habitat*: Forest margins and riparian and wetland habitats in sandstone fynbos.

*Rationale*: Although many subpopulations of this species have declined as a result of afforestation and invasion by alien plants, it was not previously considered to be threatened. Land transformation and climate change models (Bomhard et al. 2005) predict that there may be a population reduction by 2025 (generation length 20 years), but it is not expected to exceed 30%. The habitat of this species is particularly sensitive to development and invasion by alien plants and the population should be closely monitored.

**Leucadendron coniferum** (L.) Meisn.

*Status*: VU A2c+3c+4c


*Distribution*: WC. Cape Peninsula to Soetansberg.

*Habitat*: Sand fynbos on the lowlands, bordering on strandveld in some situations.

*Rationale*: A past population reduction of 30% is estimated based on a 33% reduction in range size and 31% habitat loss to urban and coastal development, crop cultivation and invasion by alien plants over the past 60 years (generation length 20 years). Land transformation and climate change models predict a further 50% population reduction by 2025 (Bomhard et al. 2005), but the species is resilient to fragmentation, and decline due to expansion of alien invasive plants is unlikely to be significant if current management programmes are maintained. A population reduction of 30%, however, is likely within the next 20 years owing to climate change and ongoing habitat loss to urban and coastal development.

**Leucadendron cordatum** E.Phillips

*Status*: Rare


*Distribution*: WC. Langeberg and Groot Swartberg.

*Habitat*: Sandstone fynbos.

*Rationale*: EOO 2 278 km². Occurs in low densities and subpopulations are small. Not threatened in mountainous habitat.

**Leucadendron coriaceum** E.Phillips & Hutch.

*Status*: EN A2c; B1ab(i,ii,iii,iv)+ 2ab(i,ii,iii,iv) y

A.G. Rebelo, N.A. Helme, P.M. Holmes, C.N. Forshaw, S.H. Richardson, D. Raimondo, D.I.W. Euston-Brown,
Leucadendron corymbosum P.J.Bergius

Status: VU A2c


Distribution: WC. Napier to Riversdale.

Habitat: A renosterveld and renosterveld-ecotone species usually associated with silcrete and pallid zone clays.

Rationale: A population reduction of > 50% is estimated based on a 80% reduction in range size (EOO) and 51% habitat loss, mainly to crop cultivation, over the past 100 years (generation length 100 years). Some 37% of subpopulations known through herbarium records are now locally extinct. EOO 2 222 km², AOO 45 km². Five small, severely fragmented remaining subpopulations continue to decline because of ongoing habitat loss and fragmentation, skewed sex ratios in small fragments, recruitment failure, herbicide drift from adjacent crop fields and overgrazing.

Leucadendron coriaceum (Salisb. ex Knight) I.Williams

Status: NT D2


Distribution: WC. Hex River Mountains and Keeromberg.

Habitat: Rocky areas in sandstone fynbos.

Rationale: AOO 49 km². A slow-maturing species that is potentially threatened by too frequent fires.

Leucadendron cryptocephalum Guthrie

Status: CR B1ab(iii,iv,v)


Distribution: WC. Groenland Mountains to Potberg.

Habitat: Shale and silcrete fynbos.

Rationale: EOO 25 km². One or two severely fragmented subpopulations remain at one or two locations. Two subpopulations known through herbarium records are now locally extinct owing to habitat loss to crop cultivation and invasion by alien plants. Monitoring recorded fire-related population fluctuations and decline in one small subpopulation, and it appears to now also be locally extinct because of too frequent fires. One known remaining subpopulation of several thousand plants is declining as a result of invasion by alien plants, inappropriate fire management and overgrazing.

Leucadendron daphnoides (Thunb.) Meisn.

Status: EN A2c


Distribution: WC. Du Toit’s Kloof to Villiersdorp.

Habitat: Most prominent in Boland Granite Fynbos.

Rationale: A population reduction of > 50% is estimated based on 63% habitat loss, mainly to forestry plantations, over the past 60 years (generation length 20 years). Decline due to invading alien pines, habitat loss to protea and buchu cultivation and inappropriate fire management is continuing. In 1996 and 1999 large-scale drought mortality (up to half the plants in some subpopulations) was observed.

Leucadendron diemontianum I.Williams

Status: EN B1bc(iv)+2bc(iv)


Distribution: WC. Cederberg and Groot Winterhoek Mountains.

Habitat: Sandstone fynbos.

Rationale: Previously regarded as rare, but several subpopulations have been discovered during the Protea Atlas Project. EOO 1 705 km², AOO 89 km². About 14 locations. Most subpopulations are small and quite localised, but a few (7 out of 20) have more than 100 plants. As the species is serotinous, large fire-related fluctuations in population size are expected. It continues to decline because of ongoing habitat loss to expanding fruit orchards.

Leucadendron discolor E.Philips & Hutch.

Status: VU B1ab(iii,iv,v)+2ab(iii,iv,v)


Distribution: WC. Piketberg.

Habitat: Largely confined to Piketberg sandstone fynbos.

Rationale: EOO 228 km², AOO 81 km². The 5–10 known locations are declining as a result of habitat loss to crop cultivation and wildflower harvesting. Subpopulations are small and affected by skewed sex ratios as a result of biased mortality. Hybridisation with cultivated species within the habitat is a potential threat.
Leucadendron dregei E.Mey. ex Meisn.

Status: EN B1ab(ii,iii,iv) + 2ab(iii,iv)

©Distribution: WC. Swartberg Mountains.

Habitat: Sandstone fynbos, amid rocks at high altitudes.

Distribution: EOO 1825 km², AOO 221 km². Continuing decline has been observed in many small, severely fragmented subpopulations. This species is threatened by too frequent fires.

Leucadendron elimense E.Philips subsp. elimense

Status: EN A2c

©Distribution: WC. Breede Valley near Worcester.

Habitat: Grows on level alluvial soils containing a high proportion of water-worn stones, endemic to Breede Alluvium Fynbos.

Rationale: EOO and AOO 12 km². About 400–500 plants at a single known location continue to decline as a result of expanding agriculture, invasion by alien plants, overgrazing, clearing and mowing of road verges and inappropriate fire management.

Leucadendron flexuosum I.Williams

Status: CR B1ab(ii,iii,iv,v) + 2ab(iii,iv)

©Distribution: WC. Cape Peninsula.

Habitat: Currently largely confined to Peninsula Sandstone Fynbos in permanently moist to seasonally wet, peaty sands, often along rivers and at the edge of vleis.

Rationale: A population reduction of > 80% is estimated based on 81% decline in subpopulations known through herbarium records due to habitat loss to urban expansion, agriculture and alien invasive plants over the past 60 years (generation length 20 years). Remaining subpopulations are threatened by wildflower harvesting, inappropriate fire management and habitat degradation as a result of trampling and dumping.

Leucadendron floridum R.Br.

Status: CR A2c


Habitat: Silcrete and shale fynbos in the lowlands.

Rationale: AOO < 9 km². Fire-related fluctuations in number of mature individuals occur in four small, severely fragmented subpopulations. It continues to decline owing to invasion by alien plants, ongoing habitat loss to agriculture, and wildflower harvesting. Most subpopulations are on isolated fragments among crop fields and none are formally conserved.

Leucadendron vyeboomense I.Williams

Status: EN B1ab(ii,iii,iv,v)c(iv)+2ab(iii,iv)
E.Phillips subsp. salteri

I.Williams

Status: CR B1ab(ii,iii,iv,v) + 2ab(iii,iv)

©Distribution: WC. Viljoen’s Pass to Theewaterskloof Dam.

Habitat: Elgin shale fynbos.

Rationale: EOO 12 km². Fire-related fluctuations in number of mature individuals occur in one or two small subpopulations at a single location. It continues to decline because of ongoing habitat loss to crop cultivation, invasion by alien plants and urban expansion. It is also threatened by too infrequent fires and drought.
Leucadendron foedum I.Williams

**Status:** VU A2c


**Distribution:** WC. Piketberg to Hopefield.

**Habitat:** Most prominent in Hopefield Sand Fynbos.

**Rationale:** A population reduction of at least 30% is estimated based on a 44% reduction in range size (EOO) and 35% habitat loss, mainly to crop cultivation, over the past 60 years (generation length 20 years). The population continues to decline because of expanding agriculture, overgrazing, invasion by alien plants, inappropriate fire management and urban expansion.

Leucadendron globosum Kenn. ex Andrews

**Status:** CR A2c, B1ab(i,ii,iii,iv,v)c(iv)


**Distribution:** WC. Elgin Valley.

**Habitat:** Largely confined to Elgin Shale Fynbos on steep, south-facing slopes.

**Rationale:** A population reduction of > 80% is estimated based on a 94% reduction in range size (EOO) and 89% habitat loss, mainly to crop cultivation, invasion by alien plants and forestry plantations, over the past 60 years (generation length 20 years). EOO 55 km². Fire-related fluctuations in number of mature individuals occur in four small, severely fragmented subpopulations. The population, consisting of ≥ 14 mature individuals at present, continues to decline because of ongoing habitat loss and the exclusion of fire. Dormant subpopulations are easily overlooked in surveys.

Leucadendron grandiflorum (Salisb.) R.Br.

**Status:** EX


**Distribution:** WC. Cape Peninsula.

**Habitat:** Granitic soils in fynbos.

**Rationale:** Last recorded in 1806. No records exist of its ecology, habitat, extent or time of demise, other than that it used to occur on granitic soils of Wynberg Hill. The cause of extinction is most likely to be vineyard expansion.

Leucadendron immoderatum Rourke

**Status:** CR B1ac(iv)+2ac(iv); D


**Distribution:** WC. Riviersonderend.

**Habitat:** Mesic montane fynbos at ≥ 1 300 m.

**Rationale:** EOO and AOO 50 m². Fire-related fluctuations in number of mature individuals occur in one small subpopulation at one location. At present the population consists of only 14 mature individuals and is threatened by too frequent fires.

Leucadendron lanigerum H.Buek ex Meisn. var. laevigatum Meisn.

**Status:** CR A2c, B1b(i,ii,iii,iv,v)c(iv)


**Distribution:** WC. Breede River Valley from Tulbagh to Worcester.

**Habitat:** Most prominent in Breede Alluvium Fynbos.

**Rationale:** A population reduction of > 80% in this formerly common taxon is estimated based on a 81% loss of number of subpopulations known through herbarium records over the past 60 years (generation length 20 years). EOO 33 km². Continuing decline in habitat and number of mature individuals and fire-related population fluctuations occur. This taxon is threatened by vineyard expansion, mining, invading alien plants and too infrequent fires in isolated fragments.
Leucadendron lanigerum H.Buek ex Meisn. var. lanigerum

Status: EN A2c

Distribution: WC. Strand and Diep River to Bain's Kloof and Dassenberg.
Habitat: A renosterveld and fynbos species of shale- and granite-derived soils.

Rationale: A population reduction of > 50% is estimated based on a 69% reduction in range size (EOO) and 54% habitat loss over the past 100 years (generation length 100 years). This taxon is threatened by habitat loss to crop cultivation, invasion by alien plants, overgrazing, too infrequent fires and herbicide drift onto small fragments from surrounding agricultural fields.

Leucadendron laxum I.Williams

Status: EN A2c

Distribution: WC. Hermanus to Agulhas.
Habitat: Most prominent in Elim Ferricrete Fynbos where it is largely restricted to wetlands and low-lying areas.

Rationale: A population reduction of > 50% is estimated based on 53% habitat loss over the past 60 years (generation length 20 years). Most remaining subpopulations occur on small fragments and disturbed watercourses between agricultural fields. It continues to decline because of ongoing habitat loss to vineyards. Invasive alien plants are threatening this species at a number of sites, but are being cleared. It is also threatened by wildflower harvesting, eutrophication, too frequent fires, overgrazing and clearing of road verges.

Leucadendron levisanus (L.) P.J.Bergius

Status: CR A4c

Distribution: WC. Mamre to Cape Flats.
Habitat: Tends to occur adjacent to seasonally damp areas in Cape Flats Sand Fynbos.

Rationale: An estimated population reduction of > 70% has already occurred owing to extensive habitat loss over the past 40 years (generation length 20 years) and this species continues to decline rapidly, even in conservation areas, primarily as a result of inappropriate fire management and unmanaged invasion by alien plants. Land transformation models indicate that habitat loss will exceed 80% by 2025 (Bombhard et al. 2005). Other threats include urban expansion, power lines and clearing of road verges, extraction of groundwater, harvesting for firewood, habitat degradation and pollution, and mole rat disturbance.

Leucadendron linifolium (Jacq.) R.Br.

Status: VU A2c

Distribution: WC. Cape Flats to Riversdale.
Habitat: Typically on acid and alkaline sands that are seasonally waterlogged. Also appears to benefit from veld that is disturbed, overgrazed or too frequently burnt.

Rationale: A population reduction of > 30% is estimated based on a 34% reduction in range size (EOO) and 43% habitat loss over the past 60 years (generation length 20 years). Threatened by urban expansion, invasion by alien plants, agriculture, wetland drainage, extraction of groundwater and wildflower harvesting.

Leucadendron loranthifolium (Salisb. ex Knight)I.Williams

Status: NT B1ab(ii,iii,vy)+2ab(iii,vy)

Distribution: WC. Gifberg to Hex River Mountains.
Habitat: Sandy flats in sandstone fynbos.

Rationale: EOO 9 549 km², AOO 893 km². Some 20–23% of the habitat has already been transformed by rapidly expanding rooibos tea and potato cultivation, and it continues to decline, but more than 10 locations remain.

Leucadendron macowanii E.Phillips

Status: CR B1ac(iv)+2ac(iv)

Distribution: WC. Cape Peninsula.
Habitat: Currently largely confined to wetland areas in Peninsula Sandstone Fynbos, but historically it also occurred in Peninsula Granite Fynbos.

Rationale: EOO and AOO 9 km². One small subpopulation at one location remains. The only other known wild subpopulation is now locally extinct as a result of urban expansion. Extreme fire-related fluctuations in number of mature individuals have been observed in the population between 1973 and 2005. Other threats include vineyard expansion, invasion by alien plants, inappropriate fire management, alien clearing (it tends to be mistaken for Acacia cyclops), predation, overgrazing and hybridisation. Attempts have been made to introduce more subpopulations on the Cape Peninsula and near Hermanus, but they have proven not to be viable.

Leucadendron meyerianum H.Buek ex E.Phillips & Hutch.

Status: EN A3c; B1b(i,ii,iii,iv,v)+c(iv)+2b(i,ii,iii,iv, v)+c(iv)
Leucadendron nervosum

**Status:** EN A2c

**Distribution:** WC. Bot River to Potberg.

**Habitat:** Most prominent in Elim Ferricrete Fynbos, persisting on soils too waterlogged for agriculture.

**Rationale:** A population reduction of > 50% is estimated based on 59% habitat loss, mainly to crop cultivation, over the past 60 years (generation length 20 years). Remaining subpopulations occur in small fragments and marginal habitat and are threatened by invading alien plants, too frequent fires, overgrazing, clearing of road verges and urban expansion.

Leucadendron modestum I.Williams

**Status:** EN B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) c(iv)

**Distribution:** WC. Kokkedoring River, Outeniqua Mountains.

**Habitat:** Largely confined to the western Cape, mainly fynbos and woodland

**Rationale:** A range-restricted species, occurring in fynbos and woodland, threatened by habitat fragmentation and overgrazing.

Leucadendron olens I.Williams

**Status:** NT A3d + 4d

**Distribution:** WC. Grootoring River, Outeniqua Mountains.

**Habitat:** Largely confined to the western Cape, mainly fynbos and woodland

**Rationale:** A range-restricted species, occurring in fynbos and woodland, threatened by habitat fragmentation and overgrazing.

Leucadendron meyerianum

**Status:** NT A3d + 4d

**Distribution:** WC. Grootoring River, Outeniqua Mountains.

**Habitat:** Largely confined to the western Cape, mainly fynbos and woodland

**Rationale:** A range-restricted species, occurring in fynbos and woodland, threatened by habitat fragmentation and overgrazing.

Leucadendron platyspermum R.Br

**Status:** VU A2cd + 4d

**Distribution:** WC. Villiersdorp to Agulhas coast.

**Habitat:** Of extensive planting, it is not clear what the original habitat of L. platyspermum was.

**Rationale:** Past population reduction is estimated based on habitat loss (31% decline in AOO). This is a popular species in the cut flower industry and the assessment of its status is complicated by the great increase in the population size over the past 50 years due to planting in orchards and in bushcut and burnt fynbos. Both wild and planted stands are heavily exploited. Up to the 1980s only female cones were harvested from orchards and this led to low canopy seed stores and postfire population collapses. It also caused heavy pressure on wild populations where female cones were harvested to provide seeds for orchards. Currently only males are harvested, so seed banks are large and extensive. If market preferences were to change, however, the population could decline rapidly, especially if planted individuals were to be replaced by other species. It would, however, be very difficult to estimate the proportion of the wild population that could decline, as almost all wild and planted subpopulations are intensively managed for harvesting today. Another possible threat is the development of management practices of thinning out females to increase the production of male plants, as this would lead to a reduction of seed stores, and postfire population collapses would be highly likely. Market and orchard management trends should be carefully monitored.

Leucadendron pondoense A.E. van Wyk

**Status:** VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v) A2cd + 4d

**Distribution:** WC. Grootoring River, Outeniqua Mountains.

**Habitat:** Largely confined to the western Cape, mainly fynbos and woodland

**Rationale:** A range-restricted species, occurring in fynbos and woodland, threatened by habitat fragmentation and overgrazing.

Angiosperms: Dicotyledons

Proteaceae Leucadendron meyerianum

**Habitat:** Sandstone fynbos on lower northern slopes.

**Rationale:** AOO 31 km². Potentially threatened by invading alien hakeas. Dense infestations of the habitat have been cleared, but reinvasion remains a potential threat. Protea Atlas surveys recorded low densities of hakea at 70% of locations.

**Leucadendron orrionale I.Williams**

**Status:** EN B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) c(iv)

**Distribution:** WC. Bot River to Potberg.

**Habitat:** Most prominent in Elim Ferricrete Fynbos, persisting on soils too waterlogged for agriculture.

**Rationale:** A population reduction of > 50% is estimated based on 59% habitat loss, mainly to crop cultivation, over the past 60 years (generation length 20 years). Remaining subpopulations occur in small fragments and marginal habitat and are threatened by invading alien plants, too frequent fires, overgrazing, clearing of road verges and urban expansion.

**Leucadendron nervosum E.Phillips & Hutch.**

**Status:** NT A3d + 4d

**Distribution:** WC. Riviersonderrer Mountain and Langeberg near Heidelberg.

**Habitat:** Largely confined to North Sonderend Sandstone Fynbos.

**Rationale:** This species is a popular cut flower at present and is known to occur in one extensive subpopulation on the northern slopes of the Riviersonderrer Mountains and in another smaller, isolated subpopulation in the Langeberg. Wild plants are harvested, but the wild population has also been greatly increased when harvesters sowed seeds among the wild population. The population of this species is currently being maintained by its popularity as a cut flower, but it is likely to decline if other species are to become more favoured and planted individuals are replaced by other species.

**Leucadendron olens I.Williams**

**Status:** NT D2

**Distribution:** WC. Grootoring River, Outeniqua Mountains.

**Habitat:** Largely confined to the western Cape, mainly fynbos and woodland

**Rationale:** A range-restricted species, occurring in fynbos and woodland, threatened by habitat fragmentation and overgrazing.

**Leucadendron platyspermum R.Br**

**Status:** VU A2cd + 4d

**Distribution:** WC. Villiersdorp to Agulhas coast.

**Habitat:** Because of extensive planting, it is not clear what the original habitat of L. platyspermum was.

**Rationale:** Past population reduction is estimated based on habitat loss (31% decline in AOO). This is a popular species in the cut flower industry and the assessment of its status is complicated by the great increase in the population size over the past 50 years due to planting in orchards and in bushcut and burnt fynbos. Both wild and planted stands are heavily exploited. Up to the 1980s only female cones were harvested from orchards and this led to low canopy seed stores and postfire population collapses. It also caused heavy pressure on wild populations where female cones were harvested to provide seeds for orchards. Currently only males are harvested, so seed banks are large and extensive. If market preferences were to change, however, the population could decline rapidly, especially if planted individuals were to be replaced by other species. It would, however, be very difficult to estimate the proportion of the wild population that could decline, as almost all wild and planted subpopulations are intensively managed for harvesting today. Another possible threat is the development of management practices of thinning out females to increase the production of male plants, as this would lead to a reduction of seed stores, and postfire population collapses would be highly likely. Market and orchard management trends should be carefully monitored.

**Leucadendron pondoense A.E. van Wyk**

**Status:** VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v) A2cd + 4d

**Distribution:** WC. Grootoring River, Outeniqua Mountains.

**Habitat:** Largely confined to the western Cape, mainly fynbos and woodland

**Rationale:** A range-restricted species, occurring in fynbos and woodland, threatened by habitat fragmentation and overgrazing.
**Proteaceae** Leucadendron pondoense

**Angiosperms: Dicotyledons**

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**Leucadendron radiatum**

**Status:** VU A4c


**Distribution:** EC. Mnyameni River to Fraser Gorge.

**Habitat:** A fire evader, occurring on shallow, acidic, sandy soils, usually between boulders along gullies and streams where most fires do not penetrate. Largely confined to Pondoland-Natal Sandstone Coastal Sourveld.

**Rationale:** EOO and AOO < 500 km². Fewer than 10 known locations continue to decline as a result of too frequent fires. Other threats include flooding, afforestation, water table depletion by forestry plantations and invasion by alien plants.

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**Leucadendron procurn (Salisb. ex Knight)**

1. Williams

**Status:** VU A4c


**Distribution:** WC. Gifberg to Piketberg.

**Habitat:** Found in deep sands, slopes and flats.

**Rationale:** An estimated population reduction of around 25% has already occurred as a result of habitat loss to crop cultivation and all subpopulations west of the Olifants River occur in fragmented remnants. Rapid habitat loss to rooibos tea and potato cultivation continues and population reduction is projected to exceed 30% within the next 20 years (generation length 20 years).

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**Leucadendron pubibracteolatum** 1. Williams

**Status:** NT B1ac(iv)+2ac(iv)


**Distribution:** EC. Western Swartberg and Otueniqua Mountains to Baviaanskloof Mountains.

**Habitat:** Tends to occur in particular altitudinal zones on south-facing slopes that might be related to water drainage patterns and associated seeps.

**Rationale:** EOO 7 679 km², AOO 277 km². Extreme fluctuations in number of mature individuals have been observed in small, isolated, severely fragmented subpopulations. Unexplained population decline has also been observed, but it is not certain whether this is natural postfire decline or not. Even though between one third and half of subpopulations are conserved, precaution suggests that this species needs careful monitoring.

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**Leucadendron radiatum** E.Phillips & Hutch.

**Status:** EN B1ab(ii,iii,iv,v)c(iv)+2ab(ii,iii,iv,v)c(iv)


**Distribution:** WC. Langeberg between Swellendam and Riversdale.

**Habitat:** Largely confined to South Langeberg Sandstone Fynbos.

**Rationale:** EOO 247 km², AOO 37 km². The number of mature individuals continues to decline at five known locations because of too frequent fires. Extreme fire-related population fluctuations and recruitment failures have been observed in small, localised subpopulations. This is a slow-maturing species, requiring many years to first seed set.

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**Leucadendron remotum** I. Williams

**Status:** EN A3c; B1ab(ii,iii,iv,v)c(iv)+2ab(ii,iii,iv,v)c(iv)


**Distribution:** WC. Bokkeveld Mountains.

**Habitat:** Largely confined to Bokkeveld sandstone fynbos where it grows on level sandy plains.

**Rationale:** EOO 183 km², AOO 97 km². The number of mature individuals at a single location continues to decline as a result of ongoing habitat loss to rooibos tea and cereal cultivation and the exclusion of fire on small fragments. Fire-related population fluctuations have been observed. Climate change models (Bomhard et al. 2005) predict a population reduction of > 80% by 2025 (generation length 20 years).

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**Leucadendron roooldii** E.Phillips

**Status:** EN B1ab(ii,iii,iv,v)c(iv)+2ab(ii,iii,iv,v)c(iv)


**Distribution:** WC. Gifberg.

**Habitat:** Sandy areas surrounded by very rocky terrain at an altitude of about 600 m. Largely confined to Bokkeveld sandstone fynbos.

**Rationale:** EOO 332 km², AOO 120 km². Six severely fragmented subpopulations continue to decline because of ongoing habitat loss to crop cultivation and inappropriate fire management. Fire-related fluctuations in number of mature individuals occur in small subpopulations on isolated fragments. Other threats include drought and susceptibility *Phytophthora*.

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**Leucadendron sericeum** (Thunb.) R.Br.

**Status:** CR B1ab(ii,iii,iv,v)c(iv)


**Distribution:** WC. Kouebokkeveld, Waboomsrivier.

**Habitat:** Largely confined to sandy bottomlands in Cederberg sandstone fynbos.

**Rationale:** EOO 36 km². The number of mature individuals at one known location continues to decline as a result of ongoing habitat loss and degradation caused by crop cultivation, too infrequent fires, wetland drainage, extraction of groundwater and road construction. Fire-related fluctuations in number of mature individuals occur.
**Leucadendron sessile** R.Br.

**Status:** NT B1b(i,ii,iii,iv)+2b(i,ii,iii,iv)


**Distribution:** WC. From Witzenberg to Slanghoek and Jonkershoek to Kogelberg.

**Habitat:** On sandstone fynbos, and often on shale and granite fynbos where the plants are more robust and the populations much larger.

**Rationale:** EOO 3 053 km², AOO 265 km². The population continues to decline because of ongoing habitat loss to afforestation and invasion by alien plants, and too frequent fires and drought-related mortality, but more than 10 locations remain. Fire-related fluctuations in numbers of mature individuals occur in small isolated subpopulations, but are unlikely to result in extreme fluctuations in the total population. Taxonomic problems have to be resolved as two separate taxa may be involved.

**Leucadendron sheilae** I.Williams

**Status:** VU A3c+4c


**Distribution:** NC. Bokkeveld Mountains.

**Habitat:** Largely confined to Bokkeveld sandstone fynbos.

**Rationale:** This range-restricted species is undergoing rapid habitat loss to rooibos tea cultivation. Although data on the rate and extent of habitat loss are not available, it is suspected that, combined with habitat loss over the past 10 years, population reduction as a result of further habitat loss is likely to exceed 30% over the next 10 years, and very likely to far exceed 30% over the next three generations (generation length 20 years). Many subpopulations are already fragmented and climate change models also predict a 30% population reduction in the next 10 years, and very likely to far exceed 30% over the next generation length 20 years. Observation of drought vulnerability suggest that this scenario is not unlikely: large-scale drought-related mortality was observed in 1999, with up to 60% mortality in some subpopulations where seepages dried up.

**Leucadendron spirale** (Salisb. ex Knight)

**I.Williams**

**Status:** EX


**Distribution:** WC. Kammanassie Mountains.

**Habitat:** Sandstone fynbos.

**Rationale:** Current EOO 63 km². Fewer than five known locations are potentially threatened by firebreak clearing and too frequent fires. Climate change models (Bombard et al. 2005) predict a population reduction of > 30% by 2025 (generation length 20 years).

**Leucadendron sorocephalodes** E.Philips & Hutch.

**Status:** NT A2a


**Distribution:** EC WC. Outeniqua to Bavianskloof Mountains.

**Habitat:** Sandstone fynbos.

**Rationale:** More widespread and common than previously known, but many subpopulations are small and isolated. Unexplained population declines close to 30% have been observed in many subpopulations since 1985. The decline may be the result of climate change, as declines tend to be more severe on lower slopes. Monitoring is required to determine whether the population decline is continuing. Generation length 20 years.

**Leucadendron sp. nov.**

**Voucher:** Aocks 23716 NBG

**Status:** CR A4c


**Distribution:** WC. Groot Winterhoek and Witteberg.

**Habitat:** Seepage areas in Matjiesfontein Quartzite Fynbos.

**Rationale:** Climate change models (Bombard et al. 2005) predict a population reduction of > 80% by 2025 (generation length 20 years). Observations of drought vulnerability suggest that this scenario is not unlikely: large-scale drought-related mortality was observed in 1999, with up to 60% mortality in some subpopulations where seepages dried up.

**Leucadendron natalense** (Thode & Gilg)

**I.Williams**

**Status:** NT B2ab(i,ii,iii,iv,vy)


**Distribution:** WC. Breede River Valley between Wolseley and Botha.

**Habitat:** Wet areas.

**Rationale:** Collected in 1801 and 1819 and last recorded in 1933. Extensive searches in the 1960s and 1990s, the latter accompanied by a reward of R1 000, have yielded no sign of the species. It is serotinous and unlikely to survive as seeds in soil-stored seedbanks. Cause of extinction is unknown, but is possibly the result of habitat loss to crop cultivation, invasion by alien plants and afforestation.

**Leucadendron spissifolium** (Salisb. ex Knight)

**I.Williams subsp. natalense**

**Status:** NT

**Distribution:** EC KZN. Oribi Gorge to Port St Johns, also possibly at Dwesa Forest Reserve.

**Habitat:** Largely confined to Pondoland coastal grassland.

**Rationale:** AOO 85 km². The population continues to decline because of ongoing habitat loss to crop cultivation, too frequent fires and apparent recruitment failure, but more than 10 locations remain. Many subpopulations are small and isolated, but not > 50% of subpopulations are affected by fragmentation.

**Leucadendron spissifolium (Salisb. ex Knight)**

I.Williams subsp. *orbinum* I.Williams

**Status:** VU B1ab(ii,iii,iv,v)


**Distribution:** EC KZN. Oribi Flats to Mbamati.

**Habitat:** Pondoland coastal grassland, 300–500 m.

**Rationale:** EOO 715 km², AOO 74 km². Many subpopulations in the northern part of the range have declined or are now locally extinct as a result of habitat loss, mainly due to sugarcane cultivation and urban expansion. Fewer than 10 locations remain and continue to decline.

**Leucadendron stellare (Sims) Sweet**

**Status:** CR A2c


**Distribution:** WC. Aurora to Cape Flats.

**Habitat:** Found in Hopefield Sand Fynbos, Swartland Shale Renosterveld, Swartland Alluvium Fynbos, Atlantis Sand Fynbos and Leopoldville Sand Fynbos.

**Rationale:** A population reduction of at least 81% is estimated based on extensive habitat loss in the southern parts of the range of this long-lived resprouter over the past 100 years (generation length > 100 years). Most remaining subpopulations are small and confined to isolated remnants, with 23% containing fewer than 10 plants. Larger remaining subpopulations in the northern section of the range are rapidly declining because of ongoing habitat loss to potato cultivation.

**Leucadendron stelligerum I.Williams**

**Status:** CR A3c + 4c


**Distribution:** WC. Elim to Aguhas Plain.

**Habitat:** Largely confined to Elim Ferricrete Fynbos.

**Rationale:** The population is estimated to have already been reduced by > 50%, based on 58% habitat loss, mainly to crop cultivation, over the past 40–60 years. Some 52% of remaining subpopulations are confined to road verges, where they are extremely vulnerable to verge clearing practices such as herbiciding or mowing. Climate change models (Bombard et al. 2005) further predict a population reduction of > 80% by 2025 (generation length 20 years).

**Leucadendron strobilinum (L.) Druce**

**Status:** NT D2


**Distribution:** WC. Cape Peninsula.

**Habitat:** Mainly associated with margins of afro montane forest patches or other relatively fire-safe habitats that do not burn in every fire cycle. Largely confined to Peninsula Sandstone Fynbos.

**Rationale:** EOO 154 km², AOO 71 km². About eight locations are potentially threatened by inappropriate fire management, firebreak clearing and invading alien pines. This is a slow-growing, late-maturing species that occurs only in small subpopulations. One known subpopulation cannot be relocated and is possibly extinct, but the population is stable at present.

**Leucadendron teretifolium (Andrews) I.Williams**

**Status:** NT B1ab(ii) + 2ab(ii)


**Distribution:** WC. Witteberg and Kleinrivier Mountains to Riversdale.

**Habitat:** Although a fynbos species, it also occurs within the renosterveld ecotone.

**Rationale:** EOO 1423 km², AOO 1254 km². Several severely fragmented subpopulations remain after extensive habitat loss to crop cultivation. The population continues to decline because of ongoing habitat loss, invasion by alien plants and drought-related mortality events. It is wind-pollinated and typically occurs in very dense stands—scattered plants should be checked for seed set.

**Leucadendron thymifolium (Salisb. ex Knight)**

I.Williams

**Status:** CR A2c + 3c + 4c + B1b(i,ii,iii,iv,v) + (iv)


**Distribution:** WC. Dassenberg to Klipheuwel.

**Habitat:** Appears to thrive in seasonally damp areas along road verges, provided that they are not mown or cleared. Able to recruit in the absence of fire.

**Rationale:** EOO 65 km². Most subpopulations are now confined to road verges after most of the habitat has been transformed by urban expansion, agricultural expansion and invasion by alien plants. It continues to decline and fire-related population fluctuations have been observed. Climate change models predict that this species will be extinct by 2025 (Bombard et al. 2005).

**Leucadendron tinctum I.Williams**

**Status:** NT A4c

Leucadendron tradouwense I. Williams

Status: CR B1b[i,ii,iii,iv](c)(iv)


Distribution: WC. Hex River Mountains to Hottentots Holland and Langeberg Mountains.

Habitat: Sandstone and Shale Fynbos.

Rationale: Climate change models predict a population reduction of up to 50% by 2025 (Bomhard et al. 2005). This is an extreme scenario as the population is not currently declining. Drought sensitivity has been observed, however, and a population reduction of 20–30% is considered more realistic (generation length 20 years).

Leucadendron uliginosum

Distribution: WC. Langeberg Mountains, Tradouw Pass.

Habitat: Sandstone fynbos.

Rationale: EOO 35 km². Declining as a result of habitat loss to agriculture, invasion by alien plants, too frequent and seasonal fires and wildflower harvesting. Fire-related population fluctuations have been observed.

Leucadendron uliginosum R.Br. subsp. glabratum I. Williams

Status: Rare


Distribution: WC. Gordon’s Bay to Kogel Bay.

Habitat: Largely confined to Kogelberg sandstone fynbos.

Rationale: AOO 34 km². A rare endemic potentially threatened by too frequent fires, invasive alien plants and urban expansion.

Leucospermum arenarium Rycroft

Status: CR A3c+4c


Distribution: WC. Redelinghuys to Aurora, and around Malmesbury.

Habitat: Leipoldtville Sand Fynbos.

Rationale: A population reduction of > 50% is estimated based on habitat loss to crop cultivation by 1992, with a further 30% habitat loss over the past 10–15 years (generation length 20 years). Climate change models predict that this species will be extinct by 2025 (Bomhard et al. 2005).

Leucospermum bolusii Gand.

Status: NT D2


Distribution: WC. Langeberg Mountains, Tradouw Pass.

Habitat: Sandstone fynbos.

Rationale: EOO 35 km². Declining as a result of habitat loss to agriculture, invasion by alien plants, too frequent and seasonal fires and wildflower harvesting. Fire-related population fluctuations have been observed.

Leucospermum catherinae Compton

Status: EN B1a(iv)+2a(iv)


Distribution: WC. Cederberg to Hex River Mountains.

Habitat: Seeps and riverbanks in sandstone fynbos.

Rationale: EOO 3 472 km², AOO 142 km². Fire-related fluctuations in number of mature individuals occur in small, severely fragmented subpopulations. Seven subpopulations known through herbarium records could not be relocated in Protea Atlas Project surveys, but many new subpopulations were discovered. The impact of agriculture on wetlands and the extraction of groundwater may have caused a past population decline, but this species is also easily overlooked, especially in the dormant phase, and population reduction is therefore difficult to estimate. Climate change models predict a population reduction of up to 30% by 2025 (Bomhard et al. 2005). Other threats include too frequent fires and overgrazing.

Leucospermum conocarpodendron (L.) H.Bueschel subsp. conocarpodendron

Status: EN B1ab(i,ii,iii,iv)+v; 2ab(i,ii,iii,iv)


Distribution: WC. Hex River Mountains to Hottentots Holland and Langeberg Mountains.

Habitat: Sandstone and Shale Fynbos.

Rationale: A population reduction of > 80% is estimated based on the local extinction of 74% of subpopulations known through herbarium records by 1992, and an observed further reduction of 30% since 1992 (generation length 20 years). Reasons for decline include habitat loss to crop cultivation, urban expansion and invasion by alien plants, clearing of road verges, lack of fire in isolated fragments and overgrazing. EOO 30 km². Habitat loss and population decline are continuing and fire-related population fluctuations have been observed.

Leucospermum tinctum PROTEACEAE Leucadendron tinctum
**Leucospermum conocarpodendron** (L.) H.B.K. subsp. **viridum** Rourke  
**Status:** NT A2c  
**Distribution:** WC. Kogelberg, WC. Cape Peninsula. Cape Flats (Kanonberg), Hottentots Holland to Franschhoek Mountains, Kogelberg, Kleinmond, Babilonstoring and Kleinrivier Mountains to Stanford.  
**Habitat:** Sandstone fynbos, usually densest in rocky areas where fires are cooler.  
**Rationale:** A population reduction of 24% is estimated based on habitat loss to agricultural and urban expansion, afforestation and invasion by alien plants over the past 60 years (generation length 20 years). Subpopulations on the Cape Peninsula are protected.

**Leucospermum cordatum** E.Philips  
**Status:** EN B1ac(iv) + 2ac(iv)  
**Distribution:** WC. Kogelberg.  
**Habitat:** Sandstone fynbos associated with manganese deposits on screes.  
**Rationale:** EOO 6 km², AOO < 6 km². Fire-related population fluctuations in number of mature individuals occur in two known remaining locations. Past threats of mining and road construction have ceased, the remaining subpopulations are protected and there is no evidence of continuing decline. However, one subpopulation straddles Clarence Drive between Koeëlbaai and Rooiels and any road widening, road verge management or development of the mine as a historical site will affect the population negatively.

**Leucospermum cordifolium** (Salisb. ex Knight) Fourc.  
**Status:** NT A2c + 4d  
**Distribution:** WC. Kogelberg to Soetanysberg.  
**Habitat:** Sandstone fynbos.  
**Rationale:** A population reduction of nearly 30% is estimated based on a 34% reduction in range size (EOO) and 29% reduction in AOO as a result of habitat loss and extensive picking of planted and wild plants over the past 60 years (generation length 20 years). This is the most popular horticultural punctum. Many cultivars are available and are planted extensively in protea orchards adjacent to natural stands throughout its range. Contamination of natural gene pools is therefore a major concern, together with habitat loss due to invasion by alien plants and agriculture.

**Leucospermum erubescens** Rourke  
**Status:** Rare  
**Distribution:** WC. Langeberg endemic.  
**Habitat:** North Langeberg Sandstone Fynbos.  
**Rationale:** Habitat specialist on north-facing slopes. Not threatened in mountainous habitats.
Leucospermum grandiflorum

**Distribution:** KZN MP, Barberton and Carolina, Swaziland, Saldanha, and Mistbelt Grassland, from 900–1 100 m. Associated with serpentine.

**Habitat:** Shallow sandstone-derived soils in Ngongoni and Mistbelt Grassland, from 900–1 1000 m. Associated with serpentinite.

**Rationale:** A population reduction of nearly 30% is estimated based on a 30% reduction in range size due to habitat loss to vineyard expansion, afforestation and alien invasive plants.

**Status:** EN1ab(ii,iii,iv,v)c(iv) + 2ab(i,ii,iii,iv,v)c(iv).

**Growth form:** Erect trees, 6–15 m high, in dune fynbos and quartzite-derived soils.

**Favourable habitat:** Coastal thornveld, coastal fynbos, and Afromontane forests.

**Rationale:** A population reduction of nearly 30% is estimated based on a 30% reduction in range size due to habitat loss to vineyard expansion, afforestation and alien invasive plants.

**Status:** EN1ab(ii,iii,iv,v)c(iv) + 2ab(i,ii,iii,iv,v)c(iv).

**Distribution:** WC. Klein Moeras River, Outeniqua Mountains.

**Habitat:** Largely confined to South Outeniqua Sandstone Fynbos.

**Rationale:** EO0 22 km², AOO 20 km². Fire-related fluctuations in number of mature individuals occur in small subpopulations at five known locations. Dense hakea invasions of the habitat have been cleared, but remain a potential threat as it may spread again from nearby areas if it is not managed.

**Status:** EN 1ac(iv) + 2ac(iv).

**Distribution:** WC. Klein Moeras River, Outeniqua Mountains.

**Habitat:** Largely confined to South Outeniqua Sandstone Fynbos.

**Rationale:** EO0 22 km², AOO 20 km². Fire-related fluctuations in number of mature individuals occur in small subpopulations at five known locations. Dense hakea invasions of the habitat have been cleared, but remain a potential threat as it may spread again from nearby areas if it is not managed.

**Status:** CR 1ab(ii,iii,iv,v)c(iv) + 2ab(i,ii,iii,iv,v)c(iv);

**Distribution:** WC. Riviersonderend Mountains near McGregor.

**Habitat:** North Sonderend Sandstone Fynbos.

**Rationale:** EO0 2 km². Fire-related population fluctuations occur in one small subpopulation, currently consisting of 200 mature individuals at a single known location. The population continues to decline as a result of cut flower harvesting, urban development, too frequent fires and the impact of alien invasive ants.

**Status:** EN A2c

**Distribution:** WC. Elim to De Hoop.
Habitat: Most prominent in Elim Ferricrete Fynbos.

Rationale: A population reduction of > 50% is estimated based on 51% habitat loss to agriculture, gravel mining, urban expansion, overgrazing and invasion by alien plants over the past 100 years (generation length > 100 years).

*Leucospermum hypophyllocarpodendron* (L.) Druce subsp. *canaliculatum* (H.Buck ex Meisn.)

Rourke

Status: VU A2c


*Distribution*: WC. Piketberg, Hopefield, Cape Flats, Riebeek-Kasteel and Breede River Valley.

Habitat: Most prominent in Atlantis Sand Fynbos.

Rationale: A population reduction of > 30% is estimated based on a 40% reduction in range size and 40% habitat loss to agriculture, urban expansion and invasion by alien plants over the past 100 years (generation length > 100 years). The population is stable at present, but with an EOO of 4 365 km², AOO of 426 km² and only six known locations, it could rapidly become Endangered if more habitat is lost.

*Leucospermum hypophyllocarpodendron* (L.) Druce subsp. *hypophyllocarpodendron*

Status: VU A2c


*Distribution*: WC. Cape Peninsula, Cape Flats, Berg River Valley and Elim coastal flats.

Habitat: Lowland sandstone fynbos.

Rationale: A population reduction of > 30% is estimated based on 37% habitat loss to urban expansion, invasion by alien plants, afforestation and commercial cultivation of proteas for the cut flower industry over the past 100 years (generation length > 100 years). Remaining subpopulations occur within protected areas and no further decline is expected.

*Leucospermum innovans* Rourke

Status: EN B1ab(ii,iii,v) + 2ab(ii,iii,v)


*Distribution*: EC KZN. Pondoland from the Umtamvuna River to Ntsuane. Isolated occurrences near Paddock and Uvongo in southern KwaZulu-Natal.

Habitat: Most prominent in Pondoland-Natal Sandstone Coastal Sourveld in shallow soils, 100–600 m.

Rationale: EOO 642 km², AOO 29 km². Severely fragmented subpopulations continue to decline owing to habitat loss to agriculture, afforestation and too frequent fires.

*Leucospermum lineare* R.Br.

Status: VU A2c


*Distribution*: WC. Bain’s Kloof to Hottentots Holland and Villiersdorp Mountains.

Habitat: Primarily found in Boland Granite Fynbos.

Rationale: Estimates of past population reduction based on local extinction of subpopulations known through herbarium specimens, reduction in range size and habitat loss through land transformation give very different values, ranging from 20–60%. It has been decided to place this species in the category VU (30–50% population reduction) as an average estimate of population reduction over the past 60 years (generation length 20 years).

*Leucospermum muirii* E.Phillips

Status: EN A3c+4c


*Distribution*: WC. Still Bay to Gouritsmond.

Habitat: Most prominent in Albertinia Sand Fynbos.

Rationale: A population of several thousand plants is confined to a small area of 169 km². Evidence exists that this species may have declined substantially already, as 40% of records are from habitat remnants, road verges or adjacent to agricultural land, and that it continues to decline because of dense invasions of alien plants and habitat degradation as a result of thatch harvesting, but data on the extent of population reduction are lacking. Climate change models (Bombard et al. 2005) predict a population reduction of up to 80% by 2025 (generation length 20 years), but this may be extreme. Other threats include agricultural and urban expansion, clearing of road verges and mule rat activity.

*Leucospermum mundii* Meisn.

Status: Rare


*Distribution*: WC. Langeberg Mountains between Swellendam and Riversdale.

Habitat: Sandstone fynbos.

Rationale: A range-restricted species that is not threatened in mountainous habitats.

*Leucospermum parile* (Salisb. ex Knight) Sweet

Status: EN A2c+3c+4c


*Distribution*: WC. Dassenberg and Paardeberg.
Habitat: Most prominent in Atlantis Sand Fynbos, survives well in disturbed areas.

Rationale: A population reduction of at least 50% is estimated based on habitat loss to urban expansion, agriculture and invasion by alien plants over the past 60 years (generation length 20 years). Climate change models predict a further population reduction by up to 80% by 2025 (Bomhard et al. 2005), but this is likely to be extreme.

Leucospermum patersonii E.Phillips
Status: VU A3c +4c

Distribution: WC. Kleinmond to Agulhas.

Habitat: Limestone Fynbos.

Rationale: Although it has a small range (EOO 709 km²), this species does not qualify as threatened at present, but climate change models predict a significant population reduction by 2025 (Bomhard et al. 2005), generation length 20 years. Some of the habitat has already been lost to urban expansion, protea cultivation and invasion by alien plants, but it does not exceed 30%. At least 12 existing locations are known.

Leucospermum pluridens Rourke
Status: NT B1ab(v) +2ab(v)

Distribution: WC. Rooiemberg to Robinson Pass.

Habitat: Largely confined to Cederberg Sandstone Fynbos.

Rationale: EOO 526 km², AOO 140 km². A number of small, severely fragmented subpopulations remain. Past declines have been noted, but the reasons are unknown. The population appears stable at present.

Leucospermum praecox Rourke
Status: VU A2c +3c +4c

Distribution: WC. Gouritsmond to Mossel Bay.

Habitat: Tertiary acid sands associated with limestone formations on the coastal forelands.

Rationale: Land cover data indicate that this species has already lost around 14–22%, mainly as a result of agriculture, but this does not include habitat loss due to vegetation management for thatch harvesting, which, based on expert opinion, may have already caused a population reduction of up to 50% over the past 10–20 years. In the absence of data, past population reduction is estimated to be at least 30% and the population is expected to continue to decline significantly over the next 40 years as a result of thatch harvesting and invading alien plants, which already affect 61% of sites. Generation length 20 years.

Leucospermum praemorsum (Meisn.) E.Phillips
Status: VU A2c

Distribution: WC. Namaqualand to Cederberg Mountains.

Habitat: Arid sandstone fynbos. Outside the Fynbos Biome this species occurs on the summits of linear dune systems.

Rationale: A population reduction of at least 30% is estimated based on habitat loss to agriculture, overgrazing, extraction of groundwater and too infrequent fires over the past 60 years (generation length 20 years).

Leucospermum profugum Rourke
Status: EN B1ac(iv) +2ac(iv)

Distribution: WC. Piketberg.

Habitat: Confined to Piketberg sandstone where it grows in well-drained situations in rocky outcrops, 700–800 m.

Rationale: EOO 124 km², AOO 29 km². Fire-related fluctuations in number of mature individuals occur in small subpopulations at three known locations. Potentially threatened by too frequent fires.

Leucospermum prostratum (Thunb.) Stapf
Status: VU A4c

Distribution: WC. Groenland Mountains to Elim Flats.

Habitat: Sand and sandstone fynbos, mainly in the lowlands.

Rationale: Some 24% of the habitat has already been transformed, and habitat loss models (Bomhard et al. 2005) indicate that habitat loss will exceed 50% by 2025, but that this will be partially offset by climate change. A population reduction of at least 30% is therefore estimated to be reached within the next 20 years (generation length > 100 years). The western populations (Rooiels to Hermanus) are under severe threat from urban expansion.

Leucospermum reflexum H.Buek ex Meisn.
Status: NT D2

Distribution: WC. Pakhuis and northern Cederberg Mountains.

Habitat: Largely confined to Cederberg Sandstone Fynbos.
**Leucospermum rodolentum** (Salisb. ex Knight) Rourke

**Status:** VU A2c


**Distribution:** WC. Klein Swartberg Mountains.

**Habitat:** Mountain slopes, sandstone fynbos.

**Rationale:** A range-restricted species (EOO 232 km²) that is not threatened in mountainous habitats.

**Leucospermum saxatile** (Salisb. ex Knight) Rourke

**Status:** EN B1ab(ii)+2ab(ii)


**Distribution:** WC. Langeberg Mountains, Garcia’s Pass.

**Habitat:** Largely confined to North Langeberg Sandstone Fynbos.

**Rationale:** Population reduction of at least 30% estimated based on a 34% reduction in range size (EOO) and 45% habitat loss due to agriculture and extraction of groundwater over the past 60 years (generation length 20 years). Subpopulations are severely fragmented and susceptible to drought-related mortality.

**Leucospermum saxatile** (Salisb. ex Knight) Rourke

**Status:** EN D


**Distribution:** WC. Langeberg Mountains, Garcia’s Pass.

**Habitat:** Largely confined to North Langeberg Sandstone Fynbos.

**Rationale:** Population reduction of at least 30% estimated based on a 34% reduction in range size (EOO) and 45% habitat loss due to agriculture and extraction of groundwater over the past 60 years (generation length 20 years). Subpopulations are severely fragmented and susceptible to drought-related mortality.

**Leucospermum saxatile** S. Moore

**Status:** EN D


**Distribution:** LM MP. Mpumalanga and Limpopo Drakensberg Escarpment, Zimbabwe and Mozambique.

**Habitat:** Habitat is not well known, plants tend to occur on quartzitic soils.

**Rationale:** In South Africa, the national population consists of less than 250 plants in four locations, which may not be viable in the long term because of its small size. It is isolated from the Chimanimani subpopulations (Zimbabwe) by > 500 km and the national assessment is therefore not downgraded. The national population represents less than 5% of the global population and is potentially threatened by the fragmentation of its habitat by forestry plantations.

**Leucospermum secundifolium** Rourke

**Status:** Rare


**Distribution:** WC. Klein Swartberg Mountains.

**Habitat:** Mountain slopes, sandstone fynbos.

**Rationale:** A range-restricted species (EOO 232 km²) that is not threatened in mountainous habitats.

**Leucospermum thomsonii** (Thunb.) R. Br.

**Status:** VU A3c+4c


**Distribution:** WC. Hopefield to Bokhaai.

**Habitat:** Occurs on the edge of fynbos, right up to the strandveld interface. Most prominent in Hopefield Sand Fynbos.

**Rationale:** This still relatively common species is declining at present because of habitat loss to crop cultivation in coastal areas, and elsewhere in its range it is threatened by invading alien acacias. Land transformation models (Bomhard et al. 2005) predict further habitat loss of up to 50% under a high transformation scenario, and a population reduction of at least 30% is likely by 2025 (generation length > 100 years).

**Leucospermum tomentosum** (Thunb.) R. Br.

**Status:** VU A3c+4c


**Distribution:** WC. Hopefield to Bokhaai.

**Habitat:** Occurs on the edge of fynbos, right up to the strandveld interface. Most prominent in Hopefield Sand Fynbos.

**Rationale:** This still relatively common species is declining at present because of habitat loss to crop cultivation in coastal areas, and elsewhere in its range it is threatened by invading alien acacias. Land transformation models (Bomhard et al. 2005) predict further habitat loss of up to 50% under a high transformation scenario, and a population reduction of at least 30% is likely by 2025 (generation length > 100 years).

**Leucospermum tomentosum** (Thunb.) R. Br.

**Status:** VU A3c+4c


**Distribution:** WC. Hopefield to Bokhaai.

**Habitat:** Occurs on the edge of fynbos, right up to the strandveld interface. Most prominent in Hopefield Sand Fynbos.

**Rationale:** This still relatively common species is declining at present because of habitat loss to crop cultivation in coastal areas, and elsewhere in its range it is threatened by invading alien acacias. Land transformation models (Bomhard et al. 2005) predict further habitat loss of up to 50% under a high transformation scenario, and a population reduction of at least 30% is likely by 2025 (generation length > 100 years).
Leucospermum truncatulum (Salisb. ex Knight) Rourke

**Status:** NT A2c


**Distribution:** WC. Cederberg, Koeboekkeveld, Groot Winterhoek Mountains, Skurweberg, Hex River to Du Toit’s Kloof Mountains and Piketberg.

**Habitat:** Sandstone fynbos, usually associated with rocky outcrops.

**Rationale:** Population reduction of nearly 30% is estimated based on a 35% decline in subpopulations known through herbarium records due to too frequent fires, extraction of groundwater and drought-related mortality over the past 60 years (generation length 20 years).

Leucospermum vestitum (Lam.) Rourke

**Status:** NT A2c


**Distribution:** WC. Cederberg Mountains to Breede River Valley south of Wolseley, extinct from Paarl to Cape Peninsula.

**Habitat:** Sandstone fynbos at higher altitudes and aluvium fynbos at lower altitudes.

**Rationale:** A population reduction of nearly 30% is estimated based on a loss of 26% of known subpopulations at lower elevations due to agriculture, urban expansion and afforestation over the past 60 years (generation length 20 years). The known range of this species has been reduced by > 50%, but this is as a result of the local extinction of an isolated subpopulation on the Cape Peninsula more than 100 years ago. Currently threatened by further agricultural expansion, invasion by alien plants and too frequent fires. Drought-related mortality has been observed.

Leucospermum winteri Rourke

**Status:** NT D2


**Distribution:** WC. Langeberg Mountains, Langkloof between Garcia’s Pass and the Gourits River Valley.

**Habitat:** Largely confined to South Langeberg Sandstone Fynbos.

**Rationale:** AOO 68 km². About 10 subpopulations are potentially threatened by afforestation and invasion by alien plants.

Mimetes arboresus Rourke

**Status:** EN B1ac(iv)+2ac(iv)


**Distribution:** WC. Kogelberg.

**Habitat:** Confined to Kogelberg Sandstone Fynbos.

**Rationale:** EOO 94 km², AOO 45 km². Fire-related population fluctuations occur at five locations. There are less than 1 000 plants at present, with most mature individuals in one subpopulation potentially threatened by too frequent fires, invading alien plants and susceptibility to Phytophthora. Dormant subpopulations of this slow-maturing species are easily overlooked in surveys.

Mimetes argenteus Salisb. ex Knight

**Status:** EN B1ab(iii,iv) + 2ab(iii,iv)


**Distribution:** WC. Franschhoek and Riviersonderend.

**Habitat:** Sandstone fynbos on peat seeps.

**Rationale:** EOO 928 km², AOO 83 km². Fire-related population fluctuations occur in small, severely fragmented subpopulations and the number of mature individuals continues to decline because of extraction of groundwater, invasion by alien plants and too frequent fires. Dormant subpopulations are likely to be overlooked in vegetation surveys and environmental impact assessments.

Mimetes capitatus (L.) R.Br.

**Status:** EN B1ab(ii,iii,iv) + 2ab(ii,iii,iv)


**Distribution:** WC. Kogelberg, Groenland and Kleinrivier Mountains.

**Habitat:** Largely confined to Kogelberg Sandstone Fynbos.

**Rationale:** EOO 541 km², AOO 29 km². Fire-related population fluctuations occur at five known locations where habitat quality and the number of mature individuals continue to decline as a result of wildflower harvesting. Some observed population declines are not understood, but may be the result of inappropriate fire management or may be drought-related. Dormant subpopulations easily overlooked in surveys.
Mimetes chrysanthus Rourke
Status: VU D2

Distribution: WC. Gamkaberg and Perdeberg near Herold.
Habitat: Grows on steep southeast-facing sandstone slopes.
Rationale: Two known locations are potentially threatened by too frequent fires.

Mimetes fimbriifolius Salisb. ex Knight
Status: Rare

Distribution: WC. Cape Peninsula.
Habitat: Peninsula Sandstone Fynbos.
Rationale: A range-restricted endemic (EOO 395 km²) to the Cape Peninsula, most subpopulations within protected areas.

Mimetes hirsutus (L.) Salisb. ex Knight
Status: VU A4c

Distribution: WC. Cape Peninsula to Elim.
Habitat: Occurs in seeps and peats both on the coastal forelands and on the coastal mountains.
Rationale: This species is already lost > 50% of its habitat, but over a period longer than three generations. Projected ongoing habitat loss indicates that at least a further 30% of the habitat will be transformed over the next 20 years (generation length 20 years). This species is threatened by urban expansion, agriculture, invasions by alien plants and alien ants, extraction of groundwater, wetland drainage, development of golf courses, eutrophication of drainage systems, afforestation and wildflower harvesting.

Mimetes hottentoticus E.Philips & Hutch.
Status: CR B1a(iv)

Distribution: WC. Kogelberg.
Habitat: Largely confined to Kogelberg Sandstone Fynbos.
Rationale: EOO 17 km². Fire-related fluctuations in number of mature individuals occur at one known location. This species is potentially threatened by too frequent fires, seed harvesting and it is susceptible to Phytophthora infection. Dormant subpopulations are easily overlooked in surveys.

Mimetes palustris Salisb. ex Knight
Status: CR B1b(iii)(iv)

Distribution: WC. Kleinrivier Mountains.
Habitat: Largely confined to Overberg Sandstone Fynbos.
Rationale: EOO 26 km². Fire-related population fluctuations occur in small subpopulations that are declining as a result of ongoing habitat loss to invading alien plants and too frequent fires. It is easily overlooked in surveys.

Mimetes pauciflorus R.Br.
Status: VU A2c+3c+4c

Distribution: EC WC. Outeniqua and Tsitsikamma Mountains.
Habitat: Most prominent in South Outeniqua Sandstone Fynbos.
Rationale: A past population reduction of at least > 30% is estimated based on habitat loss to forestry plantations. Land transformation models (Bomhard et al. 2005) predict a further 50% habitat loss by 2025. However, forestry is in decline in the area and therefore future habitat loss projected by models is probably an overestimate. Generation length is 20 years.

Mimetes saxatilis E.Philips
Status: EN B1a(i,ii,iii,iv)+v+2ab(ii,iii,iv,vy)

Distribution: WC. Pearly Beach to Struisbaai.
Habitat: Limestone fynbos, usually in rocky areas.
Rationale: EOO 215 km², AOO 62 km². Five known locations continue to decline because of ongoing habitat loss to urban expansion and invasion by alien plants. This species is also threatened by invasive alien ants. Dormant subpopulations are easily overlooked in surveys.

Mimetes splendidus Salisb. ex Knight
Status: EN B1ab(i,ii,iii,iv)+v+2ab(i,ii,iii,iv,vy)

Distribution: WC. Langeberg to Tsitsikamma Mountains.
Habitat: Sandstone fynbos on moist, peaty slopes.
Rationale: EOO 2 255 km², AOO 51 km². Fire-related population fluctuations occur in small, severely fragmented subpopulations consisting of no more than 50 mature individuals. The small total population (at present estimated to consist of no more than 400 plants)
Plate 82

Leucadendron gyroense (male) EN

Leucadendron elimense subsp. eyyboomense (male) CR

Leucadendron radiatum (female) EN

Leucadendron floridum (male) CR

Leucadendron bonum (male) CR

Leucadendron daphnoides (female) EN

Leucadendron argenteum (male) EN

Leucadendron conosum subsp. homoeophyllum (female) CR
Protea roupelliae subsp. hamiltonii CR
Protea venusta EN
Protea stokoei EN
Protea rupicola EN
Protea hokoserica EN
Protea parruda NT
Protea pudens EN
Protea convexa CR
Protea namaquana CR
Paranomus adiantifolius Salisb. ex Knight  
**Plate B3**  
Status: EN B1ac(iv)+2ac(iv)  
**Distribution:** WC. Groenland and Riviersoender Mountains.  
**Habitat:** Sandstone fynbos.  
**Rationale:** A population reduction of 30% is estimated based on a 30% reduction in range size and 33% loss of habitat to invasion by alien plants, afforestation, agriculture and mining over the past 60 years (generation length 20 years).

Paranomus esterhuyseniae Levyns  
**Status:** NT A3c+4c  
**Distribution:** EC WC. Outeniqua and Kouga Mountains.  
**Habitat:** Largely confined to Kouga Sandstone Fynbos.  
**Rationale:** At present this species is not threatened. However, it is confined to the Klein Swartberg at higher altitudes and climate change models predict a population reduction of up to 30% by 2025 (Bomhard et al. 2005). This prediction is not supported by any other data, and the species requires monitoring.
Paranomus longicaulis Salisb. ex Knight
Status: VU B1ab(i,ii,iii,iv)+2ab(i,ii,iii,iv)
Distribution: WC. Garcia’s Pass to Attauquaskloof in the Langeberg Mountains.
Habitat: Sandstone fynbos on lower northern slopes.
Rationale: EOO 116 km², AOO 43 km². The number of mature individuals at nine known locations is declining because of overgrazing.

Paranomus reflexus (E.Philips & Hutch.) Fourc.
Status: EN B1ab(ii,iii,iv)+2ab(ii,iii,iv)
Distribution: EC. Van Stadens Mountain.
Habitat: Confined to Kouga Sandstone Fynbos.
Rationale: EOO 605 km², AOO 34 km². Severely fragmented subpopulations are declining as a result of ongoing habitat loss to afforestation and invasion by alien plants.

Paranomus roodebergensis (Compton) Levyns
Status: Rare
Distribution: WC. Ladismith, Rooiberg.
Habitat: Grows in very arid sandstone fynbos.
Rationale: A range-restricted species (EOO 390 km²) that is not threatened.

Paranomus sceptrum-gustavianus (Sparrm.) Hyl.
Status: NT B1ab(i,ii,iii,iv)+2ab(i,ii,iii,iv)
Distribution: WC. Hottentots Holland Mountains near Swellendam.
Habitat: Sandstone fynbos on middle to upper slopes with a moist, southern aspect.
Rationale: EOO 2 431 km², AOO 221 km². More than 10 remaining locations continue to decline as a result of invasion by alien plants and unexplained postfire mortality of mature individuals, to the extent that entire subpopulations may disappear in mature vegetation. Most subpopulations are small, isolated and unpredictable in their postfire response and may be susceptible to extreme fluctuations.

Paranomus sp. nov.
Voucher: Helme 1999 NBG
Status: CR B1b(ii,iii,iv)+2b(ii,iii,iv)
Distribution: WC. Houwhoek.
Habitat: Most prominent in Elgin Shale Fynbos.
Rationale: EOO 8 km², AOO < 8 km². Fire-related population fluctuations occur in small subpopulations that are declining as a result of habitat loss to agriculture, dam construction, mining, invasion by alien plants and too infrequent fires.

Paranomus spathulatus (Thunb.) Kuntze
Status: NT A3c+4c
Distribution: WC. Gamkaberg and Langeberg Mountains between Tradouw and Garcia’s Pass.
Habitat: Largely confined to North Langeberg Sandstone Fynbos.
Rationale: At present this species is not declining. However, many subpopulations are on lower slopes where they are potentially threatened by agriculture and invasion by alien plants. In addition, climate change models suggest a population reduction of up to 50% by 2025 (Bomhard et al. 2005). Therefore, as a precautionary assessment, this species is listed as NT as it is very likely to decline by at least 20–30% over the next 20 years (generation length > 100 years).

Paranomus spicatus (P.J.Bergius) Kuntze
Status: NT B1ab(iv)+2ab(iv)
Distribution: WC. Hottentots Holland Mountains to Kogelberg.
Habitat: Sandstone fynbos, mainly on lower slopes in gullies and seeps.
Rationale: EOO 159 km², AOO 74 km². Fire-related population fluctuations occur in a few small, isolated subpopulations of this species, but it is not declining and not severely fragmented.

Paranomus tomentosus (E.Philips & Hutch.) N.E.Br.
Status: NT A2c
Distribution: WC. Cederberg Mountains.
Habitat: Largely confined to Cederberg Sandstone Fynbos.
Rationale: Three out of five sites known from herbarium records in the northern extremes of the range of this species could not be relocated during the Protea Atlas Project. The loss of these sites would mean a 55% reduction in the range (EOO). However, it is not known when
Protea aristata R.Br.

Status: EN C1

Distribution: WC. Kleinrivier Mountains to Kleinrivier Mountains.
Habitat: Lowland sandstone fynbos.
Rationale: This species is not declining at present and is a resprouter with high persistence in isolated remnants. However, the three largest subpopulations are under imminent threat of urban expansion at Pringle Bay, Onrus and Kleinmond; one site is already being developed. There are only ± 2 000 plants in total, and development is likely to cause at least a 20% decline over the next 40 years (generation length > 100 years). Further development at Brightwater, where the largest subpopulation occurs, could potentially cause as much as a 50% decline in the total population. Additional threats include invasion by alien plants and expanding protea orchards.

Protea aspera E.Philips

Status: VU C2a(i)

Distribution: WC. Klein Swartberg.
Habitat: Largely confined to South Swartberg Sandstone Fynbos, 800–1 050 m.
Rationale: Population estimated at a maximum of 6 000 plants, with no subpopulation consisting of more than 1 000 mature individuals. This slow-maturing species is declining as a result of too frequent fires.

Protea aurea (Burm.f.) Rourke subsp. pothbergensis Rourke

Status: NT D2

Distribution: WC. Potberg.
Habitat: Largely confined to Potberg Sandstone Fynbos.
Rationale: AOO 300 km². A single, extensive subpopulation is potentially threatened by too frequent fires and alien pine and acacia invasion.
by alien plants over the past 60 years (generation length 20 years). Population decline is expected to continue, especially as this is a popular cut flower that may hybridise with P. compacta cultivars in protea orchards, and it should be monitored.

Protea comptonii  Bead.  
**Status:** NT A2c 
**Distribution:** KZN MP. Mpmulanga, Swaziland and Kwa-Zulu-Natal Drakensberg Escarpment.  
**Habitat:** Most prominent in Barberton Montane Grassland. In KwaZulu-Natal it occurs in open woodland on steep, cool, south-facing slopes from 850–1 000 m. Also on quartzites of the Mozana Group.  
**Rationale:** Subpopulations in the southern parts of the range have declined, but this species is still common in Mpumulanga where most sites are not threatened. Population reduction over the past 100 years is therefore estimated to be close to, but less than 30% (generation length > 100 years).

Protea convexa  E.Phillips  
**Plate 84**  
**Status:** CR A3c+4c 
**Distribution:** WC. Northern Cederberg, Witteberg and Klein Swartberg.  
**Habitat:** Dry montane fynbos on the Witteberg range near Matjiesfontein. Favours north-facing slopes, usually in soils derived from Witteberg quartzite.  
**Rationale:** Models and experts agree that a population reduction of > 80% is likely by 2025 as a result of climate change (Bomhard et al. 2005), generation length 20 years. This species is currently declining because of habitat loss to rooibos tea cultivation and observations indicate that it is susceptible to drought-related mortality.

Protea coronata  Lam.  
**Status:** NT A2c+3c+4c 
**Distribution:** EC WC. Cape Peninsula to Kouga.  
**Habitat:** A variety of habitats, but especially shale and granite fynbos in moist, south-facing situations.  
**Rationale:** A population reduction of nearly 30% is estimated based on a decline of 27% of known subpopulations and 30% habitat loss to crop cultivation and alien pine and hakea invasions over the past 60 years (generation length 20 years). Climate change models predict a population reduction of up to 50% by 2025 (Bomhard et al. 2005), but this is considered an unlikely, worst-case scenario.

Protea cryophila  Bolus  
**Status:** NT D2 
**Distribution:** WC. Cederberg.  
**Habitat:** Mountain summits on Cederberg Sandstone Fynbos.  
**Rationale:** AOO 43 km². About seven subpopulations are potentially threatened by too frequent fires and climate change. Plants are slow to mature and therefore particularly sensitive to increased fire frequency. Although the habitat is untransformed and continuous between locations, subpopulations are isolated.

Protea curvata  N.E.Br.  
**Status:** VU D2 
**Distribution:** MP. Barberton.  
**Habitat:** Serpentine soils.  
**Rationale:** One known location (AOO 12 km²) is potentially threatened by inappropriate fire management and afforestation.

Protea decurrens  E.Phillips  
**Status:** EN B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) 
**Distribution:** WC. Shaw’s Pass to Langeberg Mountains.  
**Habitat:** An ecotonal fynbos-renosterveld species.  
**Rationale:** EOO 1 591 km², AOO 97 km². Severely fragmented subpopulations continue to decline because of habitat loss to agriculture, invasion by alien plants, overgrazing and too frequent fires. Unexplained population declines have also been noted in some subpopulations.

Protea denticulata  Rourke  
**Status:** Rare 
**Distribution:** WC. Potberg, De Hoop Nature Reserve.  
**Habitat:** Potberg Sandstone Fynbos.  
**Rationale:** Habitat specialist with a restricted range (EOO 167 km²).

Protea effusa  E.Mey. ex Meisn.  
**Status:** NT A4c 
Protea inopina

Rourke

Status: NT VU A2c+3c+4c

Distribution: WC. Western Cape to Hottentots Holland Mountains.

Habitat: Most common on high-altitude shale bands on southern and eastern aspects.

Rationale: EOO 1 607 km², AOO 80 km². Small, severely fragmented subpopulations occur at eight known locations. The northern subpopulations appear to be in decline for unknown reasons. The habitat is densely invaded with alien pine trees at some subpopulations.

Protea laetans L.E. Davidson

Status: NT VU B1ab(i)+2ab(i)

Distribution: MP. Blompoort Nature Reserve.

Habitat: Largely confined to Northern Escarpment Quartzite Sourveld.

Rationale: EOO 101 km², AOO 37 km². The 5–9 known locations continue to decline as a result of ongoing habitat loss to holiday resort development. The largest subpopulation has been incorporated into a holiday resort and it is highly unlikely that its natural fire cycle will be maintained. Consequently, it is unlikely that future recruitment will occur here unless special measures are taken.

Protea lepidocarpodendron (L.) L.

Status: NT A4e

Distribution: WC. Cape Peninsula and Kogelberg, Groenland, Kleinmond and Kleinrivier Mountains.

Habitat: Sandstone fynbos, usually associated with fericrete and silcrete outcrops, also locally dominant on shale and granite fynbos.

Rationale: Extensive hybridisation with introduced *P. neriifolia* has been observed. It is estimated that this genetic contamination could affect nearly 30% of the population in future. A ban on planting of *P. neriifolia* within 500 m to 1 km of natural stands of *P. lepidocarpodendron*, including in urban areas and botanical gardens (e.g. Kirstenbosch in Cape Town and Harold Porter in Betty’s Bay), should be investigated.

Protea longifolia Andrews

Status: VU A2c+3c+4c

**Distribution:** WC. Hottentots Holland Mountains to Aguilhas.

**Habitat:** Sandstone fynbos.

**Rationale:** A population reduction of at least 30% is estimated based on a decline in range (EOO) and habitat loss to commercial protea cultivation over the past 10–20 years. Habitat loss models predict at least a further 30% reduction in population size by 2025 (Bombard et al. 2005), generation length 20 years.

**Protea lorea** R.Br.

**Status:** NT D2


**Distribution:** WC. Ceres to Langeberg Mountains.

**Habitat:** Sandstone and shale fynbos on lower slopes.

**Rationale:** AOO 82 km². Less than 12 known locations are potentially threatened by agriculture, afforestation and invasion by alien plants. It is easily misidentified as a restio and overlooked in surveys.

**Protea montana** E.Mey. ex Meisn.

**Status:** VU A3c+4c; B1ab(iv)+2ab(iv)


**Distribution:** WC. Swartberg and Kammanassie Mountains.

**Habitat:** Sandstone fynbos at high altitudes on summits and southern slopes.

**Rationale:** EOO 1 447 km², AOO 112 km². Subpopulations are small, severely fragmented and declining, especially on the Kammanassie Mountains. Climate change models predict a population reduction of 30% by 2025 (Bombard et al. 2005), generation length 20 years. Other threats include invasion by alien plants, afforestation and too frequent fires.

**Protea mcuronifolia** Salisb.

**Status:** CR B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) c(iv)


**Distribution:** WC. Hermon to Sarcon.

**Habitat:** Most prominent in Swartland Alluvium Fynbos.

**Rationale:** EOO and AOO 10 km². Fire-related population fluctuations occur in small, severely fragmented subpopulations at two known locations. Habitat extent and quality and number of mature individuals continue to decline owing to expanding agriculture, overgrazing, invading alien acacias and too infrequent fires.

**Protea namaquana** Rourke

**Status:** CR B1ab(v)c(iv)+2ab(v) c(iv)


**Distribution:** NC. Namaqualand, Kamiesberg.

**Habitat:** Grows on granitic soils in dry montane fynbos, predominantly on south-facing slopes.

**Rationale:** EOO and AOO 18 km². Fire-related population fluctuations occur in small, severely fragmented subpopulations at two known locations. The population continues to decline because of inappropriate fire management, habitat loss to agriculture and drought-related mortality.

**Protea nubigena** Rourke

**Status:** CR B1ab(v)+2ab(v); D


**Distribution:** KZN. KwaZulu-Natal Drakensberg Mountains.

**Habitat:** Confined to ukhahlamba Basalt Grassland around 2 250 m on well-shaded slopes with well-drained, humus-rich soil.

**Rationale:** EOO < 1 km², AOO 300 m². A population of 15–40 mature individuals at one known location continues to decline because of poor recruitment as a result of inappropriate fire management.

**Protea obtusifolia** H.Buek ex Meisn.

**Status:** NT A2c+3c+4c


**Distribution:** WC. Stanford to Still Bay.

**Habitat:** Limestone pavements and outcrops on coastal forelands.

**Rationale:** A past population reduction of 18–25% is estimated based on reduction in range size (EOO) and habitat loss, predominantly to agriculture, over the past 60 years (generation length 20 years). About 20% of the limestone habitat of this species is densely invaded by alien acacias, and it is expected to continue to decline. Climate change models in combination with land transformation models indicate that a further population reduction of up to 50% is possible by 2025 (Bombard et al. 2005), but this is considered an extreme, worst-case scenario. A decline of 20–30% is likely.

**Protea odorata** Thunb.

**Status:** CR A2c; B1ab(i,ii,iii,v)+2ab(i,ii,iii,v) c(iv); C1 + 2a(i,ii); D


**Distribution:** WC. Kalbaskraal to Klapmuts.
Protea pudens

**Habitat:** Most prominent in Swartland Shale Renosterveld, although historically it was more abundant in Atlantis Sand Fynbos.

**Rationale:** EOO 50 km², AOO < 67 km². Fire-related population fluctuations occur in a single remaining subpopulation of 27 mature individuals. The range has been reduced by 99% since 2000 as a result of ongoing habitat loss to agriculture, overgrazing, road construction, invasion by alien plants and too frequent fires. Generation length 20 years.

**Protea parvula** Beard

**Status:** NT A2c


**Distribution:** KZN MP. Drakensberg Escarpment in Swaziland, Mpumalanga and KwaZulu-Natal from Marieskop to Vryheid.

**Habitat:** Most prominent in Lydenburg Montane Grassland.

**Rationale:** A population reduction of 20–30% is estimated based on 28% habitat loss to afforestation, mining and invasion by alien plants over the past 100 years (generation length > 100 years).

**Protea pityphylla** E.Phillips

**Status:** NT D2


**Distribution:** WC. Olifants River to Hex River Mountains.

**Habitat:** High-altitude shale band fynbos.

**Rationale:** AOO 66 km². Four known subpopulations are potentially threatened by invading alien plants and urban expansion of Ceres. A large subpopulation above Ceres was eliminated during enlargement of the municipal dam.

**Protea pruinosa** Rourke

**Status:** EN B1ab(v)+2ab(v)


**Distribution:** WC. Swartberg Mountains.

**Habitat:** Rocky areas, peaks and ridges at around 2 000 m.

**Rationale:** EOO 368 km², AOO 26 km². The number of mature individuals at four known locations continues to decline for unknown reasons. This species is possibly threatened by too frequent fires and sensitivity to drought.

**Protea pudens** Rourke

**Status:** EN B1ab(i,ii,iii,iv)(v)(iv)+2ab(i,ii,iii,iv)(v)


**Distribution:** WC. Agulhas coast.

**Habitat:** Largely confined to Elim Ferricrete Fynbos.

**Rationale:** EOO 67 km², AOO < 67 km². Habitat loss at four known locations is causing a continuing decline and this species is vulnerable to fire-related population fluctuations. It is threatened by expanding agriculture, invasion by alien plants and wildflower harvesting.

**Protea recondita** H.Buek ex Meisn.

**Status:** NT B1ab(v)+2ab(v)


**Distribution:** WC. Piekberg and Cederberg to Groot Winterhoek Mountains.

**Habitat:** Sandstone fynbos.

**Rationale:** EOO 3 153 km², AOO 181 km². Unexplained population declines have been observed in some subpopulations, but more than 10 locations remain. Fragmentation is increasing, but does not yet affect > 50% of subpopulations. Also threatened by too frequent fires and overgrazing by livestock.

**Protea restionifolia** (Salisb. ex Knight) Rycroft

**Status:** VU A2c; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)


**Distribution:** WC. Kouebokkerveld, Wolseley to Bot River.

**Habitat:** Fynbos-renosterveld ecotone, but may have been common in renosterveld that has now been converted to farmland.

**Rationale:** A population reduction of 30–50% is estimated based on the combined transformation of fynbos and renosterveld habitat, mainly for the cultivation of cereals and vineyards over the past 100 years (generation length > 100 years). EOO 943 km², AOO 103 km². The remaining 5–10 locations continue to decline as a result of invasion by alien plants, grazing, clearing of road verges, herbicide drift from adjacent agricultural fields and mining.

**Protea roupelliae** Meisn. subsp. hamiltonii Beard ex Rourke

**Status:** CR A2ac; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(ii)


**Distribution:** MP. Barberton.

**Habitat:** Confinied to Barberton Montane Grassland.

**Rationale:** One subpopulation remains within an EOO and AOO of ± 1 km². Two of the three known subpopulations are now extinct. Remaining plants are not setting seed, regenerating or producing new growth and have declined steadily from 1 000 individuals in the 1980s to the current 172 plants (generation length 20 years). Ongoing threats include afforestation, invasion by alien plants, water table depletion and transformation of surrounding vegetation, too infrequent fires, altered drainage as a result of road construction and canalisation, and overgrazing.
Proteaceae

Protea rupicola

**Status:** EN B2ab(iii,v)


**Distribution:** WC. Du Toit’s Kloof, Franschhoek and Groot Winterhoek area. Extinct on the Cape Peninsula.

**Habitat:** Confined to remnants of granite and shale soils on remaining upper slopes, but also on sandstone where there are traces of clay soils.

**Rationale:** A population reduction of at least 30% is estimated based on habitat loss due to urban expansion, agriculture and afforestation over the past 100 years (generation length > 100 years). Remaining subpopulations occur in sheltered sites, but it is possible that this species was formerly much more common on the now highly transformed lowlands. It continues to be threatened by invading alien plants, mining and overgrazing. This species is susceptible to drought-related mortality and is often misidentified as a restio and is easily overlooked in vegetation surveys and environmental impact assessments.

Protea scabra

**Status:** NT A2c+3c+4c


**Distribution:** WC. Hottentots Holland Mountains to Groot Swartberg Mountains.

**Habitat:** Found on fire-safe rocky outcrops, in high-altitude, south-facing sandstone fynbos.

**Rationale:** A population reduction of nearly 30% is estimated based on 25% habitat loss due to invasion by alien plants, afforestation, agriculture and urban expansion over the past 100 years (generation length > 100 years). Land transformation models indicate that a further population reduction of up to 50% due to habitat loss could occur by 2025 (Bomhard et al. 2005), but this is an extreme estimate. A population reduction of 20–30% by 2025 is considered likely.

Protea scolymocephala

**Status:** VU A2c


**Distribution:** WC. Gifberg to Hermanus.

**Habitat:** A sand plain species, tending to occur along drainage lines and adjacent seepage areas.

**Rationale:** A population reduction of at least 30% is estimated based on a 40% reduction in range size (EOO) due to urban expansion, crop cultivation, invasion by alien plants, too frequent fires, extraction of groundwater and increased mole rat activity over the past 60 years (generation length 20 years). This species could be classified as Endangered under A2 in the near future, should rapid habitat loss to rooibos tea and potato cultivation in the northern part of the range continue.

Protea scorzonerifolia

**Status:** VU A2c


**Distribution:** WC. Stanford to Still Bay.

Protea stokoei

**Status:** EN B1ab(iii,iii,iv,y)+2ab(i,ii,iii,iv,y)


**Distribution:** WC. Hottentots Holland Mountains to Betty’s Bay.

**Habitat:** Largely confined to Kogelberg Sandstone Fynbos.

**Rationale:** EOO 524 km², AOO 91 km². Isolated, severely fragmented subpopulations of this slow-maturing species continue to decline because of too frequent fires, firebreak clearing and wildflower harvesting.

Protea subvesitita

**Status:** VU B2ab(iii,v)


**Distribution:** EC FS KZN MP. Drakensberg Escarpment from near Wackerstroem in the north to the Eastern Cape. Also on outlying mountains at Quileni, Noodsberg and Ngele.

**Habitat:** Confined to infrequently burnt habitats, often associated with gullies, scarpas and forest margins. Occasional fires are required for successful recruitment.

**Rationale:** AOO 611 km². Although still common in some areas, subpopulations in the Kwazulu-Natal Midlands are severely fragmented and continue to decline because of too frequent fires.

Protea susannae

**Status:** NT A2c+3c+4c


**Distribution:** WC. Du Toit’s Kloof, Franschhoek and Groot Winterhoek area. Extinct on the Cape Peninsula.

**Habitat:** Confined to remnants of granite and shale soils on remaining upper slopes, but also on sandstone where there are traces of clay soils.

**Rationale:** A population reduction of at least 30% is estimated based on habitat loss due to urban expansion, agriculture and afforestation over the past 100 years (generation length > 100 years). Remaining subpopulations occur in sheltered sites, but it is possible that this species was formerly much more common on the now highly transformed lowlands. It continues to be threatened by invading alien plants, mining and overgrazing. This species is susceptible to drought-related mortality and is often misidentified as a restio and is easily overlooked in vegetation surveys and environmental impact assessments.
Habitat: Sand fynbos on neutral sands.

Rationale: A population reduction of nearly 30% is estimated based on a 25% reduction in range (EOO) due to urban expansion, invasion by alien plants, protea cultivation and vegetation management for thatch harvesting over the past 60 years (generation length 20 years). Dense alien acacia infestations of the habitat are causing a continuing decline. Climate change models indicate that a further population reduction of up to 50% is possible by 2025 (Bomhard et al. 2005), but this is an extreme scenario and a population reduction of 20–30% by 2025 is considered a more realistic estimate.

Protea venusta Compton

Plate 84

Status: EN A3c+4c; B1ab(v)+2ab(v)

©Distribution: WC. Groot Swartberg and Kammanassie Mountains.

Habitat: High-altitude, south-facing sandstone fynbos.

Rationale: EOO 1 356 km², AOO 117 km². Small, severely fragmented subpopulations continue to decline because of too frequent fires. Unexplained mass population mortality has been observed on the Kammanassie Mountains. Climate change models predict a population reduction of at least 50% by 2025 (Bomhard et al. 2005), generation length 20 years.

Serruria Salisb.

Serruria adscendens (Lam.) R.Br.

Status: NT A2c; B1ab(ii,iii,iv,v)+c(iv)

©Distribution: WC. Hottentots Holland to Kleinrivier Mountains.

Habitat: Sandstone fynbos, lower slopes.

Rationale: A population reduction of nearly 30% is estimated based on 27% habitat loss to urban expansion, golf estate developments and protea and vineyard cultivation over the past 60 years (generation length 20 years). EOO 944 km², AOO 207 km². This species continues to decline because of ongoing habitat loss, but more than 10 locations remain.

Serruria aemula Salisb. ex Knight

Status: CR A2c; B1b(i,ii,iii,iv,v)+c(iv)

©Distribution: WC. Cape Flats.

Habitat: Confined to Cape Flats Sand Fynbos.

Rationale: EOO 55 km². A few small subpopulations remain after nearly 100% of the habitat has been transformed by urban expansion, agriculture, invasion by alien plants, overgrazing, too infrequent fires and degradation of remaining fragments and road verges over the past 60 years (generation length 20 years). Fire-related population fluctuations occur in small isolated subpopulations that continue to decline.

Serruria altiscapa Rouk

Status: EN B1ac(iv)+2ac(iv)

©Distribution: WC. Villiersdorp to Hottentots Holland Mountains.

Habitat: Sandstone fynbos.

Rationale: EOO 77 km², AOO 20 km². Fire-related population fluctuations occur in small subpopulations at four known locations. Potentially threatened by invading alien plants, too frequent fires and seed predation. Dormant subpopulations are easily overlooked in surveys.

Serruria balanocephala Rouk

Status: NT A3c+4c

©Distribution: WC. Langeberg Mountains between Montagu and Swellendam.

Habitat: Largely confined to north-facing slopes North Langeberg Sandstone Fynbos.

Rationale: This species occurs in mountainous habitats where it is not threatened at present. Climate change models, however, indicate that a population reduction of up to 50% is likely by 2025 (Bomhard et al. 2005), generation length 20 years. These model predictions are considered to be mostly worst-case scenarios, but some declines due to climate change are likely, especially since this species is confined to a narrow climatic niche on north-facing slopes.

Serruria bolusii E.Phillips & Hutch.

Status: NT A2c

©Distribution: WC. Elim Hills and Soetansberg.

Habitat: Sandstone and ferricrete fynbos on the lowlands.

Rationale: A population reduction of nearly 30% is estimated based on habitat loss to agriculture and invasion by alien plants over the past 60 years (generation length 20 years).

Serruria brownii Meisn.

Status: EN A2c

©Distribution: WC. Hopefield to Tygerberg.

Habitat: A fynbos-renosterveld ecotonal species, preferring shale soils.

Rationale: Population reduction based on habitat loss is difficult to estimate as this is an ecotonal species, but
could be as high as 76%. About 41% of subpopulations known through herbarium records have declined over the past 60 years and only four remain (generation length 20 years). Threats include urban expansion, invasion by alien plants, agriculture, overgrazing, inappropriate fire management, inappropriate vegetation management and mining.

**Serruria candidans** R.Br.

**Status:** EN B1ab(i,ii,iii,iv)+2ab(i,ii,iii,iv)


**Distribution:** WC. Paardeberg to Slanghoek Mountains.

**Habitat:** Alluvium and granite fynbos on the lower slopes.

**Rationale:** EOO 190 km², AOO 126 km². Three severely fragmented subpopulations continue to decline as a result of ongoing habitat loss. About 79% of subpopulations known through herbarium records are now locally extinct because of agriculture, industrial development and invasion by alien plants.

**Serruria collina** Salisb. ex Knight

**Status:** VU D2


**Distribution:** WC. Cape Peninsula.

**Habitat:** Confined to Peninsula Sandstone Fynbos.

**Rationale:** AOO 9 km². Fewer than five locations are potentially threatened by urban expansion, invasion by alien plants and inappropriate fire management.

**Serruria confragosa** Rourke

**Status:** EN B1ac(iv)+2ac(iv)


**Distribution:** WC. Kouebokkeveld and Groot Winterhoek Mountains.

**Habitat:** Rocky outcrops of sandstone fynbos.

**Rationale:** EOO 23 km², AOO < 23 km². Fire-related population fluctuations occur in five isolated, severely fragmented subpopulations. Threats include inappropriate fire management, invasion by alien plants and inappropriate management of large game. Easily overlooked in surveys.

**Serruria cyanoides** (L.) R.Br.

**Status:** EN B1ab(i,ii,iii,iv)+2ab(i,ii,iii,iv)


**Distribution:** WC. Cape Peninsula and Cape Flats.

**Habitat:** Largely confined to Peninsula Sandstone Fynbos.

**Rationale:** A population reduction of at least 50% is estimated based on a reduction in range (EOO) and 31% habitat loss over the past 60 years (generation length 20 years). Habitat loss continues and is expected to increase as a result of urban and agricultural expansion, too infrequent fires, extraction of groundwater, invasion by alien plants and overgrazing so that a further population reduction of at least 30% is projected to be met within the next 20 years.

**Serruria decipiens** (Thunb.) R.Br.

**Status:** EN B1ac(iv)+2ac(iv)


**Distribution:** WC. Cape Peninsula.

**Habitat:** Largely confined to Peninsula Sandstone Fynbos.

**Rationale:** EOO 23 km², AOO < 23 km². Fire-related population fluctuations occur in five isolated, severely fragmented subpopulations. Threats include inappropriate fire management, invasion by alien plants and inappropriate management of large game. Easily overlooked in surveys.

**Serruria deluvialis** Rourke

**Status:** EN A2c; B1ab(iii,iv)+2ab(iii,iv)


**Distribution:** WC. Kogelberg.

**Habitat:** Confined to Kogelberg Sandstone Fynbos.

**Rationale:** A population reduction of at least 50% is estimated based on a reduction in the historical range due to agriculture, dam construction and invasion by alien plants over the past 60 years (generation length 20 years). EOO 7 km², AOO < 7 km². Fire-related population fluctuations occur at two remaining locations where the population continues to decline because of ongoing habitat loss. Easily overlooked in surveys.

**Serruria effusa** Rourke

**Status:** NT A3c


**Distribution:** WC. Cederberg to Olifants River Mountains.

**Habitat:** Sandstone Fynbos.

**Rationale:** The habitat of this species is rapidly being transformed for cash crop cultivation and a population...
Serruria flagellifolia
Status: NT A2c + 4c
Distribution: WC. Du Toit’s Kloof to Agulhas.
Habitat: Sandstone fynbos.
Rationale: A population reduction of nearly 30% is estimated based on a 30% reduction in range size due to habitat loss to agriculture and urban expansion, afforestation and invasion by alien plants over the past 60 years (generation length 20 years). Land transformation models predict a population reduction of up to 50% by 2025 (Bombard et al. 2005), but this is an extreme scenario and a population reduction of 20–30% is considered more realistic. Also threatened by alien invasive ants.

Serruria fasciflora Salisb. ex Knight
Status: NT A2c + 4c
Distribution: WC. Malmesbury to Tsitsikamma.
Habitat: Sandstone and sand fynbos over a wide variety of habitats.
Rationale: A population reduction of nearly 30% is estimated based on a 26% reduction in range (EOO) and 29% habitat loss due to invasion by alien plants, afforestation, agriculture and urban expansion over the past 60 years (generation length 20 years). Combined land transformation and climate change models predict a further population reduction of up to 50% by 2025 (Bombard et al. 2005), but this is an extreme scenario and as this species is still common in mountainous areas, a future population reduction of 20–30% is considered more realistic.

Serruria flagellifolia
Status: VU A4c; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
Distribution: WC. Grabouw to Babilonstoring.
Habitat: Sandstone fynbos at lower altitudes.
Rationale: Current EOO 280 km², AOO 68 km². Ten known locations continue to decline as a result of vineyard expansion. Recent applications to develop significant portions of the nonconserved habitat of this species to vineyards will mean that > 30% population reduction will occur over the next two generations (generation length 20 years). Other threats include invasion by alien plants, mining, agriculture, afforestation and too frequent fires. This species is easily overlooked in surveys.

Serruria flagellifolia
Status: CR B1ac(iv)+2ac(iv)
Distribution: WC. Cape Flats.
Habitat: Cape Flats Sand Fynbos, under moist conditions.
Rationale: A population reduction of > 80% is estimated based on habitat loss and a reduction in range (EOO) due to urban expansion, inappropriate fire management and overgrazing over the past 60 years (generation length 20 years). A small population of four wild plants remains at one location and continues to decline.

Serruria flagellifolia
Status: EN A4c
Distribution: WC. Gifberg to Hopefield.
Habitat: Sand fynbos of the West Coast lowlands.
Rationale: Population reduction due to habitat loss is likely to exceed 50% over the next decade, primarily because of the recent expansion of potato cultivation...
and central pivot irrigation in the south and rooibos tea culture in the north of the range of this species (generation length 20 years). Other threats include extraction of groundwater, overgrazing, too infrequent fires and climate change.

**Serruria furcellata** R.Br.

**Status:** CR A2c; B1ab(i,i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)+c(iv); C1+2a(ii,ib; D


**Distribution:** WC. Cape Flats.

**Habitat:** Coastal fynbos.

**Rationale:** Population estimated to have declined by nearly 100% over the past 100 years as a result of invasion by alien plants, invasive ants, bush clearing, mowing, urban and industrial expansion, inappropriate fire management, increased mole rat activity and trampling, and only one plant is known to remain in the wild. Generation length > 100 years.

**Serruria glomerata** (L.) R.Br.

**Status:** VU A2c


**Distribution:** WC. Cape Peninsula and Cape Flats.

**Habitat:** Largely confined to Peninsula Sandstone Fynbos.

**Rationale:** Population reduction on lowland sites such as the Cape Flats is estimated to be > 30% over the last 60 years (generation length 20 years). In the Cape Peninsula it is virtually extinct outside nature reserves, but remaining subpopulations are well conserved and not declining at present. A subpopulation at Kleinplaas Dam could be eliminated if the dam is enlarged.

**Serruria heterophylla** Meisn.

**Status:** EN B1ab(ii,iii,iv)+2ab(ii,iii,v)


**Distribution:** WC. Kleinmond and Kleinrivier Mountains.

**Habitat:** Associated with shale bands.

**Rationale:** EOO 75 km², AOO 43 km². Three known locations continue to decline as a result of urban development, vineyard expansion, invasion by alien plants and development of golf courses.

**Serruria hirsuta** R.Br.

**Status:** CR B1ab(iii,iv)+2ab(ii,iii,iv)


**Distribution:** WC. Cape Peninsula.

**Habitat:** Largely confined to Peninsula Sandstone Fynbos.

**Rationale:** EOO 4 km², AOO < 4 km². Fire-related population fluctuations occur at a single remaining location. The population of ± 1 000 mature individuals continues to decline because of ongoing habitat loss to urban development, invasion by alien plants and alien ants, firebreak clearing and inappropriate fire management.

**Serruria inconspicua** L.Guthrie & T.M.Salter

**Status:** VU A2c


**Distribution:** WC. Cape Peninsula to Houwhoek.

**Habitat:** Sandstone and shale fynbos.

**Rationale:** A population reduction of 32% is estimated based on habitat loss to vineyard expansion and invasion by alien plants over the past 60 years (generation length 20 years).

**Serruria incrassata** Meisn.

**Status:** EN A2c; B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)+c(iv)


**Distribution:** WC. Paarl.

**Habitat:** Most prominent in Swartland Shale Renosterveld.

**Rationale:** A population reduction of at least 50% over the past 100 years is suspected, but habitat loss is difficult to estimate as this is an ecotonal species and transformation of renosterveld is much higher than in fynbos, and population reduction may be as high as 80% (generation length > 100 years). Current EOO 97 km², AOO 20 km². Four severely fragmented subpopulations continue to decline because of ongoing habitat loss to agriculture, invading alien plants, mining, golf course development and overgrazing.

**Serruria kraussii** Meisn.

**Status:** VU A2c; B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)+c(iv)


**Distribution:** WC. Helderberg to Jonkershoek.

**Habitat:** Shale fynbos in high-rainfall areas.

**Rationale:** A population reduction of at least 30% is estimated based on a 38% decline in the number of subpopulations known through herbarium records due to afforestation, invasion by alien plants and agriculture over the past 60 years (generation length 20 years). EOO 132 km², AOO 63 km². The remaining 3–10 locations continue to decline.

**Serruria lacunosa** Roukre

**Status:** CR B1ab(ii,iii,iv,v)+c(iv)+2ab(ii,iii,iv,v)+c(iv)

Serruria linearis

Distribution: WC. Matsikamma Mountains.

Habitat: Confined to Bokekeved Sandstone Fynbos.

Rationale: EOO 12 km², AOO < 1 km². The number of mature individuals continues to decline at one known location. Extreme fire-related population fluctuations of between 40 and 150 mature individuals have been observed between 1994 and 2000. Ongoing threats to this species include habitat loss to rooibos tea cultivation, too frequent fires, mining and road construction. Dorman subpopulations are easily overlooked in surveys.

Serruria leipoldtii

E.Phillips & Hutch.

Status: NT D2


Distribution: WC. Northern Cederberg Mountains.

Habitat: Largely confined to Cederberg Sandstone Fynbos.

Rationale: AOO 58 km². Potentially threatened by rooibos tea cultivation. A subpopulation at Nieuwoudtville known from herbarium records cannot be located. Subpopulations are generally small, with only one consisting of more than 100 plants.

Serruria linearis Salisb. ex Knight

Status: EN A3c+4c


Distribution: WC. Mamre to Dassenberg.

Habitat: Largely confined to Atlantis Sand Fynbos.

Rationale: Land transformation models (Bombard et al. 2005) indicate that this species will decline by > 50% as a result of habitat loss within the next 20 years (generation length > 100 years). There have also been past population declines estimated between 47–49%, based on habitat loss and loss of historical subpopulations over the past 100 years. Therefore, although habitat loss models tend to represent a worst-case scenario, population reduction is already close to 50% and is therefore highly likely to exceed this threshold within the next generation of this species.

Serruria meissneriana Schltr.

Status: EN A2c; B1ab(i,iii,iv,y)+2ab(i,ii,iii,iv,y)


Distribution: WC. Babilonstoring.

Habitat: Largely confined to Overberg Sandstone Fynbos.

Rationale: A population reduction of at least 50% is estimated based on a 61% reduction in range (EOO) due to habitat loss to agriculture, invasion by alien plants and too frequent fires over the past 60 years (generation length 20 years). Current EOO 43 km², AOO < 43 km². One or two remaining locations continue to decline because of ongoing habitat loss to vineyard expansion.

Serruria millefolia Salisb. ex Knight

Status: VU A4c


Distribution: WC. Bokekeved to Olifants River Mountains.

Habitat: Arid sandstone fynbos.

Rationale: A population reduction of nearly 30% has already occurred over the past 20–40 years, and is very likely to exceed 30% within the next 10 years because of increasingly rapid habitat loss to rooibos tea and potato cultivation (generation length 20 years).

Serruria nervosa Mein.

Status: NT D2


Distribution: WC. Kleinrivier and Bredasdorp Mountains.

Habitat: Lowland sandstone fynbos.

Rationale: AOO 45 km². Potentially threatened by invading alien plants, agriculture and urban expansion.

Serruria pinnaata R.Br.

Plate 83

Status: CR C2a(i,ii)b; D


Distribution: WC. Paarl to Franschhoek.

Habitat: Alluvium fynbos on the lowlands adjacent to renosterveld in ecotonal areas.

Rationale: Fire-related population fluctuations occur in two small remaining subpopulations, at present consisting of 16 plants and one plant, respectively. The population continues to decline as a result of habitat loss to agriculture and afforestation, invasion by alien plants and too frequent fires.

Serruria rebeloi Rourke

Status: EN B1ac(iv)+2ac(iv)


Distribution: WC. Akkedisberg Mountains.

Habitat: An extremely cryptic, under-storey protea confined to Overberg Sandstone Fynbos.

Rationale: EOO and AOO 20 km². Fire-related population fluctuations occur in subpopulations at one or two known locations. This species is protected and well managed at present, but remains potentially threatened by invading alien plants, too frequent fires and vineyard expansion. Easily overlooked in surveys.

ANGIOSPERMS: DICOTYLEDONS PROTEACEAE Serruria lacunosa
**Serruria reflexa** Rourke  
**Status:** Rare  
**Distribution:** WC. Porterville, Olifants River Mountains and Skurweberg.  
**Habitat:** Winterhoek Sandstone Fynbos.  
**Rationale:** A range-restricted (EOO 207 km²) habitat specialist that is not threatened in mountainous habitat.

**Serruria roxburghii** F.  
**Status:** NT D2  
**Distribution:** WC. Du Toit’s Kloof to Riviersonderend Mountains.  
**Habitat:** Largely confined to Hawequas Sandstone Fynbos.  
**Rationale:** AOO 51 km². Potentially threatened by afforestation, invading alien plants and is susceptible to drought-related mortality.

**Serruria rosea** E. Phillips  
**Status:** NT D2  
**Distribution:** WC. Du Toit’s Kloof to Riviersonderend Mountains.  
**Habitat:** Largely confined to Hawequas Sandstone Fynbos.  
**Rationale:** AOO 99 km². Potentially threatened by alien pine and hakea invasion and vineyard expansion.

**Serruria rostellaris** Salisb. ex Knight  
**Status:** NT D2  
**Distribution:** WC. Du Toit’s Kloof to Riviersonderend Mountains.  
**Habitat:** Overberg Sandstone Fynbos.  
**Rationale:** AOO 99 km². Potentially threatened by alien pine and hakea invasion and vineyard expansion.

**Serruria roxburghii** R.Br.  
**Status:** EN A2c; B1ab(i,ii,iii,iv,vy) + 2ab(i,ii,iii,iv,vy)  
**Distribution:** WC. Riebeek Kasteel to Paarl.  
**Habitat:** Most prominent in Atlantis Sand Fynbos.  
**Rationale:** A population reduction of at least 50% is estimated based on a 57% reduction in range (EOO) and 75% habitat loss, mainly to crop cultivation and invasion by alien plants, over the past 60 years (generation length > 100 years). Also threatened by alien invasive ants.

**Serruria rubricaulis** R.Br.  
**Status:** NT A2c  
**Distribution:** WC. Hottentots Holland to Kleinrivier Mountains.  
**Habitat:** Sandstone fynbos at lower altitudes.  
**Rationale:** A population decline of nearly 30% is estimated based on a 32% reduction in range (EOO) and 24% habitat loss due to urban expansion and invasion by alien plants over the past 100 years (generation length > 100 years). Also threatened by alien invasive ants.

**Serruria scoparia** R.Br.  
**Status:** CR A2c  
**Distribution:** WC. Malmesbury.  
**Habitat:** Most prominent in Swartland Shale Renosterveld.  
**Rationale:** A population reduction of > 80% is estimated based on 87% reduction in range (EOO) and 91% habitat loss due to crop cultivation, invasion by alien plants, extraction of groundwater, overgrazing and too frequent fires over the past 100 years (generation length > 100 years).

**Serruria stellata** Rourke  
**Status:** VU D2  
**Distribution:** WC. Stettynsberg to western Riviersonderend Mountains.  
**Habitat:** High-altitude sandy flats.  
**Rationale:** Four known locations are potentially threatened by habitat loss to protea cultivation.

**Serruria triolpha** Salisb. ex Knight  
**Status:** CR A2c  
**Distribution:** WC. Malmesbury to Cape Peninsula.  
**Habitat:** Sand fynbos of the lowlands, largely confined to Cape Flats Sand Fynbos.  
**Rationale:** A population reduction of at least 80% is estimated based on a reduction in range (EOO), habitat loss and decline of subpopulations known through herbarium records over the past 100 years (generation length > 100 years). Remaining subpopulations around Cape Town are very small, with only two out of five remaining subpopulations numbering more than 10 plants. Threats include invasion by alien plants, invasive alien ants, overgrazing, agriculture, mowing and too frequent fires.
**Serruria triternata** (Thunb.) R.Br.

**Status:** NT D2


**Distribution:** WC. Du Toit’s Kloof to Riviersonderend Mountains.

**Habitat:** Sandstone fynbos.

**Rationale:** A population reduction of > 90% is estimated based on a reduction in range size and apparent local extinction of subpopulations known through herbarium records over the past 60 years (generation length 20 years). Many known subpopulations could not be relocated during Protea Atlas Project surveys, but the habitat is still intact and they may potentially have been overlooked. Current EOO 109 km², AOO 11 km². Less than 250 mature individuals remain at two locations and continue to decline because of invasion by alien plants and habitat loss to agriculture.

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**Soroecephalus alopecurus** Rourke

**Status:** EN B1ac(iv)+2ac(iv)


**Distribution:** WC. Piketberg and Onderboskloof in the Kouebokkeveld.

**Habitat:** Seeps on deep, sandy soil in sandstone fynbos.

**Rationale:** AOO 49 km². Potentially threatened by habitat loss to rooibos tea cultivation and is susceptible to drought-related mortality.

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**Soroecephalus spinosus** (Salisb. ex Knight) Hutch.

**Status:** EN B1b(i,ii,iii,iv,v)c(iv)+2b(ii,iii,iv,v)c(iv); C2a(i); D


**Distribution:** WC. Hottonents Holland to Kleinrivier Mountains.

**Habitat:** Largely confined to Kogelberg Sandstone Fynbos.

**Rationale:** EOO 265 km², AOO 23 km². Small subpopulations varying between 10 and 100 mature individuals are prone to extreme fire-related population fluctuations and continue to decline for unknown reasons. The population consists of less than 200 plants at present. Dormant subpopulations are easily overlooked in surveys.
Sorocephalus crassifolius Hutch.

Status: CR A2c; C2a(ii); D

Distribution: WC. Riviersonderend Mountains.
Habitat: High-altitude sandstone fynbos.
Rationale: A population reduction of > 80% is estimated based on an 89% decline in the number of subpopulations known through herbarium records over the past 100 years (generation length > 100 years). Despite extensive searches, two subpopulations on Jonaskop, where the habitat is still intact, could not be relocated and are presumed extinct. Last recorded flowering in the 1980s. Subpopulations are small and declining as a result of apparent recruitment failure. Only 15 plants remain. It may be misidentified as Clutia or Phyllica and is easily overlooked in surveys.

Status: EN B1ac(iv)

Distribution: WC. Olfants River and Groot Winterhoek Mountains.
Habitat: Confined to seeps in deep sand in Winterhoek Sandstone Fynbos.
Rationale: EOO 20 km². Fire-related population fluctuations occur in small subpopulations at one known location. Potentially threatened by too frequent fires. Dormant subpopulations are easily overlooked in surveys.

Status: CR B1ab(ii,iii,iv)c(iv)

Rationale: EOO 85 km². Fire-related population fluctuations occur in small, severely fragmented subpopulations. The population, which currently consists of ± 160 mature individuals, continues to decline. Most subpopulations have fewer than 10 mature individuals and high mortality of immature and mature individuals has been observed. Threatened by afforestation, invasion by alien plants, too frequent fires and dam construction. Growing plants and dormant subpopulations easily overlooked in surveys.

Status: EN B1ab(ii,iii,iv)c(iv)+2ab(ii,iii,iv)c(iv)

Distribution: WC. Palmet River Mountains between Arieskraal and Kogelberg.
Habitat: Confined to Kogelberg Sandstone Fynbos.
Rationale: EOO 22 km², AOO 20 km². Fire-related population fluctuations occur at two known locations, the third being locally extinct. Threats include agriculture, mining, invasion by alien plants, too frequent fires and dam construction. Growing plants and dormant subpopulations easily overlooked in surveys.

Status: EN B1ab(ii,iii,iv)c(iv)+2ab(ii,iii,iv)c(iv)

Distribution: WC. Du Toit’s Kloof Mountains to Blokkop.
Habitat: Confined to Hawequas Sandstone Fynbos.
Rationale: EOO 118 km², AOO 26 km². Fire-related population fluctuations occur at four known locations. The population continues to decline as a result of alien pine and hakea invasion. Dormant subpopulations easily overlooked in surveys.
Habitat: Largely confined to North Sonderend Sandstone Fynbos.

**Rationale:** EOO 12 km², AOO 14 km². Fire-related population fluctuations occur at two known locations. Potentially threatened by invading alien heakeas and expanding fruit orchards.

**Spatalla barbigera** Salisb. ex Knight

**Status:** NT B1ab(i)+2ab(i)


**Distribution:** WC. Eastern Langeberg to Outeniqua Mountains and Swartberg.

**Habitat:** High altitudes in sandstone fynbos on the Swartberg range and low altitudes in sandstone fynbos on the Outeniqua range.

**Rationale:** EOO 1 936 km², AOO 108 km². Continuing decline due to invasion by alien plants and extraction of groundwater, but more than 10 locations still remain.

**Spatalla caudata** (Thunb.) R.Br.

**Status:** EN A3c


**Distribution:** WC. Cederberg and Hex River Mountains.

**Habitat:** Sandstone fynbos on deep peaty soils in seeps.

**Rationale:** Not declining at present and occurs in large subpopulations in safe mountainous habitats. However, climate change models project a > 50% population reduction by 2025 (Bomhard et al. 2005). Given its highly sensitive seepage habitat, model predictions are being followed as a precaution. Other potential threats include extraction of groundwater, wetland drainage and susceptibility to drought-related mortality.

**Spatalla colorata** Meissn.

**Status:** EN B1ac(iv)+2ac(iv)


**Distribution:** WC. Riviersonderend to Langeberg Mountains near Heidelberg.

**Habitat:** Largely confined to South Langeberg Sandstone Fynbos.

**Rationale:** EOO 135 km², AOO 31 km². Fire-related population fluctuations occur in small subpopulations at three known locations. Potentially threatened by invading alien hakeas and is susceptible to drought-related mortality.

**Spatalla curvifolia** Salisb. ex Knight

**Status:** NT A2c


**Distribution:** WC. Kogelberg to Agulhas coast.

**Habitat:** Sandstone fynbos.

**Rationale:** The particular habitat of this species is relatively safe from transformation, and therefore estimated population reduction (33–36%) based on general transformation of the vegetation type in which it occurs and transformation of sites known from historical records is likely to be an overestimate. Declines were due to urban development, invasion by alien plants and agriculture over the past 60 years (generation length 20 years). Harvested for the cut flower industry.

**Spatalla ericoides** E.Philips

**Status:** EN B1ab(iii)+2ab(iii)


**Distribution:** WC. Western Agulhas coast.

**Habitat:** Sand fynbos associated with limestone fynbos.

**Rationale:** EOO 50 km², AOO 37 km². Some 2 500 mature individuals at 2–4 locations continue to decline because of ongoing habitat loss to protea cultivation. Also threatened by invading alien plants and is prone to fire-related population fluctuations. Growing plants and dormant subpopulations are easily overlooked in surveys.

**Spatalla longifolia** Salisb. ex Knight

**Status:** NT B1ab(iv)+2ab(iv); D2


**Distribution:** WC. Jonkershoek Mountains to Kleinmond.

**Habitat:** Sandstone fynbos, very localised adjacent to but not in wet seeps.

**Rationale:** EOO 697 km², AOO 54 km². Small, severely fragmented subpopulations are not declining at present, but are potentially threatened by invading alien plants and too frequent fires. Dormant subpopulations are easily overlooked in surveys.

**Spatalla mollis** R.Br.

**Status:** Rare


**Distribution:** WC. Hottentots Holland Mountains to Palmiet River Mountains.

**Habitat:** Kogelberg Sandstone Fynbos.

**Rationale:** Habitat specialist with a restricted range (EOO 474 km²), but not threatened in well-protected mountainous habitat.

**Spatalla nubicola** Rourke

**Status:** NT D2


**Distribution:** WC. Langeberg Mountains near Heidelberg.
**Habitat:** Largely confined to South Langeberg Sandstone Fynbos.

**Rationale:** AOO 34 km². Potentially threatened by too frequent fires.

**Spatalla prolifera** (Thunb.) Salisb. ex Knight

**Status:** EN B1ac(iv)+2ac(iv)


**Distribution:** WC. Viljoen’s Pass to Kleinmond.

**Habitat:** Confined to permanently wet peat bogs near valley floors.

**Rationale:** EOO 25 km², AOO 26 km². Fire-related population fluctuations occur in small, isolated, severely fragmented subpopulations. Threatened by dam construction, mining, extraction of groundwater, afforestation, invasion by alien plants, firebreak clearing and susceptibility to *Phytophthora* infection. Dormant subpopulations are easily overlooked in surveys.

**Spatalla propinqua** B.R.

**Status:** EN A3c+4c


**Distribution:** WC. Slaghoek to Riviersonderend Mountains.

**Habitat:** Bottomland wetlands on sandstone fynbos.

**Rationale:** A range-restricted species (EOO 1 256 km²) and severely fragmented but not declining at present. Climate change and land transformation models project a 50% population reduction due to habitat loss within the next 20 years (Bomhard et al. 2005), generation length 20 years.

**Spatalla racemosa** (L.) Druce

**Status:** NT A2c


**Distribution:** WC. Viljoen’s Pass to Kleinrivier Mountains.

**Habitat:** Sandstone fynbos.

**Rationale:** A population reduction of nearly 30% is estimated based on a 16% reduction in range (EOO) and 40% habitat loss over the past 60 years (generation length 20 years). Harvested for the cut flower industry.

**Spatalla squamata** Meisn.

**Status:** NT A2c


**Distribution:** WC. Du Toit’s Kloof Mountains and Agulhas coast.

**Habitat:** Sandstone fynbos at lower elevations.

**Rationale:** A population reduction of nearly 30% is estimated based on a 16% reduction in range (EOO) and 40% habitat loss over the past 60 years (generation length 20 years). Harvested for the cut flower industry.

**Spatalla thyrsiflora** Salisb. ex Knight

**Status:** VU D2


**Distribution:** WC. Du Toit’s Kloof Mountains and Caledon Swartberg.

**Habitat:** Granite fynbos at wet locations, usually south-facing.

**Rationale:** Five known locations are potentially threatened by invading alien pines.

**Spatalla tulbaghensis** (E.Phillips) Rourke

**Status:** EN B1ab(i,i,ii,iii,iv,v)c(iv)+2ab(i,ii,iii,iv,v) c(iv)


**Distribution:** WC. Witzenberg and Skurweberg.

**Habitat:** Largely confined to Winterhoek Sandstone Fynbos.

**Rationale:** EOO 40 km², AOO 17 km². Fire-related population fluctuations occur in small, severely fragmented subpopulations. The population continues to decline as a result of ongoing habitat loss and degradation by expanding fruit orchards, dam construction, altered drainage systems, overgrazing and invasion by alien plants. This species is susceptible to drought-related mortality and dormant subpopulations are easily overlooked in surveys.

**Vexatorella** Rourke

**Vexatorella alpina** (Salisb. ex Knight) Rourke

**Status:** NT B1ab(iii,v)


**Habitat:** Largely confined to South Langeberg Sandstone Fynbos.

**Rationale:** EOO 76 km². Fire-related population fluctuations occur in small, severely fragmented subpopulations at four known locations. Potentially threatened by invading alien plants.

Distribution: NC. Namaqualand, Kamiesberg.

Habitat: Largely confined to Kamiesberg Granite Fynbos, among large granite boulders or in the open along the foothills, 1 300–1 600 m.

Rationale: EOO 36 km², AOO < 36 km². Small subpopulations at 15–20 locations are declining because of poor recruitment and too frequent fires. It is likely that subpopulations were formerly much larger, as they are confined to pockets of deep sand among granite boulders, with all other surrounding low-lying deep sandy areas ploughed for pasture. Many subpopulations are moribund and consist of senescent adults, sometimes with a few young plants. In the south on Rooiberg and Eselkop by contrast, subpopulations are burnt too frequently and appear to be declining.

Vexatorella latebrosa Rourke

Status: CR B1 ac (iv) + 2 ac (iv)


Distribution: WC. Langeberg Mountains near Robertson.

Habitat: Confined to Breede Shale Fynbos.

Rationale: EOO and AOO 1 km². Fire-related extreme population fluctuations occur at one known location. Potentially threatened by too frequent fires.

RANUNCULACEAE

Anemone L.

Anemone fanninii Harv. ex Mast.

Status: NT A2d


Distribution: EC FS KZN. Drakensberg Mountains and also Lesotho.

Habitat: Moist depressions near streams and along drainage lines and seeps, generally on east-facing slopes from the coast to 2 100 m.

Rationale: We estimate an overall decline of 20% in the last 30 years (generation length 10 years) as a result of harvesting for the traditional medicine trade. There are many areas within its Drakensberg range that are protected and/or inaccessible to harvesters.

Anemone L.

Knowltonia Salisrb.

Knowltonia transvaalensis Szyszyl. var. filifolia H.Rasm.

Status: VU D2

L. von Staden

Distribution: EC KZN. Between Port St Johns and the Umtamvuna River. Isolated occurrences as far north as the Umzinto district (KwaZulu-Natal) and as far south as the Kentani district (Eastern Cape).

Habitat: Scarp forest. Climax riverine forest, close to, and usually overhanging the water, 100–400 m.

Rationale: Known from ± 200 individuals in the wild, but more subpopulations are being discovered. This species grows in seculded, inaccessible gorges and it is very likely that there are a few undiscovered subpopulations, especially in the light of significant range extensions brought about by recent discoveries of new subpopulations. We estimate that there are more than 250 mature individuals but less than 1 000. AOO of this habitat specialist is estimated as < 20 km², and it is potentially threatened by invading alien plants at four locations. Poor recruitment is a concern, but healthy subpopulations are currently maintained by vegetative reproduction and there is no current evidence of continuing decline.

Phyllica L.

Phyllica affinis Sond.

Status: EN B1ab (ii,iii,v) + 2ab (ii,iii,v)

N.A. Helme & D. Raimondo

Distribution: NC. Boskende Mountains around Nieuwoudtville.

Habitat: Sandy flats on escarpment.

Rationale: EOO 200 km², AOO < 200 km². Ongoing habitat loss to rooibos tea cultivation and resultant changes in the fire regime are causing a continuing decline at three known locations.

Phyllica agathosmoides Pillans

Status: VU B1ab (ii,iii,v) + 2ab (ii,iii,v)

N.A. Helme & D. Raimondo

Distribution: NC. Boskende Escarpment.

Habitat: Deep sand.

Rationale: EOO 200 km², AOO < 200 km². Ongoing habitat loss to rooibos tea cultivation and resultant changes in the fire regime are causing a continuing decline at six known locations.

Phyllica alpina Eckl. & Zeyh.

Status: DDD

F. Daniels

Distribution: WC. Oifants River Mountains.

Habitat: Sandstone slopes.

Rationale: Last collected in 1923. The distribution and population status of this species are too poorly known to determine its status.
Phylica alticola Pillans

status: Rare

Distribution: WC. Groot Winterhoek Mountains.
Habitat: Upper slopes in sandstone fynbos.
Rationale: A range-restricted (EOO < 100 km²) species with no known threats.

Phylica barbata F. Daniels

Status: Rare

Distribution: WC. Groot Winterhoek Mountains.
Habitat: Rocky slopes in fynbos.
Rationale: A poorly known high-altitude species, EOO < 500 km². No known threats.

Phylica amoena Pillans

Status: EN B1ab(ii,iii,v) + 2ab(ii,iii,v)

Distribution: WC. Gansbaai to Agulhas.
Habitat: Dune slacks in stable coastal dunes.
Rationale: EOO 300 km², AOO < 300 km². Five known locations continue to decline because of coastal development and invasion by alien plants. Encroaching development leads to habitat fragmentation and the exclusion of fire from remnant, a serious threat to this fire-dependent species. As phylicas are difficult to identify, this species is likely to be overlooked in environmental impact assessments.

Phylica ampliata Pillans

Status: VU D2

Distribution: WC. Elandskloof Mountains, above Tulbagh waterfall.
Habitat: Mountain slopes in fynbos.
Rationale: One known location is potentially threatened by invading alien plants.

Phylica anomala Pillans

Status: EN B1ab(ii,iii)

Distribution: WC. Caledon to Swellendam.
Habitat: Lower slopes in sands over clays.
Rationale: EOO < 3 650 km². Ongoing habitat loss to crop cultivation, afforestation and invasion by alien plants is causing a continuing decline at three known locations.

Phylica apiculata Sond.

Status: DDD

Distribution: WC. Caledon.
Habitat: Mountain slopes.
Rationale: Known only from the type, collected in the early 1800s at an unspecified locality in 'mountains near Caledon'. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Phylica barbata F. Daniels

Status: DDD

Distribution: WC. Cederberg Mountains, Koueberg near Wuppertal.

Habitat: Dry rocky slopes.
Rationale: Known only from the type, collected in 1896. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Phylica brachycephala Sond.

Status: Rare

Distribution: WC. Langeberg.
Habitat: Sandstone slopes.
Rationale: Known only from the type, collected in the early 1800s at 'Camnaland, Swellendam'. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Phylica brevifolia Eckl. & Zeyh.

Status: EN B1ab(ii,iii,v)

Distribution: WC. Hermanus to Caledon and Elim.
Habitat: Sandstone slopes.
Rationale: EOO < 1 647 km². Ongoing habitat loss to vineyard expansion and invasion by alien plants is causing a continuing decline at an estimated 5–10 locations.

Phylica burchellii Pillans

Status: DDD

Distribution: WC. Riviersonderend Mountains.
Habitat: Lower mountain slopes.
Rationale: Known only from the type, collected in the 1700s. The elevation of the collecting site is unknown and the lower slopes of the Riviersonderend Mountains west of Genadendal are degraded because of a combination of past afforestation and current short fire return intervals and invasion by alien plants. If this species occurs at low altitudes, it is likely to be threatened.

Phylica calcarata Pillans

Status: EN B1ab(ii,iii,v) + 2ab(ii,iii,v)

Distribution: WC. Gansbaai to Agulhas.
Habitat: Lower slopes in sands over clays.
Rationale: Known only from the type, collected in 1896. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Phylica chionocephala Schltr.

Status: Rare

Distribution: WC. Kouebokkeveld and Hex River Mountains.
Habitat: Rocky slopes.
Rationale: A range-restricted species (EOO < 500 km²) that is not threatened.

Phylica chionophila Schltr.

Status: Rare

Distribution: WC. Mostertshoek Twins to Brandwacht Mountain.
Habitat: Sandstone slopes, 2 000–2 135 m.
Rationale: A poorly known high-altitude species, EOO < 1 647 km². Ongoing habitat loss to vineyard expansion and invasion by alien plants is causing a continuing decline at six known locations.

Phylica chionocephala Schltr.

Status: Rare

Distribution: WC. Mostertshoek Twins to Brandwacht Mountain.
Habitat: Sandstone slopes, 2 000–2 135 m.
Rationale: A range-restricted species (EOO 170 km²) that is not threatened.
Phylica comptonii Pillans
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundiį
Distribution: WC. Hex River Mountains to Witteberg.
Habitat: Dry sandstone slopes, 1 400–2 000 m.
Rationale: A high-altitude habitat specialist with no known threats.

Phylica curvifolia Pillans
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundiį
Distribution: WC. Outeniqua Mountains.
Habitat: Moist sandstone slopes, 610–1 260 m.
Rationale: A range-restricted species (EOO 170 km²) with no known threats.

Phylica cuspidata Eckl. & Zeyh. var. cuspidata
Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Aurora to Graafwater.
Habitat: Lowland sand flats and stony/rocky soils on mountain slopes.
Rationale: EOO < 3 000 km². Only 4–10 locations are known. Subpopulations on lowland sand flats are declining as a result of ongoing habitat loss to rooibos tea and potato cultivation.

Phylica cylindrica J.C. Wendl.
Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Olfants River Mountains and Piketberg.
Habitat: Lowland sand flats and lower mountain slopes.
Rationale: EOO < 5 000 km². Ongoing habitat loss to potato and rooibos tea cultivation is causing a continuing decline at nine known locations.

Phylica diosmoides Sond.
Status: EN B1ab(ii,iii,v) + 2ab(ii,iii,v)
N.A. Helme, D. Raimondo & J.E. Victor
Distribution: WC. Houwhoek and Bot River.
Habitat: Ferricrete gravels in fynbos-renosterveld transition.
Rationale: EOO 250 km², AOO < 250 km². Three known locations remain. In 2006, 10% of one subpopulation was lost to infrastructure development. Habitat degradation as a result of invasion by alien plants is causing a continuing decline.

Phylica elimensis Pillans
Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Elim to Riversdale.
Habitat: Shale slopes and flats.
Rationale: EOO < 7 200 km². The three or four known locations are declining as a result of ongoing habitat loss to crop cultivation, urban and infrastructure development and invasion by alien plants.

Phylica floccosa Pillans
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundiį
Distribution: WC. Kammanassie and Kouga Mountains.
Habitat: High-altitude rocky slopes.
Rationale: A high-altitude habitat specialist that is not threatened.

Phylica floribunda Pillans
Status: VU D2
N.A. Helme
Distribution: WC. Bredasdorp.
Habitat: Rocky slopes.
Rationale: Five known locations are potentially threatened by invading alien plants and vineyard expansion.

Phylica glabrata Thunb.
Status: DDD
D. Raimondo
Distribution: WC. Unknown.
Habitat: Unknown.
Rationale: Known only from the type, collected in the 1700s at an unspecified locality.

Phylica greyii Pillans
Status: EN D
N.A. Helme & D. Raimondo
Distribution: WC. Saldanha to Vredenburg.
Habitat: Shallow granitic sands, between granite boulders within 2 km of the coast.
Rationale: Two subpopulations that together have less than 250 mature individuals are potentially threatened by coastal development.

Phylica guthriei Pillans
Status: DDD
N.A. Helme
Distribution: WC. Franschhoek Mountains.
Habitat: Sandstone slopes.
Rationale: Known only from the type, collected in 1895. Not enough is known about the distribution, specific habitat or population status of this species to determine its status. It occurs in an area where there has been much afforestation and is likely to be threatened.

Phylica harveyi (Arn.) Pillans
Status: VU B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Piketberg to Cape Peninsula.
Habitat: Deep sands on flats, often near the coast.
Rationale: Herbarium specimens indicate that this species was once common on the Cape Flats and the West Coast, but most historical locations have been lost to urban expansion and wheat cultivation. Current EOO 8 000 km². Six remaining locations continue to decline because of ongoing habitat loss to urban development, invading alien plants and vineyards.

Phylica hirta Pillans
Status: NT B1ab(ii,iii,v)
N.A. Helme & D. Raimondo
Distribution: WC. Nardous and Olfants River Mountains.
Habitat: Sandstone slopes and plateaus.
Rationale: EOO < 2 000 km². Although known from fewer than 10 locations, there is much unexplored habitat within the range of this species and we suspect that there are 10–15 locations. Some habitat has been transformed for citrus cultivation and ongoing habitat loss to rooibos tea is causing a continuing decline.
**Phylica incurvata** Pillans

Status: **VU B1ab(iii,iii,v)**

N.A. Helme

- **Distribution:** WC. Pearly Beach to Riversdale.
- **Habitat:** Coastal fynbos, on lower slopes.
- **Rationale:** EOO 12,000 km². Fewer than 10 remaining locations continue to decline because of ongoing habitat loss to crop cultivation, coastal development and invasion by alien plants.

**Phylica intrusa** Pillans

Status: **Rare**

N.A. Helme

- **Distribution:** WC. Hex River Mountains.
- **Habitat:** High sandstone slopes on mountain peaks.
- **Rationale:** Known only from the type, collected in 1896 at an unspecified locality near Elim. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Phylica laevis** (Eckl. & Zeyh.) Steud.

Status: **EN B1ab(ii,iii,v)**

N.A. Helme

- **Distribution:** WC. Houwhoek to Caledon Swartberg.
- **Habitat:** Sandstone and shale slopes.
- **Rationale:** Known only from the type, collected in 1896 at an unspecified locality near Elim. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Phylica lasiantha** Pillans

Status: **DDD**

F. Daniels

- **Distribution:** WC. Langeberg Mountains.
- **Habitat:** Sandstone slopes.
- **Rationale:** Known only from the type, collected in the early 1800s. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Phylica leipoldtii** Pillans

Status: **NT B1ab(ii,iii,y) + 2ab(ii,iii,y)**

N.A. Helme & D. Raimondo

- **Distribution:** WC. Cederberg to Kouebokkeveld.
- **Habitat:** Sandy plateaus and sandstone slopes.
- **Rationale:** EOO 700 km², AOO < 700 km². Only 13 locations remain after much of the habitat has been lost to deciduous fruit, rooibos tea and vegetable cultivation. Ongoing habitat loss is causing a continuing decline outside protected areas.

**Phylica linifolia** Pillans

Status: **EN B1ab(ii,iii,y) + 2ab(ii,iii,y)**

D. Raimondo

- **Distribution:** WC. Pringle Bay to Houwhoek Mountains.
- **Habitat:** Sandstone fynbos, lower slopes.

**Phylica lucida** Pillans

Status: **VU D2**

D. Raimondo & N.A. Helme

- **Distribution:** WC. Stanford to Agulhas.
- **Habitat:** Coastal flats, often near limestone.
- **Rationale:** AOO < 20 km². Three known locations are potentially threatened by invading alien plants, wildflower harvesting and vineyard expansion.

**Phylica lucens** Pillans

Status: **DDD**

F. Daniels & N.A. Helme

- **Distribution:** WC. Rivieronderend Mountains.
- **Habitat:** Mountain slopes.
- **Rationale:** Known only from the type, collected in 1933. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Phylica lucens** Pillans

Status: **DDD**

F. Daniels & N.A. Helme

- **Distribution:** WC. Rivieronderend Mountains.
- **Habitat:** Mountain slopes.
- **Rationale:** Known only from the type, collected in 1933. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Phylica lucens** Pillans

Status: **DDD**

F. Daniels & N.A. Helme

- **Distribution:** WC. Rivieronderend Mountains.
- **Habitat:** Mountain slopes.
- **Rationale:** Known only from the type, collected in 1933. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Phylica lucens** Pillans

Status: **DDD**

F. Daniels & N.A. Helme

- **Distribution:** WC. Rivieronderend Mountains.
- **Habitat:** Mountain slopes.
- **Rationale:** Known only from the type, collected in 1933. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Phylica lucens** Pillans

Status: **DDD**

F. Daniels & N.A. Helme

- **Distribution:** WC. Rivieronderend Mountains.
- **Habitat:** Mountain slopes.
- **Rationale:** Known only from the type, collected in 1933. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Phylica lucens** Pillans

Status: **DDD**

F. Daniels & N.A. Helme

- **Distribution:** WC. Rivieronderend Mountains.
- **Habitat:** Mountain slopes.
- **Rationale:** Known only from the type, collected in 1933. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.
Phylica nigromontana Pillans

Status: Rare
F. Daniels & N.A. Helme

Distribution: WC. Swartberg Mountains.
Habitat: High rocky slopes.
Rationale: A range-restricted species (EOO < 100 km²) that is not threatened.

Phylica retorta Pillans

Status: Rare
F. Daniels

Distribution: WC. Du Toit’s Kloof to Hottentots Holland Mountains.
Habitat: Rocky peaks and ridges.
Rationale: A range-restricted species (EOO < 100 km²) that occurs in mountainous habitat where it is not threatened.

Phylica nigrita Sond.

Status: NT B1ab(ii,iii,iv,v)
N.A. Helme

Distribution: WC. Cape Peninsula to Agulhas and Caledon.
Habitat: Gravely slopes and shales, lower to middle slopes, also occurs on limestone.
Rationale: EOO < 10 000 km². The 15 known locations continue to decline because of vineyard expansion and invasion by alien plants.

Phylica obtusifolia Pillans

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: WC. Kouebokkeveld Mountains.
Habitat: Upper rocky slopes.
Rationale: A range-restricted (EOO 65 km²), high-altitude habitat specialist that is not threatened.

Phylica piquetbergensis Pillans

Status: Rare
N.A. Helme

Distribution: WC. Piketberg.
Habitat: Rocky sandstone slopes.
Rationale: A range-restricted species (EOO < 300 km²) that occurs in rocky sites where it is protected from habitat loss to agriculture.

Phylica plumosa L. var. horizontalis (Vent.) Sond.

Status: Declining
N.A. Helme & L. von Staden

Distribution: WC. Piketberg and Tulbagh.
Habitat: Lower to upper sandstone and clay slopes.
Rationale: EOO and AOO < 2 000 km². Fewer than 10 locations remain. Subpopulations on lower slopes continue to decline because of habitat loss to crop cultivation and urban expansion, and invasion by alien plants.

Phylica plumosa L. var. plumosa

Status: Declining
N.A. Helme

Distribution: WC. Piketberg to Cape Peninsula and Montagu to Caledon.
Habitat: Lower to middle sandstone and clay slopes.
Rationale: EOO 22 000 km². This taxon has lost many subpopulations to agriculture and urban expansion, especially around Cape Town and Malmesbury, where it continues to decline because of ongoing habitat loss. However, there are still > 30 locations and it is therefore not yet considered Near Threatened.

Phylica plumosa L. var. squarrosa (Vent.) Sond.

Status: EN A2bc; B1ab(iii,v)
N.A. Helme

Distribution: WC. Hopefield to Cape Peninsula, Somerset West, Caledon and Bot River.
Habitat: Lower clay slopes in renosterveld.
Rationale: A population reduction of at least 50% is estimated based on > 50% habitat loss to urban expansion and crop cultivation over the past 100 years (generation length 50 years). EOO < 5 000 km². Fewer than five remaining locations continue to decline because of agricultural and urban expansion, infrastructure development and invasion by alien plants.

Phylica recurvifolia Eckl. & Zeyh.

Status: DDD
F. Daniels

Distribution: WC. Langeberg near Swellendam.
Habitat: Sandstone slopes.
Rationale: Known only from the type, collected in the early 1800s. Too little is known about the distribution and population status of this species to determine its status.

Phylica pearsonii Pillans

Status: Rare
N.A. Helme

Distribution: NC. Namaqualand.
Habitat: Granite slopes at middle elevations.
Rationale: Only two small, highly disjunct subpopulations are known. It was not relocated in the Kamiesberg during an intense survey in 2005, indicating that it is likely to be very rare.

Phylica retorta Pillans

Status: Rare
N.A. Helme

Distribution: WC. Bonteberg and Witteberg.
Habitat: Dry sandstone and quartzite slopes.
Rationale: A range-restricted species (EOO < 500 km²) that is not threatened.
Phylica retrorsa E.Mey. ex Sond.

**Status:** VU D1+2

N.A. Helme

**Distribution:** NC. Namaqualand, Kamiesberg.

**Habitat:** Granite outcrops on peaks, 1 370–1 650 m.

**Rationale:** A population of less than 1 000 mature individuals at one known location is potentially threatened by climate change.

Phylica reversa Pillans

**Status:** DDD

F. Daniels

**Distribution:** WC. Hex River Mountains.

**Habitat:** Rocky sandstone slopes.

**Rationale:** Known from the type, collected before 1940. Too little is known about this species to determine its status.

Phylica schlechteri Pillans

**Status:** CR PE

N.A. Helme

**Distribution:** WC. Cape Peninsula.

**Habitat:** Upper sandstone slopes.

**Rationale:** Occurs in a well-explored area, but last recorded > 100 years ago. Possibly extinct.

Phylica sericea Pillans

**Status:** Rare

N.A. Helme

**Distribution:** WC. Klein Swartberg Mountains.

**Habitat:** Sandstone slopes above 1 200 m, mainly on northern aspects.

**Rationale:** A range-restricted species (EOO < 200 km²) that is not threatened.

Phylica simii Pillans

**Status:** VU D2

J.E. Victor & A.P. Dold

**Distribution:** EC. Stutterheim.

**Habitat:** Montane grasslands.

**Rationale:** Two known locations are potentially threatened by afforestation and invasion by alien plants.

Phylica stenantha Pillans

**Status:** Rare

N.A. Helme

**Distribution:** WC. Klein Swartberg Mountains.

**Habitat:** Sandstone slopes in fynbos.

**Rationale:** A range-restricted species (EOO < 500 km²) that is not threatened.

Phylica stenopetala Schltr. var. stenopetala

**Status:** EN B1ab(ii,iii,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Between Piketberg, Tulbagh and Kalbaskraal.

**Habitat:** Clay slopes and flats in renosterveld.

**Rationale:** EOO < 2 000 km². Ten small, severely fragmented subpopulations remain after > 95% of the habitat of this taxon was lost to urban expansion and crop cultivation. It continues to decline because of invasion by alien plants, vineyard and urban expansion and infrastructure development.

Phylica stokoei Pillans

**Status:** Rare

N.A. Helme

**Distribution:** WC. Klein Swartberg Mountains.

**Habitat:** North-facing, upper sandstone slopes.

**Rationale:** A range-restricted species (EOO < 300 km²) that is not threatened.

Phylica strigulosa Sond.

**Status:** VU B1ab(ii,iii,v)

N.A. Helme

**Distribution:** WC. Piketberg to Stellenbosch.

**Habitat:** Renosterveld, on stony clay and sandstone slopes at low elevation, 30–760 m.

**Rationale:** Known only from the type, collected in 1896. This reseeding species, known to occur at only three locations, is potentially threatened by too frequent fires. One location at Audensberg and other parts of the Hex River Mountains have burnt three times between 1994 and 2006.

Phylica subulifolia Pillans

**Status:** VU D2

N.A. Helme

**Distribution:** WC. Hex River Mountains.

**Habitat:** Upper sandstone slopes, 1 230–1 920 m.

**Rationale:** A range-restricted species (EOO < 500 km²), with all known subpopulations protected within the Klein Swartberg Mountains.

Phylica thunbergiana Sond.

**Status:** EN B1ab(ii,iii,v)

D. Raimondo & N.A. Helme

**Distribution:** WC. Mooresburg to Stellenbosch.

**Habitat:** Renosterveld, on lower clay slopes and flats.

**Rationale:** EOO < 2 500 km². Ten small, severely fragmented subpopulations remain on isolated habitat fragments after > 95% of renosterveld within the range of this species has been transformed by urban expansion and crop cultivation. It continues to decline owing to lack of fire in small remnants and invasion by alien plants.

Phylica trachyphylla (Eckl. & Zeyh.) D.Dietr.

**Status:** Rare

F. Daniels & N.A. Helme

**Distribution:** WC. Groot Winterhoek Mountains.

**Habitat:** Middle sandstone slopes.

**Rationale:** A range-restricted species (EOO < 300 km²), with all known subpopulations protected within the Groot Winterhoek Wilderness Area.

Phylica tubulosa Schltr.

**Status:** DDD

N.A. Helme & D. Raimondo

**Distribution:** WC. Ri viersonderend Mountains.

**Habitat:** High sandstone slopes.

**Rationale:** Known only from the type, collected in 1896. This species is likely to be threatened by invading alien plants, but not enough information is available to determine its status.

Phylica tysonii Pillans var. brevifolia Pillans

**Status:** DDD

L. von Staden & J.E. Victor

**Distribution:** EC. Cala to Ugie and Maclear.
Plate 86

Cliffortia nivenioides VU

Cliffortia anthospermoides EN

Cliffortia eriefolia EN

Cliffortia elata VU

Cliffortia dichotoma VU
**Cassipourea flanaganii**
F. Daniels

**Phylica tysonii** var. **tysonii**

**Phylica velutina** Sond.

**Phylica variabilis** Pillans

**Phylica virgata** (Eckl. & Zeyh.) D.Dietr.

**Cassipourea gummiflua** Tul. var. **verticillata**

**Cassipourea malosana** (Baker) Alston

**Cliffortia acanthophylla** C.M.Whitehouse

**Cliffortia l.**

**RHYNCHOALYCACEAE**

**Rhynchocalyx Oliv.**

**Rhynchocalyx lawsonioides** Oliv.

**ROSACEAE**

**Cliffortia L.**
Cliffortia acoccki Wem.
Status: CR B1ab(iii)+2ab(iii); C2a(i,ii); D
N.A. Helme & C.M. Whitehouse
Distribution: WC. Joostenberg and Klapmuts.
Habitat: Renosterveld, on low clay hills.
Rationale: EOO 76 km². One small subpopulation of less than 40 plants remains at a single location after > 95% of the lowland habitat of this species has been lost to agriculture and urban expansion over the past 100 years. It continues to decline as a result of invasion by alien plants, grazing, by livestock and expanding crop cultivation.

Cliffortia aculeata Wem.
Status: Rare
C.M. Whitehouse & J.E. Victor
Distribution: WC. Groot Swartberg Mountains.
Habitat: Seepages on upper sandstone slopes.
Rationale: A range-restricted habitat specialist (EOO 375 km²) that is not threatened.

Cliffortia alata N.E.Br.
Plate 86
Status: VU D2
J.H. Vlok & D. Raimondo
Distribution: WC. Langeberg Mountains.
Habitat: Lower northern slopes on shale-sandstone transition.
Rationale: Three known locations are potentially threatened by heavy grazing pressure from livestock.

Cliffortia anthospermoides Fellingham
Plate 86
Status: EN B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Gansbaai.
Habitat: Fynbos on brown, sandy soil on slight slopes, 50–250 m.
Rationale: EOO 50 km², AOO < 50 km². Known from four locations. A subpopulation at one location was lost to road widening, two are threatened by coastal development and invading alien plants, and the last subpopulation is protected within the private nature reserve at Grootbos.

Cliffortia apiculata Weim.
Status: CR A2ac; B1ab(iii)+2ab(iii)
C.M. Whitehouse & D. Raimondo
Distribution: WC. Palmiet River Valley, between Elgin, Arieskraal and Fairy Glen.
Habitat: Lower shale slopes.
Rationale: A population reduction of at least 80% is estimated based on > 90% habitat loss to apple orchards in the Elgin Valley over the past 70 years (generation length 50 years). EOO 55 km², AOO < 3 km². Five severely fragmented remaining subpopulations continue to decline as a result of invasion by alien plants.

Cliffortia arborea Marloth
Status: VU B1ab(iii,v)
C.M. Whitehouse & D. Raimondo
Distribution: WC. Hantsamberg Mountain to Nuweveld Mountains.
Habitat: Cliffs and ledges of dolerite, sandstone, and shale escarpment.
Rationale: EOO 7 600 km². Fewer than 10 known locations continue to decline because of inappropriate fire management and harvesting for firewood.

Cliffortia burgersii E.G.H.Oliv. & Fellingham
Status: EN D
C.M. Whitehouse & J.E. Victor
Distribution: WC. De Hoop Nature Reserve.
Habitat: Limestone and adjacent sands.
Rationale: Only one subpopulation of between 100 and 200 mature individuals is known.

Cliffortia carinata Weim.
Status: Rare
C.M. Whitehouse & J.E. Victor
Distribution: WC. Cape Peninsula.
Habitat: Sandstone slopes in Fynbos.
Rationale: A range-restricted Peninsula endemic (EOO < 150 km²) that is not threatened.

Cliffortia ceresana C.M.Whitehouse
Status: Rare
P.A. Manyama
Distribution: WC. Hex River Mountains, north through the Witzenberg range to Groot Winterhoek Mountains.
Habitat: Fynbos on rocky shale slopes and amongst rocks, 350–1 850 m.
Rationale: A range-restricted species (EOO < 500 km²) that is not threatened as it is a resprouter and is not vulnerable to too frequent fires.

Cliffortia conifera E.G.H.Oliv. & Fellingham
Status: EN
C.M. Whitehouse & J.E. Victor
Distribution: WC. Klein Swartberg Mountains.
Habitat: Fynbos, upper sandstone slopes.
Rationale: One subpopulation of less than 250 mature individuals is known.

Cliffortia crassinervis Weim.
Status: Rare
C.M. Whitehouse & J.E. Victor
Distribution: WC. Klein Swartberg Mountains.
Habitat: Fynbos, upper sandstone slopes.
Rationale: A range-restricted species (EOO < 50 km²) that is not threatened.

Cliffortia cruciata C.M.Whitehouse
Status: VU D2
P.A. Manyama
Distribution: WC. Wildepaardeberg on the northern slopes of Jonaskop in the Rivieronderend Mountains.
Habitat: Deep sandy plateau, acid sands from Table Mountain Sandstone, 900–1 000 m.
Rationale: A very narrow endemic (EOO and AOO < 10 km²), known from one location where it is potentially threatened by too frequent fires.

Cliffortia curvisperma Weim.
Status: EN B1ab(ii,iii)
C.M. Whitehouse & D. Raimondo
Distribution: WC. Bredasdorp region, Elim to Potberg.
Habitat: Acid sand flats.
Rationale: EOO 1 150 km². Four known locations continue to decline because of ongoing habitat loss and degradation as a result of expanding vineyards and protea cultivation, overgrazing, invasion by alien plants and inappropriate fire management.
Cliffortia dichotoma Fellingham
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: NC. Bokkeveld Escarpment.
Habitat: Arid fynbos on sandstone soils, growing in a narrow band on the edge of steep cliffs.
Rationale: EOO and AOO < 5 km². One subpopulation occurring along a narrow band on the edge of the Bokkeveld Escarpment is potentially threatened by climate change.

Cliffortia ericifolia L.f.
Status: EN B1ab(ii,iii,v)
N.A. Helme, C.M. Whitehouse, D. Raimondo & J.E. Victor
Distribution: WC. Philadelphia to Cape Peninsula and Agulhas Plain.
Habitat: Seasonally wet sands over clayey or sandy soils.
Rationale: Specimen records indicate that it was once common on seasonally inundated areas on the Cape Flats, but it now remains on four small fragments, three of which are declining as a result of urban expansion and invasion by alien plants. A recent (2006) discovery of this species on the Agulhas Plain has extended its range considerably (EOO 3 500 km²), but subpopulations on the Agulhas Plain are also threatened by invading alien plants.

Cliffortia esterhuyseniae Weim.
Status: Rare
C.M. Whitehouse & J.E. Victor
Distribution: WC. Langeberg and Garcia’s Pass.
Habitat: Shale beneath sandstone cliffs and in fire-free areas on the cliffs.
Rationale: A range-restricted habitat specialist (EOO 418 km²) that is not threatened.

Cliffortia grandifolia Eckl. & Zeyh. var. grandifolia
Status: Rare
C.M. Whitehouse & J.E. Victor
Distribution: WC. Langeberg and Garcia’s Pass.
Habitat: Moist mountain slopes, southern aspects at medium altitude.
Rationale: EOO < 500 km². Restricted to the southern slopes of the Langeberg around Swellendam, with a single collection further east from near Meul River. There probably are no more subpopulations as it is a prominent and distinctive taxon that is unlikely to have been overlooked. No known threats.

Cliffortia heterophylla Weim.
Status: Rare
C.M. Whitehouse & J.E. Victor
Habitat: Fynbos, on south-facing sandstone slopes.
Rationale: A range-restricted species (EOO < 200 km²) that is not threatened.

Cliffortia hirta Burm.f.
Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
C.M. Whitehouse, D. Raimondo & N.A. Helme
Distribution: WC. Bokkevlei to Cape Peninsula.
Habitat: Seasonally wet sands over clays, or acidic sands.
Rationale: EOO 320 km², AOO < 320 km². Six severely fragmented remaining subpopulations continue to decline because of habitat loss to urban development and invasion by alien plants.

Cliffortia incana Weim.
Status: VU D2
C.M. Whitehouse & J.E. Victor
Distribution: WC. Mouth of the Breede River.
Habitat: Neutral sands with underlying limestone.
Rationale: One known location (AOO and AOO 5 km²) is potentially threatened by invasive alien plants.

Cliffortia integerrima Weim.
Status: VU A2abc
C.M. Whitehouse, D. Raimondo & D.A. Kamundi
Distribution: WC. Cape Peninsula.
Habitat: Clay soil on sandstone bands in Table Mountain Sandstone.
Rationale: A population reduction of at least 30% is estimated based on local extinctions of subpopulations known through historical records due to urban expansion on the lower slopes of Table Mountain over the past 120 years (generation length 70 years).

Cliffortia lanceolata Weim.
Status: Rare
C.M. Whitehouse & J.E. Victor
Distribution: WC. Langeberg Mountains, between Leeurivierberg and Suurbraak and at Garcia Forest Station.
Habitat: Moist montane fynbos, often on shale bands.
Rationale: A range-restricted habitat specialist (EOO < 500 km²) that is not threatened.

Cliffortia longifolia (Eckl. & Zeyh.) Weim.
Status: VU B1ab(ii,iii,iv,v)
C.M. Whitehouse & D. Raimondo
Distribution: WC. Coastal areas between Saldanha Bay and Gouritsmond.
Habitat: Wetlands on alkaline coastal sands.
Rationale: EOO 4 500 km². Nine known locations continue to decline as a result of ongoing habitat loss to coastal development.

Cliffortia marginata Eckl. & Zeyh.
Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
C.M. Whitehouse, D. Raimondo & N.A. Helme
Distribution: WC. Durbanville to Somerset West.
Habitat: Seasonally wet clay and sand flats.
Rationale: EOO 500 km², AOO < 500 km². Four locations remain after most of the habitat has been lost to urban development. It continues to decline because of ongoing habitat loss to housing developments, expanding crop cultivation, invasion by alien plants and quarrelling.

Cliffortia monophylla Weim.
Status: VU B1ab(ii,iii)
C.M. Whitehouse, D. Raimondo & N.A. Helme
Distribution: WC. Houwhoek to Napier to Swellendam.
Habitat: Fairly moist shale slopes in lowlands.
Rationale: EOO 2 320 km². Nine locations remain after most of the habitat has been lost to wheat cultivation over the past 70 years. It continues to decline as a result of expanding crop cultivation, urban development, lack of fire caused by habitat fragmentation, and invasion by alien plants.
Cliffortia montana Weim.

Status: Rare
C.M. Whitehouse, D. Raimondo & N.A. Helme

Distribution: EC WC. Swarberg Mountains and Sneeuberg Mountains around Graaff-Reinet.
Habitat: Sandstone slopes, often in seepage areas.
Rationale: A habitat specialist known from two disjunct areas in the Western and Eastern Cape.

Cliffortia multiformis Weim.

Status: NT A4bc; B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
C.M. Whitehouse & D. Raimondo

Distribution: WC. Hermanus to Elim.
Habitat: Lower to middle slopes on shales or sandstone.
Rationale: A population reduction of nearly 30% is projected to be reached within the next 50 years, as this species has already lost 25% of its habitat to crop cultivation, urban expansion and invasion by alien plants over the past 100 years (generation length 50 years). EOO 1 400 km², AOO < 1 400 km². The remaining 15 locations continue to decline.

Cliffortia nivenioides Fellingham

Status: VU D1
C.M. Whitehouse & D. Raimondo

Distribution: WC. Groot Swarberg Mountains.
Habitat: Seepages on upper sandstone slopes.
Rationale: Known from two sites, each with less than 200 plants.

Cliffortia oligodonta C.M.Whitehouse

Status: Rare
C.M. Whitehouse, D. Raimondo & D.A. Kamundii

Distribution: WC. Weimershoek Mountains.
Habitat: South-facing slopes and in the shelter of rocks at high altitude, in well-drained rocky soil from Table Mountain Sandstone, 1 450–1 800 m.
Rationale: A range-restricted (EOO < 10 km²), high-altitude resprouter that is not threatened.

Cliffortia ovalis Weim.

Status: Rare
C.M. Whitehouse & J.E. Victor

Distribution: WC. Confined to a very small area in the Hottentots Holland Mountains between the head of the Jonkershoek Valley, Somerset Sneeukop and Victoria Peak.
Habitat: Seepages on upper sandstone slopes.
Rationale: A range-restricted (EOO < 15 km²) resprouter that is not threatened by too frequent fires.

Cliffortia phillipsii Weim.

Status: VU D2
N.A. Helme, C.M. Whitehouse & D. Raimondo

Distribution: WC. Hottentots Holland Mountains, between Helderberg and Franschhoek.
Habitat: Lower clay slopes.
Rationale: Fewer than five remaining locations are potentially threatened by a too frequent fires and invading alien plants. Subpopulations near Paarl and Klapmuts are now locally extinct because of crop cultivation, forestry and urban development, but the remaining population appears stable.

Cliffortia pilifera Bolus

Status: VU D2
C.M. Whitehouse & J.E. Victor

Distribution: WC. Bain's Kloof Mountains.

Habitat: Moist sandstone fynbos.
Rationale: A range-restricted species (EOO and AOO < 18 km²), occurring at two known locations where it is potentially threatened by too frequent fires and invasion by alien plants.

Cliffortia prionota C.M.Whitehouse

Status: Rare
C.M. Whitehouse, D. Raimondo & D.A. Kamundii

Habitat: Clayish soil on shale bands of Table Mountain Sandstone rocks in full sun, 50–350 m.
Rationale: A range-restricted resprouter (EOO 98 km²) that is protected within the Kogelberg Biosphere Reserve and not threatened by too frequent fires.

Cliffortia recurvata (Weim.) C.M.Whitehouse

Status: VU D2
C.M. Whitehouse & D. Raimondo

Distribution: WC. Kogelberg, between Steenbras and Palmiet Rivers.
Habitat: Sandstone slopes.
Rationale: A rare, range-restricted reseeder (EOO 16 km², AOO 5 km²) that is potentially threatened by too frequent fires.

Cliffortia reniformis (Weim.) C.M.Whitehouse

Status: VU D2
C.M. Whitehouse & J.E. Victor

Distribution: WC. Langeberg Mountains, Garcia’s Pass.
Habitat: Fynbos, on lower sandstone slopes.
Rationale: A range-restricted species (EOO and AOO < 20 km²), known to occur at one location where it is potentially threatened by invading alien plants and inappropriate fire management.

Cliffortia ruscifolia L. var. purpurea Weim.

Status: Rare
C.M. Whitehouse & J.E. Victor

Distribution: NC. Bokkeveld Escarpment near Nieuwoudtville.
Habitat: Acid sands from Table Mountain Sandstone.
Rationale: A range-restricted taxon (EOO < 10 km²) that is protected within the Oorlogskloof Nature Reserve.

Cliffortia scandens C.M.Whitehouse

Status: VU D2
N.A. Helme & P.A. Manyama

Distribution: WC. Riviersonderend Mountains.
Habitat: Fynbos on rocky south-facing slopes, 650–1 250 m.
Rationale: Two known locations are potentially threatened by invading alien plants and too frequent fires.

Cliffortia schlechteri (Weim.) C.M.Whitehouse

Status: NT B1ab(iii)
P.A. Manyama & D. Raimondo

Distribution: WC. Widespread on the Agulhas Plain from Gansbaai to Gouritsmond.
Habitat: Fynbos on very well-drained, windblown sand and limestone-derived soil, 0–300 m.
Rationale: EOO 6 000 km². A fairly common species in suitable habitat that is suspected to occur at 10–20 locations. It is declining as a result of ongoing habitat loss to crop cultivation and coastal development, invasion by alien plants and too frequent fires.
Cliffortia setifolia Weim.
Status: Rare
C.M. Whitehouse & J.E. Victor

Distribution: WC. Klein Swartberg and Groot Swartberg Mountains.
Habitat: South-facing rocky areas on mountain peaks at high altitudes.
Rationale: A high-altitude habitat specialist that occurs in fire refugia and is not threatened.

Cliffortia sp. nov.
Voucher: Whitehouse 145 BOL
Status: CR A2c; B1ab(iii,ii,v)+2ab(ii,ii,i,v) + N.A. Helme, C.M. Whitehouse & D. Raimondo

Distribution: WC. Bot River to Bot River Vlei.
Habitat: Ferricrete gravels with associated shales and acid sand.
Rationale: Although this is a recently discovered species, a past population reduction of at least 80% is suspected based on > 95% habitat loss to crop cultivation and urban expansion over the past 100 years (generation length > 50 years). EOO 20 km², AOO < 5 km². Three isolated, severely fragmented remaining subpopulations are expected to continue to decline as a result of infrastructure development and invasion by alien plants. Some 10% of one subpopulation is to be lost to the development of a polo field.

Cliffortia strigosa Weim.
Status: Rare
C.M. Whitehouse & J.E. Victor

Distribution: WC. Limietberg.
Habitat: Moist sandstone fynbos, often on shaded slopes.
Rationale: A range-restricted resprouter (EOO < 15 km²) that is not threatened by too frequent fires.

Cliffortia tenuis Weim.
Status: VU A2ac; B1ab(ii,iii,ii)+2ab(ii,ii,i,v)
N.A. Helme, C.M. Whitehouse & D. Raimondo

Distribution: WC. Elim Flats.
Habitat: Lowland clays, often seasonally wet.
Rationale: A population reduction of at least 30% over the past 120 years is estimated based on > 30% habitat loss to crop cultivation (generation length > 50 years). EOO 1 742 km², AOO < 1 742 km². Six remaining locations continue to decline because of ongoing habitat loss to vineyard expansion and protea cultivation.

Cliffortia verrucosa Weim.
Status: Rare
C.M. Whitehouse & J.E. Victor

Distribution: WC. Northern slopes of the Swartberg.
Habitat: Middle to upper sandstone slopes in arid fynbos.
Rationale: A range-restricted species (EOO 137 km²) that is not threatened.

Cliffortia viridis Weim.
Status: VU D2
C.M. Whitehouse & D. Raimondo

Distribution: WC. Kogelberg.
Habitat: Damp, shaded sandstone gullies, 300–1 000 m.
Rationale: Two known locations are potentially threatened by invading alien plants and too frequent fires. This area has experienced at least three fires in the past 10 years. These recent fires have been hot summer fires that burn into the damp kloof habitat where this fire-sensitive species occurs.

Cliffortia weimarkii C.M. Whitehouse
Status: Rare
P.A. Manyama

Distribution: WC. Hex River Mountains and the highest peaks of the Koueboekkies and Groot Winterhoek Mountains, possibly also Baviansberg and Langberg in the Cederberg.
Habitat: Montane fynbos on well-drained acid sands derived from Table Mountain Sandstone. 1 200–2 250 m.
Rationale: A high-altitude habitat specialist that occurs in widely disjunct subpopulations, but is not threatened.

Prunus L.

Prunus africana (Hook.f.) Kalkman
Status: VU A4acd; C1 + 2a(i)
V.L Williams, D. Raimondo, N.R. Crouch, A.B. Cunningham, C.R. Scott-Shaw, M. Lötter & A.M. Ngwenya

Distribution: EC FS G KZN LM MP NW WC. Widespread in Africa from the southern Cape, through KwaZulu-Natal, Swaziland and northwards into Zimbabwe and central Africa and the islands of Madagascar and Comoros.
Habitat: Evergreen forests near the coast, inland mistbelt forests and afromontane forests up to 2 100 m.
Rationale: The bark of P. africana is popular in traditional medicine, and this species is over-exploited in at least half the countries where it occurs. The popularity of P. africana bark in South African traditional medicinal trade is increasing, and there has already been a 50% population reduction in KwaZulu-Natal, where it is now locally extinct in more than half the forests in which it used to occur. Tree densities in South African forests are low, and it is reported to be declining or scarce in at least 40% of the quarter degree squares in which it has been recorded. It is inferred that a reduction in the South African population will exceed 30% within the next 60 years, as a continuation of population declines over the past 60 years (generation length 40 years). Surveys indicate that subpopulations are small, with between 40 and 400 trees per quarter degree square and based on this evidence, it is suspected that the South African population does not exceed 10 000 mature individuals. As a result of the overexploitation and decline of this species elsewhere in the range, the national assessment is not downgraded.

Rubus L.

Rubus intercurrens Gust.
Status: DDD
D. Raimondo & F. Cholo

Distribution: EC. Fort Cunningham Station.
Habitat: Unknown.
Rationale: Known only from the type, collected in 1898. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.
Anthospermum L.

f Anthospermum ericifolium (Licht. ex Roem. & Schult.) Kuntze
- Status: EN B1ab(iii,iv,v)
- P.A. Manyanya & D. Raimondo
- Distribution: WC. Malmesbury to Cape Flats and Caledon.
- Habitat: Sandy to gravelly soil, mostly in sandveld fynbos.
- Rationale: EOO 1 700 km². Five locations remain after significant amounts of habitat were lost to urban development, crop cultivation and afforestation. It continues to decline owing to invasion by alien plants and urban expansion.

f Anthospermum esterhuysenianum Puff var. hirsutum Puff
- Status: Rare
- D. Raimondo, F. Cholo & D.A. Kamundi
- Distribution: WC. Central Cederberg and the Skurweberg in the northern Kouebokkeveld.
- Habitat: Rocky places.
- Rationale: A range-restricted taxon (EOO 10 km²) with no known threats.

Anthospermum streyi Puff
- Status: Rare
- L. von Staden
- Distribution: EC KZN. Pondoland endemic, Oribi Gorge to Cutweni.
- Habitat: Sheets of exposed Msikaba Formation Sandstone rock in Pondoland coastal grassland, at the edges of cliffs and along forest margins, 100–600 m.
- Rationale: A habitat specialist that occurs in a sheltered habitat among rocks where it is unlikely to be affected by too frequent and intense fires, cultivation or grazing.

Canthium Lam.

f Canthium vanwykii Tilney & Kok
- Status: NT B1ab(iii,v)+2ab(iii,v)
- L. von Staden & A.T.D. Abbott
- Distribution: EC KZN. Oribi Gorge to Lusikisiki.
- Habitat: Forest margins or more rarely in fire-protected rocky crevices in grassland on Msikaba Formation Sandstone.
- Rationale: EOO 2 000 km², AOO < 2 000 km². A range-restricted Pondoland endemic occurring in a highly threatened and restricted habitat, but suspected to occur at more than 10 locations. It continues to decline because of habitat loss and degradation caused by too frequent and intense grassland fires that have an impact on forest margins.

Carpacoce Sond.

Carpacoce gigantea Puff
- Status: Rare
- N.A. Helme & D. Raimondo
- Distribution: WC. Langeberg Mountains near Swellendam.
- Habitat: Moist, well-drained mountain slopes.
- Rationale: A range-restricted species (EOO < 70 km²) with no known threats.

Carpacoce scabra (Thunb.) Sond. subsp. rupestris Puff
- Status: Rare
- D. Raimondo, F. Cholo & D.A. Kamundi
- Distribution: WC. Mountains around Worcester and on the Witzenberg range.
- Habitat: High-altitude rocky slopes and ledges.
- Rationale: A high-altitude habitat specialist with no known threats.

Eriosemopsis Robyns

Eriosemopsis subanisophylla Robyns
- Status: VU A2c; B1ab(iii)+2ab(iii)
- L. von Staden
- Distribution: EC KZN. Southern KwaZulu-Natal and Pondoland, from Umgai in the Umzinto district southwards to the Mtentu River.
- Habitat: Sandstone grasslands, including Natal Group and Msikaba Formation. Gentle slopes and plateaus and well-drained soils, 200–900 m.
- Rationale: A population reduction of at least 30% is estimated based on habitat loss, local extinction of subpopulations known through historical records and range reduction over the past 100 years. This is a long-lived, woody, suffrutescent grassland forb, and generation length is estimated as at least 50 years. Former EOO 1 040 km², but may now be as little as 360 km² as a result of extensive declines in the northern parts of the range and along the KwaZulu-Natal south coast, mainly due to habitat loss to sugarcane cultivation and coastal development, and fewer than 10 locations remain. It continues to decline because of ongoing habitat loss and degradation caused by coastal development, subsistence agriculture, overgrazing and too frequent fires.

Galium L.

Galium bredasdorpense Puff
- Status: Rare
- D. Raimondo
- Distribution: WC. Agulhas to Infanta.
- Habitat: Confinied to inland limestone cliffs.
- Rationale: A range-restricted (EOO < 50 km², AOO < 10 km²) habitat specialist that is not threatened in its inaccessible habitat.

Galium rourkei Puff
- Status: Critically Rare
- N.A. Helme & D. Raimondo
- Distribution: WC. Kogelberg.
- Habitat: Grows in permanent shade under damp cliffs.
- Rationale: Known to occur in one small area (EOO 2 km²) in the Kogelberg Biosphere Reserve where it is not threatened.
**Pavetta zeyheri** Sond. subsp. *middelburgensis* (Bremek.) P.P.J.Herman
Status: **VU D2**
P.A. Manyama & D. Raimondo
**Distribution:** EC. Mntu River to Magwa Gorge.
Habitat: Pondoland scarp forest, in margins and forest undergrowth on Msikaba Formation Sandstone.
Rationale: A range-restricted species that occurs in small subpopulations of less than 20 mature individuals in highly threatened forest margins along four river gorges in Pondoland. Total population is estimated not to exceed 1,000 mature individuals. There is a continuing decline as a result of harvesting for firewood and too frequent and intense grassland fires that have an impact on the forest margins. Also potentially threatened by invasive alien plants.

**Tricalysia africana** (Sim) Robbr.
Status: **EN C2a(i)**
L. von Staden & A.T.D. Abbott
**Distribution:** EC. Mntu River to Magwa Gorge.
Habitat: Pondoland scarp forest, in margins and forest undergrowth on Msikaba Formation Sandstone.
Rationale: A range-restricted species that occurs in small subpopulations of less than 20 mature individuals in highly threatened forest margins along four river gorges in Pondoland. Total population is estimated not to exceed 1,000 mature individuals. There is a continuing decline as a result of harvesting for firewood and too frequent and intense grassland fires that have an impact on the forest margins. Also potentially threatened by invasive alien plants.

**RUTACEAE**

**Acmedenia** Bartl. & H.L.Wendl.
**Acmedenia alternifolia** Cham.
Status: **EN C2a(i)**
P.A. Manyama & D. Raimondo
**Distribution:** WC. Touwsrivier and Anysberg Nature Reserve.
Habitat: Renosterveld on shales.
Rationale: There has been a severe decline at the type locality, Boesmansgat quarry, over the past 30 years as a result of quarrying, with only seven plants now remaining at this location, but the threat has ceased. Four known locations are potentially threatened by grazing by livestock.

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**ANGIOSPERMS: DICOTYLEDONS**

**Galium subvillosum** Sond. var. *subglabrum* Puff
Status: **Rare**
D.A. Kamundjji, N.A. Helme & D. Raimondo
**Distribution:** WC. Bain’s Kloof to Lemoenshoek Peak in the Langeberg.
Habitat: Grows in damp, shady places at the base of cliffs along watercourses.
Rationale: A rare habitat specialist that has no known threats.

**Nenax Gaertn.**

**Nenax elsieae** Puff
Status: **Rare**
N.A. Helme & D. Raimondo
**Distribution:** WC. Swartvagens to Bonteberg.
Habitat: Dry, rocky fynbos on quartzite.
Rationale: A range-restricted species (EOO < 500 km²) with no known threats.

**Nenax hirta** (Cruse) T.M.Salter subsp. *calciphila* Puff
Status: **NT** B1ab(ii,iii,v) + 2ab(ii,iii,v)
N.A. Helme & D. Raimondo
**Distribution:** WC. Jacobsbbaai to Saldanha to Yzerfontein.
Habitat: Strandveld on calcite.
Rationale: EOO and AOO < 800 km². Less than 20 locations continue to decline because of coastal and industrial development and mining. There has been a 10% reduction of the population due to housing developments at Jacobsbbaai and development around the iron ore terminal in Saldanha.

**Nenax sp. nov.**
Voucher: *Levyns 9200 BOL*
Status: **VU D2**
N.A. Helme & D. Raimondo
**Distribution:** WC. Riviersonderend Mountains.
Habitat: Sandstone slopes.
Rationale: One known location (EOO < 10 km²) is potentially threatened by invasive alien plants.

**Pavetta L.**

**Pavetta tshikondeni** N.Hahn
Status: **Rare**
F. Cholo & D.A. Kamundjji
**Distribution:** LM. Near the Levuvhu and Mutale Rivers in the vicinity of Punda Maria, northern Kruger National Park.
Habitat: Rocky areas, often on steep slopes, in *Androstenochys* woodland.
Rationale: A rare, range-restricted species (EOO 60 km²) that is not threatened.

**Pavetta zeyheri** Sond. subsp. *microlancea* (K.Schum.) P.P.J.Herman
Status: **EN C2a(i) + 2ab(ii,iii,v)
P.A. Manyama & D. Raimondo
**Distribution:** WC. Knysna River and Keurbooms River.
Habitat: Coastal headlands and steep slopes, exposed positions on dry coastal cliffs from Knysna to Plettenberg Bay.
Rationale: EOO 800 km², AOO 14 km². Small, severely fragmented subpopulations at four known locations continue to decline because of coastal development and invasion by alien plants.

**Tricalysia** A.Rich. ex DC.

**Tricalysia africana** (Sim) Robbr.
Status: **EN C2a(i)**
L. von Staden & A.T.D. Abbott
**Distribution:** EC. Mntu River to Magwa Gorge.
Habitat: Pondoland scarp forest, in margins and forest undergrowth on Msikaba Formation Sandstone.
Rationale: A range-restricted species that occurs in small subpopulations of less than 20 mature individuals in highly threatened forest margins along four river gorges in Pondoland. Total population is estimated not to exceed 1,000 mature individuals. There is a continuing decline as a result of harvesting for firewood and too frequent and intense grassland fires that have an impact on the forest margins. Also potentially threatened by invasive alien plants.

**Vangueria** Comm. ex Juss.

**Vangueria soutpansbergensis** N.Hahn
Status: **Rare**
F. Cholo & D.A. Kamundjji
**Distribution:** LM. Soutpansberg Mountains.
Habitat: Mixed woodlands on rocky slopes, found only on soils derived from quartzite, 1,440 m.
Rationale: A locally common but range-restricted (EOO 186 km²) species that is not threatened.

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**RUBIACEAE**

**Galium subvillosum var. subglabrum** Puff
Status: **Rare**
D.A. Kamundjji, N.A. Helme & D. Raimondo
**Distribution:** WC. Bain’s Kloof to Lemoenshoek Peak in the Langeberg.
Habitat: Grows in damp, shady places at the base of cliffs along watercourses.
Rationale: A rare habitat specialist that has no known threats.
Acmadenia bodkinii (Schltr.) Strid
Status: Rare
N.A. Helme & D. Raimondo
Distribution: WC. Cederberg.
Habitat: Rock crevices on upper slopes.
Rationale: A range-restricted species (EOO < 18 km²) that occurs at high altitudes in a fire refuge habitat where it is not threatened.

Acmadenia burchellii Dummer
Status: Rare
J.E. Victor & N.A. Helme
Distribution: WC. Langeberg Mountains near Riversdale.
Habitat: Mesic proteoid fynbos.
Rationale: A range-restricted species (EOO 198 km²) with no known threats.

Acmadenia candida I.Williams
Status: EN D
A. Johns, C. Paterson-Jones, T. Trinder-Smith & D. Raimondo
Distribution: WC. Hottentots Holland Mountains.
Habitat: Marsh in level areas, amongst low, dense restios, 1 670 m.
Rationale: Formerly thought extinct, but two small subpopulations of less than 100 mature individuals in total have been rediscovered. Potentially threatened by too frequent fires, invading alien pines and trampling by hikers.

Acmadenia densifolia Sond.
Status: NT B1ab(ii,iii,iv,v)
D. Raimondo
Distribution: WC. Bredasdorp to Still Bay and Albertinia.
Habitat: Limestone hills.
Rationale: EOO < 2 250 km². The 15 known locations continue to decline because of invasion by alien plants, overgrazing and coastal development around Still Bay.

Acmadenia faucitincta I.Williams
Status: VU D2
J.E. Victor & N.A. Helme
Distribution: WC. Blokkop above Villiersdorp.
Habitat: Sandstone slopes in fynbos.
Rationale: EOO and AOO < 10 km². One known location is potentially threatened by too frequent fires and invasive alien plants.

Acmadenia fruticosa I.Williams
Status: VU B1ab(iii,v); D1
J.H. Vlok & D. Raimondo
Distribution: WC. Montagu to Ladismith.
Habitat: Dry, shallow quartzite soils on Table Mountain Sandstone series, 600–1 200 m.
Rationale: EOO 3 776 km². A population of less than 1 000 mature individuals continues to decline at 10 known locations because of expanding crop cultivation and overgrazing.

Acmadenia gracilis Dummer
Status: VU D2
J.E. Victor, J.H. Vlok & D. Raimondo
Distribution: WC. Outeniqua Mountains.
Habitat: Mountain summit and north-facing slopes close to wet areas.
Rationale: Four known locations are potentially threatened by invasive alien plants.

Acmadenia kiwanensis I.Williams
Status: CR B1ab(iii)
J.E. Victor
Distribution: EC. Between the Keiskamma and Chalumna Rivers.
Habitat: Relict fynbos surrounded by mixed grassland in shallow soil on flat quartzitic sandstone.
Rationale: EOO < 100 km². One subpopulation at one known location is declining because of overgrazing and inappropriate fire management.

Acmadenia latifolia I.Williams
Status: VU D2
D. Raimondo & N.A. Helme
Distribution: WC. Gysmanshoek Pass and Muiskraal.
Habitat: North-facing sandstone slopes below 500 m.
Rationale: Three known locations are potentially threatened by invading alien plants and expanding crop cultivation.

Acmadenia laxa I.Williams
Status: EN B1ab(iii)+2ab(iii)
D. Raimondo & J.H. Vlok
Distribution: WC. Swellendam and Buffeljagsrivier.
Habitat: Dry rocky ground, 100–300 m.
Rationale: EOO 165 km², AOO < 165 km². Fewer than five locations remain after much of the habitat has been lost to crop cultivation and urban expansion in the Swellendam area. It continues to decline owing to invasion by alien plants and only one subpopulation is protected in the Bontebok National Park.

Acmadenia macradenia (Sond.) Dummer
Status: NT D2
D. Raimondo
Distribution: WC. Wolseley and Piketberg.
Habitat: Summits of rocky ridges in mountains.
Rationale: Six known locations are potentially threatened by afforestation and invading alien plants.

Acmadenia macropetala (P.E.Glover) Compton
Status: VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
J.E. Victor
Distribution: WC. Bredasdorp to Cloete’s Pass.
Habitat: Quartz outcrops on shale hills.
Rationale: EOO 2 000 km², AOO < 2 000 km². Fewer than 10 locations continue to decline because of expanding crop cultivation, overgrazing and inappropriate fire management.

Acmadenia maculata I.Williams
Status: NT B1ab(ii,iii,iv,v)
J.E. Victor & D. Raimondo
Distribution: WC. Outeniqua and Kammanassie Mountains.
Habitat: South-facing slopes 600–762 m.
Rationale: EOO < 5 000 km². The 10–15 locations continue to decline as a result of expanding crop cultivation and invasion by alien plants.

Acmadenia matroosbergensis E.Philips
Status: Rare
J.E. Victor
Distribution: WC. Kouebokkeveld and Hex River Mountains to Waboomsberg.
Acmenadia tenax Eckl. & Zeyh. Plate 87
Status: Rare
J.E. Victor
Distribution: WC. De Hoop Vlei and Potberg.
Habitat: Limestone hills.
Rationale: A range-restricted species (EOO < 200 km²) with no known threats.

Acmenadia mundiana Eckl. & Zeyh.
Status: Rare
J.E. Victor
Distribution: WC. De Hoop Vlei and Potberg.
Habitat: Limestone hills.
Rationale: A high-altitude habitat specialist with no known threats.

Acmenadia nivea I. Williams
Status: VU D2
J.E. Victor
Distribution: WC. Hottentots Holland Mountains and Kogelberg.
Habitat: Marshy ground in peaty soil, among restios, 1 365 m.
Rationale: EOO and AOO < 20 km². Fewer than five known locations are potentially threatened by too frequent fires.

Acmenadia nivenii Sond.
Status: VU B1ab(i,ii,iii,iv,v) + 2ab(i,ii,iii,iv,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Langeberg Mountains.
Habitat: Lower northern slopes.
Rationale: EOO and AOO < 60 km². Eight known locations continue to decline as a result of invasion by alien plants and too frequent fires.

Acmenadia rourkeana I. Williams
Status: Rare
D. Raimondo, F. Cholo & D.A. Kamundij
Distribution: WC. Central Cederberg.
Habitat: Fynbos, amongst rocks, 900–1 200 m.
Rationale: A range-restricted species (EOO 216 km²) that occurs in high-altitude sites where it is not threatened.

Acmenadia rupicola I. Williams
Status: CR A2a
J.H. Vlok & D. Raimondo
Distribution: WC. Robinson Pass.
Habitat: On rocky sandstone outcrops on a west-facing rocky ridge in montane fynbos, 850 m.
Rationale: A population reduction of > 80% due to too frequent fires and lack of recruitment has been observed over the past 10 years (generation length 30 years). Less than 100 mature individuals remain.

Acmenadia tenax I. Williams
Status: Critically Rare
J.E. Victor
Distribution: WC. Hex River Mountains.
Habitat: Vertical cliffs on ledges, or in cracks in Table Mountain Sandstone.
Rationale: Known from one site where it is not threatened as it occurs in a fire refuge habitat.

Acmenadia tetracarpellata I. Williams
Status: Rare
J.E. Victor & N.A. Helme
Distribution: WC. Cederberg.
Habitat: Sandy flats, in rocky gullies, often seasonally wet, 900–1 300 m.
Rationale: A range-restricted species (EOO < 200 km²) with no known threats.

Adenandra Willd.

Adenandra dahlgrenii Strid
Status: Rare
J.E. Victor
Distribution: WC. Anyserberg.
Habitat: Between rocks and in sandstone fissures on northern slopes, 1 200–1 400 m.
Rationale: A range-restricted (EOO < 100 km²) habitat specialist with no known threats.

Adenandra gracilis Eckl. & Zeyh.
Status: DDD
T. Trinder-Smith & D. Raimondo
Distribution: WC. Riviersonderend Mountains, Pilaparkop.
Habitat: Marshy ground on plateaus above 1 000 m.
Rationale: Last collected in 1947, and not relocated despite botanical surveys of the area. This species is possibly threatened by too frequent fires.

Adenandra lasiantha Sond.
Status: Rare
D. Raimondo, F. Cholo & D.A. Kamundij
Distribution: WC. Bredasdorp and Kleinrivier Mountains.
Habitat: Sandstone fynbos, 90–430 m.
Rationale: A range-restricted species (EOO < 500 km²) with no known threats.

Adenandra marginata (L.f.) Roem. & Schult.
subsp. mucronata Strid
Status: Rare
J.E. Victor & D. Raimondo
Distribution: WC. Pakhuis Pass and Pakhuis Mountains.
Habitat: In sandy and rocky places on mountain slopes, 700–1 100 m.
Rationale: A range-restricted taxon (EOO < 500 km²) with no known threats.

Adenandra multiflora Strid
Status: VU B1ab(ii,iii,v) + 2ab(ii,iii,v)
D. Raimondo
Distribution: WC. Kogelberg to Houwhoek.
Habitat: Shale fynbos on wet slopes.
Rationale: EOO and AOO < 1 200 km². Nine known locations remain after habitat loss to afforestation and invasion by alien plants. It continues to decline because of invading alien plants and ongoing habitat loss to pasture cultivation.

Adenandra odoratissima Strid subsp. odoratissima
Status: VU D2
J.E. Victor
Distribution: WC. Agulhas National Park, Soetanysberg.
Adenandra odoratissima Strid subsp. tenuis Strid
Status: CR B1ab(iii)+2ab(iii)
D. Raimondo
Distribution: WC. Soetansyberg.
Habitat: Slightly moist sandy flats near coast.
Rationale: EOO and AOO < 10 km². This taxa has not been recorded for 25 years at the only known location, which is densely invaded by alien plants.

Adenandra rotundifolia Eckl. & Zeyh. Plate 89
Status: NT B1ab(ii,iii,iv,v)
T. Trinder-Smith, N.A. Helme & D. Raimondo
Distribution: WC. Agulhas to Cape Infanta.
Habitat: Limestone hills and flats.
Rationale: EOO < 2 700 km². The 10–15 locations continue to decline because of severe invasions of alien plants, limestone mining and urban development. Some subpopulations are protected within the De Hoop Nature Reserve.

Adenandra schlechteri Dummer
Status: EN B1ab(iii)+2ab(iii)
N.A. Helme, D.I.W. Euston-Brown & D. Raimondo
Distribution: WC. Elim.
Habitat: Rocky hills at low altitudes.
Rationale: EOO and AOO < 20 km². Two known locations continue to decline as a result of ongoing habitat degradation caused by invasive alien plants. Habitat loss to expanding vineyards is a potential threat: new vineyards have recently been established on the lower slopes of the hills where this species occurs.

Adenandra villosa (P.J.Bergius) Licht. ex Roem. & Schult. subsp. apiculata Strid
Status: Rare
D. Raimondo & T. Trinder-Smith
Distribution: WC. Riviersonderend Mountains and the Langeberg above Swellendam.
Habitat: Dry sandstone sand between rocks, 450–1 500 m.
Rationale: A habitat specialist with no known threats.

Adenandra villosa (P.J.Bergius) Licht. ex Roem. & Schult. subsp. imbricata Strid
Status: Rare
D. Raimondo
Distribution: WC. Slanghoek Mountains.
Habitat: Rocky slopes in shale bands at high altitudes, 1 500–2 200 m.
Rationale: A range-restricted (EOO < 100 km²), high-altitude, shale band habitat specialist with no known threats.

Adenandra villosa (P.J.Bergius) Licht. ex Roem. & Schult. subsp. robusta Strid
Status: Rare
J.E. Victor
Distribution: WC. Rooiels to Kleinmond.
Habitat: Limestone rocks at low to moderate altitudes.
Rationale: A range-restricted taxon (EOO < 300 km²) with no known threats.

Agathosma Wild.
Agathosma abrupta Pillans
Status: VU D2
N.A. Helme, D.I.W. Euston-Brown & D. Raimondo
Distribution: WC. Die Kelders to Groot Hagelkraal.
Habitat: Limestone ridge, 45–300 m.
Rationale: Five known locations are potentially threatened by invasive alien plants.

Agathosma acocksii Pillans
Status: VU D2
T. Trinder-Smith, D. Raimondo & J.E. Victor
Distribution: WC. Bonberg.
Habitat: Among rocks on sandstone slopes and ridges, 760–1 360 m.
Rationale: One known location is potentially threatened by trampling and grazing by livestock.

Agathosma acutissima Dummer
Status: VU D2
T. Trinder-Smith & D. Raimondo
Distribution: EC. Hankey to Uitenhage.
Habitat: Pale sand over gravel in thicket vegetation.
Rationale: Three known locations are potentially threatened by invasive alien plants and overgrowing.

Agathosma adenandriflora Schltr.
Status: NT B1ab(ii,iii,iv,v)
J.H. Vlok, T. Trinder-Smith & D. Raimondo
Distribution: WC. Cederberg, Kouebokkeveld, Hex River Mountains, Anysberg and Witteberg.
Habitat: Lower northern slopes in arid fynbos.
Rationale: EOO < 18 000 km². The 14 known locations continue to decline because of overgrowing.

Agathosma aemula Schltr.
Status: Rare
T. Trinder-Smith & D. Raimondo
Distribution: WC. Northern Cederberg.
Habitat: Seeps on gentle sandstone slopes.
Rationale: A range-restricted species (EOO 10 km²) with no known threats.

Agathosma alaris Cham.
Status: DDD
T. Trinder-Smith & J.E. Victor
Distribution: WC. Plettenberg Bay.
Habitat: Unknown.
Rationale: Known only from the type collection, without precise locality. Too little is known about the distribution, habitat and population status of this species to determine its status.

Agathosma alligans Williams
Status: Rare
T. Trinder-Smith & J.E. Victor
Distribution: WC. Skurweberge.
Agathosma bathii (Dummer) Pillans
Status: Rare
T. Trinder-Smith & D. Raimondo
Distribution: WC. Cederberg and Olifants River Mountains.
Habitat: Rocky middle to upper slopes.
Rationale: A rare species occurring in small subpopulations or as scattered individuals. It has no known threats.

Agathosma betulina (P.J.Bergius) Pillans
Status: Declining
T. Trinder-Smith & D. Raimondo
Distribution: WC. Cederberg to Groot Winterhoek Mountains including the Piketberg.
Habitat: Rocky sandstone slopes, 300–700 m.
Rationale: EOO 4 624 km². Recorded from over 40 locations, this species has been heavily affected by harvesting for its essential oils throughout its range. Although local declines in some subpopulations have been reported, the population is not expected to have lost > 10% of individuals. This species is a resprouter and is able to recover from moderate levels of harvesting. Only severe repeat harvesting of the same individuals in some areas has caused declines. Current provincial legislation managing the trade has resulted in cultivated material being promoted and most wild subpopulations are therefore no longer targeted.

Agathosma bicolor Dummer
Status: VU D1 + 2
T. Trinder-Smith & J.E. Victor
Distribution: WC. Pakhuis Mountains.
Habitat: Coarse white sand derived from Table Mountain Sandstone, between boulders.
Rationale: Less than 1 000 mature individuals occurring at a single location are potentially threatened by too frequent fires.

Agathosma bicornuta R.A.Dyer
Status: EN A2ac; B1ab(i,ii,iii,iv,v)
A.P. Dold, T. Trinder-Smith & J.E. Victor
Distribution: EC. Grahamstown.
Habitat: Transition between grassy fynbos (on Ecca quartz) and Nama-Karoo (on Dwyka Formation) on south-facing ridges.
Rationale: A population reduction of at least 50% is estimated based on the local extinction of 50% of subpopulations known through historical records due to overgrazing and too frequent fires over the past 40 years (generation length 20 years). EOO < 600 km². Four remaining locations continue to decline because of ongoing habitat degradation as a result of overgrazing.

Agathosma bodkinii Dummer
Status: VU D2
T. Trinder-Smith & D. Raimondo
Distribution: WC. Central Cederberg.
Habitat: Marshy sites in arid fynbos.
Rationale: A slow-maturing reseeder that is potentially threatened by too frequent fires at five known locations. Fire frequency within the distribution range of this species has increased over the past three decades.

Agathosma capitata Sond.
Status: VU D2
T. Trinder-Smith & D. Raimondo
Distribution: WC. Piketberg.
Habitat: Gravelly, sandy soils on sandstone plateaus.
Rationale: Two known locations remain after some of the habitat was lost to deciduous fruit cultivation. It is not declining at present, but further expansion of fruit cultivation remains a potential threat.

Agathosma corymbosa (Montin) G.Don
Status: EN A2c; B1ab(i,ii,iii,iv,v)
D. Raimondo & T. Trinder-Smith
Distribution: WC. Cederberg, Krakadou Peak.
Habitat: Moist and sandy areas in rock gullies, 1 800–2 000 m.
Rationale: Less than 250 mature individuals occur at one known site.

Agathosma cordifolia Pillans
Status: Rare
T. Trinder-Smith & J.E. Victor
Distribution: WC. Hex River Mountains.
Habitat: High-altitude shale bands in montane fynbos, 1 800–2 000 m.
Rationale: A range-restricted species (EOO < 500 km²) with no known threats.

Agathosma conferta Pillans
Status: Rare
T. Trinder-Smith & J.E. Victor
Distribution: WC. Cederberg, Kakabokkeveld Mountains.
Habitat: Seeps and streambanks, eastern aspects above 1 100 m.
Rationale: A range-restricted habitat specialist (EOO < 100 km²) with no known threats.

Agathosma crenulata (L.) Pillans
Status: Declining
T. Trinder-Smith & D. Raimondo
Distribution: WC. Western Cape, from Tulbagh to Kleinrivier Mountains.
**RUTACEAE Agathosma crenulata**

**Angiosperms: Dicotyledons**

- **Agathosma crenulata**
- **Agathosma eriantha**
- **Agathosma elata**
- **Agathosma dregeana**
- **Agathosma distans**
- **Agathosma dentata**
- **Agathosma decurrens**

**Status:** Rare

**Distribution:** WC. Slanghoek Mountains.

**Habitat:** Sandy valleys and plateaus.

**Rationale:** A range-restricted species (EOO < 500 km²) with no known threats.

**Agathosma florulenta**

**Status:** Rare

**Distribution:** WC. Elkernpoort and Gifberg Mountains.

**Habitat:** Seasonally moist soils at plateau edge.

**Rationale:** A reseeder that is potentially threatened by too frequent fires at one known location.

**Agathosma foetidissima**

**Status:** Rare

**Distribution:** WC. Minoru, Barrydale and Skyland.

**Habitat:** Limestone outcrops.

**Rationale:** A habitat specialist with no known threats.

**Agathosma foleyana**

**Status:** Rare

**Distribution:** WC. Stanford to Riversdale.

**Habitat:** Shale-derived clay soils.

**Rationale:** Although it has a fairly wide distribution (EOO 20 000 km²), it is restricted to clay, gravel and shale soils. Much of its habitat has been transformed to agriculture and continues to be degraded by grazing and trampling by livestock. We suspect a 20–30% population reduction based on habitat loss over the past 45 years (generation length 15 years).

**Agathosma florida**

**Status:** Rare

**Distribution:** WC. Langeberg Mountains.

**Habitat:** Rocky ledges on mountain slopes.

**Rationale:** A high-altitude habitat specialist with no known threats.

**Agathosma florulenta**

**Status:** Rare

**Distribution:** WC. Elkernpoort and Gifberg Mountains.

**Habitat:** Seasonally moist soils at plateau edge.

**Rationale:** A reseeder that is potentially threatened by too frequent fires at one known location.

**Agathosma foetidissima**

**Status:** Rare

**Distribution:** WC. Minoru, Barrydale and Skyland.

**Habitat:** Limestone outcrops.

**Rationale:** A habitat specialist with no known threats.

**Agathosma foleyana**

**Status:** Rare

**Distribution:** WC. Stanford to Riversdale.

**Habitat:** Shale-derived clay soils.

**Rationale:** Although it has a fairly wide distribution (EOO 20 000 km²), it is restricted to clay, gravel and shale soils. Much of its habitat has been transformed to agriculture and continues to be degraded by grazing and trampling by livestock. We suspect a 20–30% population reduction based on habitat loss over the past 45 years (generation length 15 years).

**Agathosma florulenta**

**Status:** Rare

**Distribution:** WC. Elkernpoort and Gifberg Mountains.

**Habitat:** Seasonally moist soils at plateau edge.

**Rationale:** A reseeder that is potentially threatened by too frequent fires at one known location.

**Agathosma foetidissima**

**Status:** Rare

**Distribution:** WC. Minoru, Barrydale and Skyland.

**Habitat:** Limestone outcrops.

**Rationale:** A habitat specialist with no known threats.

**Agathosma foleyana**

**Status:** Rare

**Distribution:** WC. Stanford to Riversdale.

**Habitat:** Shale-derived clay soils.

**Rationale:** Although it has a fairly wide distribution (EOO 20 000 km²), it is restricted to clay, gravel and shale soils. Much of its habitat has been transformed to agriculture and continues to be degraded by grazing and trampling by livestock. We suspect a 20–30% population reduction based on habitat loss over the past 45 years (generation length 15 years).

**Agathosma florulenta**

**Status:** Rare

**Distribution:** WC. Elkernpoort and Gifberg Mountains.

**Habitat:** Seasonally moist soils at plateau edge.

**Rationale:** A reseeder that is potentially threatened by too frequent fires at one known location.

**Agathosma foetidissima**

**Status:** Rare

**Distribution:** WC. Minoru, Barrydale and Skyland.

**Habitat:** Limestone outcrops.

**Rationale:** A habitat specialist with no known threats.

**Agathosma foleyana**

**Status:** Rare

**Distribution:** WC. Stanford to Riversdale.

**Habitat:** Shale-derived clay soils.

**Rationale:** Although it has a fairly wide distribution (EOO 20 000 km²), it is restricted to clay, gravel and shale soils. Much of its habitat has been transformed to agriculture and continues to be degraded by grazing and trampling by livestock. We suspect a 20–30% population reduction based on habitat loss over the past 45 years (generation length 15 years).
Agathosma glandulosa (Thunb.) Sond.

Status: EN A2c; B1ab(ii,iii,iv,v)

T. Trinder-Smith & D. Raimondo

Distribution: WC. Malmsbury.

Habitat: Renosterveld on Malmsbury shales.

Rationale: A population reduction of at least 50% is estimated based on 70% habitat loss to wheat and vineyard cultivation over the past 70 years (generation length > 50 years). EOO < 2,000 km². Eight severely fragmented remaining subpopulations continue to decline because of ongoing habitat loss to urban development, expanding crop cultivation and overgrazing.

Agathosma goniophylla Dummer

Status: CR D

J.H. Vlok & D. Raimondo

Distribution: E. Cape Peninsula to Betty’s Bay.

Habitat: Renosterveld on Malmesbury shales.

Rationale: Previously known only from the type locality, where it is now locally extinct because of heavy grazing by livestock too soon after fire. A second subpopulation of 20 mature individuals was discovered recently.

Agathosma hirsuta Pillans

Status: Rare

D. Raimondo, F. Cholo & D.A. Kamundi

Distribution: WC. Hottentots Holland Mountains, between Somerset Sneeukop and the Triplets.

Habitat: Montane fynbos on sandstone ridges.

Rationale: A range-restricted species (EOO 5 km²) with no known threats.

Agathosma hispida (Thunb.) Bartl. & H.L. Wendel.

Status: NT B1ab(ii,iii,iv,v)

T. Trinder-Smith & D. Raimondo

Distribution: WC. Paarl Mountain and Paardeberg.

Habitat: Renosterveld on granite.

Rationale: EOO < 5,000 km². The 10–20 locations continue to decline as a result of ongoing habitat loss to olive, wheat and vineyard expansion and invasion by alien plants.

Agathosma hookeri Sond.

Status: Rare

T. Trinder-Smith & J.E. Victor

Distribution: WC. Cape Peninsula to Betty’s Bay.

Habitat: Sandy flats at foot of mountains.

Rationale: This species always occurs as small, scattered subpopulations. It has no known threats and most subpopulations are within protected areas.

Agathosma insignis (Compton) Pillans

Status: Rare

T. Trinder-Smith & J.E. Victor

Distribution: WC. Elandskloof Mountains and Upper Olifants River Valley.

Habitat: Among rocks along stream sides.

Rationale: A habitat specialist with no known threats.

Agathosma involucrata Eckl. & Zeyh.

Status: CR PE

T. Trinder-Smith & D. Raimondo

Distribution: WC. Olifants River Valley.

Habitat: Reddish, coarse sand on well-drained slopes, 300–400 m.

Rationale: Last recorded in 1984, when it was on the verge of extinction as only six plants were found after two days of searching. They were found between two newly ploughed fields and plants were heavily grazed. The species is quite likely to be extinct, although further surveys are still required.

Agathosma joubertiana Schidl.

Status: EN B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)

T. Trinder-Smith & D. Raimondo

Distribution: WC. Bredasdorp, on and around Soetanysberg.

Habitat: Ferricroite gravel flats and lower slopes below 90 m.

Rationale: EOO and AOO < 380 km². Four known locations remain after most of the habitat has been ploughed for vineyard and protea cultivation. It continues to decline because of ongoing habitat loss to agriculture and invasion by alien plants.

Agathosma kougaense Pillans

Status: Rare

T. Trinder-Smith & J.E. Victor

Distribution: EC. WC. Kouga Mountains.

Habitat: Montane fynbos on sandstone ridges.

Rationale: A range-restricted species (EOO < 100 km²) with no known threats.

Agathosma krakadouwensis Dummer

Status: Rare

T. Trinder-Smith & J.E. Victor

Distribution: WC. Northern Cederberg.

Habitat: Moist sand over sandstone bedrock.

Rationale: A range-restricted species (EOO < 120 km²) with no known threats.

Agathosma lancifolia Eckl. & Zeyh.

Status: DDD

T. Trinder-Smith & D. Raimondo

Distribution: WC. Tulbagh Kloof.

Habitat: Low rocky slopes.

Rationale: Last collected in 1952. The site description of ‘Mountains near Tulbagh Kloof’ cannot be accurately located on maps, although we suspect Tulbagh Kloof refers to Nuwekloof. Threats to this species are unknown.

Agathosma latipetala Sond.

Status: EN B1ab(ii,iii,iv,v)

T. Trinder-Smith & D. Raimondo

Distribution: WC. Swartland.

Habitat: Gravelly sand or granite, lower slopes.
Rationale: The large number of herbarium records collected before 1940 indicates that this species was once common in the Swartland. Most of its habitat, however, has been transformed for the cultivation of wheat, and only four known locations remain (EOO < 1 000 km²) and continue to decline because of ongoing agricultural expansion, urban expansion and habitat degradation caused by a lack of fire on small habitat remnants.

Agathosma leptospermoideas Sond.
Status: VU D2
T. Trinder-Smith & D. Raimondo
Distribution: WC. Mountains north of Genadendal and Poesjienels River near Robertson.
Habitat: Rocky outcrops on arid north-facing slopes.
Rationale: A slow-maturing reseeder that is potentially threatened by too frequent fires. The area where it occurs has burnt twice over the past 10 years.

Agathosma linifolia (Roem. & Schult.) Licht. ex Bartl. & H.L.Wendl.
Status: Rare
T. Trinder-Smith & J.E. Victor
Distribution: WC. Swellendam to Tradouw Pass.
Habitat: South-facing slopes near streamsides.
Rationale: A range-restricted (EOO < 500 km²) habitat specialist with no known threats.

Agathosma longicornu Pillans
Status: Rare
T. Trinder-Smith & D. Raimondo
Distribution: WC. Central and southern Cederberg.
Habitat: Shallow, red gravel on gentle west-facing slopes.
Rationale: A habitat specialist with scattered, localised subpopulations. It has no known threats.

Agathosma marifolia Eickl. & Zeyh.
Status: NT B1ab(ii,iii,iv,v)
T. Trinder-Smith & D. Raimondo
Distribution: WC. Nieuwoudtville, Vanrhynsdorp, and Clanwilliam to Darling.
Habitat: Deep sands between rocks.
Rationale: EOO 15 600 km². About 20 known locations continue to decline because of ongoing habitat loss to rooibos tea cultivation.

Agathosma microcalyx Dummer
Status: NT A2c; B1ab(ii,iii,iv,v)
T. Trinder-Smith & D. Raimondo
Distribution: WC. Cederberg, Gifberg and Nieuwoudtville.
Habitat: Dry fynbos on rocky Table Mountain Sandstone-derived soil.
Rationale: A population reduction of 20–30% is estimated based on the loss of mature individuals at three out of 10–15 locations over the past 10 years (generation length 15 years). EOO 4 800 km². It continues to decline on flat areas that are being transformed for rooibos tea cultivation, while others that occur on slopes are safe from ploughing.

Agathosma microcarpa (Sond.) Pillans
Status: VU B1ab(ii,iii,iv,v)
T. Trinder-Smith & D. Raimondo
Distribution: WC. Potberg to Mossel Bay.
Habitat: Rocky outcrops on dolomitic soils in renosterveld.
Rationale: EOO 7 000 km². Small, severely fragmented subpopulations on isolated renosterveld remnants continue to decline as a result of overgrazing, invasion by alien plants and ongoing wheat and vineyard expansion.

Agathosma minuta Schldtl.
Status: EN B1ab(ii,iii,iv,v)
T. Trinder-Smith, N.A. Helme, D.I.W. Easton-Brown & D. Raimondo
Distribution: WC. Bredasdorp and Swellendam.
Habitat: Coastal flats that are seasonally wet, on shales in renosterveld.
Rationale: EOO < 2 000 km². Fewer than five known locations continue to decline owing to habitat loss to crop cultivation, overgrazing and invasion by alien plants.

Agathosma muirii E.Philips
Status: VU A4abc
J.H. Vlok, A.L. Schutte-Vlok & D. Raimondo
Distribution: WC. Still Bay to Mossel Bay.
Habitat: Deep sands on coastal dunes associated with limestone.
Rationale: A population reduction of > 30% is projected to be reached within the next seven years, based on a continuation of rates of population decline and habitat loss to coastal development and invading alien acacias over the past 23 years (generation length 10 years).

Agathosma namaquensis Pillans
Status: VU D1
T. Trinder-Smith & D. Raimondo
Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Dry granitic soils between rocks above 1 000 m.
Rationale: A population of 1 000 mature individuals occurs as four small subpopulations within a restricted range (EOO < 100 km²). This species has no known threats.

Agathosma orbicularis (Thunb.) Bartl. & H.L.Wendl.
Status: CR D
T. Trinder-Smith, N.A. Helme, A. Hanekom, I. Ebrahim & D. Raimondo
Distribution: WC. Caledon to Langeberg Mountains.
Habitat: Low slopes, transition between shale and sandstone soils.
Rationale: This species has not been recorded at one known location on the Caledon Swartberg since 1932 and was thought extinct because of invasion by alien plants, urban expansion and inappropriate fire management. A small subpopulation of 50 mature individuals was rediscovered in August 2008.

Agathosma ovalifolia Pillans
Status: Rare
T. Trinder-Smith & D. Raimondo
Distribution: EC WC. Swartberg Mountains to Willowmore.
Habitat: Cracks in rocky quartzitic upper slopes on Witteberg formations.
Rationale: Six small, scattered subpopulations have no known threats.

Agathosma pallens Pillans
Status: CR PE
T. Trinder-Smith & D. Raimondo
Distribution: WC. Albertinia.
Agathosma pattisoniae Dummer
Status: DDD
T. Trinder-Smith & J.E. Victor
Distribution: WC. Cederberg, Krom River.
Habitat: Known only from the type, collected in 1913. The distribution and habitat of this species are too poorly known to determine its status.

Agathosma phillippsii Dummer
Status: Rare
T. Trinder-Smith & J.E. Victor
Distribution: WC. Matroosberg to Rooiberg Mountains.
Habitat: Grows in rock crevices, on a shale band at high altitudes, 2 000 m.
Rationale: A rare habitat specialist with no known threats.

Agathosma propinqua Sond.
Status: CR PE
T. Trinder-Smith & D. Raimondo
Distribution: WC. Bottelary Hills to Stellenbosch and Paarl.
Habitat: Lowland sandy flats.
Rationale: Last recorded in 1940 in an area now extensively transformed by urban expansion, agriculture and invasion by alien plants. It is quite likely to be extinct, but small remaining habitat fragments have not yet been thoroughly searched.

Agathosma pulchella (L.) Link
Status: VU D2
T. Trinder-Smith & D. Raimondo
Distribution: WC. Cape Peninsula, Table Mountain.
Habitat: Peaty slopes amongst dense bush on southern and southwestern aspects.
Rationale: A small population at one known location (EOO < 10 km²) is potentially threatened by too frequent fires.

Agathosma rehmanniana Dummer
Status: Rare
D. Raimondo, F. Cholo & D.A. Kamundii
Distribution: WC. Montagu Pass near George.
Habitat: Sandstone slopes.
Rationale: A range-restricted species (EOO 10 km²) with no known threats.

Agathosma riversdalensis Dummer
Status: VU B1ab(ii,iii,iv,v)
J.H. Vlok & D. Raimondo
Distribution: WC. Arniston to Albertinia.
Habitat: Arid transitions between limestone and sand plain fynbos.
Rationale: EOO 2 300 km². Fewer than 10 known locations continue to decline outside De Hoop Nature Reserve owing to habitat degradation caused by invasive alien plants and vegetation management for thatch harvesting.
**Agathosma sp. nov.**

**Voucher:** Bean 475 BOL

**Status:** Rare

T. Trinder-Smith & D. Raimondo

**Distribution:** WC. Rooiberg and Outeniqua Mountains.

**Habitat:** Dry renosterveld, in stony sand, in Fynbos-Succulent Karoo ecotone.

**Rationale:** A range-restricted species (EOO 263 km²) with no known threats.

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**Agathosma sp. nov.**

**Voucher:** Bean 808 BOL

**Status:** VU D1

T. Trinder-Smith & D. Raimondo

**Distribution:** WC. De Hoop.

**Habitat:** Stony, calcareous sand over limestone.

**Rationale:** Less than 1000 mature individuals occur at one known location.

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**Agathosma sp. nov.**

**Voucher:** Bean 810 BOL

**Status:** VU D2

N.A. Helme, T. Trinder-Smith, D.I.W. Euston-Brown & D. Raimondo

**Distribution:** WC. De Hoop Nature Reserve.

**Habitat:** Stable sands over limestone outcrops.

**Rationale:** EOO and AOO < 10 km². Five known locations are potentially threatened by invasive alien plants.

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**Agathosma sp. nov.**

**Voucher:** Bean 1056 BOL

**Status:** Critically Rare

T. Trinder-Smith & D. Raimondo

**Distribution:** WC. Mount Lebanon near Grabouw.

**Habitat:** Sandstone mountain slopes in sheltered, damp, shady spots, 180 m.

**Rationale:** One known subpopulation (EOO < 1 km²) has no known threats.

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**Agathosma sp. nov.**

**Voucher:** Bean 3082 BOL

**Status:** Critically Rare

T. Trinder-Smith & D. Raimondo

**Distribution:** EC. Litenhage, Elandberg.

**Habitat:** Grassy fynbos on clay loam soil on steep, south-facing slopes.

**Rationale:** A range-restricted species (EOO < 10 km²), known from one subpopulation. It has no known threats.

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**Agathosma sp. nov.**

**Voucher:** Bean 3088 BOL

**Status:** VU D2

T. Trinder-Smith & D. Raimondo

**Distribution:** WC. Avila to Hagelkraal.

**Habitat:** Limestone hills in crevices.

**Rationale:** Three known locations of this range-restricted species (EOO < 20 km²) are potentially threatened by invasive alien plants.
Habitat: Rocky Table Mountain Sandstone outcrops.
Rationale: One known subpopulation (EOO < 10 km²) has no known threats.

Agathosma spinosa Sond.
Status: Rare
Distribution: EC WC. Uniondale.
Habitat: Low slopes.
Rationale: A range-restricted species (EOO < 120 km²) that is unlikely to be threatened by grazing livestock as it is very spiny.

Agathosma stenopetala (Steu.) Steud.
Status: VU B1ab(iii)
Distribution: EC. Humansdorp to Port Elizabeth.
Habitat: Tertiary sands.
Rationale: EOO < 5 000 km². Fewer than 10 locations continue to decline as a result of urban development and invasion by alien plants.

Agathosma stenosepala Pillans
Status: Rare
Distribution: WC. Franschhoek Forest Reserve.
Habitat: Lower fynbos slopes.
Rationale: A range-restricted species (EOO < 100 km²) with no known threats.

Agathosma stokoei Pillans
Status: Rare
Distribution: WC. Hottentots Holland Mountains.
Habitat: Shale bands in montane fynbos.
Rationale: A range-restricted species (EOO < 500 km²) with no known threats.

Agathosma subteretifolia Pillans
Status: Rare
Distribution: WC. Kiesiesberg near Montagu and Langeberg.
Habitat: Sandy soils overlying Table Mountain Sandstone bedrock.
Rationale: This species was last recorded > 60 years ago in an area that has now been extensively transformed for deciduous fruit cultivation. It is quite likely to be extinct, but remaining habitat has not yet been thoroughly searched.

Agathosma tulbaghensis Dummer
Status: Rare
Distribution: WC. Groot Winterhoek Mountains.
Habitat: Windswept, rocky, south-facing slopes.
Rationale: A range-restricted species (EOO < 200 km²) with no known threats.

Agathosma umbonata Pillans
Status: Rare
Distribution: WC. Piketberg.
Habitat: Sandy soils overlying Table Mountain Sandstone bedrock.
Rationale: This species was last recorded > 60 years ago in an area that has now been extensively transformed for deciduous fruit cultivation. It is quite likely to be extinct, but remaining habitat has not yet been thoroughly searched.

Coleonema Bartl. & H.L.Wendl.

Coleonema pulchrum Hook.
Status: Rare
Distribution: EC WC. Langeberg Mountains, Tradouw Pass to Grootvadersbosch.
Habitat: Crevices in moist cliffs at high elevations, 800 m.
Rationale: A range-restricted Langeberg endemic (EOO 150 km²), restricted to a localised habitat. It has no known threats.

Diosma L.

Diosma arenicola I.Williams
Status: EN B1ab(iii)+2ab(iii)
Distribution: WC. Bredasdorp to Hagelkraal.
Habitat: Sandy soil closely associated with limestone deposits, often in seepage areas.
Rationale: EO0 and AOO < 225 km². Five known locations continue to decline outside Agulhas National Park because of invasion by alien plants. Continued management of invasive alien plants inside the park is essential for the survival of this species.
**Diosma aristata** J. Williams  
Status: CR B1ab(iii,v)+2ab(ii,v); C2a(ii)  
J.E. Victor  
Distribution: WC. Mossel Bay.  
Habitat: Deep sandy soil or amongst rocks in coastal fynbos.  
Rationale: EOO and AOO < 2 km². Less than 250 mature individuals occur at one known location, where they continue to decline as a result of invasion by alien plants.

**Diosma aspalathoides** Lam.  
Plate 89  
Status: NT B1a(ii,iii,iv,v)  
J.E. Victor  
Distribution: WC. Milnerton to Langebaan.  
Habitat: Deep sands, close to the sea.  
Rationale: EOO < 5 000 km². The 13–20 locations continue to decline because of coastal development and invasion by alien plants.

**Diosma awilana** J. Williams  
Status: VU D2  
D. Raimondo  
Distribution: WC. Baardskeerdersbos.  
Habitat: Deep, sandy soil with little humus, associated with limestone, 45–60 m.  
Rationale: AOO < 20 km². Potentially threatened by habitat loss to agriculture and invasion by alien plants.

**Diosma demissa** J. Williams  
Plate 89  
Status: VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)  
D. Raimondo  
Distribution: WC. Cape Peninsula and Stanford to Hagelkraal.  
Habitat: Small sandy pockets in the tertiary limestone that overlies sandstones along coastal cliffs.  
Rationale: EOO and AOO < 820 km². Fewer than 10 locations continue to decline because of coastal development and invasion by alien plants.

**Diosma dichotoma** P.J. Bergius  
Status: VU B1ab(ii,iii,iv,v)  
J.E. Victor & D. Raimondo  
Distribution: WC. Faure to Hopefield.  
Habitat: Sandy plains, close to the coast.  
Rationale: EOO < 5 000 km². Eight locations remain after many subpopulations around Cape Town declined as a result of urban expansion. Ongoing habitat loss to crop cultivation, urban expansion and invasion by alien plants is causing a continuous decline.

**Diosma fallax** J. Williams  
Status: EN A2bc  
J.H. Vlok & D. Raimondo  
Distribution: WC. Bontebok National Park.  
Habitat: Bokkeveld shale in renosterveld.  
Rationale: A population reduction of at least 50% is estimated based on habitat loss to wheat cultivation over the past 70 years (generation length 50 years). One subpopulation remains within a reserve, with all surrounding areas now transformed.

**Diosma guthriei** P.E. Glover  
Plate 89  
Status: VU B1ab(ii,iii,iv)  
D. Raimondo, N.A. Helme & T. Trinder-Smith  
Distribution: WC. Agulhas Plain and between Paternoster and Jacobsbaai.

Habitat: Limestone hills, tertiary limestone deposits.  
Rationale: EOO 18 747 km². The 10–15 severely fragmented subpopulations continue to decline owing to habitat loss to crop cultivation, coastal development and invasion by alien plants. This species is concentrated on the Agulhas Plain, but there have been recent collections of a similar looking species from limestone patches of the Vredenburg Peninsula. This disjunction of 250 km is most unusual in the Rutaceae and it is possible that the Vredenburg collections represent a different taxon. However, until DNA studies have been undertaken, the collections are treated as one species.

**Diosma haelkraalensis** J. Williams  
Plate 89  
Status: EN B1ab(ii,iii,iv,v)  
T. Trinder-Smith & D. Raimondo  
Distribution: WC. Pearly Beach to Hagelkraal and Saldanha.  
Habitat: Limestone hills.  
Rationale: EOO < 1 000 km². Known from three locations, one of which is highly disjunct (250 km away from other subpopulations). The subpopulation on Prospect Hill, Saldanha, is declining as a result of urban development.

**Diosma parvula** J. Williams  
Status: EN B1ab(iii,v)+2ab(ii,iii,v)  
J.E. Victor & D. Raimondo  
Distribution: WC. Bredasdorp and Potberg.  
Habitat: Dark sandy soil near seepage areas.  
Rationale: EOO and AOO < 300 km². Two known locations continue to decline because of overgrazing and invasion by alien plants.

**Diosma passerinoides** Steud.  
Status: VU C2a(i)  
D. Raimondo  
Distribution: WC. Greyton and Bredasdorp to Albertinia, Montagu and Uniondale.  
Habitat: Occurs in dry clayish soils in renosterveld, associated with patches of silcrete.  
Rationale: The population is estimated to consist of less than 10 000 mature individuals, based on observations indicating that ± 25 known subpopulations generally consist of less than 50 mature individuals. It continues to decline as a result of habitat loss to crop cultivation and invasion by alien plants.

**Diosma pedicellata** J. Williams  
Status: NT A2c  
D. Raimondo & T. Trinder-Smith  
Distribution: WC. Bokkeveld Mountains to False Bay.  
Habitat: Deep sandy soils.  
Rationale: A population reduction of at least 25% is suspected based on declines or local extinctions in six out of 17 known subpopulations due to habitat loss to rooibos tea and potato cultivation and invasion by alien plants over the past 100 years (generation length 30 years).

**Diosma strumosa** J. Williams  
Status: EN A2c; B1ab(iii); D  
J.H. Vlok & D. Raimondo  
Distribution: WC. Barrydale.  
Habitat: Renosterveld on Bokkeveld shales.  
Rationale: A population reduction of at least 50% is estimated based on habitat loss to wheat cultivation over the past 150 years (generation length > 50 years).
Current EOO 38 km². Less than 250 mature individuals remaining at two known locations continue to decline because of lack of fire in small habitat fragments and overgrazing.

**Diosma tenella** I.Williams

Status: VU B1ab(iii,i,v)

D. Raimondo

*Distribution*: WC. De Hoop and Langeberg between Heidelberg and Albertinia.

*Habitat*: Sandy soils associated with a variety of formations including Bokevevd shales, ferricretes and silcretes.

*Rationale*: EOO < 5 000 km². Ten known locations remain after habitat loss to afforestation and crop cultivation. Invasive alien plants and agricultural expansion remain after habitat loss to afforestation and crop cultivation.

**Empleurum fragrans** P.E.Glover

Status: VU D2

D. Raimondo

*Distribution*: WC. Olfantskloof in the Riveriersonderend Mountains.

*Habitat*: Montane fynbos on upper slopes.

*Rationale*: One known location is potentially threatened by invasive alien pines.

**Empleurum Sol. ex Aiton**

**Empleurum fragrans** P.E.Glover

Status: Rare

N.A. Helme & D. Raimondo

*Distribution*: WC. Heidelberg, Strawberry Hill and Lemoenshoek Peak.

*Habitat*: Sandstone fynbos, in dampish places at high elevations, in restioid tussock marsh vegetation.

*Rationale*: A range-restricted habitat specialist (EOO 140 km²) with no known threats.

**Euchaetis** Bartl. & H.L.Wendl.

**Euchaetis cristagalli** I.Williams

Status: Rare

D. Raimondo, F. Cholo & D.A. Kamundii

*Distribution*: WC. Groot Winterhoek Mountains.

*Habitat*: Sandstone slopes, 600–1 220 m.

*Rationale*: A range-restricted species (EOO 60 km²) with no known threats.

**Euchaetis diosmoides** (Schltr.) I.Williams

Status: NT B1ab(iii,i,v)

D. Raimondo

*Distribution*: WC. Agulhas Plain, from Elim to Potberg.

*Habitat*: Loamy soils associated with ferricrete substrates.

*Rationale*: EOO 2 400 km². Less than 15 known locations continue to decline because of invasion by alien plants and habitat loss to crop cultivation.

**Euchaetis glabra** I.Williams

Status: Rare

D. Raimondo, F. Cholo & D.A. Kamundii

*Distribution*: WC. De Hoop Nature Reserve.

*Habitat*: Coastal fynbos, southeast-facing slopes.

*Rationale*: A range-restricted species (EOO < 100 km²) protected within the De Hoop Nature Reserve.

**Euchaetis intonsa** I.Williams

Status: Rare

D. Raimondo

*Distribution*: WC. Cape Agulhas to Potberg.

*Habitat*: Sparse fynbos dominated by restios and Leucadendron species, in sandy pockets between limestone rocks.

*Rationale*: EOO < 5 000 km². Fewer than 10 known locations continue to decline because of invasion by alien plants.

**Euchaetis laevigata** Turcz.

Status: VU B1ab(iii)

D. Raimondo

*Distribution*: WC. Cape Agulhas to Potberg.

*Habitat*: Ferricrete rock chips on hard, dry, whitish grey clay soil.

*Rationale*: EOO 11 km². AOO < 10 km². One or two remaining locations continue to decline as a result of ongoing habitat degradation caused by overgrazing, inappropriate fire management and invasion by alien plants. It is highly likely that the severely grazed and regularly burnt subpopulation at Plaatjieskops is extinct. When last surveyed in the 1980s, there were less than 200 mature individuals.

**Euchaetis longicornis** I.Williams

Status: CR B1ab(ii) + 2ab(iii); C2a(ii)

D. Raimondo

*Distribution*: WC. Riversdale.

*Habitat*: Ferricrete rock chips on hard, dry, whitish grey clay soil.

*Rationale*: EOO 11 km². AOO < 10 km². One or two remaining locations continue to decline as a result of ongoing habitat degradation caused by overgrazing, inappropriate fire management and invasion by alien plants.

**Euchaetis pungens** (Bartl. & H.L.Wendl.) I.Williams

Status: VU A2ac

N.A. Helme & J.E. Victor

*Distribution*: WC. Upper Breede River Valley, on flats and low slopes in the mountains of the Worcester district.

**ANGIOSPERMS: DICOTYLEDONS**

**RUTACEAE Diosma strumosa**
Macrostylis barbigera (L.f.) Bartl. & H.L.Wendl.

Status: Rare
J.E. Victor & D. Raimondo

Distribution: WC. Clanwilliam district, Nardous Kloof to Bergvlei River.
Habitat: Sandy and flat rocky soils.
Rationale: A range-restricted species (EOO 240 km²) with no known threats.

Macrostylis barbigeroides (Turcz.) I.Williams

Subsp. barbigeroides

Status: EN B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: WC. Clanwilliam district, Nardous Kloof to Bergvlei River.
Habitat: Sandy and flat rocky soils.
Rationale: EOO < 1 390 km². Five known locations continue to decline because of habitat loss to potato and rooibos tea cultivation.

Macrostylis cassiopeoides (Turcz.) I.Williams

Subsp. dregeana (Sond.) I.Williams

Status: EN B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
J.E. Victor & D. Raimondo

Distribution: WC. Clanwilliam district, Nardous Kloof to Bergvlei River.
Habitat: Sandy and flat rocky soils.
Rationale: EOO 516 km², AOO < 500 km². Four or five locations remain after extensive habitat loss to urban expansion, wheat and vineyard cultivation and invading alien acacias. This formerly common and widespread taxon continues to decline.

Macrostylis cauliflora I.Williams

Status: EN B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: WC. Elim to Bredasdorp.
Habitat: Ferricrete outcrops in very shallow soils.
Rationale: EOO 680 km². Six severely fragmented sub-populations continue to decline as a result of invading alien acacias and habitat loss to crop cultivation.

Macrostylis cassiopoides (Turcz.) I.Williams

Subsp. cassiopoides

Status: EN B1ab(ii,iii,iv,v)
J.E. Victor & D. Raimondo

Distribution: WC. Clanwilliam district, Nardous Kloof to Bergvlei River.
Habitat: Sandy and flat rocky soils.
Rationale: EOO 516 km², AOO < 500 km². Four or five locations remain after extensive habitat loss to urban expansion, wheat and vineyard cultivation and invading alien acacias. This formerly common and widespread taxon continues to decline.

Macrostylis villosa (Thunb.) Sond. subsp. minor I.Williams

Status: VU D2
J.E. Victor

Distribution: WC. Bottelary hills.
Habitat: Gravelly and clay soil on lower northern slopes.
Rationale: All habitat at the only known location has been converted to agriculture and extensive searches have failed to relocate surviving individuals.

Macrostylis villosa (Thunb.) Sond. subsp. villosa

Status: EN A2ab; B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: WC. Cape Peninsula to Mamre.
Habitat: Sandy soils.
Rationale: A population reduction of at least 50% is estimated based on the local extinction of known subpopulations and habitat loss to urban expansion, agriculture and invasion by alien plants over the past 140 years (generation length > 50 years). EOO < 1 800 km². Small, severely fragmented remaining sub-populations continue to decline.

Sheilanthera I.Williams

Sheilanthera pubens I.Williams

Status: Rare
J.E. Victor

Distribution: WC. Kouebokkeveld Mountains.
Habitat: Amongst rocks on mountain summits.
Rationale: A range-restricted species (EOO 20 km²) that is not likely to be threatened as it occurs in a fire refuge habitat.
**SALICACEAE**

**Pseudoscolopia Gilg**

**Pseudoscolopia polyantha** Gilg

Status: NT B1ab(iii,v)
L. von Staden & A.D.D. Abbott

*Distribution*: EC KZN WC. Mainly Pondoland between Oribi Gorge and Port St Johns. Isolated occurrences at Little Noodsberg and Ngoye (KwaZulu-Natal) and the Groot Winterhoek Mountains (Western Cape).

Habitat: Sandstones. Along forest margins, or in rock outcrops usually on cliffs (Pondoland and KwaZulu-Natal). In the Western Cape it occurs along a rocky streambank in montane fynbos.

Rationale: Restricted to a highly threatened habitat in southern KwaZulu-Natal and Pondoland. EOO ± 13 500 km². A suspected 10–20 locations continue to decline as a result of frequent and intense grassland fires that affect forest margins. Although three isolated subpopulations occur in KwaZulu-Natal and the Western Cape, subpopulations in Pondoland are not severely fragmented.

**Osyris L.**

**Osyris speciosa** (A.W.Hill) J.C.Manning & Goldblatt

Status: VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

*Distribution*: WC. Houwhoek to Agulhas.

Habitat: Coastal limestone and sandstone flats and slopes below 250 m.

Rationale: EOO and AOO < 1 000 km². Small, scattered subpopulations at nine known locations continue to decline as a result of invasion by alien plants, coastal development, agriculture and sand quarrying. Only three subpopulations are protected within reserves.

**Thesium L.**

**Thesium davidsonae** Brenan

Status: VU D2
P.M. Burgoyne, F. Daniels & R.C. Turner

*Distribution*: LM. Abel Erasmus Pass.

Habitat: Bushveld, on dolomites.

Rationale: Two known locations are potentially threatened by overgrazing.

**Thesium ecklonianum** Sond.

Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
R.C. Turner

*Distribution*: WC. Cape Peninsula to Bredasdorp.

Habitat: Sand flats.

Rationale: EOO 250 km², AOO < 250 km². Two remaining locations continue to decline because of habitat loss to urban expansion, crop cultivation and invading alien hakeas.

**Thesium fallax** Schltr.

Status: EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
P.M. Burgoyne, F. Daniels & R.C. Turner

*Distribution*: WC. Cape Peninsula to Agulhas Plain.

Habitat: Lowland coastal flats.

Rationale: EOO and AOO < 200 km². Fewer than five remaining locations continue to decline as a result of habitat loss to wheat and vineyard expansion, overgrazing, invasion by alien plants and coastal housing development.

**Thesium gracilentum** N.E.Br.

Status: VU D2
D. Raimondo

*Distribution*: LM. Woodbush and Lekgalameetse.

Habitat: Serpentine soils in northern escarpment bushveld.

Rationale: Fewer than five known locations are potentially threatened by expanding forestry plantations and invasion by alien plants.

**Thesium jeanae** Brenan

Status: Rare
D. Raimondo & C.R. Scott-Shaw

*Distribution*: KZN. Lebombo Mountains.

Habitat: Savanna, rocky, open woodland, 430 m.

Rationale: A poorly known species from an under-explored area. Only one record from the Lebombo Mountains is known, but it is likely to occur at a few other places within the range.

**Thesium litoreum** Brenan

Status: CR B1ab(ii,iii,v)
P.M. Burgoyne, J.E. Victor & R.C. Turner

*Distribution*: WC. Caledon Swartberg.

Habitat: Clay slopes.

Rationale: Known only from the type, collected 1915. The distribution and habitat of this species are too poorly known to determine its status.

**Thesium micropogon** A.DC.

Status: DDD
R.C. Turner

*Distribution*: WC. Caledon Swartberg.

Habitat: Clay slopes.

Rationale: Known only from the type, collected 1915. The distribution and habitat of this species are too poorly known to determine its status.

**Thesium patersonae** A.W.Hill

Status: DDD
J.E. Victor & R.C. Turner

*Distribution*: EC. Port Elizabeth to Uitenhage.

Habitat: Unknown.

Rationale: Although conserved in the Groendal Wilderness Area, this species may have been eradicated in areas such as Walmer and is under continuing threat from urban expansion in the greater Port Elizabeth-Uitenhage region. EOO < 600 km². Known from three historical sites, at least one of which has been lost to urban development. It is not known where this parasite still persists, as it is an ephemeral, dependent on the host plant for survival, is under-collected and difficult to identify.

**Thesium polygaloides** A.W.Hill

Status: VU D2
P.M. Burgoyne & F. Daniels

*Distribution*: KZN. Lake St Lucia to Swaziland.

Habitat: Swamps.

Rationale: Four known locations are potentially threatened by urban development.

**Thesium repandum** A.W.Hill

Status: DDD
R.C. Turner

*Distribution*: WC. Malmesbury to Paarl.

**SANTALACEAE**

**Pseudoscolopia Gilg**

**Pseudoscolopia polyantha** Gilg

Status: NT B1ab(iii,v)
L. von Staden & A.D.D. Abbott

*Distribution*: EC KZN WC. Mainly Pondoland between Oribi Gorge and Port St Johns. Isolated occurrences at Little Noodsberg and Ngoye (KwaZulu-Natal) and the Groot Winterhoek Mountains (Western Cape).

Habitat: Sandstones. Along forest margins, or in rock outcrops usually on cliffs (Pondoland and KwaZulu-Natal). In the Western Cape it occurs along a rocky streambank in montane fynbos.

Rationale: Restricted to a highly threatened habitat in southern KwaZulu-Natal and Pondoland. EOO ± 13 500 km². A suspected 10–20 locations continue to decline as a result of frequent and intense grassland fires that affect forest margins. Although three isolated subpopulations occur in KwaZulu-Natal and the Western Cape, subpopulations in Pondoland are not severely fragmented.
Habitat: Flats and lower slopes.
Rationale: Last collected in 1946 at unspecified localities in an area that has been now extensively transformed by urban expansion and agriculture. Not enough is known about the distribution range and habitat of this species to determine its status, but it is highly likely to be threatened.

**Thesium schumannianum** Schltr.
Status: DDD
R.C. Turner
Distribution: WC. Cape Peninsula to Houwhoek.
Habitat: Lower sandstone slopes.
Rationale: Last collected in 1963. The distribution and habitat of this species is too poorly known to determine its status.

**Thesium subsimile** N.E. Br.
Status: DDD
J.E. Victor & M. Lötter
Distribution: WC. Langeberg Mountains.
Habitat: Sandstone slopes.
Rationale: A range-restricted (EOO 500 km²) species that is unlikely to be threatened in its mountainous habitat.

**SAPINDACEAE**

**Atalaya** Blume

**Atalaya natalensis** R.A. Dyer
Status: NT B2ab(v)
C.R. Scott-Shaw, A.E. van Wyk, L. von Staden & J.E. Victor
Distribution: EC KZN. Eastern Cape coast from The Haven to Umtamvuna, and Ngoye, Nkandla and Ngome forests in KwaZulu-Natal.
Habitat: Scarp forest. Occurs in rocky areas on steep slopes or groves where there is less competition for light from taller overstorey trees.
Rationale: AOO < 200 km². Known from 10–15 severely fragmented subpopulations. A rare forest tree species that occurs in a highly specific habitat within isolated forest areas. There is no evidence of continuing decline, but poor recruitment in some areas is of concern.

**SAPOTACEAE**

**Manilkara** Adans.

**Manilkara nicholsonii** A.E. van Wyk
Status: EN B1ab(iii,v); C2a(i)
Distribution: EC KZN. Mzimkhulu River to Msikaba River.
Habitat: Pondoland scarp forest. Occurs on the margins of drier forests, especially along the upper edge of cliffs above the deep forested gorges, as well as along the margins of kloof forests.
Rationale: EOO 1 400 km². Small, severely fragmented subpopulations consisting of no more than 10 mature individuals continue to decline as a result of too frequent and intense grassland fires affecting forest margins. The population is estimated to consist of less than 2 000 mature individuals. Because of widespread parasitisation of flowers, fruit set is very poor and recruitment and dispersal are limited.

**Vitellariopsis** Baill. ex Dubard

**Vitellariopsis dispar** (N.E. Br.) Aubrév.
Status: Rare
J.E. Victor
Distribution: KZN. Tugela basin.
Habitat: Closed woodland and dry riverine forest, 800–1 200 m.
Rationale: Occurs as sparsely scattered individuals, but is not threatened.

**SCROPHULARIACEAE**

**Alonsoa** Ruiz & Pav.

**Alonsoa peduncularis** (Kunze) Wettst.
Status: Rare
K. Naidoo & D. Raimondo
Habitat: South-facing slopes, clay soil in rock crevices or at the foot of boulders where it is slightly shady and moist.
Rationale: Small, scattered subpopulations have no known threats.

**Bowkeria** Harv.

**Bowkeria citrina** Thode
Status: Rare
K.E. Steiner & K. Naidoo
Distribution: NC. Bokkeveld Escarpment, near Nieuwoudtville.
Habitat: Forest margins and cliff edges on cool slopes, 1 400–1 800 m.
Rationale: A range-restricted (EOO 77 km²) habitat specialist with no known threats.

**Chaenostoma** Benth.

**Chaenostoma longipedicellatum** (Hilliard) Kornhall
Status: Rare
D. Raimondo
Distribution: NC. Bokkeveld Escarpment, near Nieuwoudtville.
Habitat: Among rock outcrops.
Rationale: A range-restricted endemic to the Bokkeveld Escarpment (EOO 130 km²). Not threatened as its habitat is nonarable.

**Chaenostoma multiramosum** (Hilliard) Kornhall
Status: VU B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
D. Raimondo
Distribution: WC. Olifants River to Lambert’s Bay.
Habitat: Sand among rock outcrops.
Rationale: EOO 400 km², AOO < 400 km². The 5–10 suspected locations continue to decline because of ongoing habitat loss to crop cultivation, coastal development and heavy-mineral sand mining.
Chenaostoma platysepalum (Hiern) Kornhall
Status: Rare
J.E. Victor

- Distribution: KZN. Entumeni to the Uvongo River.
- Habitat: Crevices in cliffs at the upper margins of forest patches, often in river gorges, or under overhanging rocks on steep grassy slopes, 450–850 m.
- Rationale: A habitat specialist that is not threatened because of the inaccessibility of its habitat.

Chenaostoma racemosum Benth.
Status: DDD
K. Naidoo

- Distribution: EC. Suurb erg, Eastern Cape.
- Habitat: Shelter of rocks, partly shaded.
- Rationale: Known from the type, collected in 1829 on the Suurb erg. Not enough is known about this species to determine its status.

Chenaostoma titanophilum (Hiildard) Kornhall
Status: VU D2
K.E. Steiner & K. Naidoo

- Distribution: WC. De Hoop Vlei.
- Habitat: Cracks in the limestone cliffs.
- Rationale: Known from only one location where it is potentially threatened by invasive alien acacias.

Chamaecrypta Schltr. & Diels

- Chamaecrypta diasciifolia Schltr. & Diels
  Status: DDD
  D. Raimondo, P. A. Manyama & D.A. Kamundi
  - Distribution: NC. Bokkeveld Escarpment.
  - Habitat: Rocky slopes.
  - Rationale: Known from an 1897 Schlechter collection from the Bokkeveld Escarpment. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Charadrophila Marloth

Charadrophila capensis Marloth
Status: Rare
J.E. Victor & K.E. Steiner

- Distribution: WC. Hottentots Holland and Kogelberg Mountains.
- Habitat: Moist, shaded streambanks, on rock faces or under overhanging rocks.
- Rationale: A habitat specialist known from five subpopulations. No threats are known to have an impact on this species.

Chenopodiopsis Hilliard

- Chenopodiopsis chenopodioides (Diels) Hilliard
  Status: Rare
  N.A. Helme & D. Raimondo
  - Distribution: WC. Clanwilliam, Botterkloof Pass.
  - Habitat: Damp clay slopes and flats.
  - Rationale: A range-restricted species (EOO 150 km²), known from only two subpopulations but as it is an inconspicuous species, there are likely to be a few more undiscovered subpopulations. Although it has lost habitat to wheat cultivation in the past, it is not threatened at present.

- Chenopodiopsis retrorsa Hilliard
  Status: VU D2
  N.A. Helme & D. Raimondo
  - Distribution: WC. Caledon Swartberg.
  - Habitat: Lower sandstone slopes.
  - Rationale: Known from one location and potentially threatened by invading alien plants and quarrying.

Cromidon Compton

- Cromidon gracile Hilliard
  Status: Rare
  P.A. Manyama
  - Distribution: WC. Hex River and Swartberg Mountains.
  - Habitat: Grows in the shelter of overhanging rocks along cliff faces, 2 000–2 200 m.
  - Rationale: A high-altitude habitat specialist (EOO 1900 km²) known from three collections. Not threatened.

- Cromidon hamulosum (E.Mey.) Hilliard
  Status: DDD
  D. Raimondo, P.A. Manyama & D.A. Kamundi
  - Distribution: NC. Northern Namaqualand.
  - Habitat: Unknown.
  - Rationale: Known only from the type, collected in northern Namaqualand in the early 1800s. The locality, Haazen Kraals River, cannot be precisely located. Not enough is known about the distribution, habitat and current status of the population of this species to determine its status.

Diascia Link & Otto

- Diascia aliciae Hiern
  Status: EN B1ab(iii,iv)
  K.E. Steiner & D. Raimondo
  - Distribution: EC. Kentani.
  - Habitat: Along streams in damp sheltered places in forests.
  - Rationale: EOO < 200 km². Known from fewer than five locations. It continues to decline because of habitat loss and degradation as a result of overgrazing by livestock and wood harvesting. There is also habitat loss to road construction and small-scale subsistence crop cultivation.

- Diascia glandulosa E Phillips var. glandulosa
  Status: DDD
  D. Raimondo & F. Cholo
  - Distribution: WC. Vanrhynsdorp, Gilberg.
  - Habitat: Rocky slopes, 305–610 m.
  - Rationale: Known from the 1911 Phillips type collection from the Gilberg. Not enough is known about the distribution, specific habitat or population status of this taxon to determine its status.

- Diascia insignis K.E.Steiner
  Status: VU D2
  K.E. Steiner, S. Todd, E. Marinus & D. Raimondo
  - Distribution: NC. Bokkeveld Escarpment.
  - Habitat: Dwyka tillite clays.
  - Rationale: Known from three locations and potentially threatened by crop cultivation, grazing by livestock, invasive alien grasses and loss of specialist oil-collecting bee pollinators because of fragmentation of its habitat. At least 80% of its habitat has been lost to wheat cultivation.
Diascia lewisiae K.E. Steiner
Status: VU D1 + 2
K.E. Steiner, S. Todd, E. Marinus & D. Raimondo
Distribution: NC. Nieuwoudtville.
Habitat: Loamy tillite soil.
Rationale: EOO 64 km², AOO 5.4 km². Known from five small subpopulations that together consist of less than 1 000 mature individuals. Four of the five subpopulations occur on private land and are potentially threatened by crop cultivation and road widening.

Diascia pentheri Schltr.
Status: DDD
K.E. Steiner & J.E. Victor
Distribution: Unknown.
Habitat: Unknown.
Rationale: The type specimen of this species was destroyed when the Berlin Herbarium burnt down. No specimens can be matched with the 1903 species description.

Diascia ramosa Scott-Elliott
Status: VU D2
J.E. Victor, A.P. Dold & K.E. Steiner
Distribution: EC. Somerset East, Boschberg.
Habitat: Mountain slopes in Amathole Montane Grassland.
Rationale: Known from one location and potentially threatened by invasive alien plants.

Diascia tugelensis Hilliard & B.L. Burtt
Status: Rare
J.E. Victor, C.R. Scott-Shaw, K.E. Steiner & S.J. Smithies
Distribution: KZN. Drakensberg Mountains.
Habitat: Montane and subalpine grassland, often in moist rocky sites, 1 800–3 300 m.
Rationale: A Drakensberg endemic that occurs as small, scattered subpopulations, often with less than 40 plants. All three known sites fall within protected areas. Not known to be declining.

Dischisma Choisy

Dischisma crassum Rolfe
Status: VU B1ab (i,ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: WC. Lambert’s Bay to St Helena Bay.
Habitat: Dunes close to the sea.
Rationale: EOO < 780 km². Known from fewer than 10 locations. The population is declining as a result of extensive use of off-road vehicles in the Elands Bay and Lambert’s Bay areas.

Dischisma fruticosum (L.f.) Rolfe
Status: DDD
N.A. Helme & D. Raimondo
Distribution: WC. Unknown, possibly Paleisheuwel.
Habitat: Sandy soils.
Rationale: Known only from the type, collected in 1842. The locality is difficult to pinpoint as it reads Lambert’s or Alexander Kloof. We suspect that this species is from the Paleisheuwel area in the sandveld, where there has been extensive habitat loss to potato cultivation. Not enough is known about the distribution, habitat and current status of the population to assess this species.

Dischisma leptostachyum E.Mey.
Status: NT B1ab (i,ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: NC WC. Port Nolloth to Lambert’s Bay.
Habitat: Sands, often coastal.
Rationale: EOO < 8 000 km². Known from less than 15 locations. A small part of its range is affected by crop cultivation, especially around Lambert’s Bay. Habitat in the northern part of its range is also being lost to diamond mining.

Dischisma squarrosum Schltr.
Status: EN B1ab (i,ii,iii,iv,v)
N.A. Helme & D. Raimondo
Distribution: NC WC. Southern Namaqualand to Clanwilliam.
Habitat: Sandy flats.
Rationale: EOO 1 800 km². Known from fewer than five locations. At least 60% of the sandy habitat where this species occurs has been lost to agriculture (rooibos, potatoes, vines, tomatoes and onion cultivation). Loss is continuing.

Freylinia Colla

Freylinia crispa Van Jaarsv.
Status: VU D2
E.J. van Jaarsveld & D. Raimondo
Distribution: EC. Kouga Valley near Joubertina.
Habitat: Well-drained, steep, east-facing rocky scree in dry fynbos.
Rationale: A range-restricted endemic (EOO 10 km²), known from two locations. Potentially threatened by invading alien plants.

Freylinia helmei Van Jaarsv.
Status: VU D2
N.A. Helme, E.J. van Jaarsveld & D. Raimondo
Distribution: WC. Bot River.
Habitat: Steep slopes and shale outcrops in renosterveld.
Rationale: Known from three locations and potentially threatened by crop cultivation, loss of pollinators due to fragmentation and an incorrect fire regime.

Freylinia longiflora Benth.
Status: CR A2bc
E.J. van Jaarsveld & D. Raimondo
Distribution: WC. Elgin Valley.
Habitat: Transition soils between Elgin Shale Fynbos and Kogelberg Sandstone Fynbos.
Rationale: A long-lived resprouter (generation length 100 years) that has lost 80% of its habitat over the past 120 years to deciduous fruit and vineyard expansion. This species remains extant at only three sites.

Freylinia tropica S.Moore
Status: Rare
E.J. van Jaarsveld & D. Raimondo
Distribution: LM. Waterberg and Chimanimani Mountains (Zimbabwe).
Habitat: Riverbanks and streamides, 1 800 m.
Rationale: EOO < 500 km². Known from fewer than 10 subpopulations in South Africa, none of which are threatened.
Freylinia visseri  Van Jaarsv.  Plate 90
Status: CR D
E.J. van Jaarsveld & D. Raimondo
\*Distribution: WC. Veldrif and Hopefield.
Habitat: Strandveld.
Rationale: A very rare, long-lived resprouter, known from two subpopulations. One was lost to wheat cultivation in 1954. The second subpopulation consists of 24 mature individuals and is potentially threatened by potato cultivation.

Freylinia vlokii  Van Jaarsv.  Plate 90
Status: EN D
E.J. van Jaarsveld, J.H. Vlok & D. Raimondo
\*Distribution: WC. Little Karoo, Rooiberg.
Habitat: South-facing scrubs in acidic soils derived from quartzitic sandstone in seasonally wet streambeds.
Rationale: Known from one site (EOO < 1 km²), where there are less than 250 mature individuals, this species is potentially threatened by extraction of groundwater.

Globulariopsis Compton
\*Globulariopsis obtusiloba  Hilliard
Status: Critically Rare
N.A. Helme & D. Raimondo
\*Distribution: WC. Groot Winterhoek Mountains.
Habitat: Fynbos mountain slopes, 1 000–1 300 m.
Rationale: EOO < 10 km². Known from one site. Not threatened because of the inaccessibility of its high-altitude habitat.

Globulariopsis pumila  Hilliard
Status: CR PE
N.A. Helme & D. Raimondo
\*Distribution: WC. Piketberg.
Habitat: Sandy plateau.
Rationale: Known from one collection in 1935 from the plateau on top of the Piketberg at Kaptenskloof. It is highly likely to be extinct because of conversion of its habitat to orchards.

Globulariopsis wittebergensis  Compton
Status: Rare
J.E. Victor & K. Naidoo
\*Distribution: WC. Bontberg, north of Touws River to Witberge, south of Matjesfontein.
Habitat: Rocky sandstone slopes, 1 200–1 525 m.
Rationale: EOO 480 km². Known from fewer than five sites and not threatened.

Halleria L.
\*Halleria ovata  Benth.
Status: Rare
N.A. Helme & D. Raimondo
\*Distribution: WC. Olifants River Mountains.
Habitat: Streamsides.
Rationale: EOO < 500 km². Known from three collections and not threatened.

Hebenstretia L.
\*Hebenstretia dregelii  Rolfe
Status: DDD
D. Raimondo, P.F. Matlamela & D.A. Kamundîj
\*Distribution: WC. Genadendal to Swellendam.
Habitat: Stony mountain slopes.
Rationale: Known only from collections from the late 1800s. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Hemimeris L.f.
\*Hemimeris sp. nov.
Voucher: Helme 4464 NBG
Status: NT B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
D. Raimondo & N.A. Helme
\*Distribution: WC. Langebaan Peninsula to Saldanha.
Habitat: Granite and limestone outcrops.
Rationale: EOO 524 km², AOO 85.6 km². About 20 known locations continue to decline as a result of coastal development.

Jamesbrittenia Kuntze
\*Jamesbrittenia bergae  P.Lemmer
Status: VU D2
D. Raimondo & R.C. Turner
\*Distribution: NC. Calvinia to Swartputs and Breekbeenkolk, and Sutherland to Fraserburg.
Habitat: Among boulders in karroid vegetation.
Rationale: EOO < 3 000 km². Known from seven locations. Declining in habitat quality and number of mature individuals because of grazing by livestock.

Jamesbrittenia incisa  (Thunb.) Hilliard
Status: VU B1ab(iii,v)
D. Raimondo & R.C. Turner
\*Distribution: LC. Vioolsdrif on the Orange River.
Habitat: Grass with rock outcrops.
Rationale: EOO 1 800 km². Known from 11 locations. A Sekhukhuneland endemic with a very restricted range in the southeastern parts of the region. Declining because of expanding mining activities.

Jamesbrittenia macrantha  (Codd) Hilliard
Status: NT B1ab(iii)
J.E. Burrows, S. Burns & L. von Staden
\*Distribution: LC. Thabazimbi. Thabazimbi.
Habitat: Among boulders in karroid vegetation.
Rationale: EOO 1 000 km². Known from 13 locations. A Sekhukhuneland endemic with a very restricted range in the southeastern parts of the region. Declining because of expanding mining activities.

Jamesbrittenia megaphylla  Hilliard
Status: Rare
R.C. Turner, J.E. Victor, S.J. Smithies & K. Naidoo
\*Distribution: WC. Vioolsdrif on the Orange River.
Habitat: Among rocks or at the foot of cliffs on mountain slopes.
Rationale: A range-restricted Richtersveld and southern Namibian species (EOO < 500 km²). Not threatened because of the inaccessibility of its habitat.

Lyperia Benth.
Lyperia formosa  Hilliard
Status: VU D2
J.E. Victor & K. Naidoo
\*Distribution: WC. Montagu.
Habitat: Riverbank in shallow soil over rock.
Rationale: Known from one location and potentially threatened by crop cultivation.
**Manulea L.**

**Manulea acutiloba** Hilliard

Status: DDD
D. Raimondo & K. Naidoo

*Distribution*: NC. Between Garie and Springbok.

Habitat: Unknown.

Rationale: Known only from the type collection, which has a vague site description ‘Between Garie and Springbok’, its habitat is unknown. Not enough is known about the distribution, habitat and current status of the population to assess this species.

**Manulea annua** (Hiern) Hilliard

Status: NT B1ab(ii,iii,iv,v)
D. Raimondo

*Distribution*: WC. Pakhuis Pass to Porterville.

Habitat: Hillsides and valley bottoms, usually in damp sandy places.

Rationale: EOO < 2 600 km². Known from 15 locations from the Olifants River Valley and sandveld. Threatened by the ongoing conversion of its habitat for rooibos tea and potato cultivation.

**Manulea arabidea** Schltr. ex Hiern

Status: DDD
D. Raimondo & R.C. Turner

*Distribution*: WC. Pakhuis and Clanwilliam.

Habitat: Sandy riverbanks.

Rationale: Known from two collections, it has not been recorded for over 100 years. Not enough is known about the current status of the population to assess this species.

**Manulea augei** (Hiern) Hilliard

Status: EN B1ab(ii,iii,iv,v)
D. Raimondo & R.C. Turner

*Distribution*: WC. Malteshury, Saldanha Bay and Langebaan.

Habitat: Sandy lowlands on calcrite.

Rationale: EOO < 600 km². Known from fewer than five locations. Threatened by ongoing habitat loss to coastal development.

**Manulea corymbosa** L.f.

Status: VU B1ab(ii,iii,iv,v)
R.C. Turner

*Distribution*: WC. Veldrif to the Cape Peninsula.

Habitat: Sandy soils near the coast.

Rationale: EOO < 1 880 km². The habitat of this annual species has been severely fragmented and transformed by urban and coastal development, agriculture and encroachment by invasive alien vegetation. At least 30% of its habitat has been lost and decline is continuing.

**Manulea derustiana** Hilliard

Status: VU D2
J.H. Vlok & D. Raimondo

*Distribution*: WC. De Rust.

Habitat: South-facing slopes, in deep sandy soil.

Rationale: Known from two locations and potentially threatened by overgrazing and by sand quarrying.

**Manulea deserticola** Hilliard

Status: DDD
J.E. Victor

*Distribution*: FS NC. Fauresmith and Modder River.

Habitat: Sandy soils.

Rationale: A poorly known species recorded from three collections, two of which cannot be localised precisely. All collections were made before 1935. Not enough is known about the current status of the population to assess this species.

**Manulea exigua** Hilliard

Status: VU B1ab(i,ii,iii,iv,v)
R.C. Turner

*Distribution*: WC. Betty’s Bay to Gansbaai.

Habitat: Sandy flats and slopes.

Rationale: EOO < 400 km². Known from five locations but suspected to be under-collected and to occur at 6–10 locations. Its habitat has been severely fragmented and transformed by coastal housing development and invasion by alien plants. Loss is continuing.

**Manulea flanaganii** Hilliard

Status: DDD
D. Raimondo & J.E. Victor

*Distribution*: FS. Orange River near Bethulie.

Habitat: Unknown.

Rationale: Known from the type specimen collected over 100 years ago near Bethulie. Not enough is known about the distribution, habitat and current status of the population to assess this species.

**Manulea glandulosa** E. Phillips

Status: NT B1ab(iii)
D. Raimondo

*Distribution*: EC KZN. Southern KwaZulu-Natal Drakensberg Mountains and outlying mountains, including the Suurb erg in East Griqualand as far south as Ngele.

Habitat: Damp or marshy montane grassland, 1 800–2 100 m.

Rationale: EOO < 7 400 km². Known from less than 15 locations. Around 30% of its habitat has been lost to afforestation. Loss is ongoing.

**Manulea cinerea** Hilliard

Status: VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

*Distribution*: NC. Lambert’s Bay to Orange River.

Habitat: Grows on coastal dunes, usually semistable, up to 500 m inland.

Rationale: EOO < 600 km². Known from fewer than 10 locations. Experiencing ongoing habitat loss to heavy-mineral sand and diamond mining.

**Manulea corymbosa** L.f.

Status: VU B1ab(ii,iii,iv,v)
R.C. Turner

*Distribution*: WC. Veldrif to the Cape Peninsula.

Habitat: Sandy soils near the coast.

Rationale: EOO < 1 880 km². The habitat of this annual species has been severely fragmented and transformed by urban and coastal development, agriculture and encroachment by invasive alien vegetation. At least 30% of its habitat has been lost and decline is continuing.

**Manulea derustiana** Hilliard

Status: VU D2
J.H. Vlok & D. Raimondo

*Distribution*: WC. De Rust.

Habitat: South-facing slopes, in deep sandy soil.

Rationale: Known from two locations and potentially threatened by overgrazing and by sand quarrying.

**Manulea deserticola** Hilliard

Status: DDD
J.E. Victor

*Distribution*: FS NC. Fauresmith and Modder River.

Habitat: Sandy soils.

Rationale: A poorly known species recorded from three collections, two of which cannot be localised precisely. All collections were made before 1935. Not enough is known about the current status of the population to assess this species.

**Manulea exigua** Hilliard

Status: VU B1ab(i,ii,iii,iv,v)
R.C. Turner

*Distribution*: WC. Betty’s Bay to Gansbaai.

Habitat: Sandy flats and slopes.

Rationale: EOO < 400 km². Known from five locations but suspected to be under-collected and to occur at 6–10 locations. Its habitat has been severely fragmented and transformed by coastal housing development and invasion by alien plants. Loss is continuing.

**Manulea flanaganii** Hilliard

Status: DDD
D. Raimondo & J.E. Victor

*Distribution*: FS. Orange River near Bethulie.

Habitat: Unknown.

Rationale: Known from the type specimen collected over 100 years ago near Bethulie. Not enough is known about the distribution, habitat and current status of the population to assess this species.

**Manulea glandulosa** E. Phillips

Status: NT B1ab(iii)
D. Raimondo

*Distribution*: EC KZN. Southern KwaZulu-Natal Drakensberg Mountains and outlying mountains, including the Suurb erg in East Griqualand as far south as Ngele.

Habitat: Damp or marshy montane grassland, 1 800–2 100 m.

Rationale: EOO < 7 400 km². Known from less than 15 locations. Around 30% of its habitat has been lost to afforestation. Loss is ongoing.

**Manulea cinerea** Hilliard

Status: VU B1ab(ii,iii,iv,v)
N.A. Helme & D. Raimondo

*Distribution*: NC. Lambert’s Bay to Orange River.

Habitat: Grows on coastal dunes, usually semistable, up to 500 m inland.

Rationale: EOO < 600 km². Known from fewer than 10 locations. Experiencing ongoing habitat loss to heavy-mineral sand and diamond mining.
Habitat: Sandy restionaceous flats.

**Rationale:** EOO 975 km². Known from less than 15 locations. Threatened by ongoing habitat loss to rooibos tea cultivation.

**Manulea incana** Thunb.

**Status:** DDD

D. Raimondo & K. Naidoo

**Distribution:** NC. Roggeveld Escarpment.

**Habitat:** Sandstone slopes.

**Rationale:** A Roggeveld endemic, known from four collections but only two that have site descriptions. Last collected by Acock in 1953. Not enough is known about the current status of the population to assess this species.

**Manulea juncea** Benth.

**Status:** Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** WC. Cederberg and Koueboekkeveld.

**Habitat:** Rocky sandstone slopes, on shale bands.

**Rationale:** A habitat specialist, known from fewer than 10 subpopulations. Not threatened.

**Manulea leptosiphon** Thell.

**Status:** DDD

D. Raimondo & K. Naidoo

**Distribution:** NC. Rietfontein.

**Habitat:** Kalahari sands.

**Rationale:** Known only from the type, collected in 1889 at Rietfontein in the Kalahari on the border of the Cape and present-day Namibia. Not enough is known about the distribution and current status of the population to assess this species.

**Manulea minor** Diels

**Status:** DDD

D. Raimondo, J.E. Victor & L. Potter

**Distribution:** WC. Hex River Valley.

**Habitat:** Sands.

**Rationale:** Known from two collections by Bolus from the Hex River in 1893. Possibly extinct owing to extensive vineyards. There are two doubtful records, one from orchards by E. Esterhuysen in 1944 and another by Rogers from Bellville. Not enough is known about the current status of the population to assess this species.

**Manulea montana** Hilliard

**Status:** Rare

R.C. Turner

**Distribution:** WC. Northern Cederberg.

**Habitat:** Mountain slopes.

**Rationale:** A range-restricted endemic (EOO < 500 km²), this rare high-altitude annual is well conserved in the Cederberg Wilderness Area.

**Manulea ovatifolia** Hilliard

**Status:** Rare

D. Raimondo

**Distribution:** WC. Piketberg Mountain.

**Habitat:** Rocky slopes.

**Rationale:** A range-restricted Piketberg endemic (EOO 190 km²). Although last collected by Esterhuysen in 1963, all three historical sites are well described, easy to trace and occur on rocky habitat that is not threatened.

**Manulea paucibarbata** Hilliard

**Status:** Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** WC. Botterkloof to Northern Cederberg Mountains.

**Habitat:** Sandy or stony slopes, 180–900 m.

**Rationale:** Known from fewer than five sites from a restricted range (EOO < 400 km²). This species has no recorded threats.

**Manulea pillansii** Hilliard

**Status:** EN B1ab(iii)

R.C. Turner

**Distribution:** WC. Lambert’s Bay to Clanwilliam.

**Habitat:** Sandveld on deep, sandy soils.

**Rationale:** Known from fewer than five locations. About 65% of its habitat is now under cultivation as a result of strip potato cultivation. Habitat loss to crop cultivation is ongoing.

**Manulea ramulosa** Hilliard

**Status:** CR PE

D. Raimondo

**Distribution:** WC. Klawer.

**Habitat:** Rocky hills in sandy areas.

**Rationale:** Last collected in 1926. Much of the area around Klawer is now under cultivation because of the introduction of irrigation schemes. The surrounding mountain slopes have also been severely overgrazed by livestock. This species may be extinct.

**Melanospermum** Hilliard

**Melanospermum italae** Hilliard

**Status:** VU B1ab(iii)

C.R. Scott-Shaw, I.M. Johnson & L. von Staden

**Distribution:** KZN MP. Louwsburg, Piet Retief and near Mbabane (Swaziland).

**Habitat:** Mistbelt grassland, in sandy or gritty places around or on rock sheets and around extensive rock outcrops, 1 200–1 500 m.

**Rationale:** Known from fewer than 10 locations within an EOO of 6 700 km². The habitat is being affected by severe overgrazing, which is likely cause continuing decline of the population.

**Melanospermum swazicum** Hilliard

**Status:** Rare

J.E. Victor

**Distribution:** KZN. Ngome in KwaZulu-Natal, also occurs in Swaziland.

**Habitat:** Moist, shaded, peaty soil in the shelter of granite rocks, 1 050–1 375 m.

**Rationale:** Known from one site in South Africa. Not threatened because of the inaccessibility of its habitat.

**Microdon** Choisy

**Microdon capitatus** (P.J. Bergius) Levyns

**Status:** EN B1ab(ii,iii,iv,v)

N.A. Helme & D. Raimondo

**Distribution:** WC. Clanwilliam to Cape Peninsula.

**Habitat:** Deep sands.

**Rationale:** EOO < 1 300 km². Known from fewer than five locations. Declining as a result of wheat, vineyard, and rooibos cultivation, coastal development and invasional alien plants.
Microdon nitidus (E.Mey.) Hilliard
Status: Rare
N.A. Helme & K. Naidoo
Distribution: WC. Cape Peninsula, Table Mountain.
Habitat: Rocky sandstone slopes at base of cliffs, 500–1 000 m.
Rationale: A range-restricted Table Mountain endemic (EOO < 10 km²) known from two sites. Occurs within the Table Mountain National Park and is not threatened.

Nemesia saccata
Status: Rare
P.A. Manyama & D. Raimondo
Distribution: NC WC. Bokkeveld Escarpment to Clanwilliam.
Habitat: Clay and sandy soils.
Rationale: EOO < 3 000 km². Known from 11 locations and likely to occur at a few more. It has lost habitat in the past and continues to lose habitat to citrus, potato, rooibos tea, grape and wheat cultivation.

Nemesia Vent.

Nemesia acornis K.E. Steiner
Status: Rare
N.A. Helme
Distribution: WC. Piketberg.
Habitat: Upper rocky slopes in fynbos.
Rationale: EOO < 250 km². Known from four sites. Occurs in rocky areas and therefore not threatened by crop cultivation.

Nemesia micrantha Hiern
Status: Critically Rare
P.A. Manyama
Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Sandy loam soils under and around shrubs at the foot of large granite outcrops.
Rationale: A recently described species known from one site. It has no recorded threats.

Nemesia strumosa (Herb.Banks ex Benth.) Benth.

Phyllopodium alpinum N.E.Br.
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi
Distribution: WC. Skurweberg to Riviersonderend Mountains.
Habitat: Sandstone slopes, 600–1 750 m.

Rationale: A range-restricted endemic (EOO 328 km²), two of which may have been lost as a result of afforestation around Haenertsburg. The third location (in Sekhukhuneland) is threatened by ongoing habitat degradation due to deforestation. The status of the population in Zimbabwe is too poorly known to conduct a global assessment. The national assessment is not downgraded because of invasion by alien plants and coastal development.

Nemesia strumosa
Status: EN B1ab(ii,iii,iv,v)
P.A. Manyama & D. Raimondo
Distribution: WC. Hopefield to Melkbos.
Habitat: Sandy flats, often in sandveld.
Rationale: EOO < 700 km². Suspected to occur at less than 20 locations. This annual species has lost over 80% of its habitat to wheat cultivation. Decline is continuing because of invasion by alien plants and coastal development.

Oftia Adans.

Oftia glabra Compton
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi
Distribution: WC. Witteberg and Warmwaterberg.
Habitat: Rocky sandstone slopes.
Rationale: A range-restricted endemic (EOO 328 km²), known from three subpopulations. This species has no recorded threats.

Phyllopodium Bentham.

Phyllopodium alpinum N.E.Br.
Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi
Distribution: WC. Skurweberg to Riviersonderend Mountains.
Habitat: Sandstone slopes, 600–1 750 m.
Rationale: Known from seven subpopulations from high-altitude rocky slopes in the mountains forming an arc between the Skurweberg and Riviersonderend Mountains (EOO 417 km²). Not threatened.

*Phyllopodium caespitosum* Hilliard  
**Status:** Rare  
D. Raimondo, P.F. Matlamela & D.A. Kamundi

| **Distribution:** | WC. Cederberg and Hex River Mountains.  
**Habitat:** | Rock ledges and shallow basins, 1 200–2 075 m.  
**Rationale:** | A habitat specialist known from seven subpopulations. This species has no recorded threats. |

*Phyllopodium capillare* (L.f.) Hilliard  
**Status:** NT B1ab(ii,iii,iv,v)  
J.E. Victor & R.C. Turner

| **Distribution:** | WC. Lambert’s Bay to Albertinia, including the Cape Peninsula.  
**Habitat:** | Sandy or stony places below 120 m.  
**Rationale:** | Known only from two collections at the type locality near Rust-en-Vrede in the Little Karoo. Potentially threatened by overgrazing. |

*Phyllopodium dolomiticum* Hilliard  
**Status:** VU D2  
R.C. Turner

| **Distribution:** | NC. Orange River.  
**Habitat:** | Dunes, in sandy soil.  
**Rationale:** | Known from fewer than five locations. Potentially threatened by diamond and heavy-mineral sand mining. |

*Phyllopodium hispidulum* (Thell.) Hilliard  
**Status:** VU D2  
R.C. Turner

| **Distribution:** | NC. Orange River.  
**Habitat:** | Dunes, in sandy soil.  
**Rationale:** | Known from fewer than five locations. Potentially threatened by diamond and heavy-mineral sand mining. |

*Phyllopodium lupiliforme* (Thell.) Hilliard  
**Status:** DDD  
K. Naidoo & R.C. Turner

| **Distribution:** | NC.Namaqualand.  
**Habitat:** | Hill slopes, 900 m.  
**Rationale:** | Known from the collections made by Max and Rudolf Schlechter at Karochemas and Zabies (Sabies) near Steinkopf in the northern part of Namaqualand in 1897. The only information given is ‘in collibus’ (on hills) at ± 500 m. It has not been collected again in 110 years. Too little is known about its habitat and current population status to determine its status. |

*Phyllopodium mimetes* Hilliard  
**Status:** VU B1ab(ii,iii,iv,v)  
R.C. Turner & D. Raimondo

| **Distribution:** | WC. Het Kruis and Aurora to Mamre.  
**Habitat:** | Sandy soils.  
**Rationale:** | EOO < 4 200 km². A sandveld species known from fewer than 10 locations. The habitat has been severely transformed by wheat and potato cultivation and over 70% has been lost over the past 100 years. Loss to potato cultivation in the northern parts of its range continues. |

*Phyllopodium pubiflorum* Hilliard  
**Status:** DDD  
D. Raimondo & K. Naidoo

| **Distribution:** | NC. WC. Pakhuis Pass to Nieuwoudtville.  
**Habitat:** | Sandy slopes.  
**Rationale:** | Last collected in 1940 and site and habitat descriptions not precise enough to determine whether it is threatened by rooibos tea cultivation. |

*Phyllopodium tweedense* Hilliard  
**Status:** DDD  
D. Raimondo & K. Naidoo

| **Distribution:** | WC. Laingsburg.  
**Habitat:** | Unknown.  
**Rationale:** | Known from the type collection made on the Baviaansberg near Ceres by Esterhuysen in 1962. An area seldom explored. More collections are required to determine the distribution and rarity of this species. |

*Polycarena* Benth.  

*Polycarena capensis* (L.) Benth.  
**Status:** NT B1ab(ii,iii,iv,v)  
D. Raimondo

| **Distribution:** | WC. Hopefield to the Cape Peninsula.  
**Habitat:** | Sandy flats.  
**Rationale:** | EOO < 2 000 km². Known from less than 20 locations. It has lost 50% of recorded subpopulations to urban expansion and crop cultivation. There is continuing decline of remaining subpopulations due to invasion by alien plants as well as coastal development and crop cultivation. |

*Polycarena comptonii* Hilliard  
**Status:** DDD  
K. Naidoo & D. Raimondo

| **Distribution:** | WC. Laingsburg, Whitehill.  
**Habitat:** | Unknown.  
**Rationale:** | Known from the type, collected at Whitehill in 1941. The habitat and distribution of this species are too poorly known for it to be assessed. It may be potentially threatened by overgrazing. |

*Polycarena filiformis* Diels  
**Status:** Rare  
D. Raimondo & K. Naidoo

| **Distribution:** | NC. Calvinia district, Hantamsberg Mountain.  
**Habitat:** | In shady places, on shale slopes in the shelter of small karroid shrubs.  
**Rationale:** | EOO < 500 km². Known from four subpopulations, this species has no significant threats. |

*Polycarena nar douwensis* Hilliard  
**Status:** EN B1ab(ii,iii,iv,v)  
D. Raimondo

| **Distribution:** | WC. Nardous Kloof.  
**Habitat:** | Sandy slopes.  
**Rationale:** | Unknown.  
**Status:** | Rare.  
**Distribution:** | WC. Ceres.  
**Habitat:** | Ledges at the base of high cliffs.  
**Rationale:** | Known from the type collection made on the Baviaansberg near Ceres by Esterhuysen in 1962. An area seldom explored. More collections are required to determine the distribution and rarity of this species. |  

*Polycarena* Benth.  

*Polycarena capensis* (L.) Benth.  
**Status:** NT B1ab(ii,iii,iv,v)  
D. Raimondo

| **Distribution:** | WC. Hopefield to the Cape Peninsula.  
**Habitat:** | Sandy flats.  
**Rationale:** | EOO < 2 000 km². Known from less than 20 locations. It has lost 50% of recorded subpopulations to urban expansion and crop cultivation. There is continuing decline of remaining subpopulations due to invasion by alien plants as well as coastal development and crop cultivation. |  

*Polycarena* Benth.  

*Polycarena* Benth.  

*Polycarena* Benth.  

*Polycarena* Benth.
Polycarena nardouwensis

**Status:** CR PE

**Distribution:** WC. Lion’s Head, Cape Peninsula.

**Habitat:** Granite slopes.

**Rationale:** Known from the slopes of Lion’s Head, with three collections made before 1940. We suspect that this species may be extinct as a result of alien grass invasions and incorrect fire management.

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Polycarena silenoides

**Status:** CR PE

**Distribution:** WC. Oliants River Valley south of Clanwilliam to Piketberg.

**Habitat:** Sandy flats.

**Rationale:** EOO < 460 km². Most of its habitat (about 80%) has already been converted for rooibos tea, potato and citrus cultivation. Fewer than five locations are likely to be extant. Conversion of habitat for potato and rooibos tea cultivation is ongoing.

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Polycarena subtilis

**Status:** EN B1ab(ii,iii,iv,v)

**Distribution:** WC. Oliants River Valley and the eastern foothills of the Cederberg.

**Habitat:** Unknown.

**Rationale:** A poorly known species. The only reliable records are from two sites in the drainage basin of the Oliants River between Klawer and Clanwilliam and from the eastern foothills of the Cederberg below Krakkadou Peak northeast of Wuppertal. Not enough is known about the distribution, specific habitat or current population status to assess this species.

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Polycarena caerulescens

**Status:** Rare

**Distribution:** WC. Oliants River Valley and the eastern foothills of the Cederberg.

**Habitat:** Montane fynbos on sandstone slopes, 200–1 525 m.

**Rationale:** A range-restricted endemic (EOO 490 km²), known from four subpopulations. No recorded threats.

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Polycarena diplotricha

**Status:** Rare

**Distribution:** WC. Hex River Mountains, Milner Ridge Peak.

**Habitat:** Shale band on steep slopes, 1 370–1 525 m.

**Rationale:** A range-restricted endemic (EOO 200 km²), known from four subpopulations. No recorded threats.

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Polycarena peninsulae

**Status:** DDD

**Distribution:** WC. Cape Peninsula, Table Mountain.

**Habitat:** Rocky places, 700–1 050 m.

**Rationale:** Known from five herbarium collections from the slopes of Table Mountain. Last collected in 1945. A search for this species is needed to determine if it is still extant.

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Pseudoselago prolixa

**Status:** Rare

**Distribution:** WC. Swartberg.

**Habitat:** Rocky peaks, 1 525–1 800 m.

**Rationale:** Known from the two highest peaks on the Waaihoek Mountains above Worcester (EOO 12 km²). Not threatened.

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Pseudoselago prostrata

**Status:** Rare

**Distribution:** WC. Witteberg, Tweedside.

**Habitat:** Lower rocky sandstone slopes.

**Rationale:** A range-restricted endemic occurring on lower slopes of the Skurweberg (EOO 150 km²), known from fewer than five subpopulations. No recorded threats.

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Pseudoselago quadrangularis

**Status:** Rare

**Distribution:** WC. Skurweberg, south of Ceres.

**Habitat:** Lower rocky sandstone slopes.

**Rationale:** A range-restricted endemic occurring on lower slopes of the Skurweberg (EOO 150 km²), known from fewer than five subpopulations. No recorded threats.

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Reyemia

**Status:** Rare

**Distribution:** NC. Between Calvinia and Middelpos.

**Habitat:** In karroid vegetation on very dry stony flats.

**Rationale:** EOO < 50 km². Known from two collections, both made in the same area. No threats are recorded to have had an impact on this area.

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Selago L.

**Status:** Rare

**Distribution:** WC. Witteberg, Tweedsie.

**Habitat:** Karoo scrub on well-drained, stony soil and among rocks, 975–1 220 m.

**Rationale:** A range-restricted endemic known from a very small area (EOO 80 km²), from two subpopulations. No recorded threats.

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Selago albomontana

**Status:** Rare

**Distribution:** WC. Witteberg, Tweedsie.

**Habitat:** Karoo scrub on well-drained, stony soil and among rocks, 975–1 220 m.

**Rationale:** A range-restricted endemic known from a very small area (EOO 80 km²), from two subpopulations. No recorded threats.

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Selago baurii

**Status:** Rare

**Distribution:** WC. George to Plettenberg Bay.

**Habitat:** Rocky places, 700–1 050 m.

**Rationale:** Known from five herbarium collections from the slopes of Table Mountain. Last collected in 1945. A search for this species is needed to determine if it is still extant.

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Selago burchellii

**Status:** Rare

**Distribution:** WC. Witteberg, Tweedsie.

**Habitat:** Karoo scrub on well-drained, stony soil and among rocks, 975–1 220 m.

**Rationale:** A range-restricted endemic known from a very small area (EOO 80 km²), from two subpopulations. No recorded threats.

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Selago diplotricha

**Status:** Rare

**Distribution:** WC. Witteberg, Tweedsie.

**Habitat:** Karoo scrub on well-drained, stony soil and among rocks, 975–1 220 m.

**Rationale:** A range-restricted endemic known from a very small area (EOO 80 km²), from two subpopulations. No recorded threats.

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Selago smirni

**Status:** Rare

**Distribution:** WC. Witteberg, Tweedsie.

**Habitat:** Karoo scrub on well-drained, stony soil and among rocks, 975–1 220 m.

**Rationale:** A range-restricted endemic known from a very small area (EOO 80 km²), from two subpopulations. No recorded threats.

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Selago orthophylloides

**Status:** Rare

**Distribution:** WC. Witteberg, Tweedsie.

**Habitat:** Karoo scrub on well-drained, stony soil and among rocks, 975–1 220 m.

**Rationale:** A range-restricted endemic known from a very small area (EOO 80 km²), from two subpopulations. No recorded threats.

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Selago skurwebergensis

**Status:** Rare

**Distribution:** WC. Witteberg, Tweedsie.

**Habitat:** Karoo scrub on well-drained, stony soil and among rocks, 975–1 220 m.

**Rationale:** A range-restricted endemic known from a very small area (EOO 80 km²), from two subpopulations. No recorded threats.

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Selago cedrimontana Hilliard

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: WC. Cederberg, Sneekkop.
Habitat: Sandstone fynbos slopes, 900–1 800 m.
Rationale: Known from a very limited area (EOO 10 km²), occurs at high altitudes and has no known threats.

Selago congesta Rolfe

Status: DDD
D. Raimondo

Distribution: WC. Unknown.
Habitat: Unknown.
Rationale: Known from a very early collection by Thunberg and Masson. Not recorded for over 200 years. The precise site is unknown as the type only lists Cape of Good Hope. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Selago diabolica Hilliard

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: NC. Richtersveld, top end of Helskloof.
Habitat: Arid rocky areas.
Rationale: EOO < 10 km². Known only from the type locality in the Richtersveld. No recorded threats.

Selago diffusa Thunb.

Status: VU B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: WC. Gansbaai to Still Bay.
Habitat: Limestone flats, outcrops, slopes and hills, as well as sand dunes.
Rationale: EOO 1 850 km². Known from four locations but suspected to occur at another five. Threatened by ongoing habitat loss to invading alien plants, coastal development and crop cultivation.

Selago dolichonema Hilliard

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: WC. Central Cederberg.
Habitat: Sandstone slopes in arid fynbos, 1 500 m.
Rationale: EOO 20 km². Known from four subpopulations, this species has no recorded threats.

Selago dreygeana Hilliard

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: WC. Cederberg, from Pakhuis Pass south to Brakfontein.
Habitat: Arid fynbos on sandstone slopes, 900–1 200 m.
Rationale: Known from the type collection by Esterhuysen in 1957 on the Cockscomb in the Groot Winterhoek Mountains. May also occur on Elandsberg and Van Stadens Mountains.

Selago elsaiae Hilliard

Status: DDD
D. Raimondo

Distribution: EC. Groot Winterhoek Mountains.
Habitat: Rocky slopes.
Rationale: Known from the type collection by Esterhuysen in 1957 on the Cockscomb in the Groot Winterhoek Mountains. May also occur on Elandsberg and Van Stadens Mountains.

Selago esterhuyseniae Hilliard

Status: Critically Rare
D. Raimondo

Distribution: WC. Klein Swartberg, Townerkop.
Habitat: Sandstone slopes above 2 000 m.
Rationale: Known from the Esterhuysen type collection from Townerkop. Likely to occur only on the Klein Swartberg range where it has no threats.

Selago exigua Hilliard

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: NC. Namaqualand, Kamiesberg.
Habitat: Middle to lower slopes.
Rationale: EOO 10 km². Known from the type collection made by Acocks in 1951. No recorded threats.

Selago farrago Hilliard

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: NC. Richtersveld, top end of Helskloof.
Habitat: Arid rocky areas.
Rationale: EOO < 10 km². Known from one collection but likely to be under-collected. No recorded threats.

Selago ferruginea Thunb.

Status: CR B1ab(iii,v); C2a(i,ii); D
J.H. Vlok & D. Raimondo

Distribution: WC. Flats north of the Outeniqua Mountains in the Little Karoo, from Herold to the base of Robinson Pass.
Habitat: Deep, loamy-clay soil, Blossoms Asbos Gwarrieveld.
Rationale: Until 2007 it was known only from the type collection by Ecklon and Zeyher, made in the 1800s. It was rediscovered by Jan Vlok (expert field botanist in the southern Cape) in the southern Little Karoo in 2007. Despite extensive searches within its habitat, only
two small fragmented subpopulations were found: one consisting of 35 plants on a road verge (all the vegetation around this subpopulation has been ploughed for wheat and ostrich pasture) and the second in a small remnant of vegetation that has been badly degraded by grazing and trampling by ostriches. Only one plant occurs at this subpopulation. There are less than 50 extant mature individuals.

**Selago florifera** Hilliard

**Status:** Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundji

**Distribution:** NC. Namaqualand, Kamiesberg.

**Habitat:** Granite slopes.

**Rationale:** EOO 70 km². Known from one collection but is likely to be under-collected. No recorded threats.

**Selago glandulosa** Choisy

**Status:** VU B1ab(ii,iii,iv,v)

D. Raimondo

**Distribution:** WC. Potberg to Garcia’s Pass.

**Habitat:** Coastal dunes and on limestone hills and outcrops.

**Rationale:** EOO < 2 800 km². Known from six locations. Declining as a result of severe invasions of alien plants throughout its range as well as ongoing habitat loss to crop cultivation and coastal development.

**Selago heterotricha** Hilliard

**Status:** EN B1ab(ii,iii,iv,v)

D. Raimondo

**Distribution:** WC. Heerenloogenement to Graafwater.

**Habitat:** Sandy flats.

**Rationale:** Known from two locations from a very small range (EOO < 100 km²). Over 70% of its habitat has been transformed for potato and rooibos tea cultivation and loss is ongoing.

**Selago inaequifolia** Hilliard

**Status:** EN B1ab(ii,iii,iv,v)

D. Raimondo

**Distribution:** WC. Klawer.

**Habitat:** Sandy flats, 20–50 m.

**Rationale:** EOO < 100 km². Known from two locations. This species grows on sandy flats that are continuously being converted for vineyard, tomato or onion cultivation.

**Selago linearifolia** Rolfe

**Status:** DDD

D. Raimondo

**Distribution:** WC. Olifants River Valley, Bulshoek.

**Habitat:** Unknown.

**Rationale:** Known from the type locality (Bulshoek) in the Olifants River Valley, where it was collected by Schlechter and again 40 years later by Wall. No habitat information exists for this species and it has not been recorded since 1936. The area in which the type was collected has largely been transformed for citrus cultivation.

**Selago longicalyx** Hilliard

**Status:** Rare

J.E. Victor & S.J. Smithies

**Distribution:** FS KZN MP. Ngome, Utrecht, Majuba, Nhlatzatshe near Vryheid and Wakkerstroom.

**Habitat:** Rocky grassland near forest margins.

**Rationale:** A habitat specialist, known from fewer than 10 sites across a relatively wide range (EOO 10 000 km²). No threats to this species have been recorded.

**Selago longiflora** Rolfe

**Status:** EN B1ab(i,ii,iii,iv,v)

C.R. Scott-Shaw & L. von Staden

**Distribution:** KZN. Cunningham’s Castle above Byrne Valley, elsewhere in the Richmond and Impendle districts.

**Habitat:** Mistbelt grassland, in scrubby forest margins, 900–1 500 m.

**Rationale:** A range-restricted species (EOO 120–230 km²), known from one location, but up to five other subpopulations might remain if suitable, untransformed habitat still exists in the vicinity of locations of old herbarium records. Forestry plantations and agriculture are causing ongoing destruction of habitat.

**Selago marlothii** Hilliard

**Status:** DDD

D. Raimondo

**Distribution:** WC. Swanepoelspoortberg.

**Habitat:** Unknown.

**Rationale:** Known from the 1905 Marloth type from the poorly explored Swanepoelspoortberg in the southern Cape. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

**Selago neglecta** Hilliard

**Status:** EN B1ab(ii,iii,iv,v)

D. Raimondo

**Distribution:** WC. Lower Breede River Valley, low northern slopes of the Potberg.

**Habitat:** Potberg Ferricrete Fynbos.

**Rationale:** Known from a very small range (EOO 55 km²), from three locations. More than 50% of its EOO has been transformed for crop cultivation. It is also suffering continuing decline in habitat quality because of invasion by alien plants and the recent introduction of ostriches.

**Selago nigromontana** Hilliard

**Status:** Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundji

**Distribution:** WC. Groot Swartberg Mountains.

**Habitat:** Rocky crevices and between rocks in damp places, 1 800–2 000 m.

**Rationale:** A range-restricted habitat specialist (EOO 480 km²), known from six subpopulations. No recorded threats.

**Selago oppositifolia** Hilliard

**Status:** Critically Rare

D. Raimondo

**Distribution:** WC. Swartberg Mountains, Seweweekspoort.

**Habitat:** Rocky slopes.

**Rationale:** Known from one collection. No known threats that have an impact on this species.

**Selago pinea** Link

**Status:** EN B1ab(ii,iii,iv,v)

D. Raimondo

**Distribution:** WC. Caledon and Bredasdorp.

**Habitat:** Edge of vleis in renosterveld.
Selago polypechala Otto ex Walp.

Status: CR PE
D. Raimondo

Distribution: EC. Uitenhage to Port Elizabeth.
Habitat: Probably grows on sand hills and in other sandy places up to 50 m.
Rationale: Confined to the area along the Swartkops River between Uitenhage and Port Elizabeth. Last collected in 1967. All historical sites are either completely transformed or currently under dense stands of invasive alien plants. It is highly likely that this species is extinct.

Selago prostrata Hilliard

Status: EN B1ab(ii,iii)+2ab(ii,iii)
R.C. Turner & D. Raimondo

Distribution: WC. Bredasdorp Poort.
Habitat: Limestone fynbos.
Rationale: Known from two locations from a tiny area (EOO 6 km²). Currently threatened by overgrazing and invasive alien plants.

Selago psammophila Hilliard

Status: EN B1ab(ii,iii,iv,v)
R.C. Turner & D. Raimondo

Distribution: WC. Aurora to Blouberg.
Habitat: Coastal fynbos on white sand.
Rationale: EOO < 3 500 km². Likely to be extant at fewer than five locations. Its habitat has been severely transformed by crop cultivation, invasion by alien plants and housing development. Loss is ongoing.

Selago punctata Rolfe

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: EC. Queenstown district, Hangklip and Andriesberg.
Habitat: Dolerite massif, in cracks and depressions, 1 980–2 010 m.
Rationale: Known from two subpopulations (EOO 90 km²). No recorded threats.

Selago retropilosa Hilliard

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: EC. Lootsberg.
Habitat: Stony sandstone plateau above low cliffs.
Rationale: A range-restricted endemic (EOO < 10 km²) known only from the type collection made at Lootsberg in the Graaff-Reinet area. Possibly under-collected but is not likely to have any threats.

Selago rotundifolia L.f.

Status: VU B1ab(ii,iii,iv,v)
D. Raimondo

Distribution: EC WC. Knysna to Port Elizabeth.
Habitat: Forest margins or grassy flats.
Rationale: EOO < 3 900 km². Known from seven locations. Declining because of invasion by alien plants and agricultural expansion, especially on the Humansdorp Plain.

Selago rubromontana Hilliard

Status: Rare
D. Raimondo

Distribution: WC. Little Karoo, Rooiberg.
Habitat: Stony lower slopes.
Rationale: Known from fewer than five subpopulations (EOO 470 km²). No recorded threats.

Selago tenuis E.Mey.

Status: DDD
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: NC. Northern Namaqualand.
Habitat: Unknown.
Rationale: Known only from Drège's type collection in the 1800s at Uitkomst and Geelbekskraal in Namaqualand. Not enough is known about the distribution, specific habitat or population status of this species to determine its status.

Selago thermalis Hilliard

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: WC. McGregor and Montagu, east to the Warmwatersberg.
Habitat: Dry fynbos and karroid mountain slopes, 500–900 m.
Rationale: Known from a small area (EOO 500 km²), from five sites. No recorded threats.

Selago trichophylla Hilliard

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: WC. Worcester and the Hex River Valley.
Habitat: Rocky, south-facing mountain slopes, 425–900 m.
Rationale: A range-restricted endemic known from three collections (EOO 10 km²). No recorded threats.

Selago valliscitri Hilliard

Status: Rare
D. Raimondo, P.F. Matlamela & D.A. Kamundi

Distribution: WC. Citrusdal.
Habitat: Stony ground on sandstone mountain slopes.
Rationale: A range-restricted endemic known from three collections (EOO 100 km²), known from two sites. No recorded threats.

Selago villicaulis Rolfe

Status: Rare
D. Raimondo

Distribution: WC. Still Bay to Knysna.
Habitat: Fixed dunes up to 150 m.
Rationale: EOO 3 800 km². Known from fewer than 10 locations. Threatened by ongoing coastal development on the southern Cape Coast as well as by invasive alien plants.

Trienea Hilliard

Trienea elsiae Hilliard

Status: Rare
N.A. Helme & K. Naidoo

Distribution: WC. Southern Cederberg and Koue-bokkeveld Mountains.
Habitat: In the shelter of big boulders and rock overhangs.
Rationale: A rare habitat specialist known from three collections and not threatened.
**Trienea frigida** Hilliard

**Status:** Critically Rare

N.A. Helme & D. Raimondo

**Distribution:** WC. Kouebokkeveld Mountains.

**Habitat:** Rock overhangs, high altitude.

**Rationale:** Known only from one type collection by E. Esterhuysen. Unlikely to be threatened because of its specificity to high-altitude rocky habitats.

**Trienea lanciloba** Hilliard

**Status:** Rare

N.A. Helme & D. Raimondo

**Distribution:** WC. Northern Cederberg.

**Habitat:** At base of narrow crevices (10–15 m deep), in deep shade.

**Rationale:** A range-restricted endemic (EOO < 500 km²), known from Krakadou and Pakhuis peaks. Not threatened.

**Trienea lasiocephala** Hilliard

**Status:** Rare

N.A. Helme & D. Raimondo

**Distribution:** WC. Northern Cederberg.

**Habitat:** Shaded ledges.

**Rationale:** A range-restricted endemic (EOO < 500 km²), known from five sites. Not threatened.

**Trienea laxiflora** Hilliard

**Status:** Rare

N.A. Helme & D. Raimondo

**Distribution:** WC. Northern Cederberg.

**Habitat:** Higher ridges and slopes, in the shelter of overhanging rocks, 1 375 m.

**Rationale:** A range-restricted endemic (EOO < 200 km²), known from three sites. Not threatened.

**Trienea longipedicellata** Hilliard

**Status:** Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** WC. Wemmershoek Peak, Du Toit’s Peak and Slanghoek Mountain.

**Habitat:** Damp places under sandstone overhangs, 1 500–1 980 m.

**Rationale:** EOO 75 km². Known from only two subpopulations. It has been recorded only from high mountain peaks and has no known threats.

**Trienea schlechteri** (Hiern) Hilliard

**Status:** Rare

N.A. Helme & D. Raimondo

**Distribution:** WC. Cederberg and Kouebokkeveld Mountains.

**Habitat:** Shady areas beneath boulders.

**Rationale:** A rare habitat specialist known from three collections. No recorded threats.

**Trienea taylorii** Hilliard

**Status:** Rare

D. Raimondo, P.F. Matlamela & D.A. Kamundi

**Distribution:** WC. Central and northern Cederberg Mountains.

**Habitat:** Sheltered sandstone slopes, under rock overhangs, 1 200–1 675 m.

**Rationale:** EOO 20 km². Known from three collections. No recorded threats.

**Zaluzianskya** F.W.Schmidt

**Zaluzianskya acrobareia** Hilliard

**Status:** Rare

D. Raimondo

**Distribution:** NC WC. Bokkeveld Mountains to Gilberg.

**Habitat:** Sandy soils above 900 m.

**Rationale:** Known from one collection on the Pakhuis Pass. This species is highly likely to be under-collected and there are probably a few more subpopulations in the northern Cederberg region (EOO suspected to be ± 200 km²). It is not threatened and occurs within the Cederberg Wilderness Area.

**Zaluzianskya glandulosa** Hilliard

**Status:** Rare

D. Raimondo

**Distribution:** WC. Pakhuis Mountains.

**Habitat:** Sandy soils above 900 m.

**Rationale:** Known from only two collections (EOO < 200 km²), known from five sites. No recorded threats.

**Zaluzianskya isanthera** Hilliard

**Status:** Rare

D. Raimondo & J.E. Victor

**Distribution:** NC. Calvinia district, southern Bokkeveld to Klein Toren near Loeriesfontein.

**Habitat:** Succulent Karoo shrubland on shale.

**Rationale:** Restricted to the area around Calvinia (EOO < 500 km²), known from five sites. No recorded threats.

**Zaluzianskya kareebergensis** Hilliard

**Status:** Rare

D. Raimondo & N.A. Helme

**Distribution:** NC. Vanrhynsdorp, Kareeberg.

**Habitat:** Rocky hills.

**Rationale:** A range-restricted endemic (EOO < 200 km²), known from one collection. Not threatened as it occurs in an intractable habitat at high altitudes.

**Zaluzianskya lanigera** Hilliard

**Status:** Rare

D. Raimondo & K. Naidoo

**Distribution:** NC. Ceres Mountains, Swartruggens and Skurweberge.

**Habitat:** Sand over rock sheets, 900–1 300 m.

**Rationale:** Known from only two collections (EOO < 500 km²). Not threatened as it occurs in a non-arable habitat at high altitudes.

**Zaluzianskya marlothii** Hilliard

**Status:** Rare

K. Naidoo

**Distribution:** NC. Uitkyk and Sneekkrans in the Roggeveld.
Habitat: Arid slopes, 1 500–1 700 m.
Rationale: Known only from Marloth’s type collections made prior to 1930. Not enough is known about the current population status, distribution and specific habitat of this species to determine its status.

Zaluzianskya mirabilis Hilliard
Status: Rare
D. Raimondo & K. Naidoo
Distribution: NC. Sutherland.
Habitat: Gravelly ground and dry river courses.
Rationale: Known with certainty from only two sites (EOO 135 km²). No recorded threats.

Zaluzianskya sutherlandica Hilliard
Status: NT B1ab(ii,iii,iv,v)
D. Raimondo
Distribution: WC. Vredenburg Peninsula.
Habitat: Limestone and granite outcrops.
Rationale: Known from eight locations but suspected to occur at 15. Declining as a result of coastal development.

Zaluzianskya parviflora Hilliard
Status: DD
D. Raimondo & K. Naidoo
Distribution: NC. Sutherland.
Habitat: Open places.
Rationale: Known from a single tiny plant collected in 1926 by Levyns at Kruis River in the Sutherland division. Not enough is known about the current population status, distribution and specific habitat of this species to determine its status.

SOLANACEAE

Solanum L.
Solanum supinum Dunal var. leucophaeum (Dunal) Bitter
Status: VU D2
D. Raimondo
Distribution: EC. Indwe, Queenstown and Macubeni.
Habitat: Grassland on plains and slopes above 1 150 m.
Rationale: EOO < 900 km². Known from three locations. This taxon is potentially threatened by overgrazing and trampling as it occurs in communally owned areas where there are high stocking rates.

STILBACEAE

Campylostachys Kunth
Campylostachys sp. nov.
Voucher: Helme 1226 NBG
Status: EN D
N.A. Helme & D. Raimondo
Distribution: WC. Eastern Riveriersonderend Mountains.
Habitat: Sandstone slopes just above shale bands.
Rationale: An undescribed species only discovered in 1996 and known from fewer than 10 mature individuals. More undiscovered subpopulations are likely to exist. We suspect that the population totals ± 250 plants.

Kogelbergia Rourke
Kogelbergia verticillata (Eckl. & Zeyh.) Rourke
Status: Rare
N.A. Helme & D. Raimondo
Distribution: WC. Langeberg and Outeniqua Mountains.

Habitat: Moist, south-facing upper slopes.
Rationale: A range-restricted species (EOO 450 km²) that has no significant threats.

Stilbe P.J.Bergius
Stilbe gymnopharyngia (Rourke) Rourke
Status: EN D
N.A. Helme & D. Raimondo
Distribution: WC. Langeberg.
Habitat: Steep, south-facing, rocky upper slopes in partial shade.
Rationale: EOO 20 km². Known from three subpopulations that together have less than 50 mature individuals. There may be a few undiscovered subpopulations. We estimate that there are less than 250 extant mature individuals.

Stilbe serrulata Hochst.
Thesmophora scapulosa Rourke
Status: VU D2
N.A. Helme & D. Raimondo
Distribution: WC. Riviersonderend Mountains, Jonaskop to Pilaarkop.
Habitat: Upper sandstone slopes, usually south-facing.
Rationale: Known from four locations and potentially threatened by invasive alien plants.

THYMELAEACEAE

Gnidia L.
Gnidia chrysophylla Meisn.
Status: EN B1ab(i,ii,iii,iv,v)
R.C. Turner
Distribution: WC. Bredasdorp to Riversdale.
Habitat: Coastal flats.
Rationale: EOO < 3 930 km². Known from fewer than 10 locations. Declining as a result of crop cultivation, coastal development and invasion by alien plants.

Gnidia ericoides C.H.Wright
Status: EN B1ab(i,ii,iii,iv,v)
R.C. Turner & N.A. Helme
Distribution: WC. Swellendam to Riversdale.
Habitat: Coastal forelands and low mountain slopes.
Rationale: EOO < 3 500 km². Known from fewer than five locations. Declining as a result of crop cultivation and infrastructure development.

Gnidia humilis Meisn.
Status: EN B2ab(i,ii,iii,iv,v)
R.C. Turner
Distribution: WC. Cape Peninsula to Babilonstoring and Onrus Mountains.
Habitat: Damp sandstone slopes and bogs.
Rationale: EOO < 1 780 km². Known from seven severely fragmented subpopulations. Declining as a result of...
commercial forest plantations, coastal housing developments, construction of dams and roads, and invasion by alien plants.

**Gnidia insignis** Compton

Status: Rare

*Distribution*: NC. Bokkeveld Escarpment.

*Habitat*: Rocky sandstone slopes.

*Rationale*: A range-restricted species (EOO < 72 km²), known from three sites on the Nieuwoudtville plateau. Some subpopulations are conserved within the Oorlogskloof Nature Reserve. This species has no significant threats as it occurs in rocky areas that cannot be ploughed.

**Gnidia leipoldtii** C.H.Wright

Status: Rare

*Rationale*: Known from two locations. Potentially threatened by overgrazing by livestock.

**Gnidia parvula** Wolley-Dod

Status: Rare

*Distribution*: WC. Slanghoek Mountains.

*Habitat*: Sandstone slopes, 600–1 500 m.

*Rationale*: EOO 11 km², AOO 2 km². Known from three locations and declining as a result of invasive alien hakheas and pines.

**Gnidia ornata** (Meisn.) Gilg

Status: Rare

*Distribution*: WC. Kleinrivier Mountains to Bredasdorp.

*Habitat*: Marshy flats and lower slopes.

*Rationale*: EOO < 1 300 km². Known from six locations. Declining as a result of expansion of vineyards, wheat and protea cultivation and invasion by alien plants.

**Gnidia penicillata** Licht. ex Meisn.

Status: Rare

*Distribution*: WC. Cape Peninsula to Caledon Swartberg.

*Habitat*: Marshy flats and lower slopes.

*Rationale*: EOO < 3 108 km². Extant at ± 15 locations, several of which are well conserved in nature reserves. It has lost at least five subpopulations because of crop cultivation, forestry plantations, urban expansion and dam construction. In the Elgin Valley, there is ongoing habitat loss to crop cultivation and urban development.

**Gnidia sonderiana** Meisn.

Status: EN D

*Distribution*: WC. Babilonstoring.

*Habitat*: Rocky slopes.

*Rationale*: Known from one site where less than 100 mature individuals occur. Potentially threatened by invading alien plants.

**Gnidia spicata** (L.f.) Gilg

Status: Rare

*Distribution*: WC. Malmesbury to Potberg.

*Habitat*: Coastal lowlands in marshy flats and dune slacks.

*Rationale*: EOO 8 700 km². Likely to be extinct at 10 of 17 historical locations as a result of urban and agricultural development. Decline due to urban and coastal housing development and invasion by alien plants is ongoing.

**Gnidia variabilis** (C.H.Wright) E.Phillips

Status: Rare

*Distribution*: MP. Lydenburg.

*Habitat*: Well-drained grassland, 900–1 800 m.

*Rationale*: Confirmed to occur at one location and possibly occurring at a second. Potentially threatened by invasive alien plants.

**Lachnea l.**

**Lachnea alpina** (Eckl. & Zeyh.) Meisn.

Status: Rare

*Distribution*: WC. Tulbagh and Ceres.

*Habitat*: Montane fynbos, 1 600–2 100 m.

*Rationale*: A range-restricted alpine species (EOO < 450 km²), known from three sites. No recorded threats.

**Lachnea aurea** (Eckl. & Zeyh.) Meisn.

Status: Rare

*Distribution*: WC. Hermanus to Bredasdorp.

*Habitat*: Acid sand and ferricrete flats below 900 m.

*Rationale*: EOO < 5 000 km². Known from seven locations. Declining as a result of crop (vineyards and wheat) and protea cultivation, and inversion by alien plants.

**Lachnea axillaris** Meisn.

Status: Rare

*Distribution*: WC. Clanwilliam to Cape Peninsula to Franschhoek and Goudini.

*Habitat*: Sandy flats.

*Rationale*: EOO 21 000 km². Known from less than 25 locations. Declining because of invasion by alien plants and coastal development.

**Lachnea capitata** (L.) Crantz

Status: Rare

*Distribution*: WC. Clanwilliam to Cape Peninsula to Franschhoek and Goudini.

*Habitat*: Acid sand flats, often seasonally damp.

*Rationale*: Eighty of the 117 herbarium records for this species were collected before 1980 and it is now extinct at most of these locations. It has suffered a minimum of 30% decline over the past three generations (30 years).
Lachnaea densiflora Meisn.
Status: NT B1ab(ii,iii,iv,v)
J.B.P. Beyers† & J.E. Victor
Distribution: WC. Cape Peninsula to Bredasdorp.
Habitat: Coastal acid sand flats.
Rationale: EOO < 2 000 km². Known from less than 20 locations. Declining as a result of urban and golf course development, vineyard expansion and invasion by alien plants.

Lachnaea greytonensis
Status: NT B1ab(ii,iii,iv,v)
J.B.P. Beyers† & J.E. Victor
Distribution: WC. Palmiet River in Caledon district eastwards to Riversdale.
Habitat: Flats and low mountain slopes.
Rationale: EOO < 12 000 km². Known from less than 20 locations. Declining because of agriculture, urban expansion and invasion by alien plants.

Lachnaea grandiflora (L.f.) Baill.
Status: VU A2ac
D. Raimondo & N.A. Helme
Distribution: WC. Swartboskraal in Clanwilliam district to the Cape Peninsula and Bredasdorp.
Habitat: Sandy or stony soils, 500–1 000 m.
Rationale: A range-restricted species (EOO < 180 km²), known from fewer than 10 locations. This reseeding species is potentially threatened by invading alien plants and a deleterious fire regime.

Lachnaea pedicellata
Status: Rare
J.B.P. Beyers† & J.E. Victor
Distribution: WC. Hex River Mountains.
Habitat: Montane fynbos, in sandy soils, 1 200–1 400 m.
Rationale: A rare species with subpopulations consisting of very few individuals. Occurs at high altitudes on mountain slopes where it is not threatened.

Rationale: A naturally rare species occurring as small subpopulations in a specialised habitat. Known from fewer than eight locations. Potentially threatened by a deleterious fire regime and invasion by alien plants.

Lachnaea leipoldtii Beyers
Status: VU D2
J.B.P. Beyers†, N.A. Helme & D. Raimondo
Distribution: WC. Northern Cederberg Mountains.
Habitat: Montane fynbos, moist sandy areas above 1 000 m.
Rationale: EOO 200 km². Known from two subpopulations. A reseeder that is potentially threatened by too frequent fires.

Lachnaea marlothii Schltr.
Status: Rare
J.E. Victor & N.A. Helme
Distribution: WC. Waboomsberg near Montagu.
Habitat: Montane fynbos, in sandy soils, 1 200–1 400 m.
Rationale: A slow-growing reseeder that is potentially threatened by too frequent fires. Known from two subpopulations occurring ± 18 km apart.

Lachnaea oliverorum Beyers
Status: VU D2
J.B.P. Beyers† & J.E. Victor
Distribution: WC. Skurweberg to Hex River Mountains.
Habitat: Montane fynbos, stony slopes above 1 300 m.
Rationale: A rare species with subpopulations consisting of very few individuals. Occurs at high altitudes in mountains where it is not threatened.

Lachnaea pendula Beyers
Status: VU D2
D. Raimondo & N.A. Helme
Distribution: WC. Skurweberg to Hex River Mountains.
Habitat: Montane fynbos, stony slopes above 1 300 m.
Rationale: Known from fewer than five locations. This reseeding species is potentially threatened by too frequent fires.

Lachnaea pudens Beyers
Status: Rare
J.E. Victor & N.A. Helme
Distribution: WC. Riviersonderend Mountains.
Habitat: Montane fynbos on sandy soils, 640–830 m.
Rationale: A range-restricted endemic (EOO < 100 km²), known from two locations. This reseeding species is potentially threatened by a deleterious fire regime.

Lachnaea pusilla Beyers
Status: VU D2
D. Raimondo & N.A. Helme
Distribution: WC. Nuwekloof southwest of Tulbagh to Bailey’s Peak north of Wellington.

Rationale: A naturally rare species occurring as small subpopulations in a specialised habitat. Known from fewer than eight locations. Potentially threatened by a deleterious fire regime and invasion by alien plants.
**Lachnaea rupestris** Beyers

Status: VU D2

N.A. Helme & D. Raimondo

**Distribution:** WC. Stettynsburg to Riviersonderend Mountains.

Habitat: Montane fynbos, rocky places, 1 500 m.

**Rationale:** A range-restricted species (EOO < 250 km^2^) known from fewer than five locations. Potentially threatened by invading alien plants.

**Passerina ericoides** (Poir.) Meisn.

Status: Rare

D. Raimondo & R.C. Turner

**Rationale:** A range-restricted endemic (EOO < 150 km^2^) to the Cederberg that is not threatened because of the inaccessibility of its habitat.

**Lachnaea uniflora** (L.) Crantz

Status: VU B1ab(ii,iii,iv,v)

N.A. Helme, J.B.P. Beyers & D. Raimondo

**Distribution:** WC. Darling to Cape Peninsula to Somerset West, and Twenty-Four Rivers Mountains to Wolseley and Franschhoek Mountains.

Habitat: Sandy flats and sandy areas on lower mountain slopes.

**Rationale:** EOO 7 000 km^2^; Known from 15 locations and declining as a result of coastal housing development, invasion by alien plants and potato cultivation.

**Passerina paludosa** Thoday

Status: EN B1ab(ii,iii,v) + 2ab(ii,iii,v)

N.A. Helme, D. Gibbs, D. Raimondo & C.L. Bredenkamp

**Distribution:** WC. Cape Flats and Agulhas Plain.

Habitat: Lowland coastal marshes and seeps.

**Rationale:** EOO ≥ 3 200 km^2^, AOO < 100 km^2^; Known from five locations. It has lost over 70% of its habitat on the Cape Flats, where it was once common, because of urban expansion and associated drainage of wetlands. Only four viable populations remain on the Cape Flats. Two subpopulations were recently discovered on the Agulhas Plain, but both are also threatened by invasive alien plants and commercial protea growing. Remaining subpopulations are small (often only a few individuals), isolated and considered severely fragmented.

**Struthiola L.**

**Struthiola anomala** Hilliard

Status: VU D2

L. von Staden & J.E. Victor

**Distribution:** EC KZN. Ngele Mountain, probably also in surrounding areas in southern KwaZulu-Natal and East Griqualand.

Habitat: Mistbelt grassland, on rocky slopes, 1 100–1 400 m.

**Rationale:** EOO < 30 km^2^; Known from fewer than 10 locations. Its habitat is under severe pressure from coastal development and invasion by alien plants throughout its range.

**Passerina esterhuyseaniae** C.L.Bredenkamp & A.E.van Wyk

Status: Rare

P.A. Manyama

**Distribution:** WC. Northern Cederberg.

Habitat: Mountain peaks, amongst rocks, 1 200 m.

**Rationale:** A range-restricted endemic (EOO 100 km^2^) to the Cederberg that is not threatened because of the inaccessibility of its habitat.

**Passerina filiformis** L. subsp. *glutinosa* (Thoday)

C.L.Bredenkamp & A.E.van Wyk

**Distribution:** WC. Pakhuis Mountains.

Habitat: Sandstone slopes.

**Rationale:** EOO 2 500 km^2^; Known from fewer than 10 locations. Its habitat is under severe pressure from coastal development and invasion by alien plants throughout its range.

**Passerina burchelli** Thoday

Status: Rare

C.L. Bredenkamp, J.E. Victor & R.C. Turner

**Distribution:** WC. Riviersonderend Mountains and Towerkop near Ladismith.

Habitat: Mountain summits, in crevices in rocky sandstone outcrops on southwest-facing slopes.

**Rationale:** EOO 2 500 km^2^, AOO < 5 km^2^; A habitat specialist with subpopulations mostly occurring within protected areas. Not threatened.

**Passerina ericoides** L.

Status: VU B1ab(ii,iii,iv,v)

D. Raimondo & R.C. Turner

**Distribution:** WC. Melkbostrand to Cape Peninsula and eastwards to Bredasdorp.

Habitat: Coastal sandy areas between rocks or in valleys between primary and secondary dunes.

**Rationale:** EOO 1 400 km^2^; Known from fewer than 10 locations. Its habitat is under severe pressure from coastal development and invasion by alien plants throughout its range.

**Struthiola lineariloba** Meisn.

Status: DDD

D.A. Kamundii & D. Raimondo

**Distribution:** WC. Pakhuis Mountains.

Habitat: Sandstone slopes.

**Rationale:** Known from one collection from the Pakhuis Pass, collected in 1956 by Dahlgren. Not enough is known about the distribution, specific habitat or current population status of this species to determine its status.

**Passerina stokoei** Beyers

Status: CR D

N.A. Helme & J.E. Victor

**Distribution:** WC. Langeberg Mountains.

Habitat: Seasonally damp areas in mountains, 800–1 160 m.

**Rationale:** A rare habitat specialist restricted to mountainous areas where there are no known threats.

**Struthiola anomala** Hilliard

Status: VU D2

L. von Staden & J.E. Victor

**Distribution:** EC KZN. Ngele Mountain, probably also in surrounding areas in southern KwaZulu-Natal and East Griqualand.

Habitat: Mistbelt grassland, on rocky slopes, 1 100–1 400 m.

**Rationale:** EOO < 30 km^2^; Known from fewer than 10 locations. Its habitat is under severe pressure from coastal development and invasion by alien plants throughout its range.

**Passerina esterhuyseaniae** C.L.Bredenkamp & A.E.van Wyk

Status: Rare

P.A. Manyama

**Distribution:** WC. Northern Cederberg.

Habitat: Mountain peaks, amongst rocks, 1 200 m.

**Rationale:** A range-restricted endemic (EOO 100 km^2^) to the Cederberg that is not threatened because of the inaccessibility of its habitat.

**Passerina filiformis** L. subsp. *glutinosa* (Thoday)

C.L.Bredenkamp & A.E.van Wyk

**Distribution:** WC. Pakhuis Mountains.

Habitat: Sandstone slopes.

**Rationale:** EOO 2 500 km^2^; Known from fewer than 10 locations. Its habitat is under severe pressure from coastal development and invasion by alien plants throughout its range.

**Passerina burchelli** Thoday

Status: Rare

C.L. Bredenkamp, J.E. Victor & R.C. Turner

**Distribution:** WC. Riviersonderend Mountains and Towerkop near Ladismith.

Habitat: Mountain summits, in crevices in rocky sandstone outcrops on southwest-facing slopes.

**Rationale:** EOO 2 500 km^2^, AOO < 5 km^2^; A habitat specialist with subpopulations mostly occurring within protected areas. Not threatened.

**Passerina ericoides** L.

Status: VU B1ab(ii,iii,iv,v)

D. Raimondo & R.C. Turner

**Distribution:** WC. Melkbostrand to Cape Peninsula and eastwards to Bredasdorp.

Habitat: Coastal sandy areas between rocks or in valleys between primary and secondary dunes.

**Rationale:** EOO 1 400 km^2^; Known from fewer than 10 locations. Its habitat is under severe pressure from coastal development and invasion by alien plants throughout its range.

**Struthiola lineariloba** Meisn.

Status: DDD

D.A. Kamundii & D. Raimondo

**Distribution:** WC. Pakhuis Mountains.

Habitat: Sandstone slopes.

**Rationale:** Known from one collection from the Pakhuis Pass, collected in 1956 by Dahlgren. Not enough is known about the distribution, specific habitat or current population status of this species to determine its status.
Struthiola tetralepis Schltr. var. glabricaulis Schltr.

Status: DDD
C.L. Bredenkamp & L. Potter

Distribution: WC. Paarl to Caledon.
Habitat: Mountain slopes, 274–762 m.

Synaptolepis Oliv.

Synaptolepis kirkii Oliv.

Status: NT A4d

Habitat: Restricted to sand forest and bush clumps in dry coastal grassland.

Rationale: Past exploitation for the medicinal plant trade has caused a decline of over 30% of the South African portion of the population. Declines due to muthi harvesting and habitat destruction are ongoing. The assessment is downgraded to NT because there are adjacent and continuous subpopulations in southern Mozambique and Swaziland.

VIOLACEAE

Rinorea Aubl.

Rinorea domatiosa A.E.van Wyk

Status: Rare

Distribution: EC KZN. Oribi Gorge to Port St Johns.
Habitat: Pondoland scarp forest. Sometimes among rocks on riverbanks, Msikaba Formation Sandstone, 10–500 m.

Rationale: EOO 2 000 km². Occurs in deep ravines and river gorges where it is relatively safe from the main threats to Pondoland forests (too frequent and intense fires and wood harvesting).

VITACEAE

Cyphostemma (Planch.) Alston

Cyphostemma flaviflorum (Sprague) Desc.

Status: NT A2c
L. von Staden

Distribution: KZN. KwaZulu-Natal coast, from Durban to Port Shepstone. Possibly also Maputaland.
Habitat: Creeper in subtropical dune thicket, 0–50 m.

Rationale: This species has lost an estimated 20–30% of its habitat to urban development, crop cultivation and overgrazing by livestock over the last three generations.

Cyphostemma hardyi Retief

Status: VU D2
A.E. van Wyk, L. von Staden & J.E. Victor

Distribution: LM. Western Waterberg.
Habitat: Grows in the shade of trees among boulders on rocky slopes.

Rationale: A range-restricted endemic to the western Waterberg (EOO ≤ 400 km²), known from three locations. Potentially threatened by collecting for horticultural purposes.

Cyphostemma rubroglandulosum Retief & A.E.van Wyk

Status: Rare
J.E. Victor & L. von Staden

Distribution: EC KZN. Oribi Gorge to Port St John.
Habitat: Pondoland scarp forest. Forest margins on rocky outcrops.

Rationale: EOO 5 600 km². Locally common within a restricted area. Occurs on the margins of Pondoland forests, a habitat that is being threatened and degraded by firewood harvesting and too frequent fires. However, because this species is restricted to extremely rocky sites, it is likely to be protected from fire. Firewood harvesting is causing degradation of the habitat but has no direct impact on this species at present. Although potentially threatened, it is currently still too common to qualify under VU D2.

Rheicissus Planch.

Rheicissus kougabergensis Retief & Van Jaarsv.

Status: Rare
D. Raimondo & R.C. Turner

Distribution: EC. Kouga Mountains, near Kouda Dam in the Bavianskloof Wilderness Area.
Habitat: Subtropical thicket, steep sandstone slopes dominated by Portulacaria afra.

Rationale: EOO < 10 km². Known from one subpopulation, but a few more subpopulations are likely to exist in this under-explored area.

Rheicissus laetans Retief

Status: Rare
J.E. Burrows, M. Lötter & L. von Staden

Habitat: Montane grassland or in deep, wooded ravines, occasionally in riverine forest.

Rationale: EOO 440 km². The habitat is largely untransformed and it is mostly protected in nature reserves.

ZYGOPHYLLACEAE

Zygophyllum L.

Zygophyllum divaricatum Eckl. & Zeyh.

Status: EN B1ab(i,ii,iii,iv,v)
A.P. Dold & D. Raimondo

Distribution: WC. Betty’s Bay to De Hoop.
Habitat: Limestone fynbos on coastal flats.

Rationale: Known from fewer than five locations. Potentially threatened by coastal development and invasion by alien plants.

Zygophyllum fuscatum Van Zyl

Status: VU D2
D. Raimondo & D.A. Kamundi

Distribution: WC. Betty’s Bay to De Hoop.
Habitat: Limestone fynbos on coastal flats.

Rationale: Known from fewer than five locations. Potentially threatened by coastal development and invasion by alien plants.
References


Websites accessed for information (cited in the text)
Appendix I
Criteria for the IUCN categories of threat

Critically Endangered (CR)

A. Reduction in population size based on any of the following:

1. An observed, estimated, inferred or suspected population size reduction of $\geq 90\%$ over the last 10 years or three generations, whichever is longer, where the causes of the reduction are clearly reversible AND understood AND have ceased, based on (and specifying) any of the following:
   a. Direct observation.
   b. An index of abundance appropriate to the taxon.
   c. A decline in area of occupancy, extent of occurrence and/or quality of habitat.
   d. Actual or potential levels of exploitation.
   e. The effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.

2. An observed, estimated, inferred or suspected population size reduction of $\geq 80\%$ over the last 10 years or three generations, whichever is longer, where the reduction or its causes may not be reversible OR may not be understood OR may not have ceased, based on (and specifying) any of a–e under A1.

3. A population size reduction of $\geq 80\%$ projected or suspected to be met within the next 10 years or three generations, whichever is longer, up to a maximum of 100 years, based on (and specifying) any of b–e under A1.

4. An observed, estimated, inferred, projected or suspected population size reduction of $\geq 80\%$ over any 10-year or three-generation period, whichever is longer, up to a maximum of 100 years into the future, where the time period must include both the past and the future, and where the reduction or its causes may not be reversible OR may not be understood OR may not have ceased, based on (and specifying) any of a–e under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:

1. Extent of occurrence (EOO) estimated to be less than 100 km$^2$, and estimates indicating at least two of a–c:
   a. Severely fragmented OR known to exist at only a single location.
   b. Continuing decline, observed, inferred or projected, in any of the following:
      (i) Extent of occurrence.
      (ii) Area of occupancy.
      (iii) Area, extent and/or quality of habitat.
      (iv) Number of locations or subpopulations.
      (v) Number of mature individuals.
   c. Extreme fluctuations in any of the following:
      (i) Extent of occurrence.
      (ii) Area of occupancy.
      (iii) Number of locations or subpopulations.
      (iv) Number of mature individuals.

2. Area of occupancy (AOO) estimated to be less than 10 km$^2$, and estimates indicating at least two of a–c:
   a. Severely fragmented OR known to exist at only a single location.
   b. Continuing decline, observed, inferred or projected, in any of the following:
      (i) Extent of occurrence.
      (ii) Area of occupancy.
      (iii) Area, extent and/or quality of habitat.
      (iv) Number of locations or subpopulations.
      (v) Number of mature individuals.
   c. Extreme fluctuations in any of the following:
      (i) Extent of occurrence.
      (ii) Area of occupancy.
      (iii) Number of locations or subpopulations.
      (iv) Number of mature individuals.

C. Population size estimated to number fewer than 250 mature individuals and either:

1. An estimated continuing decline of at least 25% within three years or one generation, whichever is longer, up to a maximum of 100 years into the future, OR

2. A continuing decline, observed, projected or inferred, in numbers of mature individuals AND at least one of the following, a or b:
   a. Population structure in the form of one of the following:
      (i) No subpopulation estimated to contain more than 50 mature individuals, OR
      (ii) At least 90% of mature individuals in one subpopulation.
   b. Extreme fluctuations in number of mature individuals.

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1 As published in IUCN (2001). See also inside back cover for a summary of the criteria.
D. Population size estimated to number fewer than 50 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 50% within 10 years or three generations, whichever is longer, up to a maximum of 100 years.

**Endangered (EN)**

A. Reduction in population size based on any of the following:

1. An observed, estimated, inferred or suspected population size reduction of ≥ 70% over the last 10 years or three generations, whichever is longer, where the causes of the reduction are clearly reversible AND understood AND have ceased, based on (and specifying) any of the following:
   a. Direct observation.
   b. An index of abundance appropriate to the taxon.
   c. A decline in area of occupancy, extent of occurrence and/or quality of habitat.
   d. Actual or potential levels of exploitation.
   e. The effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.

2. An observed, estimated, inferred or suspected population size reduction of ≥ 50% over the last 10 years or three generations, whichever is longer, where the reduction or its causes may not be reversible OR may not be understood OR may not have ceased, based on (and specifying) any of a–e under A1.

3. A population size reduction of ≥ 50% projected or suspected to be met within the next 10 years or three generations, whichever is longer, up to a maximum of 100 years, based on (and specifying) any of b–e under A1.

4. An observed, estimated, inferred, projected or suspected population size reduction of ≥ 50% over any 10-year or three-generation period, whichever is longer, up to a maximum of 100 years into the future, where the time period must include both the past and the future, and where the reduction or its causes may not be reversible OR may not be understood OR may not have ceased, based on (and specifying) any of a–e under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:

1. Extent of occurrence (EOO) estimated to be less than 5 000 km², and estimates indicating at least two of a–c:
   a. Severely fragmented OR known to exist at no more than five locations.
   b. Continuing decline, observed, inferred or projected, in any of the following:
      (i) Extent of occurrence.
      (ii) Area of occupancy.
      (iii) Area, extent and/or quality of habitat.
      (iv) Number of locations or subpopulations.
      (v) Number of mature individuals.
   c. Extreme fluctuations in any of the following:
      (i) Extent of occurrence.
      (ii) Area of occupancy.
      (iii) Number of locations or subpopulations.
      (iv) Number of mature individuals.

2. Area of occupancy (AOO) estimated to be less than 500 km², and estimates indicating at least two of a–c:
   a. Severely fragmented OR known to exist at no more than five locations.
   b. Continuing decline, observed, inferred or projected, in any of the following:
      (i) Extent of occurrence.
      (ii) Area of occupancy.
      (iii) Area, extent and/or quality of habitat.
      (iv) Number of locations or subpopulations.
      (v) Number of mature individuals.
   c. Extreme fluctuations in any of the following:
      (i) Extent of occurrence.
      (ii) Area of occupancy.
      (iii) Number of locations or subpopulations.
      (iv) Number of mature individuals.

C. Population size estimated to number fewer than 2 500 mature individuals and either:

1. An estimated continuing decline of at least 20% within five years or two generations, whichever is longer, up to a maximum of 100 years into the future, OR

2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following, a or b:
   a. Population structure in the form of one of the following:
      (i) No subpopulation estimated to contain more than 250 mature individuals, OR
      (ii) At least 95% of mature individuals in one subpopulation.
   b. Extreme fluctuations in number of mature individuals.
D. Population size estimated to number fewer than 250 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 20% within 20 years or five generations, whichever is longer, up to a maximum of 100 years.

**Vulnerable (VU)**

A. Reduction in population size based on any of the following:
   1. An observed, estimated, inferred or suspected population size reduction of ≥ 50% over the last 10 years or three generations, whichever is longer, where the causes of the reduction are clearly reversible AND understood AND have ceased, based on (and specifying) any of the following:
      a. Direct observation.
      b. An index of abundance appropriate to the taxon.
      c. A decline in area of occupancy, extent of occurrence and/or quality of habitat.
      d. Actual or potential levels of exploitation.
      e. The effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.
   2. An observed, estimated, inferred or suspected population size reduction of ≥ 30% over the last 10 years or three generations, whichever is longer, where the reduction or its causes may not be reversible OR may not be understood OR may not have ceased, based on (and specifying) any of a–e under A1.
   3. A population size reduction of ≥ 30% projected or suspected to be met within the next 10 years or three generations, whichever is longer, up to a maximum of 100 years, based on (and specifying) any of b–e under A1.
   4. An observed, estimated, inferred, projected or suspected population size reduction of ≥ 30% over any 10-year or three-generation period, whichever is longer, up to a maximum of 100 years into the future, where the time period must include both the past and the future, and where the reduction or its causes may not be reversible OR may not be understood OR may not have ceased, based on (and specifying) any of a–e under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:
   1. Extent of occurrence (EOO) estimated to be less than 20 000 km², and estimates indicating at least two of a–c:
      a. Severely fragmented OR known to exist at no more than 10 locations.
      b. Continuing decline, observed, inferred or projected, in any of the following:
         (i) Extent of occurrence.
         (ii) Area of occupancy.
         (iii) Area, extent and/or quality of habitat.
         (iv) Number of locations or subpopulations.
         (v) Number of mature individuals.
      c. Extreme fluctuations in any of the following:
         (i) Extent of occurrence.
         (ii) Area of occupancy.
         (iii) Number of locations or subpopulations.
         (iv) Number of mature individuals.
   2. Area of occupancy (AOO) estimated to be less than 2 000 km², and estimates indicating at least two of a–c:
      a. Severely fragmented OR known to exist at no more than 10 locations.
      b. Continuing decline, observed, inferred or projected, in any of the following:
         (i) Extent of occurrence.
         (ii) Area of occupancy.
         (iii) Area, extent and/or quality of habitat.
         (iv) Number of locations or subpopulations.
         (v) Number of mature individuals.
      c. Extreme fluctuations in any of the following:
         (i) Extent of occurrence.
         (ii) Area of occupancy.
         (iii) Number of locations or subpopulations.
         (iv) Number of mature individuals.

C. Population size estimated to number fewer than 10 000 mature individuals and either:
   1. An estimated continuing decline of at least 10% within 10 years or three generations, whichever is longer, up to a maximum of 100 years into the future, OR
   2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following, a or b:
      a. Population structure in the form of one of the following:
         (i) No subpopulation estimated to contain more than 1 000 mature individuals, OR
         (ii) All mature individuals in one subpopulation.
      b. Extreme fluctuations in number of mature individuals.
D. Population size very small or restricted in the form of either of the following:

1. Population size estimated to number fewer than 1,000 mature individuals.
2. Population with a very restricted area of occupancy (typically less than 20 km²) or number of locations (typically five or fewer) such that it is prone to the effects of human activities or stochastic events within a very short time period in an uncertain future, and is thus capable of becoming Critically Endangered or even Extinct in a very short time period².

E. Quantitative analysis showing the probability of extinction in the wild is at least 50% within 10 years or three generations, whichever is longer, up to a maximum of 100 years.

² Note: Although not specified in the criteria, according to IUCN Standards and Petitions Working Group (2008) guidelines on the application of VU D2, plausible potential threats in the form of human activities or stochastic events are the most essential component of this criterion and should be specified in the assessment rationale. Unlikely events (such as the eruption of an inactive volcano), nonspecific events that have not yet been observed in similar taxa (such as unspecified disease epidemics) or events unlikely to cause extinction (for example drought when the taxon has already survived many droughts) should not be used to list a taxon as VU D2. In applying this criterion, it is important to consider whether plausible threatening processes are likely to be already causing decline or not. VU D2 should only be used when it is relatively certain that the population is stable at present. If there are suspicions that the population is declining, the taxon should be categorised as Endangered under Criterion B.
Appendix II

Taxonomic changes to taxa listed by Hilton-Taylor (1996a,b, 1997)

Many taxa listed by Hilton-Taylor (1996a,b, 1997) have been put into synonymy. These names are here listed alphabetically by genus together with their currently accepted names. A few other previously listed taxa have been excluded from this Red List because they are naturalised exotics, natural hybrids or were listed at taxonomic ranks below variety. These taxa are listed under Excluded taxa at the end of this Appendix, together with the reasons for their exclusion.

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G.D.Rowley

Euphorbia valida N.E.Br. = Euphorbia meloformis Aiton subsp. valida (N.E.Br.) G.D.Rowley


Faucaria candida L.Bolus = Faucaria felina (L.) Schwantes

Faucaria hooleae L.Bolus = Faucaria gratae L.Bolus

Ferraria divaricata Sweet subsp. arenosa M.P.de Vos = Ferraria divaricata Sweet

Ferraria divaricata Sweet subsp. aurea M.P.de Vos = Ferraria divaricata Sweet

Ferraria uncinata Sweet subsp. macrochlamys (Baker) M.P.de Vos = Ferraria macrochlamys (Baker) Goldblatt & J.C.Manning

Finckea ericephala Klotzsch = Erica pilosiflora E.G.H.Oliv. subsp. pilosiflora

Fresia elenensis L.Bolus = Fresia caryophyllea (Burm.f.) N.E.Br.

Freylinia decorum L.Bolus ex Van Jaarsv. = Freylinia caryophyllea (Burm.f.) Benth.

Galaxia alata Goldblatt = Moraea angulata Goldblatt

Galaxia barnardi Goldblatt = Moraea barnardiella Goldblatt

Galaxia ciliata Pers. = Moraea pilifolia Goldblatt

Galaxia fenestrata Goldblatt & E.G.H.Oliv. = Moraea fenestrata (Goldblatt & E.G.H.Oliv.) Goldblatt

Galaxia grandiflora Andrews = Moraea kamiesensis Goldblatt

Galaxia parva Goldblatt = Moraea kamiesmontana (Goldblatt) Goldblatt

Galaxia variabilis G.J.Lewis = Gladiolus variagatus (G.J.Lewis) Goldblatt & J.C.Manning

Gladiolus floribundus Jacq. subsp. miniatus (Eckl.) Oberm. = Gladiolus miniatus Eckl.

Gladiolus gracilis Jacq. var. latifolius G.J.Lewis = Gladiolus caeruleus Goldblatt & J.C.Manning

Gladiolus microcarpus G.J.Lewis subsp. italensis Oberm. = Gladiolus scabridus Goldblatt & J.C.Manning

Gladiolus oppositiflorus Herb. subsp. salmones (Baker) Oberm. = Gladiolus oppositiflorus Herb.

Gladiolus pilansii G.J.Lewis var. roseus G.J.Lewis = Gladiolus martleyi L.Bolus

Gladiolus pritzelii Diels var. sulfurus G.J.Lewis = Gladiolus sulphurus (G.J.Lewis) Goldblatt & J.C.Manning

Gladiolus punctatus Schrank var. punctatus = Gladiolus hirsutus Jacq.

Gladiolus robustus Goldblatt = Gladiolus gardii L.Bolus

Gladiolus regersii Baker var. vlokii Goldblatt = Gladiolus regersii Baker

Gladiolus varius F.Bolus var. alacticus (Baker) Oberm. = Gladiolus ferrugineus Goldblatt & J.C.Manning

Grisebacia ciliaris (L.f.) Klotzsch subsp. bolusii (N.E.Br.) E.G.H.Oliv. = Erica plumosa Thunb.

Grisebacia ciliaris (L.f.) Klotzsch subsp. involuta (Klotzsch) E.G.H.Oliv. = Erica plumosa Thunb.

Grisebacia incana (Bartl.) Klotzsch = Erica plumosa Thunb.


Grisebacia nivenii N.E.Br. = Erica plumosa Thunb.

Grisebacia plumosa (Thunb.) Klotzsch subsp. echiata E.G.H.Oliv. = Erica plumosa Thunb.

Grisebacia plumosa (Thunb.) Klotzsch subsp. hirta (Klotzsch) E.G.H.Oliv. = Erica plumosa Thunb.

Grisebacia plumosa (Thunb.) Klotzsch subsp. hispida (Klotzsch) E.G.H.Oliv. = Erica plumosa Thunb.

Grisebacia plumosa (Thunb.) Klotzsch subsp. irrigata E.G.H.Oliv. = Erica plumosa Thunb.

Grisebacia rigida N.E.Br. = Erica plumosa Thunb.


Gynandriris anomala Goldblatt = Moraea contorta Goldblatt

Gynandriris hesperantha Goldblatt = Moraea hesperantha (Goldblatt) Goldblatt

Haplocoeolum gallerense (Engl.) Radlk. = Haplocoeolum foliolosum (Hiern) Bullock subsp. mombasense (Bullock) Verdc.

Haworthia archeri W.E.Barker ex M.B.Bayer var. archeri = Haworthia marumiana Uitewaal var. archeri (W.E.Barker ex M.B.Bayer) M.B.Bayer

Haworthia archeri W.E.Barker ex M.B.Bayer var. dimorpha M.B.Bayer = Haworthia marumiana Uitewaal var. dimorpha (M.B.Bayer) M.B.Bayer

Haworthia comptoniana G.G.Sm. = Haworthia emelyae Poelln. var. comptoniana (G.G.Sm.) J.D.Venter & S.A.Hammer

Haworthia fasciata (Willd.) Haw. = Haworthia fasciata (Willd.) Haw.

Haworthia graminifolia G.G.Sm. = Haworthia blackburniae W.E.Barker var. graminifolia (G.G.Sm.) M.B.Bayer

Haworthia magnifica Poelln. var. major (G.G.Sm.) M.B.Bayer = Haworthia emelyae Poelln. var. major (G.G.Sm.) M.B.Bayer

Haworthia magnifica Poelln. var. paradoxa (Poelln.) M.B.Bayer = Haworthia mirabilis (Haw.) Haw. var. paradoxa (Poelln.) M.B.Bayer

Haworthia maughanii Poelln. = Haworthia truncata Schönland var. maughanii (Poelln.) B.Fearn

Haworthia mcmurtryi C.L.Scott = Haworthia koelmaniorum Oberm. & D.S.Hardy var. mcmurtryi (C.L.Scott) M.B.Bayer

Haworthia mirabilis (Haw.) Haw. subsp. badia (Poelln.) M.B.Bayer = Haworthia mirabilis (Haw.) Haw. var. badia (Poelln.) M.B.Bayer

Haworthia mirabilis (Haw.) Haw. subsp. mundula (G.G.Sm.) M.B.Bayer = Haworthia mirabilis (Haw.) Haw. var. mirabilis

Haworthia mottieri G.G.Sm. var. pubilatissima (C.L.Scott) M.B.Bayer = Haworthia mottieri G.G.Sm. var. pubilatissima (C.L.Scott) M.B.Bayer

Haworthia poelnitziana Uitewaal = Haworthia minima (Aiton) Haw. var. poelnitziana (Uitewaal) M.B.Bayer

Haworthia retusa (L.) Duval var. dekenahii (G.G.Sm.) M.B.Bayer = Haworthia magnifica Poelln. var. dekenahii (G.G.Sm.) M.B.Bayer

Haworthia stricta Poelln. var. lateganiae (Poelln.) M.B.Bayer = Haworthia scabra Haw. var. lateganiae (Poelln.) M.B.Bayer

Haworthia woolleyi Poelln. = Haworthia venosa (Lam.) Haw. subsp. woolleyi (Poelln.) Halda
Hemimeris montana L.f. = Hemimeris racemosa (Houtt.) Merr.
Hemizygia bolusii (N.E.Br.) Codd = Syncolostemon bolusii (N.E.Br.) D.F.Otieno
Hemizygia ramosa Codd = Syncolostemon ramosus (Codd) D.F.Otieno
Hemizygia rugosifolia M.Ashby = Syncolostemon rugosifolius (M.Ashby) D.F.Otieno
Herschelianthe barbata (L.f.) N.C.Anthony = Disa barbata (L.f.) Sw.
Herschelianthe forcipata (Schltr.) Rauschert = Disa forcipata Schltr.
Herschelianthe forficaria (Bolus) N.C.Anthony = Disa forficaria Bolus
Herschelianthe lugens (Bolus) Rauschert var. lugens = Disa lugens Bolus var. lugens
Herschelianthe megas (Bolus) Rauschert var. nigrescens (H.P.Linder) N.C.Anthony = Disa megas Bolus var. nigrescens (H.P.Linder) H.P.Linder
Herschelianthe multifida (Bolus) Rauschert = Disa multifida Bolus
Herschelianthe newdigaeae (L.Bolus) N.C.Anthony = Disa newdigaeae L.Bolus
Herschelianthe schlechteriana (Bolus) N.C.Anthony = Disa schlechteriana Bolus
Herschelianthe spathulata (L.f.) Rauschert subsp. spathulata = Disa spathulata (L.f.) Sw. subsp. spathulata
Herschelianthe spathulata (L.f.) Rauschert subsp. tripartita (Bolus) N.C.Anthony = Disa spathulata (L.f.) Sw. subsp. tripartita (Bolus)
H.P.Linder
Herschelianthe venusta (Bolus) Rauschert = Disa venusta Bolus
Hexaglottis namaquana Goldblatt = Moraea namaquana (Goldblatt) Goldblatt
Hexaglottis virgata (Jacq.) Sweet subsp. karooica Goldblatt = Moraea virgata Jacq. subsp. karooica (Goldblatt) Goldblatt
Hippocrates crenata (Klotzsch) K.Schum. & Loes. = Elocenocrella crenata (Klotzsch) R.Wilczek et al. N.Hallé var. crenata
Hippocrates parvifolia Oliv. = Elachyptera parvifolia (Oliv.) N.Hallé
Homeria autumnalis Goldblatt = Moraea autumnalis (Goldblatt) Goldblatt
Homeria bolusiae Goldblatt = Moraea lousabolusiae Goldblatt
Homeria cedarmontana Goldblatt = Moraea cedarmonticola Goldblatt
Homeria comptonii L.Bolus = Moraea comptonii (L.Bolus) Goldblatt
Homeria elegans (Jacq.) Sweet = Moraea elegans Jacq.
Homeria fenestrata Goldblatt = Moraea fenestrata (Goldblatt) Goldblatt
Homeria fuscomontana Goldblatt = Moraea fuscomontana (Goldblatt) Goldblatt
Homeria miniata (Andrews) Sweet = Moraea miniata Andrews
Homeria ochroleuca Salisb. = Moraea ochroleuca (Salisb.) Drapiez
Homeria odorata L.Bolus = Moraea fragrans Goldblatt
Homeria patens Goldblatt = Moraea patens (Goldblatt) Goldblatt
Homeria pendula Goldblatt = Moraea pendula (Goldblatt) Goldblatt
Homeria radians (Goldblatt) Goldblatt = Moraea radians (Goldblatt) Goldblatt
Homeria ramosissima Schltr. = Moraea knersvaktensis Goldblatt
Homeria serratostyla Goldblatt = Moraea serratostyla (Goldblatt) Goldblatt
Homeria spiralis L.Bolus = Moraea apsera Goldblatt
Homeria vallibelli Goldblatt = Moraea vallibelli (Goldblatt) Goldblatt
Huernia hystrix (Hook.f.) N.E.Br. var. parvula L.C.Leach = Huernia hystrix (Hook.f.) N.E.Br. subsp. parvula (L.C.Leach) Bruyns
Huernia insigniflora C.A.Maass = Huernia zebrina N.E.Br. subsp. insigniflora (C.A.Maass) Bruyns
Isoetes capensis (Klotzsch) K.Schum. & Loeseneriella crenata (Klotzsch) R.Wilczek et al. N.Hallé var. crenata
Huernia zebrina (A.V.Duthie) Schelpe & N.C.Anthony = Huernia zebrina (A.V.Duthie) Schelpe & N.C.Anthony
Ixia bellendenii R.C.Foster = Ixia longituba N.E.Br. var. bellendenii (R.C.Foster) M.P.de Vos = Ixia longituba N.E.Br. var. bellendenii (R.C.Foster) M.P.de Vos
Ixia frederickii M.P.de Vos = Ixia dubia Vent.
Jumellea filicornoides (De Wild.) Schltr. = Jumellea walleri (Rofe) la Croix
Juttadinteria tetrasepala L.Bolus = Juttadinteria deserticola (Marloth) Schwantes
Lachenalia rhodantha Baker = Lachenalia campanulata Baker
Lachnea elegans Compton = Lachnea striata (Poiz) Meisn.
Lachnea purpurea Andrews = Lachnea eriocephala L.
Lampranthus dunensis (Sond.) L.Bolus = Eresia dunensis (Sond.) Klak
Laurentia giftbergensis (E.Phillips) E.Wimm. = Wimmerella bifida (Thunb.) L.Serra, M.B.Crespo & Lammers
Laurentia longituba E.Wimm. = Wimmerella longituba (E.Wimm.) L.Serra, M.B.Crespo & Lammers
Laurentia mariae E.Wimm. = Wimmerella mariae (E.Wimm.) L.Serra, M.B.Crespo & Lammers
Lavrania cactiformis (Hook.) Bruyns in part = Larryleaehia cactiformis (Hook.) Bruyns var. felina (D.T.Cole) Bruyns
Lavrania cactiformis (Hook.) Bruyns in part = Larryleaehia cactiformis (Hook.) Bruyns var. cactiformis
Lavrania cactiformis (Hook.) Bruyns in part = Larryleaehia similis (N.E.Br.) Bruyns
Lavrania marlothii (N.E.Br.) Bruyns in part = Larryleaehia dinteri (A.Berger) Bruyns
Lavrania marlothii (N.E.Br.) Bruyns in part = Larryleaehia marlothii (N.E.Br.) Bruyns
Lavrania perlata (Dinter) Bruyns = Larryleaehia perlata (Dinter) Bruyns
Lavrania picta (N.E.Br.) Bruyns subsp. picta = Larryleaehia picta (N.E.Br.) Bruyns
Lessertia schlechteri L.Bolus = Lessertia pauciflora Harv. var. schlechteri L.Bolus
Limonium capense (L.Bolus) L.Bolus = Afrolimon capense (L.Bolus) Lincz.
Limonium namaquanum (L.Bolus) L.Bolus = Afrolimon namaquanum (L.Bolus) Lincz.
Limonium purpuratum (L.) F.T.Hubb. ex L.H.Bailey = Afrolimon purpuratum (L.) Lincz.
Limonium teretifolium L.Bolus = Afrolimon teretifolium (L.) Lincz.
Linceria battiscopae Hutch. = Chionanthus battiscopae (Hutch.) Stearn
Lithops aucampiae L.Bolus var. euniceae de Boer = Lithops aucampiae L.Bolus subsp. euniceae (de Boer) D.T.Cole
Lobelia acutangula  
Lobelia montaguensis  
Maytenus vanwykii  
Maytenus pubescens  
Maytenus oxycarpa  
Maytenus bachmannii  
Lithops olivacea  
Lithops lesliei  
Lithops aucampiae  
Quaqua inversa  
Quaqua armata  
Pterothrix tecta  
Pterothrix flaccida  
Polyxena corymbosa  
Pterothrix perotrichoides  
Orbea irrorata  
Orbea lepida  
Lithops comptonii  
Lithops bromfieldii  
Lithops dinteri  
Lithops aucampiae  
Lithops glaudinae  
Lithops fulviceps  
Lithops divergens  
Lithops hookeri  
Lithops hookeri  
Lithops hookeri  
Ophthalmophyllum villetii  
Ophthalmophyllum longitubum  
Monadenia macrostachya  
Oedera muirii  
Myrica integra  
Rhinephyllum inaequale  
Rhadamanthus arenicola  
Pachycymbium ubomboense  
Pectinaria mammillaris  
Pelargonium namaquense  
Podalyria lanceolata  
Piaranthus barrydalensis  
Orbea speciosa  
Orbeopsis gerstneri  
Orbea variegata  
Conophytum concordans  
Conophytum longum  
Drimia arenicola  
Oxalis framesii  
Orbeopsis knobelii  
Ornithogalum pullatum  
Ophthalmophyllum villetii  
Ophthalmophyllum longitubum  
Monadenia macrostachya  
Oedera muirii  
Myrica integra  
Rhinephyllum inaequale  
Rhadamanthus arenicola  
Pachycymbium ubomboense  
Pectinaria mammillaris  
Pelargonium namaquense  
Podalyria lanceolata  
Piaranthus barrydalensis  
Orbea speciosa  
Orbeopsis gerstneri  
Orbea variegata  
Conophytum concordans  
Conophytum longum  
Drimia arenicola  
Oxalis framesii  
Orbeopsis knobelii  
Ornithogalum pullatum  
Ophthalmophyllum villetii  
Ophthalmophyllum longitubum  
Monadenia macrostachya  
Oedera muirii  
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Rhinephyllum inaequale  
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Orbeopsis knobelii  
Ornithogalum pullatum  
Ophthalmophyllum villetii  
Ophthalmophyll...
Senecio scabriusculus
Secale africanum
Scyphogyne calcicola
Scirpus delicatulus
Roella incurva
Roella cuspidata
Roella rhodantha
Roella lightfootioides
Ruschia filamentosa
Roggeveldia montana
Roggeveldia fistulosa
Satyridium rostratum
Ruschia leipoldtii
Rhus pondoensis
Rhus maricoana
Rhus kwazuluana
Rhus rudatisii
Rhus rogersii
Rhus stenophylla
Rhus wilmsii
Roella cuspidata Adamson var. hispida Adamson = Roella compacta Schltr.
Roella incurva A.D.C. var. rigida Adamson = Roella prostrata E.Mey. ex A.D.C.
Roella lightfootioides Schltr. = Roella spicata L.f. var. spicata
Roella rhodantha Adamson = Roella incurva A.D.C.
Roggeveldia fistulosa Goldblatt = Moraea fistulosa (Goldblatt) Goldblatt
Roggeveldia montana Goldblatt = Moraea monticola Goldblatt
Romulea papryacea Welles-Dod = Romulea schlechteri Bég.
Romulea vanzyliae M.P.de Vos = Romulea subfistulosa M.P.de Vos
Ruschia filamentosa (L.) Bolus = Erepsia forficata (L.) Schwantes
Ruschia leipoldtii B.L.Bolus = Antimima leipoldtii (B.L.Bolus) H.E.K.Hartmann
Satyridium rostratum Lindl. = Satyrium rhynchanthum Bolus
Scilla natalensis Planch. = Merwillia plumbea (Lindl.) Speta
Scilla plumbea Lindl. = Merwillia plumbea (Lindl.) Speta
Scirpus delicatus Leyrn = Isolepis bulbifera (Boeck.) Muasya
Secale africanum Staf = Secale strictum (J.Presl).J.Presl subsp. africanaum (Staf) K.Hammer
Senecio scabriscusculus DC. = Senecio pinnatus Thunb.
Solanium crassissilum Lam. = Solanum africanaum Mill.
Sphalmanthus arenicolus (L.Bolus) L.Bolus = Phyllobolus oculatus (N.E.Br.) Gerbaulet
Spiloxene declinata (Nel) Garside = Spiloxene curculigoides (Bolus) Garside
Stapelia baylissii L.C.Leach = Stapelia hirsuta L. var. baylissii (L.C.Leach) Brynus
Stapelia gariepensis Pillans = Stapelia hirsuta L. var. gariepensis (Pillans) Brynus
Stapelia glabriceulis N.E.Br. = Stapelia hirsuta L. var. tsomoensis (N.E.Br.) Brynus
Stapelia macowanii N.E.Br. var. conformis (N.E.Br.) L.C.Leach = Stapelia grandiflora Masson var. conformis (N.E.Br.) Brynus
Stapelia macowanii N.E.Br. var. macowanii = Stapelia grandiflora Masson var. conformis (N.E.Br.) Brynus
Stapelia peglerae N.E.Br. = Stapelia hirsuta L. var. tsomoensis (N.E.Br.) Brynus
Stapelia praetermissa L.C.Leach var. luteola L.C.Leach = Stapelia hirsuta L. var. baylissii (L.C.Leach) Brynus
Stapelia praetermissa L.C.Leach var. praetermissa = Stapelia hirsuta L. var. baylissii (L.C.Leach) Brynus
Stapelia scitula L.C.Leach = Stapelia paniculata Wildl. subsp. scitula (L.C.Leach) Brynus
Stapelia tsomoensis N.E.Br. = Stapelia hirsuta L. var. tsomoensis (N.E.Br.) Brynus
Stapelia vetula Masson = Stapelia hirsuta L. var. vetula (Masson) Brynus
Stictocardia laxiflora (Baker) Hallier f. var. woodii (N.E.Br.) Verdc. = Stictocardia laxiflora (Baker) Hallier f.
Stoebe ensorii Compton = Stoebe phyllostachya (DC.) Sch.Bip.
Stoebe humulis Leyrn = Stoebe cyathuloides Schltr.
Stoebe saltersi Leyrn = Stoebe saltzii Leyrn
Struthiola congesta C.H.Wright = Struthiola pondoensis Gilg ex C.H.Wright
Sutera aethiopica (L.) Kuntze = Chaenostoma aethiopicum (L.) Benth.
Sutera campanulata (Benth.) Kuntze = Chaenostoma campanulatum Benth.
Sutera longipedicellata Hilliard = Chaenostoma longipedicellatum (Hilliard) Kornhall
Sutera multiramosa Hilliard = Chaenostoma multiramosum (Hilliard) Kornhall
Sutera placida Hilliard = Chaenostoma placidum (Hilliard) Kornhall
Sutera platypetala Hiern = Chaenostoma platypetalum (Hiern) Kornhall
Sutera polyantha (Benth.) Kuntze = Chaenostoma polyanthum Benth.
Sutera racemosa (Benth.) Kuntze = Chaenostoma racemosum Benth.
Sutera subnuda (N.E.Br.) Hiern = Chaenostoma subnudum N.E.Br.
Sutera titanophila Hilliard = Chaenostoma titanophilum (Hilliard) Kornhall
Syndesmanthus schlechteri N.E.Br. = Erica agglutinans E.G.H.Oliv.
Tarenna zimbabwensis Bridson = Coptosperma rhodesiacum (Bremek.) Degreaf
Tarenna zygoon Bridson = Coptosperma zygoon (Bridson) Degreaf
Tenicroa filifolia (Jacq.) Oberm. = Drimia filifolia (Jacq.) J.C.Manning & Goldblatt
Tenicroa multifolia (G.J.Lewis) Oberm. = Drimia multifolia (G.J.Lewis) Jessop
Tenicroa nana Snijman = Drimia nana (Snijman) J.C.Manning & Goldblatt
Thelypteris altissima (Holttum) Vorster = Christella altissima Holttum
Thelypteris knysnaensis N.C.Anthony & Schelpe = Amauropelta knysnaensis (N.C.Anthony & Schelpe) Parris
Thuranthos basaticum (E.Phillips) Oberm. = Drimia angustifolia Baker
Thuranthos macranthum (Baker) C.H.Wright = Drimia macrantha (Baker) Baker
Tridentea parvipuncta (N.E.Br.) L.C.Leach var. truncata (C.A.Lückh.) L.C.Leach = Tridentea parvipuncta (N.E.Br.) L.C.Leach subsp. truncata (C.A.Lückh.) Bruyns
Tritonía watermeyeri L.Bolus = Tritonia securigera (Aiton) Ker Gawl. subsp. watermeyeri (L.Bolus) J.C.Manning & Goldblatt
Tromotriche longii (C.A.Lückh.) Bruyns = Orbea longii (C.A.Lückh.) Bruyns
Urginea modesta Baker = Drimia calcarata (Baker) Steedje
Wahlenbergia ciliolata A.DC. = Wahlenbergia cernua (Thunb.) A.DC.
Wahlenbergia rotundifolia Brehmer = Wahlenbergia brehmeri Lammers
Wahlenbergia swellendamensis H.Buek = Wahlenbergia ecklonii H.Buek
Woodia mucronata (Thunb.) N.E.Br. var. mucronata = Woodia mucronata (Thunb.) N.E.Br.

Excluded taxa
Apium inundatum (L.) Rchb.f.: naturalised exotic
Cullen corylifolia (L.) Medik.: naturalised exotic
Gladiolus × lewisiae Oberm.: natural hybrid
Huernia × distincta N.E.Br.: natural hybrid
Hyptis spicigera Lam.: naturalised exotic
Satyrium candidum Lindl. × S. bicallosum Thunb. = Satyrium × guthriei Bolus: natural hybrid
Stapelia barklyi N.E.Br. = Orbea namaquensis (N.E.Br.) L.C.Leach × Stapelia hirsuta L.: natural hybrid
This section contains an alphabetical list of all South Africa’s indigenous plant taxa together with their national Red List status and serves two purposes: 1. It is the complete Red List of South African plants, and allows quick reference to the status of any taxon. 2. It is an index to the assessments of taxa of conservation concern (section 5). Subgeneric taxa of conservation concern are marked in bold, and can be found in section 5 by following the page number next to the full genus name.
Adiantum

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Adenophyllum

Adenostemma

Adenolobus

Adenopodia

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Adromischus, 305

Afrotysanthera

Acanthophyllum

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Acathosia

Acetabularia

Acacia

Achyrocline

Achyroneuron

Acmella

Acmena

Aconitum

Acorus

Actaea

Actinidium

Actinopygium

Actinia

Actinorhiza

Actinotaxis

Actinopsidium

Actinostema

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Argyroderma, 410
campicola Harms .................................................NT
petiolata Thunb. ...................................................LC
semipapposa (DC.) Beauverd ................................LC
leiocarpa Harv. ......................................................LC
linearis Thunb. ......................................................LC
hispidula (Less.) Beauverd ................................DDD
decurrens Jacq. ..................................................DDT
H.E.K.Hartmann ................................................ Rare
framesii L.Bolus subsp. hallii (L.Bolus) pungens H.E.K.Hartmann ......................................LC
ascendens Walp. ...................................................LC
collinum Eckl. & Zeyh. ..........................................LC
tricolor Jacq. .........................................................LC
undulata Jacq. ......................................................LC
venidioideae DC. .................................................... LC
vigneto ND ......................................................... LC

Arenifera
pillansii (L.Bolus) Herre ........................................ LC
pungens H.E.K.Hartmann ...................................... LC
spinascens (L.Bolus) H.E.K.Hartmann ..................... LC
styllosa (L.Bolus) H.E.K.Hartmann ......................... LC

Argyroderma, 410
congregatum L.Bolus ............................................ LC
clerodifolia (Boulard) N.E.Br. .................................. LC
delarti C.A.Maas .................................................. LC
fissum (Hance) L.Bolus ......................................... LC
framsesi L.Bolus subsp. framsesi ................................ LC
frustulosa L.Bolus ................................................ LC
H.E.K.Hartmann ................................................ LC
patens L.Bolus ..................................................... LC
pearsonii (N.E.Br.) Schwantes ............................... LC
ringens L.Bolus .................................................... LC
subalbun (N.E.Br.) N.E.Br. ....................................... LC
nentaculare (Aiton) N.E.Br. ...................................... LC
theatris Van Jaarsv ................................................ LC

Argyroderma, 352
accicular Dummer............................................... Rare
amplexicaule (E.Mey.) Dummer ......................... CR PE
angustissimum (E.Mey.) T.Edwards ......................... CR PE
argentum Eckl. & Zeyh. ......................................... LC
ascendens Walp .................................................... LC
baptistoides (E.Mey.) Walp ..................................... LC
barbatum Walp ..................................................... LC
caeruleum Harm .................................................. LC
canidicans Eckl. & Zeyh. ........................................ LC
collinum Eckl. & Zeyh. ......................................... LC
crassifolium Eckl. & Zeyh. ...................................... LC
crenata (E.Mey.) Maj. ........................................... LC
filiforme (Thunb.) Eckl. & Zeyh. .............................. LC
frutescens Burtt Davy ......................................... LC
harmsianum Schltr. ex Harms ............................. EN
harveyanum Oliv ................................................ LC

hamile E.Phillips .................................................. LC
incarnum Eckl. & Zeyh. ........................................ LC
longifolium (Mets.) Walp ...................................... VU
lotoides Harv .................................................... LC
lunare (L.) Druce subsp. lunare .............................. LC
lunare (L.) Druce subsp. sericeum (Thunb.) T.Edwards ..................................................... LC
marginatum Bolus ............................................... LC
megarrhizum Bolus .............................................. NT
mollis Eckl. & Zeyh .............................................. LC
muddii Dummer ................................................ EN
nanum Schltr. ex Harms ....................................... LC
negressens Dummer ............................................. LC
nephyphyllum Schltr ............................................ LC
parviflorum T.Edwards ....................................... Rare
pauciflorum Eckl. & Zeyh. .................................... LC
petiolare (E.Mey.) Steud ....................................... DDD
polyphyllum Eckl. & Zeyh. .................................... LC
pseudotuberoccephalum T.Edwards ......................... LC
pulumul Eckl. & Zeyh. ......................................... LC
rarum Dummer .................................................. Rare
rotundifolium T.Edwards ...................................... LC
rupestre (E.Mey.) Walp. subsp. rupestre ............... LC
sanky Harms ....................................................... LC
sericosemium Harms .......................................... LC
splendens (E.Mey) Walp ....................................... CR PE
stipulaceum Eckl. & Zeyh. .................................... LC
stenospermum (Andrews) Druce ............................ LC
transvaalense Schinz ......................................... LC
triangulatum (Thunb.) Druce ................................. ThR
ultramucilum Eckl. & Zeyh. ................................... LC
virescens Harms .................................................. LC

Aridaria
brevicarpa L.Bolus ............................................... LC
coelicra (L.) Schwantes subsp. defoliata (Hance) Gerbaulet ...................................................... LC
noctiflora (L.) Schwantes subsp. noctiflora (Hance) Gerbaulet ...................................................... LC
serotina L.Bolus ................................................... LC
serotina L.Bolus ................................................... LC
stipitata L.Bolus .................................................. LC
vexilata L.Bolus ................................................... LC

Aristida
abaxic ......................................................... LC
africana (L.) Hoffmanns ........................................ LC
anepc Eckl. ex Klaat ............................................. LC
angolensis Baker subsp. acuivalvis Weim. ................ LC
angolensis Baker subsp. angolensis ......................... LC
angolensis Baker subsp. pulchella Weim. ................ LC
bakeri Klaat ......................................................... LC
bilora Weim ....................................................... EN
bracteata Pers ..................................................... LC
brentskophila Goldblatt & J.C.Manning .................. VU
capitata (L.) Ker Gawl ......................................... LC
cistiflora J.C.Manning & Goldblatt ....................... VU
compessa exinger Baker ex Baker ......................... LC
cuspidadta Schinz .............................................. LC
dichotoma (Thunb.) Ker Gawl. .............................. LC
eckloni Baker ...................................................... LC
ecliptica Goldblatt & A.P.Dodd ............................ NT
enifolia J.Muir bis .............................................. LC
fimbriata Goldblatt & J.C.Manning ....................... Critically Rare
flexuicaxis Baker ................................................. LC
galpinii N.E.Br. ex Weim ....................................... LC
gerrardii Weim ................................................... LC
glascia Klaat ....................................................... LC
grandis Weim ..................................................... LC
maquallah Goldblatt & J.C.Manning ....................... Rare
junifolia Baker ................................................... LC
latifolia G.J.Lewis ................................................ Rare
lugens (L.) Steud ............................................... EN
montana Baker .................................................... LC
nana Goldblatt & J.C.Manning ........................... Rare
negreens J.C.Manning & Goldblatt ....................... Rare
oligocephala Baker ............................................. LC
palustris Harm .................................................... LC
pauciflora W.Loley-Dod ....................................... DDD
platypeпусis Baker ............................................... VU
pulissa (Thunb.) Ker Gawl ................................... LC
racemosa Baker var. inflata Weim ......................... LC
racemosa Baker var. racemosa ................................ LC
recia Weim ......................................................... Rare
rigidifolia G.J.Lewis ............................................ DDD
rupicola Goldblatt & J.C.Manning ....................... Critically Rare
schloa Gore Harv. ex Baker ................................ LC
simplex Weim .................................................. LC
singularis Weim .................................................. RC
spiralis (L.) Ker Gawl ......................................... LC
teretifolia Goldblatt & J.C.Manning ..................... EN
tomonis Klaat ..................................................... LC
zeheri Baker ....................................................... Rare

Aristida
adensiensis Lord ................................................ LC
aequechamis Hack ............................................. LC
bipetala (Nees) Trim. & Rupr ................................ LC
cancescens Henrad subsp. cancescens ..................... LC
cancescens Henrad subsp. ramosa De Winter ................
congesta Roem. & Schult. subsp. barbicollis (Trim. & Rupr.) De Winter ................
congesta Roem. & Schult. subsp. congesta ................ curvata (Nees) T.Durand & Schinz var. nana Henrad ...................................................... LC
dayemissima (Pilg) Mez ........................................ LC
diffusa Trim. subsp. burkei (Stapf) Melderis ................
diffusa Trim. subsp. diffusa ..................................... LC
effusa Henrad ....................................................... LC
gerilla Mez var. engleri .......................................... LC
gerilla Mez var. ramosissima De Winter ................ LC
junciformis Trim. & Rupr. subsp. galpinii (Stapf) De Winter ................
junciformis Trim. & Rupr. subsp. junciformis ........... Meridionalis Henrad .......................................... LC
mollissima Pilg. subsp. argentea (Schweich.) Mellinger, D.D.T.
mollissima Pilg. subsp. mollissima ................................ LC
monticola Henrad ................................................ LC
parvula (Nees) De Winter ..................................... LC
pilgeri Henrad ..................................................... LC
recta Franch ......................................................... LC
rhiniochloa Hochst ........................................... LC
scabrivalvis Hack. subsp. contracta (De Winter) Meier ........................................................................ LC
scabrivalvis Hack. subsp. scabrivalvis ....................... LC
scirpus Stapf ......................................................... LC
spectabilis Hack .................................................... LC
stipitata Hack. subsp. graciliflora (Pilg) .................................... LC
Melderis ......................................................... LC
stipitata Hack. subsp. rupestre (Steen & J.M.Rattray) Melderis .................................................................................. LC
stipitata Hack. subsp. scipata (De Winter) Melderis ......................................................... LC
stipitata Hack. subsp. stipitata ................................ LC
transvaalensis Henrad .......................................... LC
vestita Thunb. var. ekolliana Trim. & Rupr. .............. LC
vestita Thunb. var. vestita ....................................... LC

Arrrowsmithia
stylphioideae DC. .................................................. LC

Artabys
brachypetalus Benth ........................................... LC
monteroeae Oliv .................................................... LC

Artemisia
afra Jacq. ex Willd. var. afra .................................. LC
Artemisopsis
villosa (O.Hoffm.) Schweich .................................. LC

Arthatherum
brevifolium Nees var. Boccookie Nees ................................ LC
curvata Nees var. minor ........................................ LC
subacaula Nees .................................................... LC

Arthroxan
lanceolatus (Roxb.) Hochst. var. lanceolatus ................ LC

Arthropteris
microcarpa (Cordem) C.Chr. .................................... LC

Arundinella
nepalensis Trim ...................................................... LC

Aesclepias, 224
adioschis (Schltr.) Schltr ........................................ LC
albens (E.Mey.) Schltr .......................................... LC
areia (Schltr) Schltr ............................................... LC
bicuspid N.E.Br .................................................... CR
brevischis (E.Mey.) Schltr ....................................... CR
brevipeta (Schltr) Schltr ......................................... CR
compressidens (N.E.Br) Nicholas ............................ Rare
concimna (Schltr) Schltr ....................................... VU
cooperi N.E.Br .................................................... Rare
creanservis N.E.Br .............................................. Rare
cripa P.Bergius var. crispa ...................................... CR
cripa P.Bergius var. plana N.E.Br ................................ CR
cripa P.Bergius var. pseudocrispa N.E.Br ....................................... CR
cucellata (Schltr) Schltr subsp. cucellata .................. LC
Brachypodium
burchellii (Decne.) Peckover var. burchellii ...........LC
bruceae R.A.Dyer subsp. hirsutum R.A.Dyer .........LC
brevipedicellatum Turrill .......................................LC
transvaalensis E.Phillips & Schweick. ....................LC
fontanesianum Nees .............................................LC
dura Stapf var. pilosa J.G.Anderson ....................DDT
deflexa (Schumach.) C.E.Hubb. ex Robyns ............LC
verticillata (Eckl. & Zeyh.) Schinz ..........................LC
flexum Nees ..........................................................LC
bovonei (Chiov.) Robyns ........................................LC
glabra (L.f.) Druce ..................................................LC
discolor DC. ..........................................................LC
tenue R.A.Dyer ....................................................EN
tenue R.A.Dyer ....................................................EN
ciracinatum E.Mey...............................................LC
codii R.A.Dyer ....................................................LC
compton R.E.Burkill ............................................LC
cummingi A.P.Dald ...............................................LC
cupulatam R.A.Dyer ............................................LC
decipiens N.E.Br....................................................LC
delenatam R.A.Dyer ............................................LC
dimorpham R.A.Dyer subsp. dimorphum ..............LC
dimorphum R.A.Dyer subsp. gratum .....................LC
R.A.Dyer .........................................................LC
discoidum R.A.Dyer ............................................LC
superciliatum (Schltr.) N.E.Br. subsp. flavidum ..........LC
dulcis R.A.Dyer ....................................................LC
dulcis R.A.Dyer ....................................................LC
dulcis R.A.Dyer ....................................................LC
dulcis R.A.Dyer ....................................................LC
dulcis R.A.Dyer ....................................................LC
Breonadia
Brenchiaca, 446
Brenchiaca, 446
Brenchiaca, 446
Coptosperma scabrida DC. .......................................................... LC
bifidum Sond. ...................................................... CR
dracomontanum Parkman & Schelpe ....................LC
orobanchoides (L.f.) Sw. ........................................LC
cymbiformis (Haw.) Schwantes .............................LC
carnosum (Lindl.) Rolfe .........................................LC
supra-axillare (Hemsl.) Degreef .............................LC
grandicalyx Oberm. ...............................................LC
caffra Sond. ...........................................................LC
confusus Wild .......................................................LC
rubriviolacea (Friedrich) C.Jeffrey .........................LC
dissectus Cogn. .....................................................LC
rhodesiacum (Bremek.) Degreef ...........................LC
laxum Compton subsp. laxum ..............................LC
var. gramineum (Burm.f.) Weitz ............................LC
kirkii N.E.Br. ..........................................................LC
enerve Markötter ..................................................LC
cymosum E.Mey. ex DC. ........................................LC
congestum E.Mey. ex DC .......................................LC
cymosum E.Mey. ex DC .......................................LC
eislae Weitz .........................................................LC
eislae Weitz .........................................................LC
xanthocarpa E.Mey. ex DC .....................................LC
xanthocarpa E.Mey. ex DC .....................................LC
xanthocarpa E.Mey. ex DC .....................................LC
nigellifolia .............................................................LC
nigellifolia (DC.) K.Bremer & Humphries var. macroglossa Bolus ex Schltr. ....Rare
zimmermannii (Harms) Dunn ................................LC
andreae (E.Phillips) K.Bremer & Humphries....Rare
natalensis C.B.Clarke.............................................LC
sericea L.f. .............................................................LC
capitella Thunb. subsp. sericea (Mogg) Toelken ..........Rare
capitella Thunb. subsp. thyrsiflora (Thunb.) Toelken ......Rare
capitella Thunb. subsp. meyeri (Harv.) Toelken ....LC
capitella Thunb. subsp. capitella ..........................LC
capitella Thunb. subsp. dasyteuthis Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
capitella Thunb. subsp. capitella ..........................LC
capitella Thunb. subsp. capitella ..........................LC
capitella Thunb. subsp. capitella ..........................LC
capitella Thunb. subsp. capitella ..........................LC
capitella Thunb. subsp. capitella ..........................LC
capitella Thunb. subsp. capitella ..........................LC
capitella Thunb. subsp. capitella ..........................LC
capitella Thunb. subsp. capitella ..........................LC
andreae (E.Phillips) K.Bremer & Humphries....Rare
natalensis C.B.Clarke.............................................LC
capitella Thunb. subsp. capitella ..........................LC
capitella Thunb. subsp. capitella ..........................LC
orcinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. thyrsiflora (Thunb.) Toelken ......Rare
capitella Thunb. subsp. meyeri (Harv.) Toelken ....LC
capitella Thunb. subsp. nudolosa (Schönland) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
capitella Thunb. subsp. sessilifolia (Harv.) Toelken ......Rare
acinaciformis Schinz .............................................LC
alba Forssk. var. parvisepala (Schönland) Toelken ......Rare
capitella Thunb. subsp. capitella ..........................LC
orcinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. thyrsiflora (Thunb.) Toelken ......Rare
capitella Thunb. subsp. capitella ..........................LC
orcinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
albescens Schinz .................................................LC
alba Forssk. var. parvisepala (Schönland) Toelken ......Rare
albescens Schinz .................................................LC
albescens Schinz .................................................LC
albescens Schinz .................................................LC
albescens Schinz .................................................LC
albescens Schinz .................................................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
capitella Thunb. subsp. capitella ..........................LC
oracinusilicymala (Mogg) Toelken ..........Rare
albescens Schinz .................................................LC
alba Forssk. var. parvisepala (Schönland) Toelken ......Rare
alba Forssk. var. parvisepala (Schönland) Toelken ......Rare
alba Forssk. var. parvisepala (Schönland) Toelken ......Rare
Crossyne
flava (W.Barker ex Snijman) D. & U.Müll.-Dobles

Crotalaria, 371
anthoplasia Welw. ex Baker
argyreia Welw. ex Baker
barkei Schweinf. subsp. barkei
brachycarpa (Benth.) Burtt Davy ex J.Verd.
burkeana Benth.
capensis Jacq.
colorata Schinz subsp. colorata

damarensis Engl.
distans Benth. subsp. distans
distans Benth. subsp. mediocori Polhill

doidgeae J.Verd.
dura J.M.Wood & M.S.Evans subsp. dura

effusa E.Mey.

eremokola Baker f. subsp. eremocolia
excisa (Thunb.) Baker f. subsp. excisa
excisa (Thunb.) Baker f. subsp. namaquaensis

gazensis Baker f. subsp. herbacea Polhill

globosperma E.Mey.
griquensis L.Bolus

Hamblyocarpus

delagoensis Schltr.

distans B. & Zeyh.

distans Benth. subsp. distans

distans Benth. subsp. mediocori Polhill

doidgeae J.Verd.
dura J.M.Wood & M.S.Evans subsp. dura

effusa E.Mey.

eremokola Baker f. subsp. eremocolia
excisa (Thunb.) Baker f. subsp. excisa
excisa (Thunb.) Baker f. subsp. namaquaensis

gazensis Baker f. subsp. herbacea Polhill

globosperma E.Mey.
griquensis L.Bolus

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delagoensis Schltr.

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distans Benth. subsp. distans

distans Benth. subsp. mediocori Polhill

doidgeae J.Verd.
dura J.M.Wood & M.S.Evans subsp. dura

effusa E.Mey.

eremokola Baker f. subsp. eremocolia
excisa (Thunb.) Baker f. subsp. excisa
excisa (Thunb.) Baker f. subsp. namaquaensis

gazensis Baker f. subsp. herbacea Polhill

globosperma E.Mey.
griquensis L.Bolus

Hamblyocarpus

delagoensis Schltr.

Cymbopappus, 251
calamiforme (L.) Schwantes

Cynoglossum

deciduous (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyrtocarya, 400
angustifolia E.Mey. ex Mein.

diapodina Sond. 

Cyclamen, 215
alba L.f.

Cyclamen

deserti (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre

Cynoglossum

deciduous (N.E.Baker) Torre

Cyclamen

deserti (N.E.Baker) Torre
Gardenia

crocylis (Sond.) Thunb. ...........................................LC

calyx

tenuiflora (Wild.) Wight & Arn. var. villosa (Wight & Arn.) Benth. ...LC

calamunia (L.) Sond. ................................................LC

collina (Eckl. & Zeyh.) Walp. ...................................LC

cristallina (Eckl. & Zeyh.) Fenzl var. crystallina (L.) Sond. ........LC

colinia (Eckl. & Zeyh.) Fenzl ......................................LC

Galeomma
capense Thunb. subsp. namaquense (Eckl. & Zeyh.) crocyllioides Baer ex Schinz..........................LC

Galenia
resiniflua Hiern subsp. resiniflua ..............................LC

Galactia
lutea Fresen. .........................................................LC

cornuta Hemsl.......................................................LC

Gallicola
aspera (Eckl. & Zeyh.) Walp. ......................................LC

circeoides Thunb. ...................................................LC

circeoides Baer ex Schinz ..........................................LC

tomentosa Hochst. ..................................................LC

Gallicomas
transvaalica N.E.Br. ................................................LC

Galtonia
candicans (Baker) Deane ...........................................LC

Garcinia
gerrardii Harv. ex Sim .............................................LC

Garshlia
emarginata (DC.) Van Jaarsv.......................................CR

glomerata Van Jaarsv. .............................................LC

gemmatulosa Van Jaarsv. ..........................................LC

Gastodulon
undulatum Puff .....................................................LC

Geissorhiza
pillansii Kensit var. pillansii ...................................LC

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Glischrocolla, 455
Glinus
Glia
Gleichenia
tristis L. .................................................................LC
quadrangulus (D.Delaroche) Barnard ................. EN
pritzelii Diels ........................................................LC
uitenhagensis Goldblatt & Vlok ..........................VU
sericeovillosus Hook.f. subsp. calvatus (Baker)
sempervirens G.J.Lewis .................................... Rare
stokoei G.J.Lewis ...............................Critically Rare
splendens (Sweet) Herb. .......................................LC
serpenticola Goldblatt & J.C.Manning ............. Rare
venustus G.J.Lewis ................................................LC
virgatus Goldblatt & J.C.Manning .........................LC

Glossoschillus
burchellii Nees ................................................LC
parviflorus Hutch. ................................................VU

Glochitopsis, 424

garnosum N.E.Br. ....................................................LC
cruciatum (D.Delaroche) N.E.Br. .........................EN
depressum (Haw.) N.E.Br. ................................LC
difforme (L.) N.E.Br. ............................................LC
faguginaeia J.B.Lewis ...........................................NT
grandiflorum (D.Delaroche) N.E.Br. ................. EN
linguiforme (L.) N.E.Br. .........................................VU
longum (Haw.) N.E.Br. .........................................LC
nelli N.E.Br. ..........................................................LC
nelli Schantes ........................................................LC
oligocarpum L.Bolus ..........................................VU
peersi L.Bolus ......................................................LC
regium N.E.Br. .....................................................EN
salmii (D.Delaroche) N.E.Br. ..............................VU
sueae N.E.Br. ........................................................NT
surrectum (Haw.) L.Bolus .....................................VU

Gloveria
integrifolia (L.) M.Jordan .....................................VU

Glycine
abrupta (Choisy) Herbert .....................................VU
glabra (Choisy) Herbert ......................................LC
glabra (Choisy) Herbert ......................................LC
glabra (Choisy) Herbert ......................................LC

Glomeratopsis, 545
adpressa (Choisy) Hilliard ....................................LC

Glomerispora
adpressa (Choisy) Hilliard ....................................LC

Gomphocarpus sonderiana Meisn. ...........................................EN
tomentosus Burch. subsp. tomentosus.................LC
propinqua (Hilliard) B.Peterson .............................LC
variabilis (C.H.Wright) E.Phillips .........................VU
thesioides Meisn. var. laxa Meisn. ........................LC
subcordata Meisn..................................................LC
squarrosa (L.) Druce ..............................................LC
splendens Meisn. ..................................................LC
rubescens B.Peterson .............................................LC

Gonatopus
angustus N.E.Br. ...................................................LC
bovinii (Decne.) Engl. .........................................LC

Gomphocarpus
filiformis (E.Mey.) D.Dietr. ....................................LC
fruticosus (L.) Alston f. subsp. decipiens (N.E.Br.)
Goyder & Nicholas .............................................LC
glaucophyllus Schltr. .............................................LC

Gonatopus
angustus N.E.Br. ...................................................LC
bovinii (Decne.) Engl. .........................................LC

Gomphocarpus
filiformis (E.Mey.) D.Dietr. ....................................LC
fruticosus (L.) Alston f. subsp. decipiens (N.E.Br.)
Goyder & Nicholas .............................................LC
glaucophyllus Schltr. .............................................LC

Gomphocarpus
filiformis (E.Mey.) D.Dietr. ....................................LC
fruticosus (L.) Alston f. subsp. decipiens (N.E.Br.)
Goyder & Nicholas .............................................LC
glaucophyllus Schltr. .............................................LC

Gomphocarpus
filiformis (E.Mey.) D.Dietr. ....................................LC
fruticosus (L.) Alston f. subsp. decipiens (N.E.Br.)
Goyder & Nicholas .............................................LC
glaucophyllus Schltr. .............................................LC

Gomphocarpus
filiformis (E.Mey.) D.Dietr. ....................................LC
fruticosus (L.) Alston f. subsp. decipiens (N.E.Br.)
Goyder & Nicholas .............................................LC
glaucophyllus Schltr. .............................................LC

Gomphocarpus
filiformis (E.Mey.) D.Dietr. ....................................LC
fruticosus (L.) Alston f. subsp. decipiens (N.E.Br.)
Goyder & Nicholas .............................................LC
glaucophyllus Schltr. .............................................LC
Heeria

Heberstettia, 545

Hedera

Helianthus, 257

Helichrysum

Helianthus

Helichrysum

Helianthemum

Helianthus

Helianthus

Helianthus

Helianthus

Helianthus

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Helianthus

Helianthus
Hypericaceae, 261

Hydrocotyle

Hydrocotyle

Hydrocleys

Hydrocleys

Hydrocotyle

Hymenacallis

Hymenacallis

Hymenocallis

Hymenophyllum

Hymenophyllum

Hymenoxys

Hymenoxys

Hymenoxys

Hymenoxys

Hyperiaceae

Hyptis

Hyptis

Hyptis

Hyptis

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Indigofera
Jacobsen, 431
hallii L.Bolus........... LC
kolbei (L.Bolus) L.Bolus & Schwant.... LC
vaginata (L.Bolus) Bliefken........... LC

Jaconostigma
jambofomia (L.) Griseb........... LC
Jamesbrittenia, 545
accares (Hiern) Hilliard.... LC
adpressa (Onster) Hilliard.... LC
albanemis (Hilliard).... LC
albita (L.Verd) Hilliard.... LC
albomarginata Hilliard.... LC
amplexicaulis (Benth) Hilliard.... LC
argentea (L.F.) Hilliard.... LC
aridocola Hilliard.... LC
aspalathoides (Benth) Hilliard.... LC
asplathoida Hilliard.... LC
atroporuprea (Benth) Hilliard subsp. atroporuprea Hilliard.... LC
atroporuprea (Benth) Hilliard subsp. pubescens Hilliard.... LC
aurantica (Burch) Hilliard.... LC
bergae P.Lemmer.... LC
breviflora (Schlt) Hilliard.... LC
burnea (Benth) Hilliard.... LC
calchilida Hilliard.... CR
cauloides Hilliard.... LC
canescent (Benth) Hilliard var. canescens (Hiern) Hilliard.... LC
canescent (Benth) Hilliard var. seireri (Pilg.) Hilliard.... LC
crassicaulis (Benth) Hilliard.... LC
dentatisspela (Overkort) Hilliard.... LC
filicaulis (Benth) Hilliard.... LC
foliolosa (Benth) Hilliard.... LC
fruticosa (Benth) Hilliard.... LC
glutinosa (Benth) Hilliard.... LC
grandiflora (Galpin) Hilliard.... LC
huillana (Diels) Hilliard.... LC
incia (Thunb) Hilliard.... LC
tyconiera (Benth) Hilliard.... LC
kransiana (Benth) Hilliard.... LC
macrantha (Codd) Hilliard.... NT
major (Pilg.) Hilliard.... LC
maritima (Hiern) Hilliard.... LC
maxii (Hiern) Hilliard.... LC
megadenia Hilliard.... LC
megaphylla Hilliard.... LC
mercuri (Boerse) Hilliard.... LC
micrantha (Klotzsch) Hilliard.... LC
microphylla (L.) Hilliard.... LC
montana (Diels) Hilliard.... LC
mucromerica Hilliard.... LC
namaqemins Hilliard.... LC
pedunculosa (Benth) Hilliard.... LC
philogorgia (Benth) Hilliard.... LC
pimelocordifoliosa (L.F.) Hilliard.... LC
pristispala (Hapn) Hilliard.... LC
racemosca (Benth) Hilliard.... LC
ramossimis (Hiern) Hilliard.... LC
silenoide (Hilliard) Hilliard.... LC
stellata Hilliard.... LC
stricta (Benth) Hilliard.... LC
tenella (Hiern) Hilliard.... LC
tenufolia (Benth) Hilliard.... LC
thunbergi (G.Don) Hilliard.... LC
tortuosa (Benth) Hilliard.... LC
tyconiera (Benth) Hilliard.... LC
zaurgenensis Hilliard.... LC

Jasminum
abyssinicum Hochst. ex DC. LC
angulare Vahl.... LC
breviflorum Harv. ex C.H.Wright.... LC
fluminense Vell. subsp. fluminense.... LC
glaucum (L.F.) Aiton.... LC
multipartitum Hochst.... LC
quanzunum Schinz.... LC
stenolobum Rolfe.... LC
strepotopus E.Mey. var. strepotopus.... LC
strepotopus E.Mey. var. transvaalensis (S.Moore) L.Verd.... LC
tortuosa Wild.... LC

Jatropha
capensis (L.F.) Sonder.... LC
eyropoidea Pax & K.Hoffm.... LC
hiruta Hochst. var. glabrescens (Pax & K.Hoffm.) Prain
hiruta Hochst. var. hiruta
hiruta Hochst. var. oblongifolia Prain
lagarimoides Sund...
latifolia Pax var. angustata Prain
latifolia Pax var. latifolia
latifolia Pax var. swazica Prain
nataleins Müll.Arg.
orangea Dinter ex P.G.Mey.
schlechteri Pax subsp. schlechteri
schlechteri Pax subsp. setifera (Hutch.) Radl.
spicata Pax
varifolia Pax.
woodii Kuntze
zytheri Sund.
 Jordanesiella, 431
anemoneflora (L Bolus) Van Jaars.
clavifolia (L Bolus) H.E.K.Hartmann
cuprea (L Bolus) H.E.K.Hartmann
deserticola (Marloth) Schwantes
cuprea (L Bolus) H.E.K.Hartmann
anemoniflora (L Bolus) Van Jaarsv.
scabriusculus Kunth
obliquus Adamson
effusus L.
capensis Thunb.
hirsuta Hochst. var. oblongifolia Prain
protracta (Nees) T .Anderson subsp. rhodesiana
petiolaris (Nees) T .Anderson subsp. petiolaris
(C.B.Clarke) Immelman
petiolaris (Nees) T .Anderson subsp. bowiei
orchioides L.f. subsp. orchioides
campylostemon (Nees) T .Anderson
betonica L.
orchioides L.f. subsp. glabrata Immelman
matammensis (Schweinf.) Oliv.

K
Kalanche, 310
alticola Compton
brachyloba Welw. ex Britten
crenata (Andrews) Haw.
crudladii I. Verd.
tanceolata (Forsk.) Pers.
longifolia Schltr. ex J.M.Wood
lucy Raym.-Hamet subsp. lucy
lucy Raym.-Hamet subsp. montana (Compton)
Toelken
effectivement Toelken
paniculata Harv.
rotundifolia (Haw.) Harv.
saxigularis N.E.Br. var. saxigularis
thrysiflora Harv.

Kanalia
Janifora (Forsk.) R.Br.

Karomia
speciosa (Hutch. & Corbishley) R.Fern.

Karoochloa
curva (Nees) Conert & Türpe
purpurea (I.L.) Conert & Türpe
schismoides (Stapf ex Conert) Conert & Türpe
tenella (Nees) Conert & Türpe

Kedrostis
aficana (L.) Cogn.
capensis (Somd.) A.M.elle..
crassirostrata Bremek.
foetidiissima (Jacq.) Cogn.
hartelia (Nees) Conert & Türpe
helosia (F.Gemes) J.C.Jeffrey
limpopoensis C.Jeffrey
nana (Lam.) Cogn. var. nana
nana (Lam.) Cogn. var. schlechteri (Cogn.)
A.Meeuse
nana (Lam.) Cogn. var. zeyheri (Schrad.)
momomphylla Bruns

Keezia
gueziri (Somd.) Iridion.

Khadi,
acutipetala (N.E.Br) N.E.Br.
alticola Chens. & H.E.K.Hartmann
besswickii (L.Bolus) N.E.Br.
borealis L.Bolus
karolimonein (L.Bolus) L.Bolus
media P.Winter & N.Hahn.

Kigelia
aficana (Lam.) Benth.

Kiggelaria
aficana 1.

Kirkia
acuminata Oliv.
wilmsii Engl.

Kissenia
capensis Endl.

Klattia,
flava (Vahl) Vahl
glabra K.D.Koenig ex Roxb.
guerkea Schinz.
heterocarpa T.Anderson subsp. dinteri (S.Moore) Hedrén
matamennsis (Schweinf) Oliv.

Minima A.Meeuse
montis-sallinarum A.Meeuse
odora (Forssk) Vahl
orchioides L.F. subsp. glabrata Immelman
orchioides L.F. subsp. orchioides
petiolaris (Nees) T.Anderson subsp. bowiei (C.B.Clarke) Immelman
petiolaris (Nees) T.Anderson subsp. incerta (C.B.Clarke) Immelman
petiolaris (Nees) T.Anderson subsp. petiolaris
practeca (Nees) T.Anderson subsp. practeca
practeca (Nees) T.Anderson subsp. rhosyana (S.Moore) Immelman
papularia Immelman
thymifolia (Nees) C.B.Clarke.

Juttadinteria
albata (L Bolus) L Bolus
attenuata Wlidge
deserticola (Marloth) Schwantes

Kranzioidea
mosambicina (Moss) Pax & K.Hoffm.

Krausia
floribunda Harv.

Kyllinga
alata Nees
alba Nees
brevifolia Rothb.
elatior Kuntze
erecta Schumach. var. erecta
L

Lablab
purpureus (L.) Sweet subsp. uncinitus Verd. – LC

Lachenalia, 116
alba W.F. Barker ex G.D.Duncan – VU
goernis Schizon – LC
aloesi (L.) Engl. var. aloides – LC
aloes (L.) Engl. var. auroa (Lindl.) Engl. – LC
aloes (L.) Engl. var. quadriloc (Jacq.) Engl. – LC
aloes (L.) Engl. var. vanyzj W.F. Barker – CR
ameliae W.F. Barker – NT
angelica W.F. Barker – LC
arquinea Sweet – VU
arubhoutaniae W.F. Barker – CR
attenuata W.F. Barker ex G.D.Duncan – LC
auricula G.D.Duncan – LC
bachmanni Baker – LC
bankeriana U.Müll.-Dobelli, B.Nord. & D.Müll.-Dobells – Rare
bobusi W.F. Barker – LC
boweri Baker – LC
bucherbergensis Dinter – LC
bulbifera (Cirillo) Engl. – LC
campasula Baker – LC
capensis W.F. Barker – LC
carnosa Baker – LC
cerusa G.D.Duncan – LC
compositum W.F. Barker – LC
concordiana Schtr. ex W.F. Barker – Rare
congesta W.F. Barker – Rare
contaminata Aiton – NT
convallarioides Baker – LC
corymbosa (L.) J.C.Manning & Goldblatt – VU
daynbotrya Diels – LC
dheboennis W.F. Barker – VU
doleritica G.D.Duncan – VU
duncanii W.F. Barker – VU
elegans W.F. Barker var. elegans – LC
elegans W.F. Barker ex flava Baker – VU
elegans W.F. Barker var. menziesiana W.F. Barker – LC
elegans W.F. Barker var. suaveolens W.F. Barker – LC
esfonsfla (Thomb.) J.C.Manning & Goldblatt – LC
exterhaysereae W.F. Barker – Rare
fistulosus Baker – LC
fremesi W.F. Barker – LC
gillierti W.F. Barker – EN
glaucophylla W.F. Barker – LC
haarlemensis Fourr. – VU
hirta (Thomb.) Thum. var. exserta W.F. Barker – LC
hirta (Thomb.) Thum. var. hirta – LC
inconsipientis G.D.Duncan – LC
isopetala jacq. – LC
juncifolia Baker var. campasula W.F. Barker – LC
juncifolia Baker var. juncifolia – LC
karooica W.F. Barker ex G.D.Duncan – LC
kliprandensis W.F. Barker – Rare
lacoxa G.D.Duncan – EN
latimeriae W.F. Barker – LC
leipoldii G.D.Duncan – LC
lemomenta W.F. Barker – CR
longibracteata E.Phillips – Declining
longibracteata E.Phillips ex G.D.Duncan – UC
luzhuii W.F. Barker subsp. luzhuii – UC
macgregori W.F. Barker – LC
macgregori W.F. Barker subsp. macgregori – UC
marginate W.F. Barker subsp. neglecta Schtr. ex G.D.Duncan – LC
marlothii W.F. Barker ex G.D.Duncan – LC
marutani W.F. Barker – VU
mathewii W.F. Barker – CR
maughamii W.F. Barker J.C.Manning & Goldblatt – VU
maximilianii Schtr. ex W.F. Barker – Rare
mediana Jacq. var. mediana – VU
mediana Jacq. var. rogersii (Baker) W.F. Barker – VU
minima W.F. Barker – VU
moniliformis W.F. Barker – CR
montana Schtr. ex W.F. Barker – LC
moritii W.F. Barker – VU
multifolia W.F. Barker – LC
mutabilis Sweet – LC
namaquensis Schtr. ex W.F. Barker – LC
narrowbqergensis G.D.Duncan – LC
neillii W.F. Barker ex G.D.Duncan – VU
nenvosa Ker Gawl. – EN
nordenstamii W.F. Barker – Rare
obcura Schtr. ex G.D.Duncan – LC
orchideis (L.) Ation var. glaucina (Jacq.) W.F. Barker – VU
orchideos (L.) Ation var. orchideos – LC
orthophalata Ation – VU
pallida Ation – Declining
patula Jacq. – VU
pauciflora Compton – LC
pelidae Baker – LC
purpurea-caerulea Jacq. – LS
pulilla Jacq. – LC
pustulata Jacq. – VU
relaxa Thum. – VU
rosa Andrews – VU
rubida Jacq. var. punctata (Jacq.) Baker – VU
rubida Jacq. var. rubida – VU
rubida Jacq. var. tigrina (Jacq.) Baker – VU
salteri W.F. Barker – EN
sargenti W.F. Barker – VU
scelpele W.F. Barker – LC
splendidia Diels – LC
stayeri W.F. Barker – EN
thomaeae W.F. Barker ex G.D.Duncan – VU
trichophylla Baker – LC
undulata Masson ex Baker – VU
unicolor Jacq. – VU
uniflora Jacq. var. schlechteri (Baker) W.F. Barker – VU
uniflora Jacq. var. uniflora – VU
unifla Jacq. var. wrightii Baker – VU
variega W.F. Barker – Rare
vindilflora W.F. Barker – CR
whitehillensis W.F. Barker – LC
xeroxaloides Schtr. ex G.D.Duncan – LC
yongei Baker – LC
zeyheri Baker – LC
Lachnaca, 556
alpina (Eckl. & Zeyh.) Meissn. – Rare
aurora (Eckl. & Zeyh.) Meissn. – VU
axillaris Meissn. – NT
burchelli Meissn. – LC
capitata (L.) Grantz – VU
densifulor Meissn. – NT
diosmoeis Meissn. – NT
dieselae Baker – NT
dioecoides W.F. Barker – NT
diosma Meissn. – NT
etiolae Baker – NT
ericoides Meissn. – NT
ericophylla Meissn. – NT
flamentosa Meissn. – NT
ficus W.F. Barker – NT
ficus W.F. Barker subsp. globulifera – NT
ficus W.F. Barker subsp. incana Baker – NT
flomerae Fourr. – VU
flaciflorum Baker – NT
grandiflora (L.) Baill. – LC
greyontenesis Beyers – VU
lambani (C.H.Wright) Baker – ND
laxa (C.H.Wright) Beyers – NT
leploldii Beyers – VU
maccantha Meissn. – LC
marlothii Schtr. – Rare
montana Beyers – VU
naviculifera Compton – LC
nervosa (Thomb.) Meissn. – LC
oleraceum Beyers – VU
pedicellata Beyers – Rare
pendula Beyers – VU
pendicillata Meissn. – LC
pompoya Beyers – LC
pudens Beyers – Rare
pusilla Beyers – VU
rupecicola Compton – LC
sociorum Beyers – LC
stokoei Beyers – CR
striata (Poit.) Meissn. – Rare
uniflora (L.) Grantz – VU
villosa Beyers – LC
Lachnospermum
fasciculatum (Thomb.) Baill. – LC
incarvatum (R.) Bergius Hilliard – LC
umbellatum (L.) Pillars – LC
sp. nov. (Meyer 1804, 1805 PRE) – VU
Lactuca
dregeana D.C. – VU
inermis Forssk. – LC
lizilloni (E.Phillips) C.Jeffrey – LC
Laeviscarpa, 262
sp. nov. (Koerheim 486 PRE) – CR

Lagarosiphon
cordiformis Casp. – LC
marina (Ridl.) Moss ex Weger – LC
muscoides Harv. – LC
verticilliflorus Oberm. – LC

Legenaria
sicaria (Molina) Standl. – LC
sphaerica (Sond.) Naund. – LC

Laggera
crispata (Vahl) Hepper & J.R.I.Wood – LC
decurrents (Vahl) Hepper & J.R.I.Wood – LC

Lagunias
dryzadum (S.Moore) Robyns – LC
lasiantha (Sond.) Bullock – LC
monteiroi (Oliv.) Britton – LC

Lampoulthus, 431
crassiceps (L.Bolus) L.Bolus – LC
crassicostatum (L.Bolus) L.Bolus – LC
crispus (L.Bolus) L.Bolus – LC
crociflorum (L.Bolus) L.Bolus – LC
crocosmum (L.Bolus) L.Bolus – LC

dulcis L.Bolus – LC
dumalina (L.Bolus) L.Bolus – LC
duplum (L.Bolus) L.Bolus – LC
dulcis L.Bolus – LC
duncaii W.F. Barker – VU
duncaii W.F. Barker – VU
duncaii W.F. Barker – VU

dulcis L.Bolus – LC
dulcis L.Bolus – LC
dulcis L.Bolus – LC

dulcis L.Bolus – LC
dulcis L.Bolus – LC

dulcis L.Bolus – LC
dulcis L.Bolus – LC

dulcis L.Bolus – LC
dulcis L.Bolus – LC

dulcis L.Bolus – LC
dulcis L.Bolus – LC

dulcis L.Bolus – LC
dulcis L.Bolus – LC

L.}
Laurembertia repens (L.) P.J.Bergius subsp. brachypoda (Weeh. ex Hieron.) Osk. & Gentner

Laurembertia repens (L.) P.J.Bergius subsp. brachypoda (Weeh. ex Hieron.) Osk. & Gentner
631
decumbens (Thunb.) B.-E.van Wyk subsp.
decumbens............................................................LC
decumbens (Thunb.) B.-E.van Wyk subsp. rehmannii
(Dummer) B.-E.van Wyk ........................................LC
densa (Thunb.) Harv. subsp. congesta
B.-E.van Wyk ........................................................ VU
densa (Thunb.) Harv. subsp. densa ..................... VU
densa (Thunb.) Harv. subsp. gracilis (E.Mey.)
B.-E.van Wyk .........................................................LC
densa (Thunb.) Harv. subsp. leucoclada (Schltr.)
B.-E.van Wyk ......................................................DDT
dichiloides Sond. ............................................ CR PE
difformis B.-E.van Wyk ........................................ VU
digitata Harv. ........................................................LC
dissitinodis B.-E.van Wyk ......................................LC
divaricata (Eckl. & Zeyh.) Benth. ...........................LC
elongata (Thunb.) D.Dietr. .................................. EN
eriantha Benth. .....................................................LC
eriocarpa (E.Mey.) B.-E.van Wyk............................LC
esterhuyseniana B.-E.van Wyk ......................... Rare
exstipulata L.Bolus .............................................. EN
falcata (E.Mey.) Benth............................................LC
fastigiata (E.Mey.) B.-E.van Wyk ............................LC
filiformis B.-E.van Wyk ........................................ EN
foliosa Bolus .........................................................LC
fruticoides B.-E.van Wyk .......................................LC
furcata (Merxm. & A.Schreib.) A.Schreib. ..............LC
galpinii Dummer ...................................................LC
glabra (Thunb.) D.Dietr. ........................................LC
glabrescens (Dummer) B.-E.van Wyk ...............DDD
globulosa B.-E.van Wyk ....................................... VU
gracilifolia B.-E.van Wyk ..................................... EN
grandis Dummer & Jenn........................................LC
harveyi B.-E.van Wyk ........................................DDD
hirsuta (Thunb.) D.Dietr. .......................................LC
holosericea (E.Mey.) B.-E.van Wyk .....................DDT
involucrata (P.J.Bergius) Benth. subsp. bracteata
B.-E.van Wyk ........................................................ VU
involucrata (P.J.Bergius) Benth. subsp. digitata
B.-E.van Wyk ........................................................ VU
involucrata (P.J.Bergius) Benth. subsp.
involucrata ............................................................LC
involucrata (P.J.Bergius) Benth. subsp. peduncularis
(E.Mey.) B.-E.van Wyk ............................................LC
jacottetii (Schinz) B.-E.van Wyk ............................LC
lamprifolia B.-E.van Wyk..................................... CR
lanceolata (E.Mey.) Benth. .....................................LC
laticeps B.-E.van Wyk ........................Critically Rare
laxa Eckl. & Zeyh...................................................LC
lenticula (E.Mey.) Benth. .......................................LC
leptoloba Bolus .....................................................LC
linearifolia B.-E.van Wyk .......................................LC
listii Polhill ............................................................LC
longicephala B.-E.van Wyk ....................................LC
longiflora Bolus .....................................................LC
lotononoides (Scott-Elliot) B.-E.van Wyk ..............LC
macrocarpa Eckl. & Zeyh. ................................... EN
macrosepala Conrath ............................................LC
maculata Dummer.................................................LC
magnifica B.-E.van Wyk.................................. CR PE
marlothii Engl. ......................................................LC
maximiliani Schltr. ex De Wild. .............................LC
meyeri (C.Presl) B.-E.van Wyk ...............................LC
micrantha Eckl. & Zeyh. ........................................LC
minima B.-E.van Wyk .........................................DDT
minor Dummer & Jenn. .................................... Rare
mollis (E.Mey.) Benth........................................... VU
monophylla Harv. ................................................ CR
mucronata Conrath ...............................................LC
nutans B.-E.van Wyk............................................ VU
oligocephala B.-E.van Wyk ...............................DDD
oxyptera (E.Mey.) Benth. .......................................LC
pallens (Eckl. & Zeyh.) Benth. ..........................DDD
pariflora N.E.Br. .................................Critically Rare
parviflora (P.J.Bergius) D.Dietr. ..............................LC
pentaphylla (E.Mey.) Benth. ..................................LC
perplexa (E.Mey.) Eckl. & Zeyh. ........................DDD
platycarpa (Viv.) Pic.Serm. .....................................LC
plicata B.-E.van Wyk............................................ VU
polycephala Benth............................................... EN
pottiae Burtt Davy ................................................LC
procumbens Bolus ................................................LC
prolifera (E.Mey.) B.-E.van Wyk .............................LC
prostrata (L.) Benth. ............................................ NT
pulchella (E.Mey.) B.-E.van Wyk ............................LC
pulchra Dummer ...................................................LC
pumila Eckl. & Zeyh. .............................................LC

pungens Eckl. & Zeyh. ..........................................LC
purpurescens B.-E.van Wyk .............................. Rare
pusilla Dummer.....................................................LC
quinata (Thunb.) Benth. ........................................LC
rabenaviana Dinter & Harms.................................LC
racemiflora B.-E.van Wyk ............................... CR PE
rigida (E.Mey.) Benth. .......................................... VU
rosea Dummer ......................................................LC
rostrata Benth. subsp. brachybotrys
B.-E.van Wyk .........................................................LC
rostrata Benth. subsp. namaquensis (Bolus)
B.-E.van Wyk .........................................................LC
rostrata Benth. subsp. rostrata .............................LC
sabulosa T.M.Salter ...............................................LC
sericophylla Benth. ...............................................LC
solitudinis Dummer ..............................................LC
sparsiflora (E.Mey.) B.-E.van Wyk ..........................LC
stenophylla (Eckl. & Zeyh.) B.-E.van Wyk ..............LC
stipulosa Baker f. ..................................................LC
stricta (Eckl. & Zeyh.) B.-E.van Wyk ......................LC
strigillosa (Merxm. & A.Schreib.) A.Schreib. .........LC
subulata B.-E.van Wyk...........................................LC
sutherlandii Dummer .........................................DDT
tenella (E.Mey.) Eckl. & Zeyh. ................................LC
trichodes (E.Mey.) B.-E.van Wyk .......................... VU
umbellata (L.) Benth. .............................................LC
varia (E.Mey.) Steud...............................................LC
venosa B.-E.van Wyk............................................ VU
viborgioides Benth. ............................................. EN
villosa (E.Mey.) Steud........................................... VU
viminea (E.Mey.) B.-E.van Wyk ..............................LC
virgata B.-E.van Wyk ........................................ Rare
wilmsii Dummer....................................................LC

Lotus
discolor E.Mey. subsp. discolor.............................LC
namulensis Brand..................................................LC

Loudetia
densispica (Rendle) C.E.Hubb. ..............................LC
filifolia Schweick. ..................................................LC
flavida (Stapf) C.E.Hubb. .......................................LC
pedicellata (Stent) Chippind. ................................LC
simplex (Nees) C.E.Hubb. ......................................LC

Loxogramme
abyssinica (Baker) M.G.Price .................................LC

Loxostylis, 219
alata A.Spreng. ex Rchb. .......................... Declining

Ludwigia
abyssinica A.Rich...................................................LC
adscendens (L.) Hara subsp. diffusa (Forssk.)
P.H.Raven ..............................................................LC
leptocarpa (Nutt.) Hara .........................................LC
octovalvis (Jacq.) P.H.Raven ...................................LC

Lumnitzera
racemosa Willd. var. racemosa .............................LC

Luzula
africana Drège ex Steud. .......................................LC

Lycium
acutifolium E.Mey. ex Dunal .................................LC
afrum L. .................................................................LC
amoenum Dammer ...............................................LC
arenicolum Miers ..................................................LC
bosciifolium Schinz ...............................................LC
cinereum Thunb....................................................LC
ferocissimum Miers...............................................LC
gariepense A.M.Venter..........................................LC
grandicalyx A.M.Venter & H.J.T.Venter ..................LC
hirsutum Dunal .....................................................LC
horridum Thunb. ..................................................LC
mascarenense A.M.Venter & A.J.Scott...................LC
oxycarpum Dunal ..................................................LC
pilifolium C.H.Wright ............................................LC
pumilum Dammer .................................................LC
schizocalyx C.H.Wright .........................................LC
shawii Roem. & Schult. .........................................LC
tenue Willd. ..........................................................LC
tetrandrum Thunb. ...............................................LC
villosum Schinz .....................................................LC

Lycopodiella
caroliniana (L.) Pic.Serm. .......................................LC
cernua (L.) Pic.Serm. .............................................LC
sarcocaulon (A.Br. & Welw. ex Kuhn) Pic.Serm. .....LC

Lycopodium
clavatum L. ............................................................LC
zanclophyllum J.H.Wilce .......................................LC

Lydenburgia, 299
abbottii (A.E.van Wyk & M.Prins) Steenkamp,
A.E.van Wyk & M.Prins ........................................ EN
cassinoides N.Robson.......................................... NT

Lygodium
microphyllum (Cav.) R.Br. ......................................LC

Lyperia, 545
antirrhinoides (L.f.) Hilliard ...................................LC
formosa Hilliard .................................................. VU
lychnidea (L.) Druce ..............................................LC
tenuiflora Benth. ...................................................LC
tristis (L.f.) Benth...................................................LC
violacea (Link ex Jaroscz) Benth. ...........................LC

Lysimachia
nutans Nees ..........................................................LC
ruhmeriana Vatke ..................................................LC

M
Macaranga
capensis (Baill.) Benth. ex Sim var. capensis .........LC

Machairophyllum, 438
albidum (L.) Schwantes .........................................LC
bijliae (N.E.Br.) L.Bolus ..........................................LC
brevifolium L.Bolus ............................................. VU
stayneri L.Bolus .................................Critically Rare

Mackaya
bella Harv. .............................................................LC

Macledium, 262
latifolium (DC.) S.Ortíz..........................................LC
pretoriense (C.A.Sm.) S.Ortíz .............................. EX
relhanioides (Less.) S.Ortíz ...................................LC
speciosum (DC.) S.Ortíz ........................................LC
spinosum (L.) S.Ortíz.............................................LC
zeyheri (Sond.) S.Ortíz subsp. argyrophyllum
(Oliv.) S.Ortíz .........................................................LC
zeyheri (Sond.) S.Ortíz subsp. thyrsiflorum
(Klatt) Netnou ....................................................Thr*
zeyheri (Sond.) S.Ortíz subsp. zeyheri ..................LC

Maclura
africana (Bureau) Corner .......................................LC

Macowania, 263
conferta (Benth.) E.Phillips ..............................DDD
corymbosa M.D.Hend. ..........................................LC
deflexa Hilliard & B.L.Burtt .............................. Rare
glandulosa N.E.Br. .................................................LC
hamata Hilliard & B.L.Burtt ............................. Rare
pinifolia (N.E.Br.) Kroner .......................................LC
pulvinaris N.E.Br. ...................................................LC
revoluta Oliv. ....................................................DDD
sororis Compton ...................................................LC
tenuifolia M.D.Hend. ............................................LC

Macrostylis, 534
barbigera (L.f.) Bartl. & H.L.Wendl. .................. Rare
cassiopoides (Turcz.) I.Williams subsp.
cassiopoides ........................................................ EN
cassiopoides (Turcz.) I.Williams subsp. dregeana
(Sond.) I.Williams ................................................ EN
cauliflora I.Williams ............................................ EN
crassifolia Sond. .................................................. VU
decipiens E.Mey. ex Sond. ....................................LC
hirta E.Mey. ex Sond............................................ EN
ramulosa I.Williams ............................................ VU
squarrosa Bartl. & H.L.Wendl. ...............................LC
tenuis E.Mey. ex Sond. ..........................................LC
villosa (Thunb.) Sond. subsp. minor
I.Williams ............................................................ EX
villosa (Thunb.) Sond. subsp. villosa................... EN

Macrotyloma, 380
axillare (E.Mey.) Verdc. var. axillare .......................LC
axillare (E.Mey.) Verdc. var. glabrum (E.Mey.)
Verdc. ....................................................................LC
coddii Verdc......................................................... VU
maranguense (Taub.) Verdc. ..................................LC
uniflorum (Lam.) Verdc. var. stenocarpum (Brenan)
Verdc. ....................................................................LC

Maerua
angolensis DC. subsp. angolensis .........................LC
brevipetiolata Killick .............................................LC
cafra (DC.) Pax .......................................................LC
decumbens (Brongn.) De Wolf ..............................LC
gilgii Schinz ..........................................................LC
juncea Pax subsp. crustata (Wild) Wild .................LC
nervosa (Hochst.) Oliv. ..........................................LC


<table>
<thead>
<tr>
<th>Species Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Mundulea virgata</em> Jacq. subsp. virgata</td>
<td>LC</td>
</tr>
<tr>
<td><em>Mucuna vlokii</em> Goldblatt</td>
<td>Rare</td>
</tr>
<tr>
<td><em>M. viscaria</em> (L.f.) Ker Gawl.</td>
<td>LC</td>
</tr>
<tr>
<td><em>M. elandsmontana</em> Goldblatt</td>
<td>VU</td>
</tr>
<tr>
<td><em>M. verecunda</em> Goldblatt</td>
<td>Rare</td>
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<tr>
<td><em>M. versicolor</em> (Salisb. ex Klatt) Goldblatt</td>
<td>VU</td>
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<tr>
<td><em>M. aciphylla</em> Levyns</td>
<td>DDD</td>
</tr>
<tr>
<td><em>M. stricta</em> Baker</td>
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<tr>
<td><em>M. tripetala</em> (L.f.) Ker Gawl.</td>
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<tr>
<td><em>M. speciosa</em> (L.Bolus) Goldblatt</td>
<td>LC</td>
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<tr>
<td><em>M. kraussiana</em> (Buchinger ex Meisn.) Killick</td>
<td>LC</td>
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<tr>
<td><em>M. integra</em> (A.Chev.) Killick</td>
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<tr>
<td><em>M. tulbaghensis</em> L.Bolus</td>
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<tr>
<td><em>M. cordifolia</em> (L.) Killick</td>
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<tr>
<td><em>M. quercifolia</em> (L.) Killick</td>
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</tr>
<tr>
<td><em>M. setifolia</em> (L.f.) Druce</td>
<td>LC</td>
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<tr>
<td><em>M. saxicola</em> Goldblatt</td>
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<tr>
<td><em>M. acicularis</em> Harv.</td>
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<tr>
<td><em>M. sericea</em> (Willd.) A.Chev. subsp. sericea</td>
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<td><em>M. pillansii</em> Levyns</td>
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<td><em>M. pauciflora</em> (Thunb.) DC.</td>
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<tr>
<td><em>M. oxysepala</em> Schltr.</td>
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<tr>
<td><em>M. orbicularis</em> Hutch.</td>
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<tr>
<td><em>M. origanoides</em> C.Presl</td>
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<tr>
<td><em>M. occidentalis</em> Levyns</td>
<td>Rare</td>
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<tr>
<td><em>M. obovata</em> DC.</td>
<td>VU</td>
</tr>
<tr>
<td><em>M. diabolica</em> Levyns</td>
<td>Rare</td>
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<tr>
<td><em>M. depressa</em> DC.</td>
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<tr>
<td><em>M. angustiflora</em> Levyns</td>
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<tr>
<td><em>M. decipiens</em> Schltr.</td>
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<tr>
<td><em>M. brevicornu</em> DC.</td>
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<tr>
<td><em>M. barkerae</em> Levyns</td>
<td>EN</td>
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<td><em>M. alopecuroides</em> (L.) DC.</td>
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<tr>
<td><em>M. collina</em> Levyns</td>
<td>LC</td>
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<tr>
<td><em>M. cliffortiifolia</em> Eckl. &amp; Zeyh.</td>
<td>VU</td>
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<tr>
<td><em>Najas</em>N</td>
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</tbody>
</table>
Pachystigma, 201

Pachystigma, 201

Pachystigma, 201

Pachystigma, 201

Pachystigma, 201

Pacypodium, 238

Pachypodium, 238

Pachypodium, 238

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Sclerochiton, 218
birea (A.Rich.) Hochst. subsp. caffra (Sond.) K.Liw.

Sclerocroton, 218
apiculatus Vollesen ............................................LC
harveyanus Nees .................................................LC
illicolus A.Meeuse ............................................LC
odorissimissimus Hilliard ...................................LC
sp. a .................................................................DDT
trianthus A.Meeuse ..........................................VU

Scleropogon
brasiliensis (Brot.) DC. .........................................LC
floribunda (L.) L ................................................LC
lancea (L.) F.A.Barkley ........................................LC
laevigata (L.) F.A.Barkley var. villosa ..........NT

Scleria, 204
angusta Nees ex Kunth ........................................LC
procumbens A.Willh ...........................................LC
pusilla Eckl. ex Cham ...........................................LC
radiata Hilliard & B.L.Burtt. .........................LC
ramossissima Gilg.............................................LC
rara Wolley-Dod ................................................NT
rennii Schinz ....................................................LC
repens Schinz ......................................................LC
scabia Schinz .....................................................NT
schlechteri Schinz ...............................................LC
sedoides Gilg var. confertiflora (Schinz) Marais ....LC
sedoides Gilg var. schoenlandii (Schinz) Marais ....LC
sedoides Gilg var. sedoides ..................................LC
spathulata (E.Mey.) Steud .................................LC
stricta (E.Mey.) Gilg ..........................................LC
sulphurea Cham. & Schltdl. ............................LC
theodora Gilg ....................................................LC
thommenii (E.Moore) Schinz .........................LC
zyzheri Schinz subsp. acutiloba (Schinz) Marais ....LC
zyzheri Schinz subsp. cleistanthus (R.A.Dyer) Marais ....LC
zyzheri Schinz subsp. zyzheri ................................LC

Scolospora
flanaganii (Bolus) Sim. .....................................LC
mundii (Eckl. & Zeyh.) Warb .................................LC
oreospora (Sleumer) Killack ................................LC
stolzii Gilg & Steuer var. stolzii ..............LC
zyzheri (Nees) Harv ..........................................LC

Scopus
brunnii Klink ....................................................LC

Scutia
myrtina (Burm.f.) Kurz ......................................LC

Searsia, 219
acuminata (Moofft) Moffett ..........NT
albomarginata (Sond.) Moffett ..................CR
angustifolia (L.) F.A.Barkley .............................LC
batophylla (Codd) Moffett ....................................LC
bolusii (Sond. ex Eng1.) Moffett ....................LC
burchellii (Sond. ex Eng1.) Moffett .................LC

carnosula (Schönland) Moffett .........................LC
chirindensis (Baker) J. Müll. ..............................LC
gilbertii (Eng1.) F.A.Barkley ...............................LC

Carnosula (Sond.) Moffett ......................LC
dentata (Thunb.) F.A.Barkley ..............................LC
discolar (E.Mey. ex Sond.) Moffett ..................LC
dissecta (Thunb.) Moffett ..................................LC
diramicarpa (Eckl. & Zeyh.) Hoffm ....LC
dracomontana (Moffett) Moffett ....................RC
dregeana (Sond.) Moffett ...................................LC
glomerata (E.Mey.) Steud ..................................LC

Searsia
engleri (Britten) Moffett ...............................LC
erosa (Thunb.) Moffett ......................................LC
fastigata (Eckl. & Zeyh.) Moffett ....................LC
gerrardii (Harv. ex Eng1.) Moffett .................LC

glaucina (Eng1.) Moffett var. glaberrima (Schenck) Schinz ....LC
gracillima (Eng1.) Moffett var. gracillima ......NT
grandis (Harv. ex Eng1.) Moffett ......................LC
gueinzii (Sond.) F.A.Barkley ............................LC
harveyanus Nees .................................................LC

harryei (Moffett) Moffett ..............................LC
incisa (L.) F.A.Barkley var. effusa (F.Cres.) Moffett ....LC

incisa (L.) F.A.Barkley var. incisa ...................LC
kraussiana (Kunze) Schinz ......................NT
krebsiana (C.Pres ex Eng1.) Moffett .................LC
kwanzulana (Moffett) Moffett ....................Rare
laviegata var. laviegata .....................................LC
laviegata (L.) F.A.Barkley var. villosa (L.) Moffett ....LC
lancea (L.) F.A.Barkley ..........................LC
leptodictya (Diels) T.S.Yi, A.J.Mill. & J.Wen ..........LC
longiflora (Eckl. & Zeyh.) Moffett .................LC
lucida (L.) F.A.Barkley ..........................LC
glomerata Thunb. .................................................LC
levynsiae Hilliard ...................................................LC
lacunosa Klotzsch .................................................LC
grandiceps Hilliard ................................................LC
gracilis (Rolfe) Hilliard ...........................................LC
immersa Rolfe .......................................................LC
dinteri Rolfe subsp. pseudodinteri Hilliard ...........LC
delonchonema Hilliard ..............................................LC
dolosa Hilliard .......................................................LC
dregeana Hilliard. Rare
ecklana Choisy ......................................................LC
elogeta Hilliard ......................................................LC
elsiace Hilliard DDD
esterhusenian Hilliard ......................Critically Rare
exiguais Hilliard Rare
farragarcosphaeris Hilliard Rare
ferruginea Rolfe.....................................................CR
flanagani Rolfe ......................................................LC
floriera Hilliard .......................................................LC
follosa Rolfe ...........................................................LC
fourcadei Hilliard ...................................................LC
fruticosa L. ..............................................................LC
gabienia Schr. ..........................................................LC
genulicina L.f. ..........................................................LC
glabrate Choisy ........................................................LC
glandulosa Choisy ....................................................LC
longicalyx Hilliard ....................................................Rare
mielikeni (Rolfe) Hilliard ............................................LC
grandiceps Hilliard ...................................................LC
griquana Hilliard ......................................................LC
hermannioides E.Mey. ...............................................LC
heterongeria Hilliard .......................................................LC
hispa L.f. .................................................................LC
hyssopophila E.Mey. subsp. hyssopifolia ................................LC
hyssopophila E.Mey. subsp. retrorotica Hilliard ................................LC
immersa Rolfe ..............................................................LC
impedita Hilliard ......................................................DdT
inaequifolia Hilliard ....................................................EN
inverstans Hilliard ....................................................LC
innata Markotter ......................................................LC
intermedia Hilliard ....................................................LC
karooica Hilliard ......................................................LC
kazanica Klotzsch ......................................................LC
lamprocarpa Schr. ex Rolfe .................................................LC
levanthrix Hilliard .....................................................LC
levynia Hilliard .........................................................LC
lilacina Hilliard .........................................................LC
delinaria Hilliard .......................................................LC
lineariola Rolfe .........................................................LC
linearis Rolfe ..............................................................LC
longicalyx Hilliard .....................................................Rare
longiflora Rolfe .........................................................LC
longipedicellata Rolfe ................................................LC
luxurians Choisy .........................................................LC
lydenburgiensis Rolfe ..................................................LC
macoraphosphaeris Hilliard .............................................LC
marloshii Hilliard DDD
mediocris Hilliard .....................................................LC
melliodora Hilliard .....................................................LC
micarhis Hilliard .......................................................LC
micravenia Hilliard .....................................................LC
mixta Hilliard .............................................................LC
mottrahi J.M.Wood & M.S.Evans ................................LC
morrenii Rolfe ..............................................................LC
mucronata Hilliard .....................................................LC
multiflora Hilliard ......................................................LC
multispicata Hilliard ....................................................LC
mundi Rolfe ..............................................................LC
myriophylla Hilliard ....................................................LC
myrtifolia Rhb. ...............................................................LC
nannosemis Schr. .........................................................LC
neglecta Hilliard .........................................................LC
nigrigens Rolfe .............................................................LC
nigromontana Hilliard ................................................LC
oppositifolia Hilliard ....................................................LC
oreigna Compton .........................................................LC
pachypoda Rolfe ..........................................................LC
paniculata Thunb. .......................................................LC
parvibractea Hilliard ...................................................LC
peduncularis E.Mey. ......................................................LC
periplaca Hilliard .......................................................LC
persimilis Hilliard .......................................................LC
pinea Link .................................................................EN
pingualca E.Mey. .........................................................LC
policyphe Thunb. .........................................................CR
polygala S.Moore .......................................................LC
polytachya L. .............................................................LC
praeterrasa Hilliard .....................................................LC
procerca Hilliard .......................................................LC
prostrata Hilliard .......................................................EN
psammpophila Hilliard ....................................................EN
pterophyla Thunb. .......................................................LC
pulchra Hilliard ...........................................................LC
punctata Rolfe .............................................................Rare
purpurea Cels. ............................................................LC
pustulosa Hilliard .......................................................LC
ramossima Rolfe ............................................................LC
recura E.Mey. ............................................................LC
rehmannii Rolfe .............................................................LC
retroplora Hilliard .......................................................LC
rigida Rolfe ...............................................................LC
rotundifolia L.f. ............................................................LC
rubromontana Hilliard ....................................................Rare
saxatilis E.Mey. ............................................................LC
scabirracteates Hilliard ................................................LC
scabrida Thunb. ............................................................LC
seticalis Hilliard ............................................................LC
setulosa Rolfe ..............................................................LC
singularis Hilliard .........................................................LC
spectosa Rolfe ..............................................................LC
stemostachia Hilliard ....................................................LC
stewardia S.Moore .........................................................LC
subpinnosa Hilliard .......................................................LC
tarachodes Hilliard .......................................................LC
telentiaf (Rolfe) Hilliard ................................................LC
tenues E.Mey. .............................................................DDD
teurfrofia burmh.f ............................................................LC
thermalis Hilliard .........................................................LC
thomii Rolfe .................................................................LC
traulensi Killick .............................................................LC
trichophylla Hilliard ......................................................Rare
trinerva E.Mey. .............................................................LC
triquetra L.f. .................................................................LC
vallicinari Hilliard .........................................................LC
valivarricae Hilliard .......................................................LC
venosa Hilliard ..............................................................LC
verna Hilliard ..............................................................LC
willicaulis Rolfe ..........................................................LC
willosa Rolfe ...............................................................LC
walpersii Choisy ............................................................LC
webstitchi Rolfe var. australis Hilliard ................................LC
webstitchi Rolfe var. holahai (Rolfe) Harman ................................LC
witbergensis E.Mey. .........................................................LC
zeyheri Choisy .............................................................LC
zuebleri Choisy .............................................................LC
zuirwensis Hilliard .........................................................LC
Sebecio, 279
abbreviatus S.Moore ......................................................LC
abruptus Thunb. .........................................................LC
aculis (L.f) Sch.Bip. .......................................................LC
achilleirolus DC. ..........................................................LC
acutiflorus DC. ...........................................................LC
adnatus DC. ...............................................................LC
affinis DC. .................................................................LC
apulate C.Jeffery ...........................................................LC
angustilus DC. ...............................................................LC
andalensis DC. var. albancensis ................................LC
andalensis DC. var. doronicifolius (DC.) Harv. ................................LC
andalon Hilliard .............................................................LC
albo-punctatus Bolus .......................................................LC
aloides DC. .................................................................LC
anapetes C.Jeffery ...........................................................LC
angustilus (Thunb.) Wildi. ..................................................LC
anomalochrous Hilliard .....................................................LC
anthemilus Harv. .........................................................LC
aquiloacinus DC. ...........................................................LC
arbidozilus O.Hoffm .........................................................LC
arenaria Thunb. .............................................................LC
arniciflorus DC. ............................................................LC
artuquina (L.f) Sch.Bip. ....................................................LC
asperarus DC. ..............................................................LC
ausstromontanus Hilliard ................................................LC
barratus DC. ...............................................................LC
barbentonicus Klatt .........................................................LC
basalticus Hilliard .........................................................LC
basiolif Olivi ...............................................................LC
bellis Harv. .................................................................DdT
bipinnatus (Thunb) Less. ....................................................LC
brachypodus DC. ............................................................LC
breonortatus M.D.Hend ....................................................LC
brevolurus Hilliard .........................................................Rare
bryonilif Harv. .............................................................LC
bulbinifolis DC. .............................................................LC
buplerrodes DC. ..........................................................LC
burchelli DC. ...............................................................LC
bynennis Hilliard ............................................................LC
cableifolis DC. ..............................................................LC
calostestis DC. ..............................................................LC
canipes DC. .................................................................DdT
cardamómifolis DC. .........................................................LC
carnosus Thunb. ............................................................LC
carnosiss DC. ...............................................................LC
carthenticus O.Hoffm. .......................................................LC
caudatus DC. ...............................................................LC
chryscorna Merb. ............................................................LC
cicatricious Sch.Bip .........................................................LC
cinerascens Aiton .........................................................LC
citriphylla Hilliard & B.L.Burt ................................LC
citroides G.D.Rowe .......................................................LC
coleophyllus Turcz. .......................................................DdT
conrathi N.E.Br. ............................................................LC
consanguine DC. ............................................................LC
cordifolis L.F. ...............................................................LC
cornu-cervi MacOwan ....................................................LC
coronatus (Thunb) Harv. ................................................LC
cotyledonis DC. .............................................................LC
crasalloclus DC. .............................................................LC
crasaloefolia (DC) Sch.Bip. ................................................LC
crenatus Thunb. .............................................................LC
crunculus DC. ...............................................................LC
cruspilus Thunb. .............................................................LC
crimtimonutus Hilliard ....................................................LC
cryptonatanus Killick ......................................................LC
destroens DC. ...............................................................LC
detertroen Lest. ............................................................LC
difflusus Thunb. .............................................................DdT
digitalifoluus DC. ............................................................LC
diodon DC. .................................................................LC
discodermogenus Hilliard & B.L.Burt ................................LC
dissimulans Hilliard ......................................................LC
diversifolius Harv. .........................................................LC
dreamus DC. ...............................................................VU
dumous Fource .............................................................DdT
eeni (S.Moore) Merxm ......................................................LC
elega L. .................................................................LC
eminens Compton DDD
eriobasis DC. .............................................................LC
erutos L.f. .................................................................LC
erubescens Aion var. crepidiifolius DC. ................................LC
erubescens Aion var. dichotomus DC. ................................LC
erubescens Aion var. erubescens ....LC
erubescens Aion var. incisus DC. ....Th
erynoides DC. ............................................................DDD
euryoides DC. .............................................................Th
evelinae Musch. .............................................................LC
exuberans R.A.Dyer .......................................................EN
ficoidea (L.f) Sch.Bip. .......................................................LC
flanagan E.Phillips .........................................................LC
flavus (Deene) Sch.Bip. ......................................................LC
foenicioides Harv. .........................................................EN
gaeheyensis Cron DDD
gerrardii Harv. .............................................................LC
giesssi Merxm ...............................................................LC
glaebferus DC. .............................................................LC
glaebferus DC. ..............................................................LC
glandulifolius-ananths Thell. ........................................................LC
glandulifolius-pilose Volksen & Muschl ................................LC
glaebferus L.F. ..............................................................LC
glutinatus DC. ...............................................................LC
glutinosus Thunb. ...........................................................LC
gramineus Harv. .............................................................LC
grallonator P.Berg. ..........................................................LC
gregatus Hilliard .........................................................LC
halimifolius L ...............................................................LC
hallians C.D.Rowley .......................................................Rare
haseltanus MacOwan ......................................................LC
hastatus L .................................................................LC
hastifolius (L.f) Less. .......................................................LC
havorthii (Sweet) Sch.Bip. ..................................................LC
haygarthii Hilliard .........................................................LC
confixa (E.Phillips) Rourke ................................ LC
curvifolia Salisb. ex Knight .................................... LC
ericosides E.Phillips ............................................. EN
incura (Thunb.) R.Br. ......................................... LC
longifolia Salisb. ex Knight ................................... NT
mollis R.Br. ....................................................... Rare
rubia B.ourke .................................................... NT
parlis Salisb. ex Knight ....................................... LC
prolifica (Thunb.) Salisb. ex Knight ......................... EN
propinqua R.Br. ................................................. EN
racemosa (L.) Drure ............................................. NT
salsoloides (R.Br.) Rourke .................................... CR
tetacea (R.Br.) Rourke ....................................... LC
squamae Meun. .................................................. NT
thyrsiflora Salisb. ex Knight .................................. TU
ubalgnesi (E.Phillips) Rourke .............................. EN
Spergularia
boconi (Scheele) Asch. & Graebn. ................. LC
brevicaulis Simon ................................................ LC
Spermacoce
deserti N.E.Br. .................................................. LC
natalesis Hochst. ................................................. LC
senesis (Klotzsch) Hiern ................................ LC
Spectaea, 124
lachenaliafylla Wetschig & Pfoßer ................. Rare
Sphaeranthus
pedunculata DC. subsp. pedunculata ..................... LC
Sphaerochionium
aeonium (Poir.) Pic.Serm. ................................ LC
capillare (Deev) Copel. ....................................... LC
Sphaerocodon
natalese (Mein.) Hook.f .................................... LC
Sphaerodax
algiformis Bisch. ex C.Krauss ............................ LC
phylicoides Pillans ......................................... EN
rugosa Aiton ....................................................... LC
reticulata Codd ................................................. LC
sessilis Gürke ...................................................... LC
sessilifolia E.Mey. ex Benth. ............................... LC
obtusifolia MacOwan .......................................... LC
spathulata Burch. ex Benth. .............................. LC
hyssopoides Burch. ex Benth. ............................ LC
dregeana Benth. ............................................... LC
kuntzei Gürke ..................................................... LC
aurea Benth. ....................................................... LC
virginicus (L.) Kunth .......................................... LC
tenellus (Spreng.) Kuntz ...................................... LC
nigricans Benth. ................................................... LC
spathulata Burch. ex Benth. .............................. LC
zeyheri Skan .................................................... Rare
Stenosemis
caffra (Eckl. & Zeyh.) Sond. ............................... LC
Stegnogramma
villetiae C.A.Lückh. ........................................ LC
unicornis C.A.Lückh. ......................................... LC
Steganotaenia
capensis (L.) Garside ............................................ LC
aemulans (Nel) Garside ...................................... DDT
Stadmannia
repensifolia Lam. subsp. rhodesica Essl ................ LC
Stangeria, 57
eripus (Kunze) Baill ........................................ VU
Stapelia, 241
acuminata Masson ............................................. LC
arenacea C.A.Lückh. ....................................... LC
asterias Masson ............................................... LC
cedrimontana Frandsen ................................ LC
claironova L.Verd ............................................. LC
condimissa Masson ........................................... DDT
divariata Masson .............................................. VU
ergleriana Schr ................................................ DDT
erectiflora N.E.Br. var. erectiflora ..................... LC
erectiflora N.E.Br. var. prostratflora
L.C. Leach ....................................................... DDT
flavoporporea Marloth ...................................... LC
gentilii K.Port .................................................. LC
gigantea N.E.Br. ............................................... LC
glanduliflora Masson ....................................... VU
glanduliflora Masson var. conformis (N.E.Br.)
Brouns .......................................................... LC
hirsuta L. var. bayliisii (L.C.Leach) Brouns ........ LC
hirsuta L. var. garipennis (Pillans) Brouns ........ LC
hirsuta L. var. hirsuta ....................................... LC
hirsuta L. var. tosnoensis (N.E.Br.) Brouns .......... LC
hirsuta L. var. vetula (Masson) Brouns ................ LC
immoraniana Pillans ......................................... DDT
kwebemis N.E.Br. ........................................... Rare
leandertzi N.E.Br. ............................................ LC
montana L.C. Leach var. grossa L.C. Leach ..... Rare
montana L.C. Leach var. montana ....................... LC
obducta L.C. Leach ........................................... LC
olivacea N.E.Br. ............................................... LC
panerculata Wild. subsp. kougebagenensis (L.C. Leach)
Brouns ........................................................... LC
panerculata Wild. subsp. panerculata ...................... NT
panerculata Wild. subsp. scutula (L.C. Leach)
Brouns ........................................................... VU
pilansii N.E.Br. var. fontinalis Nel ..................... LC
pilansii N.E.Br. var. pilansii ............................... LC
pufnita blush .................................................... LC
rubinosa Nel ...................................................... RU
rula Masson ...................................................... LC
simlis N.E.Br. ................................................... LC
succerta N.E.Br. ................................................ LC
unicornis C.A.Lückh ........................................ LC
villaitae C.A.Lückh .......................................... LC
Stapeliosis, 241
brevalba (R.A.Dyer) Brouns ............................... VU
exasperata (Brouns) Brouns ............................... LC
khanambergensis Brouns ................................ LC
neronis Pillans .................................................... Rare
pilansii (N.E.Br.) Brouns .................................. LC
saxatilis (N.E.Br.) Brouns subsp. saxatilis ...... LC
saxatilis (N.E.Br.) Brouns subsp. stagnaris
(M.B.Bayer) Brouns .......................................... DDT
urniflora Lavranos ........................................... LC
Stenamia, 443
nelli (J.B.Jon.) L.Bolus .......................................... VU
Steganthera
aralea Hochst. var. aralea ................................ LC
Stein gramm at o
pozzo (Lag.) K.Wats ........................................ LC
Steirodicus, 282
capillaceus (Thunb.) Less ................................... LC
gamolepis Bulbus ex Schltr ................................ EN
linearilobus DC .................................................. DDD
schechteri Bulbus ex Schltr .................................. EN
specious (Pillans) B.Nord ................................... EN
tagetes (L.) Schltr .............................................. VU
Stemodiopsis
rosea Engl ......................................................... LC
Stenechlaena
tenuifolia (Desv.) T.Moore ................................ LC
Stenoglottis
fimbriata Lindl .................................................... LC
longifolia Hook.f .............................................. LC
woodii Schltr .................................................... LC
zambesiaca Rolfe ............................................... LC
Stenospathis
angustifolia E.Mey. ex Sonod. ............................ LC
calilaria (Eckl. & Zeyh.) Sonod .......................... LC
Stypheiochloa

Stylosanthes

Strychnos

Struthiola

Stylosanthes fasciata C.H. Wright ............................................... LC

fasciata C.H. Wright ......................................................... LC

gerrardii N.E.Br. ..................................................... LC

gerrardii (Harv. ex Hook.f.) Burtt Davy .................. LC

inflata Aellen ......................................................... LC

mundii Eckl. ex Meisn. .......................................... LC

parviflora Bartl. ex Meisn. ..................................... LC

pubescens W.F. Barker ....................................... Rare

.TabControla

tabernae montana decorations of cox et al. casuarinae

tabernae montana decorations of cox et al. casuarinae

tabernae montana decorations of cox et al. casuarinae

tabernae montana decorations of cox et al. casuarinae

tabernae montana decorations of cox et al. casuarinae

tabernae montana decorations of cox et al. casuarinae

tabernae montana decorations of cox et al. casuarinae

tabernae montana decorations of cox et al. casuarinae
auriculata S. Moore .................................................. LC
aristolochia O.J. Lewis ............................................. LC
dentata (Burm.f) Harv ............................................ LC
microcarpa Harv. subsp. microcarpa ......................... LC
oppositifolia (Aiton) B.Nord ........................................ LC
papillosa (G.J.Lewis) B.Nord ....................................... LC
polycypha DC ......................................................... LC
rosulata (Norl) B.Nord ............................................. DDT
sinuata DC var. linearis (Harv) B.Nord ...................... LC
spathulata DC .......................................................... Tbr
spiniagara Norl ....................................................... DDT

Tiraphis
andropogonoides (Steed.) E.Phillips ......................... LC
purpurea Hack ........................................................ LC
rasmissima Hack .................................................... LC
schinizi Hack .......................................................... LC

Tristachya
biseriata Stapf ........................................................ LG
leucothrix Trim ex Nees ......................................... LC
pallida Stent ........................................................... LC
rehmannii Hack ....................................................... LC

Tristicha
trifaria (Ex Wild.) Spreng subsp. trifaria ..................... LC

Tritonia, 174
atrorubens (N.E.Br) B.Louis ..................................... DDD
bakeri Klatt subsp. bakeri ........................................... LC
doodyi Klatt subsp. ilicacea (B.Louis) Klatt ............... LC
darssiana Fourc ....................................................... LC
copieri (Klatt) Klatt subsp. cooperi ......................... LC
copieri (Klatt) Klatt subsp. quadrilata ...................... M.P.de Vos ................................................ LC
crocea (L) Ker Gawl ................................................ LC
delpierei M.P.de Vos .............................................. VU
deusta (Aiton) Ker Gawl. subsp. deusta ..................... LC
deusta (Aiton) Ker Gawl. subsp. minata (Jacq) ......... M.P.de Vos ........................................................... LC
disticha (Klatt) Baker subsp. disticha ....................... LC
disticha (Klatt) Baker subsp. rubrobaccatum (R.C.Foster) M.P.de Vos ......................................................... LC
drakensbergensis M.P.de Vos ................................... LC
dubia Ecll ex Klatt ..................................................... NT
flabellifolia (D.Delaroche) G.J.Lewis var. flabellifolia .......................................................... LC
flabellifolia (D.Delaroche) G.J.Lewis var. major (Ker Gawl) M.P.de Vos ..................................................... LC
flabellifolia (D.Delaroche) G.J.Lewis var. thomassia M.P.de Vos ......................................................... LC
florestiae (Marloth) Goldblatt .................................. Rare
gladiolarius (Lam) Goldblatt & J.C.Manning ............. Rare
kambergensis Klatt ................................................. Rare
karosia M.P.de Vos ............................................... LC
lancea (Thunb) N.E.Br ............................................. EN
lausia (Klatt) Benth ex Baker .................................... LC
mauritianum M.P.de Vos .......................................... LC
nelsonii Baker .......................................................... LC
pallida Ker Gawl. subsp. pallida ................................ LC
pallida Ker Gawl. subsp. taylorae (L.Bolus) M.P.de Vos ......................................................... LC
parva N.E.Br ........................................................... LC
securigera (Aiton) Ker Gawl. subsp. secuigera (L.Bolus) J.C.Manning & Goldblatt Rare
squidala (Aiton) Ker Gawl. NT
strictifolia (Klatt) Benth. ex Klatt ............................. LC
tugwelliae L.Bolus ..................................................... LC
undulata (Burm.f) Harv ............................................. LC
Tritoniopsis, 177
antholyza (Poic) Goldblatt ...................................... LC
bicolor J.C.Manning & Goldblatt ............................... VU
burchelli (N.E.Brit) Goldblatt .................................... LC
cartula (Ker Gawl. ex Baker) Goldblatt .................... LC
caledonius (R.C.Foster) G.J.Lewis ........................... LC
chelidii (G.J.Lewis) G.J.Lewis .................................... LC
climbinga (L.Bolus) G.J.Lewis ................................. LC
comanii (L.Bolus) J.C.Manning & Goldblatt .............. CR PE
flava J.C.Manning & Goldblatt ............................... CR PE
flavi J.C.Manning & Goldblatt ............................... CR PE
loddia (G.J.Lewis) G.J.Lewis ................................. LC
longifolia (L) Ker Gawl. .......................................... LC
ludwigiana Harv ...................................................... LC
montana Harv .......................................................... LC
natalensis Baker ....................................................... LC
naturas Harv ........................................................... LC
pretoriensis Vosa & Condy ....................................... LC
simmeri Baker ......................................................... LC
tenuior K.Krause & Dinter ....................................... LC
transvaalensis Vosa .................................................. LC
verdoornia Vosa & Barb ........................................... LC
violacea Harv. var. maritimia Vosa ................................ LC
violacea Harv. var. violacea ...................................... LC

Turraea, 250
aperta (Baker) Baker ............................................... LC
atropurpurea Bruyn ................................................. Rare
bakeri van Jaars ...................................................... LC
bcliae G.Will .......................................................... DDT
boddieli van Jaars .................................................... Rare
buccholzianus (Schuldt & P.Steph) Toelken subsp. buchholzianus ......................................................... LC
buccholzianus (Schuldt & P.Steph) Toelken subsp. fasciculatus G.Will ..................................................... Rare
callatoides (L) Toelken .............................................. LC
comans G.Will ......................................................... LC
decipiens Toelken ....................................................... Rare
ellaphieae van Jaars .................................................... Rare
faucium (Poelln) Toelken .......................................... Rare
fragile (R.A.Dyer) Toelken .......................................... LC
grandiflorus (Burm.f) Toelken ................................... LC
hallii (Toelken) Toelken ............................................. LC
hirtifolius (W.Barker) Toelken ................................... LC
jarrarv Halda ........................................................... DDT
kazingi van Jaars ...................................................... Rare
leucothrix (C.A.Sm) Toelken ....................................... Rare
longipes van Jaars & G.Will ...................................... Critical Rare
mallei G.Will ........................................................... Rare
nigricaulis G.Will & van Jaars .................................. Rare
noltiee Lavernos ...................................................... VU
occultans (Toelken) Toelken ...................................... LC
paniculatus (L) Toelken ............................................. LC
pessoni (Schiindl) Toelken ......................................... LC
pecularis van Jaars ..................................................... Rare
pulilis Bruyns ........................................................... LC
pyrophilus (W.Barker) Toelken ................................... LC
raceomus (L) Toelken subsp. reticulatus ...................... LC
rubrovenus (Dinter) Toelken ...................................... LC
scandens van Jaars ..................................................... Rare
schafnerianus (Dinter) Toelken ................................... LC
similis (Toelken) Toelken .......................................... LC
stenocalius Bruyns .................................................... Rare
striatus (Hutchison) Toelken ...................................... LC
subulatus Bruyns ex Toelken ..................................... Critical Rare
sulphureus (Toelken) Toelken var. arminianus (Van Jaars) .......................................................... LC
supraterminus Bruyns ............................................. Rare
susculentum (Burch.) A.Shreb ......................................... LC
tenuis (Toelken) Bruyns ............................................ LC
torulosus Toelken ..................................................... VU
trivibele Van Jaars ..................................................... LC
tuberosus Toelken ..................................................... LC
typhotic (Burm.f) Toelken ......................................... LC
viridiflorus (Toelken) Toelken ................................... LC
wallichii (Harv) Toelken subsp. ecklonianus (Harv) Toelken .......................................................... LC
wallichii (Harv) Toelken subsp. wallichii (Toelken) ....... LC

Tylophora, 242
anomalia N.E.Br ..................................................... LC
bada (E.Mey) Schltr var. baddia .................................... DDT
bada (E.Mey) Schltr var. tartifolia N.E.Br .................... LC
coddii Bullock ......................................................... LC
cordata (Thunb) Druce ............................................... LC
flanaganii Schltr ....................................................... LC
lycosidei (E.Mey) Dinter .......................................... LC
simanea Schltr .......................................................... LC
umbellata Schltr ....................................................... LC

Tylecodon, 310
abruptus Bruyns ..................................................... Rare
badia (E.Mey) Schltr ................................................... LC
bleckiae G.Will .......................................................... DDT
boddieli van Jaars .................................................... Rare
buccholzianus (Schuldt & P.Steph) Toelken subsp. buchholzianus ......................................................... LC
buccholzianus (Schuldt & P.Steph) Toelken subsp. fasciculatus G.Will ..................................................... Rare
callatoides (L) Toelken .............................................. LC
comans G.Will ......................................................... LC
decipiens Toelken ....................................................... Rare
ellaphieae van Jaars .................................................... Rare
faucium (Poelln) Toelken .......................................... Rare
fragile (R.A.Dyer) Toelken .......................................... LC
grandiflorus (Burm.f) Toelken ................................... LC
hallii (Toelken) Toelken ............................................. LC
hirtifolius (W.Barker) Toelken ................................... LC
jarrarv Halda ........................................................... DDT
kazingi van Jaars ...................................................... Rare
leucothrix (C.A.Sm) Toelken ....................................... Rare
longipes van Jaars & G.Will ...................................... Critical Rare
mallei G.Will ........................................................... Rare
nigricaulis G.Will & van Jaars .................................. Rare
noltiee Lavernos ...................................................... VU
occultans (Toelken) Toelken ...................................... LC
paniculatus (L) Toelken ............................................. LC
pessoni (Schiindl) Toelken ......................................... LC
pecularis van Jaars ..................................................... Rare
pulilis Bruyns ........................................................... LC
pyrophilus (W.Barker) Toelken ................................... LC
raceomus (L) Toelken subsp. reticulatus ...................... LC
rubrovenus (Dinter) Toelken ...................................... LC
scandens van Jaars ..................................................... Rare
schafnerianus (Dinter) Toelken ................................... LC
similis (Toelken) Toelken .......................................... LC
stenocalius Bruyns .................................................... Rare
striatus (Hutchison) Toelken ...................................... LC
subulatus Bruyns ex Toelken ..................................... Critical Rare
sulphureus (Toelken) Toelken var. arminianus (Van Jaars) .......................................................... LC

Tylophora, 242
anomalia N.E.Br ..................................................... LC
bada (E.Mey) Schltr var. baddia .................................... DDT
bada (E.Mey) Schltr var. tartifolia N.E.Br .................... LC
coddii Bullock ......................................................... LC
cordata (Thunb) Druce ............................................... LC
flanaganii Schltr ....................................................... LC
lycosidei (E.Mey) Dinter .......................................... LC
simanea Schltr .......................................................... LC
umbellata Schltr ....................................................... LC

Urticaceae
trinervis (Hochst.) Friis & Immelman ......................... LC

Urtica, 124
epigama R.A.Dyer .................................................... LC
hydropiper R.A.Dyer ............................................... LC

Utricularia
brachyura (Hack) Stapf ........................................... LC
mosambicensis (Hack) Dandy ........................................ LC
Ursinia, 284

abrotanifolia (B.R.) Spreng. .......... LC
alpina N.E.Br. ......................... LC
alpina (DC.) N.E.Br. .......... LC
anthemidios (L.) Poir. subsp. anthemidios .......... LC
anthemidios (L.) Poir. subsp. versicolor (DC.) Prasser .......... LC
brachysphaca (Kunze) N.E.Br. ............ DD
calefolia DC. .......... LC
caledonica (E.Phillips) Prasser .......... VU
calendarifolia (DC.) N.E.Br. .......... LC
chloranthidium (L.) Harv. ...... LC
coronopis (Less.) N.E.Br. .......... Rare
dentata (L.) Poir. .......... LC
discolor (Less.) N.E.Br. .......... LC
drum (DC.) N.E.Br. .......... Rare
eckloniana (Don.) N.E.Br. .......... LC
filipes (E.Mey. ex DC.) N.E.Br. .......... Rare
frenchesis Dinter .......... LC
heterodonta (DC.) N.E.Br. .......... LC
hipida (DC.) N.E.Br. .......... Rare
macropoda (DC.) N.E.Br. .......... LC
merazemmeri Prasser .......... Critical Rare
montana DC. subsp. apiculata (DC.) Prasser .......... LC
montana DC. subsp. montana .......... LC
nana DC. subsp. leptophylla Prasser .......... LC
nana DC. subsp. nana .......... LC
nudicaulis (Thunb.) N.E.Br. .......... LC
orogelen Schr. ex Prasser .......... Rare
palearea (L.) Moench .......... LC
pillifera (P.Bergius) Poiret .......... LC
pinnata (Thunb.) Prasser .......... LC
punctata (Thunb.) N.E.Br. .......... LC
pygmaea DC. .......... LC
quinoa varipartita (DC.) N.E.Br. .......... LC
rigidula (DC.) N.E.Br. .......... LC
saxatilis N.E.Br. .......... LC
scariosa (Aiton) Poiret subsp. scariosa .......... LC
scariosa (Aiton) Poiret subsp. subhirsuta (DC.) Prasser .......... LC
serrica (Thunb.) N.E.Br. .......... LC
serrata (L.) Poir. .......... LC
speciosa DC. .......... LC
subhirsulosa (DC.) Prasser .......... EN
tenuifolia (L.) Poiret subsp. ciliaris (DC.) Prasser .......... LC
tenuifolia (L.) Poiret subsp. tenuifolia .......... LC
tenuifolia DC. .......... LC
trifida (Thunb.) N.E.Br. .......... LC
Utica
lobulata Blume .......... LC

Utricularia
arminiana A.DC. .......... LC
australis K.Br. .......... LC
buenanomiana Olivier .......... LC
bispicata Schrank .......... LC
cymbantha Olivier .......... LC
firmula Wehl. ex Olivier .......... LC
foliosa L. .......... LC
gibba L. .......... LC
inflexa Forsk. .......... LC
livida E.Mey. .......... LC
prebennis E.Mey. .......... LC
reflexa Olivier .......... LC
sandersonis Olivier .......... LC
scandens Berg .......... LC
stellaris L. .......... LC
subulata L. .......... LC
wehstchii Olivier .......... LC

Uvaria
caffra E.Mey. ex Donn. .......... LC
gracilipes N.Robson .......... LC
lucida Benth. subsp. virenes (N.E.Br.) Verdc. .......... LC

Vaccinium
euxol Boul. .......... LC

Vahlia
capensis (L.) Thunb. subsp. capensis .......... LC
capensis (L.) Thunb. subsp. ellipticifoia Bridson .......... LC
capensis (L.) Thunb. subsp. vulgaris Bridson var. latifolia Burch var. Dyer .......... DD
capensis (L.) Thunb. subsp. vulgaris Bridson var. linearii E.Mey. ex Bridson .......... LC
capensis (L.) Thunb. subsp. vulgaris Bridson var. longifolia (Gaud.) Bridson .......... LC
capensis (L.) Thunb. subsp. vulgaris Bridson var. vulgaris .......... LC
Valeria

capensis Thunb. var. capensis .......... LC
capensis Thunb. var. lanceolata N.E.Br. .......... LC
capensis Thunb. var. nana B.L.Burtt .......... LC
Vallisineria
spiralis L. .......... LC

Vangueria
esculenta S.Moore .......... LC
infausta Burch. subsp. infausta .......... LC
madagascariensis J.G.Mel. .......... LC
randii S.Moore subsp. chartacea (Robyns) Verde. .......... LC
soutpansbergensis N.Hahn .......... Rare

Vanheerdea
primosi (L.Bolus) L.Bolus ex H.E.Kartmann .......... LC
toedae (N.E.Br.) L.Bolus ex H.E.Kartmann .......... LC
Vanilla, 200
roscheri Rchb.f. .......... NT

Vernonia
anemoides (L.) Poir. subsp. anthemoides .......... LC
anemoides (DC.) N.E.Br. .......... LC
stolonifera (Gooss.) Chippind. .......... LC
nana DC. subsp. leptophylla Prassler .......... LC
merxmuelleri Prassler .......... Rare
heterodonta (DC.) N.E.Br. .......... LC
frutescens Dinter .......... LC
coronopifolia (Less.) N.E.Br. .......... Rare
eckloniana (Sond.) N.E.Br. .......... LC
dregeana (DC.) N.E.Br. .......... Rare
exul Bolus .......... LC
prehensilis E.Mey. .......... LC
livida E.Mey. .......... LC

Veronicaceae

Vitis

Vernonia, 285

Veltheimia

Vangueria, 521

Vallisneria

Valeriana

Vernonia

Verrucastrum, 540

Vespuccia

Vittaria, 408

Vernonia, 285

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occulta L.Bolus ...................................................... LC
paucifolia Goldblatt .............................................. LC
pillansii L.Bolus ..................................................... LC
pondensis Goldblatt ............................................... EN
pulchra N.E.Br. ex Goldblatt ....................................... LC
rogensii L.Bolus ....................................................... LC
roukери Goldblatt .................................................. CR
schlechteri L.Bolus ................................................... VU
spectabilis Schinz ..................................................... LC
stenophiona L.Bolus ............................................... LC
stokoei L.Bolus ........................................................ LC
strictiflora Ker Gawl. ............................................... CR
strubienia L.Bolus ................................................. VU
tabularis J.W.Mathews & L.Bolus .............................. LC
transvaalensis Baker ................................................ LC
vandersypaiæa L.Bolus .............................................. LC
versfeldii J.W.Mathews & L.Bolus ............................... NT
vittata J.W.Mathews & L.Bolus .................................... DD
watsonioides (Baker) Oberm ........................................ LC
willmaniae J.W.Mathews & L.Bolus .............................. LC
willmsi L.Bolus ........................................................ LC
wordworthiana J.W.Mathews & L.Bolus ......................... DDT
zeyherii L.Bolus ........................................................ LC

Wellstedia
dinteri Pilg. var. dinteri ........................................... LC

Wiborgia, 287
fusca Thunb. subsp. fusca ......................................... LC
fusca Thunb. subsp. macrocarpa R.Dahlgren ....... EN
humillis (Thunb.) R.Dahlgren ...................................... EN
incurvata E.Mey. ....................................................... LC
leptoptera R.Dahlgren subsp. cedergenensis R.Dahlgren ............................. LC
leptoptera R.Dahlgren subsp. leptoptera ................. LC
monoptera E.Mey. ..................................................... LC
macrocarpa (L.) Druce ............................................... LC
obcordata (P.J.Regis) Thunb. ........................................ LC
sericea Thunb ........................................................ LC
tenufolia E.Mey ........................................................ NT
terpetera E.Mey. ....................................................... LC

Widdringtonia, 57
cedarbergensis J.A.Marsh. .......................................... CR
nodiﬂora (L.) Fowrie .................................................. Rare
schwartzii (Marloth) Mast ............................................ NT

Willemoenia, 212
affinis Pillans ........................................................ EX
arcescens Kanch ......................................................... LC
bolusii Pillans ........................................................ LC
glomerata (Thunb.) H.P.Linder ...................................... LC
humilis Mast .......................................................... LC
incurvata (Thunb.) H.P.Linder ...................................... LC
purpurea Pillans ...................................................... VU
ruga Eesth ............................................................... VU
stokoei Pillans ........................................................ LC
sulcata Mast ............................................................ LC
ters Thunb ............................................................. LC

Wimmerella, 405
arbadeia (C.Prest) Serra, M.B.Crespo & Lammers .... LC
biloba (Thunb.) Serra, M.B.Crespo & Lammers ........... LC
frontidentata (E.Wimm.) Serra, M.B.Crespo & Lammers .... LC
hadiemia (Sonc.) Serra, M.B.Crespo & Lammers ......... LC
hedyotidea (Schlt) Serra, M.B.Crespo & Lammers ....... LC
longirubus (E.Wimm.) Serra, M.B.Crespo & Lammers .... LC
mariara (E.Wimm.) Serra, M.B.Crespo & Lammers ....... LC
pygmaea (Thunb.) Serra, M.B.Crespo & Lammers ......... LC
secunda (L.) Serra, M.B.Crespo & Lammers ................. LC

Wissadula
rostrata (Schumach.) Hook.f. ...................................... LC

Withania
sommeri (L.) Dunal ..................................................... LC

Witsenia, 180
maura Thunb .......................................................... LC

Wolffia
arrhiza (L.) Horkel ex Wimm ........................................ LC
globosa (Roxb.) Hartog & Plas .................................... LC

Wolffiiella, 180
denticulata (Heget.) Hegelm. ...................................... VU
weithitschii (Heget.) Hegelm. .................................... Monod

Woodia, 242
macronata (Thunb.) N.E.Br. ......................................... LC
singularis N.E.Br. ...................................................... Rare
verruculosa Schlr ..................................................... VU

Woodsidia
angolensis Schlep .................................................... LC
montevidensis (Spreng.) Herron .................................. LC

Wooleyana, 444
farinosa (L.Bolus) L.Bolus ........................................... LC

Wrightia
natashenis Stapf ...................................................... LC

Wurmbea, 102
angustifolia B.Nord. ................................................. LC
birti B.Nord. .......................................................... LC
caffra Sond. var. natalensis Sond. ......................... LC
cesta (L.) E.Austin & Staples subsp. angolensis (Jacq.) Lejoly & Lisowski .......... LC
xerocladia viridibrachis (Buch.) Taub ................................ LC
xerodoris stuhlmannii (Taub.) Mendonça & E.C.Sousa .......... LC

Xanthocercis
bismarkia (Baker) Dumazé-Grand .................................... LC

Xenoscapa, 180
floribunda (Spreng.) ex Klett Goldblatt & J.C.Manning .............................................................. LC
ungulosa Goldblatt & J.C.Manning .............................. Rare

Xenostegia
tristida (L.) D.E.Austin & Staples subsp. angolensis (Jacq.) Lejoly & Lisowski .......... LC

Xerochloa
viridibrachis (Buch.) Taub ........................................... LC

Xerophyta, 215
esquistoides Baker var. esquistoides ................................ LC
equisetoides Baker var. pauracumosa L.B.Sm. & Ayensu ............................. LC
humilis T.Durand & Schinz ........................................ LC
longicaulis Hilliard .................................................... CR
retinervis Baker .......................................................... LC
schlechteri (Baker) N.L.Meneses .................................. LC
villosa (Baker) L.B.Sm. & Ayensu ................................ LC
vivosa Baker ........................................................... LC

Ximenia
americaniana L. var. micophylla Welw. ex Oliv .................. LC
caffa Sond. var. caffá ................................................. LC
caffa Sond. var. natalensis Sond ................................... LC

Xiphotheca, 388
canescens (Thunb.) A.L.Schulte & B.Evan Wyk ............................... VU
cordifolia A.L.Schulte & B.Evan Wyk .......................... VU
elliptica (DC) A.L.Schulte & B.Evan Wyk ........................ NT
fruticosa A.L.Schulte & B.Evan Wyk ............................. VU
gurthiei (L.Bolus) A.L.Schulte & B.Evan Wyk ........................ LC
laceolata (E.Mey.) Eckl. & Zeyh .................................... EN
phylicoides A.L.Schulte & B.Evan Wyk .......................... CR
reflexa (Thunb.) A.L.Schulte & B.Evan Wyk ........................ EN
sp. nov. (Hermia 2086 NBG) ........................................ CR
tecta (Thunb.) A.L.Schulte & B.Evan Wyk ........................ LC

Xydia
torrenza Brench .......................................................... LC

Xilocarpus
granatum J.Köng ...................................................... LC

Xylophia
parviflora (A.Rich) Benth.............................................. LC

Xylotreca
kraussiana Hochst .................................................... LC

Xylomas
monospora (Harc.) Bail .............................................. LC

Y
Ypsilopus
erectus (P.J.Cribb) P.J.Cribb & J.L.Stewart ................ LC

Z
Zaleya
pentandra (L.) C.Jeffrey ................................................. LC

Zalužanskya, 354
acrobasisa Hilliard ................................................... Rare
acutloba Hilliard ...................................................... Rare
affinis Hilliard ......................................................... LC
angolistica Hilliard & B.L.Burtt ................................. LC
bellia Hilliard .......................................................... LC
benthamiana Walp ................................................. Rare
caffá Hilliard ............................................................... LC
crocea Schlr .............................................................. Rare
diandra Diels ............................................................. LC
distans Hier .............................................................. LC
divaricata (Thunb.) Walp .............................................. LC
elongata Hilliard & B.L.Burtt ....................................... LC
glandulosa Hilliard .................................................... LC
graeeosa Hilliard & B.L.Burtt ....................................... LC
gracilis Hilliard .............................................................. LC
inflata Diels .............................................................. Rare
isamthera Hilliard ..................................................... Rare
karreebergenensis Hilliard ........................................ DDD
karrooica Hilliard ...................................................... LC
katharinea Hier ......................................................... LC
languera Hilliard ......................................................... DDD
mariana (L.) Walp ..................................................... LC
marlothii Hilliard ....................................................... DDD
microsiphon (Kunze) K.Schum .................................. LC
minima (Hier) Hilliard ............................................... Rare
mirabilis Hilliard ...................................................... Rare
muirii Hilliard & B.L.Burtt ......................................... LC
natalensis Berth .......................................................... LC
ovata (Benth.) Walp ................................................... LC
pachyrrhiza Hilliard & B.L.Burtt .................................. LC
parviflora Hilliard ...................................................... NT
peduncularis (Benth.) Walp ........................................ LC
pilosii Hilliard & B.L.Burtt .......................................... DDT
pilosissima Hilliard ..................................................... LC
STRELITZIA


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Tel. +27 12 843-5000 Fax +27 12 804-3211 E-mail bookshop@sanbi.org.za. Website www.sanbi.org (to be changed to www.sanbi.org.za in about mid-2010)
Definitions

Area of Occupancy (AOO)
Area of Occupancy is the area within a taxon’s Extent of Occurrence (EOO) that is occupied by it. The measure reflects the fact that a taxon will not usually occur throughout the area of its extent of occurrence, which may contain unsuitable or unoccupied habitats.

Continuing Decline
A continuing decline is a recent, current or projected future decline (which may be smooth, irregular or sporadic) that is liable to continue unless remedial measures are taken. Fluctuations will not normally count as continuing declines, but an observed decline should not be considered a fluctuation unless there is evidence for it.

Extent of Occurrence (EOO)
Extent of Occurrence is defined as the area contained within the shortest continuous boundary that can be drawn to encompass all the known, inferred or projected sites of present occurrence of a taxon. This measure may exclude discontinuities or large disjunctions within the overall distributions of taxa, e.g. large areas of obviously unsuitable habitat. For this publication, Extent of Occurrence was calculated within a Geographic Information System (GIS) using a minimum convex polygon (the smallest polygon that contains all sites of occurrence but where no internal angle exceeds 180°).

Extreme Fluctuations
Extreme fluctuations occur when population size or distribution area varies widely, rapidly and frequently, typically with a variation greater than one order of magnitude. Extreme fluctuations are unusual in plant populations, and have been applied in this assessment only to reseeding species in the family Proteaceae, based on observations of large population fluctuations following irregular fires.

Generation Length
Generation length is the average age of parents of the current cohort (i.e. newborn individuals in the population). Generation length reflects the turnover rate of breeding individuals in a population. It is greater than the age at first flowering and less than the age of oldest flowering individuals, except in taxa that only flower once. When generation length varies under threat, the more natural, i.e. pre-disturbance, generation length should be used in assessments.

Location
The term location refers to a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the taxon present. The size of the location depends on the size of the impact of the threatening event and may include part of one or many subpopulations. Where a taxon is affected by more than one threatening process, location should be defined by considering the most serious threat.

Mature Individuals
The number of mature individuals is the number of individuals known, estimated or inferred to be capable of reproduction. When estimating this quantity, the following points should be borne in mind:
- Mature individuals that will never produce new recruits should not be counted, e.g. where densities are too low for successful pollination, or where specialist pollinators have become locally extinct in small habitat fragments.
- Where populations have biased sex ratios in mature individuals, it is appropriate to use lower estimates of number of mature individuals to take this into account.
- Where the population size fluctuates, an estimate lower than the mean population size should be used.
- Reproducing units within a clone should be counted as separate mature individuals.
- In the case of taxa that naturally lose all or a subset of their mature (breeding) individuals at some point in their life cycle, e.g. some geophytes that only flower after a fire and remain dormant for long periods, the estimate should be made when mature individuals are available for breeding.
- Reintroduced individuals must have produced viable offspring before they can be counted as mature individuals.

Myrmecochorous
Referring to seed dispersal by ants. Some species that employ this mode of dispersal are vulnerable to alien ant invasion, particularly in fire-prone vegetation. Native ant species bury seeds underground where they are protected from fire, but alien species do not. In areas where alien ants have out-competed native ant species, reseeding plants that rely on soil-stored seed banks for postfire regeneration, decline because seeds remaining above ground are damaged by fire and fail to germinate.

Population and Population Size
The term ‘population’ is used in a specific sense in the IUCN Red List Criteria that is different from its common biological use. Population is here defined as the global total number of mature individuals of a taxon.

Quantitative Analysis
A quantitative analysis is defined as any form of analysis that estimates the probability of extinction of a taxon based on known life history, habitat requirements, threats and any specified management options. Population viability analysis (PVA) is one such technique.

Reduction
A reduction is a decline in the number of mature individuals of at least the amount (%) stated under the applicable criterion over the particular time period specified, although the decline does not have to be continuing. A reduction should not be interpreted as part of a fluctuation unless there is good evidence for it. The downward phase of a fluctuation will not automatically count as a reduction.

Reseeder
In this publication, the term reseeder is used specifically in the context of fire-prone vegetation types, where all mature individuals are killed by fire and the population relies on either soil- or canopy-stored seed reserves to regenerate after fire. Such plants are particularly vulnerable to increasingly shorter fire cycles, because not enough time is allowed between fires for seed reserves to accumulate, and populations decline as a result. In slow-maturing reseeders, a fire before plants have reached reproductive maturity can lead to local extinction.

Resprouter
Resprouters are plants that survive fire by resprouting from underground woody stems (such as suffrutices) or rootstocks that are not killed by fire, and are generally assumed to be very long-lived, although there are very few data on exactly how long such plants live. Expert opinion varies between 50 and 100 years, to perhaps 1 000 years. They generally reproduce from seed very seldom, and the population is therefore extremely vulnerable to habitat loss, even over long periods of time. These plants may seem common, because very old individuals tend to persist in small habitat fragments. Many, however, have declined significantly over the past 100 years in habitats that are now highly transformed, such as renosterveld and coastal grassland, and have been listed under Criterion A.

Severely Fragmented
The phrase ‘severely fragmented’ refers to a situation where the extinction risk of a taxon is increased as a result of most of its mature individuals occurring in small and relatively isolated subpopulations. These small subpopulations can easily go extinct, with a reduced probability of recolonisation. Widely dispersed taxa are considered less vulnerable to isolation through habitat fragmentation. Taxa that produce only small numbers of seeds, very large seeds or do not have efficient long-distance dispersal mechanisms are more easily fragmented.

Subpopulations
Subpopulations are geographically or otherwise distinct groups of individuals in the population between which there is little or no demographic or genetic exchange.
# Summary of criteria for the IUCN 3.1 categories of threat

To qualify for a category of threat—Critically Endangered (CR), Endangered (EN) or Vulnerable (VU)—under one of the five main criteria (A–E), available data on a taxon have to meet all the requirements for at least one of the Level 1 (numerical) subcriteria for A, B and C. See Appendix I for a detailed explanation of the IUCN criteria.

<table>
<thead>
<tr>
<th>Main criteria</th>
<th>Subcriteria</th>
<th>Quantitative thresholds</th>
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<tbody>
<tr>
<td><strong>A</strong> Rapid population reduction in relation to the life history of the taxon</td>
<td>Level 1</td>
<td>CR</td>
</tr>
<tr>
<td>1</td>
<td>% population reduction observed, estimated, inferred or suspected over the past 10 years or 3 generations where the causes of the reduction are clearly reversible AND understood AND have ceased</td>
<td>&gt; 90%</td>
</tr>
<tr>
<td>2</td>
<td>% population reduction observed, estimated, inferred or suspected over the past 10 years or 3 generations where the reduction or its causes have not ceased OR are not understood OR not reversible</td>
<td>&gt; 80%</td>
</tr>
<tr>
<td>3</td>
<td>% population reduction projected or suspected to be met within the next 10 years or 3 generations up to a maximum of 100 years into the future</td>
<td>&gt; 80%</td>
</tr>
<tr>
<td>4</td>
<td>% population reduction observed, estimated, inferred, projected or suspected over any 10-year or 3-generation period, which includes both the past and the future and where the reduction or its causes are not reversible OR are not understood OR have not ceased. AND specifying under A1, A2, A3 and/or A4 that % population reduction is based on at least one of the following (a–e):&lt;br&gt; a Direct observation (not applicable to A3)&lt;br&gt; b An index of abundance appropriate to the taxon&lt;br&gt; c A decline in area of occupancy, extent of occurrence and/or quality of habitat&lt;br&gt; d Actual or potential levels of exploitation&lt;br&gt; e The effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites</td>
<td></td>
</tr>
<tr>
<td><strong>B</strong> Small geographic range and decline, population fluctuation or fragmentation</td>
<td>Level 1</td>
<td>Extent of occurrence (EOO)</td>
</tr>
<tr>
<td>2</td>
<td>Area of occupancy (AOO)</td>
<td>&lt; 10 km²</td>
</tr>
<tr>
<td>AND specifying under B1 and/or B2 at least two of the following three (a–c):&lt;br&gt; a Severe fragmentation OR number of locations 1 ≤ 5 ≤ 10</td>
<td></td>
<td></td>
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<tr>
<td>b Continuing decline in at least one of the following (i–v):&lt;br&gt; i Extent of occurrence&lt;br&gt; ii Area of occupancy&lt;br&gt; iii Area, extent and/or quality of habitat&lt;br&gt; iv Number of locations or subpopulations&lt;br&gt; v Number of mature individuals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c Extreme fluctuations in at least one of the following (i–iv):&lt;br&gt; i Extent of occurrence&lt;br&gt; ii Area of occupancy&lt;br&gt; iii Number of locations or subpopulations&lt;br&gt; iv Number of mature individuals</td>
<td></td>
<td></td>
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<tr>
<td><strong>C</strong> Small population size and decline</td>
<td>Number of mature individuals in global population</td>
<td>&lt; 250</td>
</tr>
<tr>
<td>AND at least one of C1 or C2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Estimated continuing decline in number of mature individuals over a time period of (up to a maximum of 100 years):&lt;br&gt; 3 years or 1 generation 25%</td>
<td>20%</td>
</tr>
<tr>
<td>2</td>
<td>Continuing decline in number of mature individuals AND at least one of the following two (a OR b):&lt;br&gt; a Subpopulation structure in the form of either i OR ii:&lt;br&gt; i Number of mature individuals in largest subpopulation &lt; 50</td>
<td>&lt; 250</td>
</tr>
<tr>
<td>ii % of mature individuals in one subpopulation 90–100%</td>
<td>95–100%</td>
<td>100%</td>
</tr>
<tr>
<td>b Extreme fluctuations in the number of mature individuals</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>D</strong> Very small population size or very restricted range</td>
<td>Number of mature individuals in global population</td>
<td>&lt; 50</td>
</tr>
<tr>
<td>Restricted area of occupancy or number of locations:</td>
<td>Area of occupancy OR number of locations</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>20 km² ≤ 5</td>
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<tr>
<td>AND plausible potential threats (only under VU D2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E</strong> Quantitative analysis</td>
<td>Probability of extinction in the wild at least</td>
<td>50% in 10 years or 3 generations</td>
</tr>
</tbody>
</table>