



Monitoring Threatened Species in South Africa:

Threatened
Species
PROGRAMME

A review of the South African National Biodiversity
Institutes' Threatened Species Programme: 2004–2009



Acronyms

ADU – Animal Demography Unit
ARC – Agricultural Research Council
BASH – Big Atlassing Summer Holiday
BIRP – Birds in Reserves Project
BMP – Biodiversity Management Plan
BMP-S – Biodiversity Management Plans for Species
CFR – Cape Floristic Region
CITES – Convention on International Trade in Endangered Species
CoCT – City of Cape Town
CREW – Custodians of Rare and Endangered Wildflowers
CWAC – Co-ordinated Waterbird Counts
DEA – Department of Environmental Affairs
DeJaVu – December January Atlassing Vacation Unlimited
EIA – Environmental Impact Assessment
EMI – Environmental Management Inspector
GBIF – Global Biodiversity Information Facility
GIS – Geographic Information Systems
IAIA – International Association for Impact Assessment
IAIAsa – International Association for Impact Assessment South Africa
IUCN – International Union for Conservation of Nature
LAMP – Long Autumn Migration Project
LepSoc – Lepidopterists' Society of Africa
MCM – Marine and Coastal Management
MOA – memorandum of agreement
MOU – memorandum of understanding
NBI – National Botanical Institute
NEMA – National Environmental Management Act
NEMBA – National Environmental Management Biodiversity Act
NGO – non-governmental organization
NORAD – Norwegian Agency for Development Co-operation
QDGS – quarter-degree grid square
SABAP – Southern African Bird Atlas Project
SABCA – Southern African Butterfly Conservation Assessment
SABIF – South African Biodiversity Information Facility
SADC – Southern African Development Community
SAFAP – Southern African Frog Atlas Project
SAIAB – South African Institute for Aquatic Biodiversity
SANBI – South African National Biodiversity Institute
SANParks – South African National Parks
SANSA – South African National Survey of Arachnida
SARCA – Southern African Reptile Conservation Assessment
SASSI – Southern African Sustainable Seafood Initiative
SSC – Species Survival Commission
TMNP – Table Mountain National Park
TOPS – Threatened or Protected Species
TSP – Threatened Species Programme
UCT – University of Cape Town
UWC – University of the Western Cape
WHAMB – Welcome Home All Migrant Birds
WLT – Western Leopard Toad
WLT-CC – Western Leopard Toad Conservation Committee



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Introduction

This publication covers the work of the South African National Biodiversity Institute (SANBI) Threatened Species Programme (TSP) between 2004 and 2009. The conservation work conducted by the TSP has been pioneering, as it is SANBI's first work in monitoring animal species. Entering this new territory has been made possible by funding from the Norwegian Embassy via the Department of Environmental Affairs (DEA). This publication outlines how SANBI has gone about piloting this new area of work, and highlights how much has been achieved over the past five years.

Background: Legislative framework

The 1997 Biodiversity White Paper sets out a number of goals, strategies and priorities for conservation, sustainability and equitable benefit-sharing. Furthermore, it sets out the legal framework provided by the National Environmental Management Act (NEMA) (Act 107 of 1998). NEMA culminated in the promulgation of national legislation on biodiversity, in the form of the National Environmental Management Biodiversity Act (NEMBA) (Act 10 of 2004).

South African National Biodiversity Institute

In 2004, SANBI replaced the previous National Botanical Institute (NBI) through the enactment of NEMBA. This was an important development, as it was the first technical body formally established at a national level for centralized monitoring and reporting on the status of the country's biodiversity. NEMBA expanded the NBI's mandate also to include responsibilities relating to the full diversity of South Africa's fauna and flora, and built on the internationally respected programmes in conservation, research, education and visitor services that the National Botanical Gardens developed over the past century.





TOP: Civil society monitoring threatened plants (photo: Ismail Ebrahim) ABOVE LEFT: Community members conducting demographic monitoring on plants threatened by climate change in the Namaqualand town of Nieuwoudtville (photo: Bettina Koelle) ABOVE RIGHT: Students monitoring medicinal plant species in Kwa-Zulu Natal (photo: Isabel Johnson)

Involving civil society in threatened species work

Between 2004 and 2009, the TSP has pioneered monitoring work on faunal species, while maintaining the plant conservation work in which the institute has been involved over the past ten years.

The programme does not employ large numbers of scientists to conduct the monitoring work. Instead, it has developed innovative ways of involving the public. Together with various partners, the programme has initiated a number of national biodiversity conservation assessment projects. The projects involve field collecting trips in which interested members of the public can participate, and a web-based virtual museum of digital photographs submitted by the public. The images in the virtual museum are linked to an accurate set of co-ordinates, a date, the observer's name, and reliable species identification by experts. The TSP has aligned itself with the IUCN's Red List system for its Red-listing of species.

The following have been the TSP's key objectives from 2004 to 2009:

- The development of programmes to bridge gaps in Red-listing
- The development of a National Species Monitoring Strategy
- The development of Red Lists into tools that aid decision making
- Capacity development of individuals and organizations
- The development of knowledge-sharing networks

The Threatened Species Programme

The TSP, housed at SANBI, has the primary role of fulfilling SANBI's mandate to monitor and report on the conservation status of South Africa's indigenous plant and animal species. The TSP co-ordinates the collection of information on species, particularly those that have historically received little research and conservation attention, such as reptiles, spiders and marine fishes, through projects involving volunteers from the public, and scientists, taxonomists and conservationists from partner institutions across the country. The data collected through these projects are used to assess species' status against the internationally accredited Red List Categories and Criteria developed by the International Union for Conservation of Nature (IUCN).

In addition, the TSP co-ordinates and promotes the application of species information in all spheres of biodiversity conservation – from national and international conservation legislation and policy, to conservation planning, protected area selection, protection of threatened habitats, ex situ breeding programmes,¹ and the development of biodiversity management plans² for species.

1 Off-site breeding and conservation; protecting a plant or animal species outside of its natural habitat

2 Tools for ensuring the long-term survival of a species, with a specific person or organization responsible to monitor the plans' progress and success



What is a conservation assessment?

A conservation assessment describes the likelihood of a species becoming extinct, and is the basis for Red Lists. Species listed as Critically Endangered, Endangered or Vulnerable (collectively referred to as 'threatened' species) are those at a high risk of extinction in the near future. Conservation assessments highlight species of significant conservation importance, providing baseline information needed for conservation planning.



RIGHT: *Protea scolymorcephala*, Vulnerable







PROFILE

**Silvia
Mecenero**

Silvia is the SABCA Co-ordinator based at the ADU, and has been involved in the project for three years. She enjoys both the data side of things, and the variety of people and experts she gets to meet through the project.

"I enjoy investigating patterns and trends in time and space, which was the theme of my PhD – a theme to which SABCA lends itself very nicely. Butterflies are fascinating, and I am really excited about the project's end result."

SILVIA MECENERO, SABCA CO-ORDINATOR



Blue-spotted Emperor, *Charaxes cithaeron*
(photo: Louis and Ralda Heyns)

Climate change not all bad

The Blue-spotted Emperor *Charaxes cithaeron*, a coastal forest species, has been found in Mpumalanga and Venda over the last couple of years. However, in October the first specimen was found at Lekgalameetse in the Wolkberg forests many kilometers away from its normal habitat. It is thought that the observed range extension of this butterfly may be as a result of global warming.

³ Occurring nowhere else

⁴ Those interested in and concerned about the conservation of Lepidoptera, namely moths and butterflies

⁵ Participants in the practice of citizen science, namely projects or an ongoing programme of scientific work in which individual volunteers or networks of volunteers, many of whom may have no specific scientific training, perform or manage research-related tasks, such as observation, measurement or data capturing

Southern African Butterfly Conservation Assessment (SABCA)

The Southern African region of South Africa, Lesotho and Swaziland has about 671 butterfly species, comprising about 17% of the total number of species for the entire African continent. About half of these are endemic³ to the region, belonging mainly to the family *Lycaenidae* and the family *Nymphalidae* (subfamily *Satyrinae*). Of the 671 species, 53 are threatened with extinction in the near future, and three species are already extinct. The main threat to our butterflies is habitat destruction in the form of urbanization, invasive alien vegetation, and agriculture.

The Southern African Butterfly Conservation Assessment (SABCA) is a four-year project aimed at determining the distribution and conservation priorities of all butterfly species in the Southern African region, especially those threatened by extinction.

This project, funded for the period April 2007–March 2011, has been made possible by a three-way partnership between SANBI, the Lepidopterists'⁴ Society of Africa (LepSoc) (see page 6 for more information) and the Animal Demography Unit (ADU) of the University of Cape Town (UCT).

An active steering committee, made up of a range of stakeholders representing nature conservation authorities, museums, research institutes and amateur lepidopterists, is responsible for the monitoring, financial management and policy setting of the project.

The project owes its success thus far to all its partners, sponsors, participating institutions and citizen scientists.⁵



Project aims and objectives

SABCA's aims are two-fold: firstly, to increase the understanding of butterfly diversity and distribution in the atlas region, and secondly, to provide for effective conservation assessment and planning.

The objectives of the project are as follows:

- The creation of a comprehensive distribution database (with data from existing collections, field surveys, and the online virtual museum)
- Production of an atlas and Red Data book highlighting those species most threatened by extinction, in order to motivate the species' listing, and identify the threats facing them
- Raising of public awareness

Involving the public

Butterflies are colourful, charismatic insects that can be used to promote conservation and create awareness of the entire *Lepidoptera* group as well as other insects. However, to achieve this, the public needs to be involved.

SABCA communicates with the public via quarterly newsletters, survey reports and press releases on their website, and encourages public involvement in the following ways:

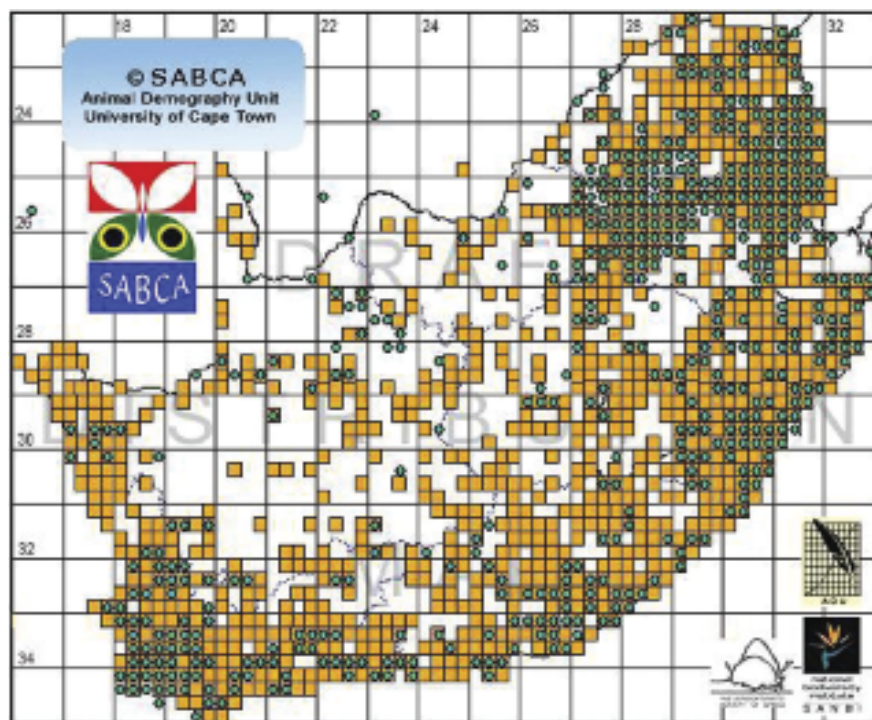
- **Contribute to the online museum** SABCA has a web-based virtual museum of butterfly digital photographs submitted by interested members of the public. The species on the photographs are identified by experts; are then linked to an accurate set of co-ordinates, a date, the observer's name, and the species identification, and are finally added to the virtual museum, which can be accessed online.
- **Become a volunteer** SABCA encourages volunteers to join the project team on trips to previously poorly studied areas to assist with field surveys.
- **Contribute data from private butterfly collections** Those with their own butterfly collections are also encouraged to share their data with SABCA.

Data capturing

In addition to the virtual museum, the project collects historical data records. There are presently about 161 000 records from historical collections on SABCA's database (excluding the virtual museum and field survey records), and in the final months of the project, tens of thousands of data records will be added to try and meet the target of between 300 000 and 450 000 records.

So what's next?

Once the data capturing and field targets have been reached, the distribution maps will be finalized so that the species assessments can be completed. Once the assessments are done, all that remains is to finalize the Red List and atlas by March 2011, which will serve as an update to the newly published SANBI Red List⁶.



Who are the Lepidopterists' Society of Africa (LepSoc)?

LepSoc is an amateur society that was formed in the 1980s to encourage the study and conservation of butterflies and moths in Africa. They are responsible for the collection of butterflies in the field, sponsoring most of the field work, as well as providing expertise in butterfly identification. The society has already been involved in the proclamation of at least four conservation areas for specific butterfly species, including the Critically Endangered Brenton Blue Butterfly.



Brenton Blue, *Orachrysops niobe*
(photo: André Coetzer)

Fast facts

Total number of butterfly species in the Southern African region:	671
Genera:	154
Families:	5
Proportion of butterfly species in Africa:	±17%
Red List assessments: (published 1989 and 2010)	2

Coverage map showing the 166 000 records currently in the SABCA database (blue dots represent virtual museum records and orange blocks represent data from field surveys and existing collections). The map is at a quarter degree grid square scale and there is data for 61% of these squares.

⁶ Henning GA, Terblanche RF, Ball, JB eds. 2009. *South African Red Data Book: Butterflies*. SANBI Biodiversity Series 13. South African National Biodiversity Institute: Pretoria.



Blue Pansy, *Junonia oenone oenone*
(photo: Jenny Norman)



Large Striped Swordtail,
Graphium antheus (photo: Keith Roos)



Emperor Swallowtail, *Papilio ophidicephalus entabeni* (photo: Chris Willis)

Are we too late?

South Africa has 671 butterfly species. Of these, 53 (8%) are threatened by extinction. Three have already gone extinct.



Heidelberg Copper, *Chrysorites aureus* (photo: André Coetzer)

What are the lessons from SABCA?

- **Keep the public informed** Regular feedback to the users of the virtual museum is essential to keep the momentum going. From past submissions, it seems as if it is only a core group of contributors who participate. The challenge is to encourage more members of the public to take an interest in butterflies, and contribute by collecting data.
- **Automation for quicker information, and ultimately, better conservation** With the first version of the virtual museum, many photographic records received by e-mail had to be manually processed, consuming energy and time. The second version greatly improved the management and maintenance process; however, photographic records are still only received via e-mail. The third version, which is due to be implemented in the near future, will take the virtual museum a step further by allowing online submissions, uploaded automatically onto the system, thereby greatly reducing manual labour.
- **Data-sharing agreements are necessary, but need to be short and sweet** Data-sharing agreements were put in place to allow the ADU to share data with SABIF (South African Biodiversity Information Facility) and SANBI. However, the ADU/SABIF agreement was lengthy and overlegalized, which frustrated end users. This has been resolved by the preparation of a revised, shortened agreement, and an even shorter two-page letter for data owners who prefer staying clear of the lengthy, legalized version.

To find out more about SABCA, visit <http://sabca.adu.org.za>.



Habitat transformation the biggest threat to reptiles

The Red Data book was identified as an important SARCA deliverable, especially since the last one of its kind was published more than 20 years ago. One of the shocking conclusions of the book is that two lizard species have gone extinct in the last century. SARCA herpetologist Marius Burger and a group of volunteers conducted a survey to search for one of these species in April 2008. They failed to find the Eastwood Seps (a snake-like lizard), despite an intensive search in the Woodbush area, where it was first seen in 1911, and last in 1928. This part of the Limpopo province, which has been planted with pine trees over a number of years, clearly illustrates that the biggest threat to reptiles in South Africa is habitat transformation through human activities.

Fast facts

Total number of taxa (species and/or subspecies) in the region:	409
Genera:	97
Families:	22
Endemic to the region:	± 33% of taxa
Under threat:	44 taxa
Extinct:	2 taxa
Red List assessments:	406

TOP: Karoo Crag Lizard, *Pseudocordylus microlepidotus fasciatus* (photo: Marius Burger)
 BOTTOM: School children enjoying involvement in the SARCA project (photo: Marius Burger)

Southern African Reptile Conservation Assessment (SARCA)

South Africa's reptiles are one of the country's greatest biodiversity assets. South Africa and its neighbours Lesotho and Swaziland support about 406 types of reptiles, with new species being discovered every year. The Southern African region has the richest tortoise fauna, and after continental Australia and Mexico, the third richest lizard fauna in the world. More than 130 species (about 33% of all the reptile species, and 53% of the lizard species) are endemic to the region. However, basic information about these reptiles, such as distribution, conservation status and threats, is hard to come by. For this reason, the Southern African Reptile Conservation Assessment (SARCA) was implemented as a four-year project from February 2005 to March 2009. The project was a partnership between SANBI and UCT's ADU. Representatives from various stakeholder groups made up the steering committee.



Project aims and objectives

The project aimed to raise awareness of reptile diversity and distribution in the atlas region, and to enable better conservation assessment and planning.

The objectives of the project included the following:

- Setting up a comprehensive distribution database, including data from existing collections, new field surveys, and an online virtual museum
- Production of an up-to-date atlas and Red List book, covering South Africa, Lesotho and Swaziland, including quarter-degree grid square (QDGS)⁷ maps and expert conservation assessments against IUCN criteria
- Encouraging public awareness through a virtual museum, website, the media, newsletters and presentations

Success stories

- **Buy-in** The project had the full support of stakeholders such as nature conservation agencies, academic institutions, museums, the local herpetological⁸ community, and amateur societies.
- **Funding** A successful funding application to the JRS Biodiversity Foundation provided additional support to the funding received from SANBI, and covered unforeseen expenses during the project's final year.
- **Access to data** The project incorporated most available data on reptile distribution. Approximately 132 000 records for nearly 500 taxa were incorporated in a central database, which was developed in-house.
- **Online assessment database** An online assessment database was designed in-house according to IUCN specifications, and information contained in the database was included in a draft atlas and Red Data book.

⁷ A way of dividing the longitude/latitude (or vertical/horizontal) degree square cells into smaller squares, forming in effect a system of 'geocodes' ('geospatial entity object codes'); a way of creating almost equal area squares covering a specific area, to represent specific qualities of the area covered

⁸ Pertaining to herpetology, the branch of zoology concerned with the study of amphibians



TOP LEFT: Western Dwarf Chameleon, *Bradypodion occidentale*



Citizen scientist records seldom-seen species

The SARCA virtual museum has received thousands of records from members of the public, a number of which relate to seldom-seen, rare and threatened species. One such highlight was the submission of the second ever record of the Bloubergstrand Dwarf Burrowing Skink (*Scelotes montispectus*). This species was first described in 2003 by Bauer, Whiting and Sadlier. The next the world heard of the skink was when SARCA received a photograph of it from Gavin Olivier, a field ranger of the Blaauwberg Conservation Area. Several more specimens have since been found, one of which was in the West Coast National Park. *Scelotes montispectus* is the largest of the 21 species in its genus, and shows the typical reduced limbs associated with a subterranean lifestyle.

TOP: Bloubergstrand Dwarf Burrowing Skink, *Scelotes montispectus* (photo: Cliff Dorse)

BOTTOM: Gavin Oliver and Cliff Dorse with the Bloubergstrand Dwarf Burrowing Skink (photo: Ilke Vermeulen)

⁹ Organisms preserved for future study, and as evidence or proof of their existence, for example in the form of photographs, pressed plants, or pickled flies

- **New distribution records** SARCA collected 4 220 new distribution records during 24 field surveys. Over 2 250 voucher specimens⁹ were deposited with the relevant institutions, and about 2 000 tissue samples were deposited with SANBI's Reptile Tissue Bank.
- **Online museum** Online museum – An online virtual museum was developed in-house. About 350 citizen scientists contributed over 6 700 distribution records. Field surveys and the virtual museum accumulated approximately 8,6% of all records in the database, with the rest collected over roughly a century.
- **Capacity building** A group of 58 volunteers participated in field surveys, including students with a herpetological background.
- **Media coverage** SARCA featured prominently in various media, including television documentaries, radio interviews, public lectures, national and international symposia, and printed literature.

What are the lessons from SARCA?

The project faced a number of challenges, out of which many lessons were learned. These include the following:

- **Realistic timelines and targets** The scope of project was too ambitious, given the budget and the timelines set. A shortfall in year three was made up by a grant from the JRS Biodiversity Foundation.
- **Buy-in is key** A project needs buy-in to succeed. Early and comprehensive involvement of stakeholders is extremely important, and was a key factor in SARCA's success.
- **Data processing delays** The checking and cleaning of data received from other sources took far longer than initially envisaged. It led to severe delays in the finalization of distribution maps, and thus in the project as a whole. This could have been avoided by following a different approach, such as the data-sharing approach of the Reference Centre on Environmental Information (Brazilian NGO), whereby built-in automatic checks in the online system highlight basic errors, which are the data owner's responsibility to correct.



TOP RIGHT: Leopard Tortoise, *Stigmochelys pardalis* (photo: Marius Burger)
TOP: Cape Cobras, *Naja nivea* (photo: Marius Burger)
MIDDLE: SARCA trap (photo: Marius Burger)
BOTTOM: SARCA trap (photo: Marius Burger)

- **Resistance to sharing data** Although data owners were willing to provide information to SARCA for the purposes of the atlas and Red Data book, some were reluctant to make this data freely available via SANBI's web portal. In future projects, data providers should be asked to sign a simple and workable memorandum of understanding (MOU) upon providing their data. The MOU should clearly state who will have access to the data.
- **Virtual museum management** The SARCA virtual museum encouraged the public to participate in the project, and was so successful that it was also extended to SABCA. However, the processing and identification of virtual museum records were time-consuming. Automation of the system for record submission would reduce costs and save time. School learner involvement in the project could have been enhanced if the virtual museum was promoted for inclusion in the school syllabus.
- **Correct software** The assessment database was first designed using Microsoft Office Access, following IUCN specifications. However, Access was found to be unsuitable for this purpose, causing database corruption. A new online assessment database was therefore developed, which took several months before it was ready for use. The new system was more reliable and more user-friendly than its predecessor, though, and allowed for information-sharing between authors and editors. It can easily be adapted for assessments of other taxonomic groups as well.
- **Adherence to deadlines** Authors and editors missed numerous deadlines for the writing and editing of species accounts for conservation assessment. SANBI and SARCA both benefited greatly from the voluntary participation of expert herpetologists. However, as they were not formally employed on the project, they gave the assessment relatively low priority.

To find out more about SARCA, visit <http://sarca.adu.org.za>.





Ansie Dippenaar-Schoeman's involvement in SANSA began in 1997, when she initiated the project to unify and strengthen arachnid research in South Africa. She is the Manager of the Spider Research Centre of the ARC, and Curator of the National Collection of Arachnida. She has been involved in spider research for 43 years, which has resulted in more than 200 publications and presentations on spiders, including six handbooks and two CDs.



Survey summary

A total of 81 surveys are presently under way, covering floral biomes, conserved areas, agro-ecosystems,¹⁰ provinces and urban areas in all nine provinces of South Africa, in collaboration with universities, museums, conservation agencies and the public.

OPPOSITE TOP: Horned Baboon Spider, Theraphosidae *Ceratogyrus darlingi* (photo: Elzette du Preez)

OPPOSITE BOTTOM: Garden Orb-web Spider, Araneidae *Argiope australis* (photo: Johan van Zyl)

¹⁰ Dynamic associations of crops, pastures, livestock, other flora and fauna, atmosphere, soils, and water, contained within larger landscapes that include uncultivated land, drainage networks, rural communities, and wildlife

South African National Survey of Arachnida (SANSA)

Arachnids, a group of eight-legged animals, are only second to insects in abundance and diversity amongst the terrestrial animals. The class Arachnida comprises 12 living and five extinct orders, nine of which occur in South Africa.

South Africa has a rich arachnid fauna, with about 5 000 known species that represent 6% of the global arachnid diversity. Currently, 75% of these arachnids are endemic to South Africa. However, the knowledge of the arachnids in South Africa is still sketchy in terms of their taxonomy, ecology and distribution, with large areas still not sampled – hence the great need for a project such as the South African National Survey of Arachnida (SANSA).

SANSA was initiated in 1997, with the main aim of documenting the arachnid fauna of South Africa at a national level. SANBI came on board for the project's second phase, called SANSA II, from 2007 to 2010, in partnership with the Agricultural Research Council (ARC). This four-year inventory and conservation assessment project is dedicated to unifying and strengthening biodiversity research on spiders, scorpions and other arachnid fauna of South Africa.



Project aims and objectives

SANSA's aims are multiple, and include the collation of data, determining the distribution ranges of arachnid species in South Africa, capacity building for arachnid research, promoting biodiversity and conservation awareness amongst the general public, and assessing the Red List status of certain species, using the IUCN criteria.

The objectives of the project include the following:

- Data consolidation in order to capture and assess all known records
- Conducting new surveys based on a gap analysis
- Species identification by means of an online expert system, and inviting scientists to visit
- Awareness raising through talks and presentations, and an identification service
- Capacity building to train new arachnologists
- Product development in the form of an atlas, books, posters, CDs and a Red Data list (in preparation)

National Surveys – the way forward for invertebrates

The challenges involved in invertebrate survey work and conservation are significant. A national survey for arachnids results in increased sharing of knowledge and expertise throughout the country, and often a multifaceted approach to tackling challenges. A greater wealth of information is generated and collated into one database.



LEFT: Baboon Spider, Theraphosidae *Harpactira hamiltoni* (photo: Les Oates)
 MIDDLE: Hedgehog Spider, Araneidae *Pycnacantha tribulus* (photo: Les Oates)
 TOP RIGHT: African Mask Spider, Thomisidae *Synema imitator* (photo: Wolf Avni)
 RIGHT: Orb-web, Araneidae *Neoscona* sp. (photo: Allen Jones)

Success stories

- **Consolidation of data** All published records and identified specimens (>50 000 records) have been consolidated in a relational database.¹¹
- **Datasets available** End users have access to complete datasets.
- **Team work** SANSA involved research teams, the sharing of expertise, as well as collaboration with specialists from abroad.
- **Availability of new material** New material was available for systematic research, resulting in the description of more than 130 new species in the last few years.
- **Scientific media coverage** Revisions and biodiversity data appeared in more than 30 scientific publications.
- **Online databases** Researchers and the public have access to an online bioinformatics¹² species database.
- **Increased public awareness** There has been a marked increase in public interest and participation. SANSA generates interest from both amateur and professional naturalists, as well as photographers. The project's virtual museum (www.arc.agric.za – see quick link “SANSA”) has collected almost 1 500 entries to date. The detailed SANSA website contains information on the various arachnid orders, information on the surveys conducted, published papers, and more. The project also produces an electronic newsletter every three to four months, and raises awareness through media articles, radio and television interviews, and lectures and talks.
- **Funding student research** The project has supported 11 postgraduate students.
- **Product development** A series of products have been developed, including an atlas, books, posters, CDs and several posters, with a Red Data list being prepared.



Capacity development in universities

Numerous university projects form part of SANSA. Students from both advantaged and disadvantaged backgrounds have come to the rescue to assist SANSA with the challenge of arachnid taxonomy. Three MSc and two PhD students are either busy completing or have completed their studies revising several spider families and genera. Furthermore, surveys undertaken under the umbrella of SANSA resulted in the completion of five MSc degrees and one MTech, while two MSc degrees are still under way.

¹¹ A database that matches data by using common characteristics found within the data set, making the resulting groups much easier for people to understand

¹² The science of applying information technology and computer science to biological data



ABOVE LEFT: Flower Crab Spider, Thomisidae *Thomisus citrinellus* (photo: Johan van Zyl)

ABOVE CENTRE: Golden Baboon Spider, Theraphosidae *Augacephalus junodi* (photo: Les Oates)

ABOVE RIGHT: Golden Orb-web Spider, Nephilidae *Nephila fenestrata* (photo: Allen Jones)

LEFT: Garbage Line-web Spider, Araneidae *Cyclosa insulana* (photo: Allen Jones)



Fast facts

Total number of arachnid species: $\pm 5\,000$

Arachnid genera: 1 456

Arachnid families: 337

Practising taxonomists in SANSA: 8

Red List assessments: 0

Challenges

- **Delays** One of the SANSA end products will be a Red List. However, it has proved challenging to complete the list in time. This had to do with the rich diversity and abundance of the spiders sampled, the variable taxonomic resolution¹³ between families, the large number of unrecorded species, and the associated shortage of taxonomists.
- **Unidentified specimens** Large numbers of specimens still need to be identified.
- **Unsampled areas** Some areas in South Africa still remain unsampled.
- **Spider focus** Presently, the focus is on spiders, as the datasets for the other orders, such as scorpions, are too large to handle with the limited expertise and capacity available.

What are the lessons from SANSA?

- **Overwhelming diversity** The diversity and number of arachnids are overwhelming, and as a result, the short-term project aims and budgets must be more realistic. Additional manpower is required for the basic sorting of material, and should be budgeted for accordingly.
- **Arachnid specialists needed** There is an urgent need in South Africa for arachnid taxonomists to be able to identify the large numbers of species recorded, and to describe the large number of new species.
- **Infrastructure is key** It is important to have sufficient infrastructure available to handle and successfully complete a project such as SANSA.
- **Data comparability** Through the use of a standard sampling protocol for SANSA, species richness of the target groups in different parts of South Africa could be compared. Due to time and manpower constraints, there are still large gaps in sampling, particularly in the Northern and Western Cape provinces. If the project is extended, it will make provision for funds to bridge these gaps, thereby providing a more complete and comparable picture of the fauna.

¹³ The distinctness or sharpness of definition of different taxonomic groups



Involving civil society in threatened plant monitoring: The Custodians of Rare and Endangered Wildflowers programme (CREW)



Plant Monitoring Day

Plant Monitoring Day is an annual, innovative, educational exercise aimed at increasing awareness amongst teachers and students of the rich biodiversity in their area. Participants use sampling methods, including using plant identification kits and monitoring equipment, to identify and record key plant species at selected sites. Sites are selected based on their conservation value, their proximity to local schools, as well as their reserve status. Since inception of the project, 33 sites have been monitored on Plant Monitoring Day.

ABOVE: Children at Harmony Flats Nature Reserve on Plant Monitoring Day (photo: Ismail Ebrahim)

OPPOSITE TOP: *Geissorhiza splendidissima*, Vulnerable (photo: Rupert Koopman)

OPPOSITE BOTTOM: CREW volunteers from Friends of Tygerberg in the field plant collecting (photo: Ismail Ebrahim)

CREW, the Custodians of Rare and Endangered Wildflowers, is a volunteer programme that monitors and conserves South Africa's threatened plants. Through the project, CREW aims to empower a network of volunteers from a range of socio-economic backgrounds by linking them to local conservation agencies and, in particular, local land stewardship¹⁴ initiatives to ensure the conservation of key sites for threatened plant species.



Background

South Africa is home to a significant number of the world's plant species, and is the only country that has its own plant kingdom and three of the world's biodiversity hot spots. There are 20 456 plant species in South Africa, of which 2 577 (13%) are threatened by extinction, and 2 232 (11%) are considered Near Threatened, Data Deficient or Rare endemics. This means that one in every four of South Africa's plant species is rare or threatened. For the majority of these species, there is no record of how they are doing in the wild; hence the need for a project such as CREW.

The information gathered by CREW volunteers helps to prioritize the species that need conservation attention.

The data collected are also used during the Environmental Impact Assessment (EIA)¹⁵ process to influence development decisions, as well as in fine-scale conservation plans that assist municipalities to determine which areas should be demarcated as conservation areas in their integrated and spatial development frameworks.

How it all began

CREW started in the Cape Floristic Region (CFR), and was initiated by a small team at the then NBI, with funding from the C.A.P.E programme.¹⁶ The idea of a project that uses volunteers to collect data came from the successful Protea Atlas project, as well as the fact that many of the interesting botanical discoveries in the last two decades have been made by amateur scientists. CREW started in 2003 with six volunteer groups, and by the end of 2006, had 14 groups working in the CFR. In 2004, when the NBI became SANBI, with the mandate to monitor threatened species and ecosystems, CREW's work fell perfectly within the SANBI scope, and in 2006, SANBI's TSP, in partnership with the Botanical Society, formally adopted the CREW programme, and expanded it nationally. Today, there are 20 volunteer groups in three provinces, namely 14 groups in the Western Cape, five groups in KwaZulu-Natal, and one in Mpumalanga.

¹⁴ Managing land and its resources in a sustainable or restorative manner

¹⁵ An assessment of the possible impact, positive or negative, that a proposed project may have on the environment, including natural, social and economic aspects

¹⁶ Cape Action for People and the Environment (C.A.P.E.) is a partnership between government and civil society, aimed at conserving and restoring the biodiversity of the Cape Floristic Region and the adjacent marine environment, while delivering significant benefits to the people of the region.

Who and what

CREW works with individuals who are passionate about the environment, and have a particular interest in plant species. The only criteria to join CREW are the basic ability to identify indigenous plant species, an interest in plant conservation, and living in an area where there are many threatened plant species.

Volunteers in the programme include school children, university students, retired individuals and working professionals. Volunteers can participate independently; however, CREW encourages volunteers to form groups. Volunteers focus on three specific kinds of activities, namely surveying remaining patches of natural vegetation for threatened plant populations, adopting key sites for conservation, and working with landowners to conserve threatened species. If groups are interested, they can also conduct demographic monitoring of specific threatened plant populations, or work with local youth to build awareness of threatened plant species.

Monitoring medicinal plant species – working with traditional healers in Pondoland

Over 1 000 plant species have been documented for use in traditional medicine in South Africa. 322 species repeatedly appear in trade surveys as highly utilized and traded species. The trade in these species plays an important role in contributing to livelihoods of many South Africans. The trade in traditional medicines forms part of a multi-million rand 'hidden economy' in southern Africa. Due to the importance of this trade the CREW programme is working to document the use of medicinal plants in different parts of the country. Currently the programme is working in Pondoland, which forms part of the Maputaland-Pondoland biodiversity hotspot. The project documents which medicinal plants are used by traditional healers in the Pondoland region and determines which of the plant species endemic to Pondoland are utilized for medicine and other cultural rituals. The data collected will be used to produce an educational field guide for South African learners.



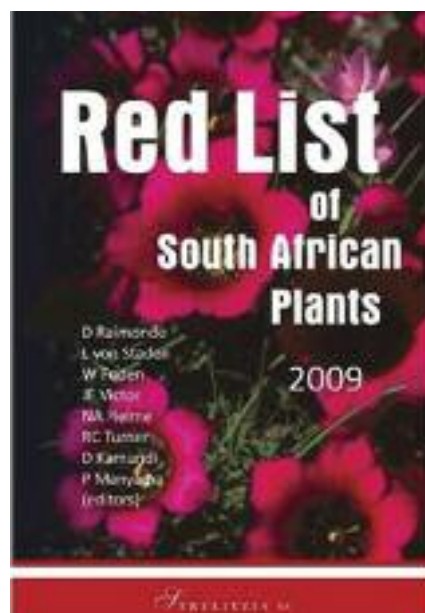
Using local community members to conduct demographic monitoring on threatened plants



CREW has piloted a project involving local community members in monitoring threatened plants in the Bokkeveld region in the Northern Cape. Two threatened plant species, *Bulbinella latifolia* subsp. *doleritica* and *Euryops virgata* are being monitored by biodiversity facilitators – members of the community employed to help conduct scientific research and engage the community in biodiversity awareness activities. Long-term demographic monitoring is used to provide vital information on how these species respond to climate change and other threats including habitat loss and overgrazing by livestock.

Red List publication: the first of its kind

For the past seven years, SANBI's TSP has worked on the *Red List of South African Plants* (2009). The recently published book marks the first time that all 20 456 plant species in South Africa have been assessed. It is also the first data-driven, comprehensive conservation assessment in South Africa. Furthermore, South Africa is the first of the 17 'megadiverse' countries¹⁷ comprehensively to assess the status of its entire flora. The 700-page book, available in both hard and soft copy, includes contributions by 159 botanists. Data sampled by the CREW volunteers over the past six years were extensively used to update the *Red List of South African Plants*. Future biannual updates will all be done electronically, and will be made available online.



Fast facts

Total number of taxa:	20 456
Total number of families:	368
Total number of endemic taxa:	9 692
Total number of threatened taxa:	2 577
Total number of species that are of conservation concern:	4 809

¹⁷ Countries with exceptional biological diversity, jointly holding 70% of the world's plant species

"Participating in CREW makes me feel as if I am doing something valuable, something that my kids and their kids will benefit from in future." Karen Marais, CREW volunteer with Friends of the Tygerberg



Aspalathus recurvispina, Critically Endangered
(photo: Ismail Ebrahim)

CREW group in Port Elizabeth starts with a bang

In February 2008, the CREW team met up with a group of enthusiastic volunteers, who were eager to start a CREW group in Port Elizabeth. After a CREW presentation, the team together with the new volunteers headed out in the field to start looking for species. A stopoff at a roadside fragment on the way back to the airport to look for an extinct species, proved to be worthwhile. Although the specimen found was not what the team was looking for, the Compton Herbarium¹⁸ identified the species as *Aspalathus recurvispina* – another species listed extinct from the Port Elizabeth area. So, the first expedition with the new Port Elizabeth CREW group got off to a good start.

¹⁸ A collection of preserved plant samples that are systematically classified for study

¹⁹ The public institution with the statutory responsibility for biodiversity conservation in the Western Cape

PROFILES MEET SOME OF THE CREW TEAM

Ismail Ebrahim started his conservation career working with the Protea Atlas project, which used volunteers to record distributions of *Proteaceae* in South Africa. This is where his passion for plants, and people who love plants, started. He continued his work in the CREW programme, which he joined in October 2003. The parts of the job that Ismail most enjoys are meeting and working with people who share his passion for conservation. Ismail finds working with rare and threatened plants a fulfilling experience. The most exhilarating part of his job is finding populations of rare or threatened species, which he describes as being similar to solving a criminal case. There are not many people who can say that they enjoy the work they do, and even fewer people who can say that their job is fun and exciting. In that respect, Ismail himself is a rare species!



Vathiswa Zikishe is one of CREW's project assistants, and plays an important role liaising between the CREW programme and its civil society partners. This includes providing the volunteer groups with project support materials, capturing the data collected by the groups in the threatened species database, and conducting field trips with volunteers. Her favourite aspect of her work is the field trips, where she has the opportunity to engage with various people, ranging from volunteers to experts. She enjoys working with and learning from the volunteers. Another highlight of her job is the places she gets to visit – beautiful places in South Africa she would not ordinarily have had the opportunity to visit.



Rupert Koopman Rupert's interest in plants developed at an early age, and was largely due to his fynbos-loving father. He discovered CREW at a conference in 2003, and has been involved in the programme ever since. A three-month SANBI internship in 2003 with CREW sealed the deal. In late 2007, he returned to SANBI on contract in a botanist position shared by CREW and CapeNature.¹⁹ He is currently employed as a botanist with CapeNature's Scientific Services Unit, but still works closely with CREW on the Western Cape's threatened flora. The passion and knowledge of the CREW volunteers never cease to inspire him. Rupert enjoys engaging with landowners, and introducing the public to the subtle wonders of fynbos. Finding new localities, and piecing together the puzzles of why certain plants occur in certain areas, are likely to remain a lifelong thrill of his.



BIODIVERSITY MANAGEMENT PLANS FOR SPECIES (BMP-S)

DEA has requested SANBI to pilot the development of Biodiversity Management Plans for Species (BMP-S). A Biodiversity Management Plan (BMP) is a new tool for biodiversity conservation provided for by NEMBA. A BMP-S must be aimed at ensuring the long-term survival in nature of the species to which the plan relates, and must provide for a responsible person, organization or organ of state to monitor and report on progress with the implementation of the plan. BMPs require all stakeholders to plan strategic conservation action together, in order to reach a coherent strategy that will be effective in conserving threatened species, and that will ultimately reduce their threatened status.

SANBI's TSP is working on two BMPs: one for the Western Leopard Toad, and another for the medicinal plant species *Pelargonium sidoides*.

A draft Biodiversity Management Plan for the Western Leopard Toad

The development of a draft BMP for the Western Leopard Toad is being conducted by SANBI, in collaboration with members of the public, CapeNature, SANParks²⁰ and the City of Cape Town (CoCT) Biodiversity Management Branch. A stakeholders' meeting to co-ordinate the conservation efforts of the Western Leopard Toad (WLT) took place in November 2007. The meeting identified key stakeholders, and highlighted their willingness to work together to conserve the species. This co-operation was brought about through the Western Leopard Toad Conservation Committee (WLT-CC).

Western Leopard Toad Conservation Committee

The WLT-CC's goal is to reduce the threats to the WLT throughout its range, thus decreasing the species' current IUCN threatened status (currently Endangered). The committee's main actions are to co-ordinate the conservation effort by combining stakeholder input with scientific knowledge to provide useful comment on conservation questions, and to ensure that sound, factual information is circulated to the public and the media. The committee, which meets four times a year, also advises on research, monitoring and volunteer work.

What are the lessons from the WLT-CC?

- **Champions are needed** Champions are required constantly to persuade and cajole various stakeholders into action. For example, for the WLT-CC, the involvement of Cliff Dorse from the CoCT Biodiversity Management Branch was key in co-ordinating the many departments of the municipality. This not only facilitated co-ordination between various municipal departments, but provided much needed feedback to other stakeholders. The reallocation by the CoCT of this key player was a setback to the committee. However, memorandums of agreement (MOAs) have been signed regarding the WLT, and the WLT-CC continues to work closely with the CoCT Biodiversity Management Branch.



TOP: Western Leopard Toad, *Amietophrynus pantherinus* (photo: Cliff Dorse)
ABOVE: Conservation champion Cliff Dorse

The Western Leopard Toad Conservation Committee

Representatives from the following organizations make up the WLT-CC:

- SANBI
- CapeNature
- CoCT
- Overstrand Municipality
- Table Mountain National Park (TMNP)
- The public (from areas where WLTs occur)

Charismatic creature

The WLT (*Amietophrynus pantherinus*) is an endemic species in danger of extinction. This charismatic toad only occurs on the coastal region extending from the Cape Peninsula/Cape Flats area to the Agulhas Plain. Most of the known breeding sites are generally in water bodies in public open space or private land, and the few protected sites are surrounded by urban sprawl, which threatens and restricts the toads' foraging areas. Therefore, residents, whose gardens form foraging and sanctuary areas for the toads when they are not breeding, have an important role to play in the protection of the species, and to ensure their continued survival. Road traffic is another major threat, as many toads die crossing roads as they migrate to and from breeding sites. The conservation efforts to protect this species clearly illustrate the important role that citizen scientists play. These active volunteer groups in the Cape Peninsula (who during the breeding season even patrol the main roads at night to protect the toads that are crossing to the breeding sites) make a valuable contribution to this flagship urban conservation project.



Western Leopard Toad, *Amietophrynus pantherinus* (photo: Cliff Dorse)

- **Inform the developers** It is important to provide developers with comprehensive information regarding threatened species – not only on the particular site, but in fact all threatened species within a city's boundaries. An ongoing collaboration between SANBI, CapeNature and the CoCT Planning Division aims to produce comprehensive instructions for developers on all threatened vertebrates in the CoCT area, using CapeNature and CoCT databases, and geographic information systems (GIS), coupled with predictive modelling. The experience gained from the WLT-CC will hopefully provide the basis for a threatened species working group for the Cape Town area, with input from the same stakeholders. Where appropriate, this will involve specialist subcommittees for specific species (such as the WLT).
- **Easier said than done** Moving from verbal agreements to signed memorandum of agreements (MOAs) is a key ongoing challenge for the WLT-CC, and is required before the BMP can be finalized. Working with the Overstrand Municipality to manage the eastern distribution of the WLT poses certain logistical difficulties. This may require a separate WLT-CC working group in the Overstrand area, the viability of which depends on finding a champion in this less densely populated area.
- **Making informed decisions from research** BMPs require conservation recommendations that are firmly based on scientific research. Conservation research takes many years to complete in order to provide sufficiently detailed information on which to base policy decisions. SANBI has spearheaded a set of ambitious research targets, focusing on the conservation of adult WLTs. However, these amphibians have complex life cycles, and the conservation of their aquatic larval forms (tadpoles) occurs in fresh water, the most threatened habitat in South Africa. Threats to larval forms include invasive fish, which form part of a much bigger conservation problem in the area. Once again, public education is key in preventing the re-introduction of invasive fish in areas where they have been successfully eliminated.
- **The public have the power to make a difference** The major stakeholder in WLT conservation is the South African public, in whose gardens the toads reside. They also drive the cars that threaten the toads during their migration. WLTs have many champions who enjoy their presence in their own gardens, and are prepared to go out in cold and wet weather to safeguard these animals, who migrate across busy roads. Having a critical mass of public participants can make a huge difference to areas where the toads occur. Education, publicity and active groups all have extremely positive effects on the conservation of this species. The challenge for the future is the ability to keep the project's momentum going.



A Biodiversity Management Plan for the medicinal species *Pelargonium sidoides*

Pelargonium sidoides is an indigenous medicinal plant, of which the tubers²¹ have been traditionally used in Lesotho and South Africa to treat colic, diarrhoea and dysentery. Over the past ten years, material derived from wild harvested *P. sidoides* tubers has been exported from South Africa to mainly Europe for treatment of respiratory ailments. As a result, there has been a large increase in the demand for plant material harvested from the wild. Plants are harvested throughout Lesotho and the Eastern Cape by marginalized, poor rural people, who sell bags of tubers to traders, who in turn sell to various national and international pharmaceutical companies. Although the plant can resprout after being harvested, the tubers regrow very slowly, and conservation officials have raised concerns that repeat harvesting in certain areas is leading to a decline in the population. This concern about the sustainability of the trade has led SANBI, in partnership with the non-governmental organization (NGO) TRAFFIC South Africa, to initiate the development of a BMP for *P. sidoides*.



For this BMP, staff of both SANBI's TSP and TRAFFIC South Africa have conducted workshops in the Eastern Cape and Lesotho with stakeholders involved in the trade, to identify all the current challenges. Stakeholders included conservation officials, harvesters, traders and industry. These workshops resulted in many issues being raised relating to the management of the trade. The main three issues raised were the lack of knowledge on the size of the *P. sidoides* population in South Africa; the lack of knowledge on how the plant can be sustainably harvested, or what sustainable off-take²² limits should be; and lastly, concerns about the equitable sharing of the financial benefits of the trade – including issues such as price per kilogram of harvest material being paid to the harvesters.

Each of these areas of concern has now been included in the BMP for this species, with specific actions allocated to the various stakeholders involved in the trade. The BMP will be submitted to DEA by July 2010, and SANBI will monitor its implementation annually. Fieldwork to monitor the size of the population has already begun, with work conducted across Lesotho and in select areas of the Eastern Cape in 2008 and 2009. A student from Lesotho is currently doing her master's degree on the rate at which pelargonium plants recover from harvesting, and the ideal return harvest interval.

Work on the sustainable trade of medicinal plant species is a new field to the TSP, but given that trade in medicinal plant species provides vital income to many marginalized South Africans, it will increasingly become one of the programme's focus areas.

TOP: A *Pelargonium sidoides* plant dug up during fieldwork (photo: TRAFFIC East/Southern Africa)
MIDDLE: A harvester digging up a *Pelargonium sidoides* plant (photo: TRAFFIC East/Southern Africa)
BOTTOM: Collecting data on a medicinal plant *Pelargonium sidoides* in the Eastern Cape (photo Domitilla Raimondo)

²¹ The fleshy, underground stems or roots used for reproduction and food storage

²² Exploitation, extraction or harvesting





Desert Rain Frog, *Breviceps macrops*
(photo: Alan Channing)

Desert Rain Frog

The Desert Rain Frog is restricted to the white coastal dunes of Northern Namaqualand. The animal is interesting, as it is able to live in an area with virtually no rain, and adjacent to the sea, where salt spray makes its habitat even more stressful. Its habitat is also where strip mining²⁴ of sand takes place in search for diamonds. Today, the threat of mining is diminishing, but a new threat – housing development in the dunes – has emerged and is becoming more serious. The largest population of Desert Rain Frogs is found near Port Nolloth, where a large housing development is taking place, with many houses extending into the dunes.



Hewitt's Ghost Frog *Heleophryne hewitti*
(photo: Werner Conradie)

Fast facts: SA amphibians

Total number of taxa:	20 456
Total number of species:	117
Genera:	30
Families:	12
Practicing taxonomists:	4

Red List assessments: 2 complete assessments (2004 and 2009); 2 assessments which included some frog species (1994 and 1996)

RIGHT: Participants in the Amphibian Conservation Workshop, December 2009 (photo: Shona Young)

²³ Minter LR, Burger M, Harrison JA, Braack HH, Bishop PJ, Knoepfer D eds. 2004. Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland. Washington, D.C.: Smithsonian Institution Press)

²⁴ Mining technique in which the land and vegetation covering the mineral being sought are stripped away by huge machines, usually damaging the land

Frog Red List

Background

The first complete Red List assessment for frogs was compiled in the South African Frog Atlas²³ in 2004, and included a dedicated write-up for all species, with conservation recommendations. However, since 2004, very few of the recommendations have been carried out, and there has been very little research on threatened amphibian species, other than some ad hoc research and conservation actions. The need was therefore identified to develop a national strategic plan for the conservation of amphibian biodiversity in South Africa.



A two-day policy workshop took place at SANBI's Kirstenbosch Centre for Biodiversity Conservation on 3 and 4 December 2009. The aim of the workshop was to produce a strategic plan to identify, list and prioritize all conservation actions required to safeguard the future of South Africa's threatened amphibian species. The plan will be important to co-ordinate the critically important body of scientists and conservation workers in South Africa, to prevent duplication or oversight in the conservation of threatened amphibian taxa, and for use by researchers and conservation bodies to underpin funding applications for further work on threatened amphibian species.

Each of the 21 threatened amphibians were considered to determine which of South Africa's threatened amphibians require taxonomic work, to define which aspects of their taxonomy are outstanding, as well as list the most appropriate methods that can be used to correct this deficiency. These species were then assessed to determine which of them require monitoring, and the workshop prioritized conservation research with respect to population biology, threats, and whether species required an urgent BMP. Education, awareness and capacity building were explored, and there was discussion around how to build capacity amongst professionals practising conservation and taxonomy of amphibians in South Africa, as well as how to promote awareness amongst the public.

Where to from here?

The strategic plan will be finalized in mid-2010. The next national assessment will take place in five years, and as a result of the strategic plan, it will have a better set of data on which to base individual species assessments as well as to detect trends in South Africa's rich amphibian biodiversity.



Red-listing for fish on the cards

SANBI's marine programme, in partnership with DEA's Marine and Coastal Management (MCM) Branch, has recently initiated a project to collate information, catalyze assessments, and raise awareness about the status of linefish in South Africa. This project falls under SANBI's Strategy for Assessing Marine Species Status, which aims to support the assessment of marine taxa in South Africa.

Background

In South Africa, line fishing²⁵ is the only truly national fishery, in that fishing takes place along the entire South African coastline, and participants originate from all cultural backgrounds across South Africa. All habitat types and bio-regions are targeted by recreational, subsistence and commercial line fishers, with linefish also caught as by-catch by the commercial trawl sectors. This combined fishing pressure has led to severe overexploitation, and fish stocks of several species have declined to critically low levels.

Factors that obstruct the assessment and sustainable management of these species include the following:

- The information on fishery regulations as well as on biology and stock health is fragmented, and information gaps have not been identified.
- The available information is not quickly and easily accessible.
- There is little awareness amongst the public, fishers and even managers about the threatened status of many species.

The way forward

These challenges make South Africa's threatened fish biodiversity vulnerable to further threats, and hamper compliance and management efforts. The project has developed an electronic database to collate information on South African fish caught by hook and line, including linefish, sharks and large pelagic species. The digital database is searchable and easy to update, and will be used to support conservation assessments, management and compliance, as well as to create an interactive website. The website will provide quick and easy access to information on regulations, conservation status, distribution, life history, fishery parameters, as well as conversion factors between different measurements (such as length, mass and age).



International organizations can use the site to report on stock and species status. For linefish, the database will be used to conduct a Red-listing exercise to assess the conservation status of key species. Species status will then be reflected on the website. The database will support local species assessments and listings, as well as SASSI.

SANBI aims to play an encouraging role in species assessments, with its work also contributing to other programmes, such as the Southern African Sustainable Seafood Initiative (SASSI). For more information on SASSI, visit www.wwf.org/za/sassi/



Well managed line-fisheries make an important contribution to the livelihoods of fisherman across South Africa (photo: Kerry Sink)

SASSI Red List – no sale

Barbman (belman; tasselfish)
Banded galjoen
Blacktail (dassie; kolstert)
Brindle bass
Bronze bream
Cape stumpnose
East coast rock lobster
Galjoen
Garrick (leervis)
John Brown (Janbruin)
Kingfishes
Knife jaw, Cape and Natal
(cuckoo bass; kraaibek)
Large-spot pompano (moony; wave garrick)
Natal stumpnose (yellow bream)
Natal wrasse
Potato bass
Ragged tooth shark
River bream (perch)
River snapper (rock salmon)
Sawfishes
Seventy-four
Southern pompano
Spotted grunter (tiger)
Spotted gulley shark
Springer (ten pounder)
Stonebream
Striped cat shark (Pyjama shark)
West coast steenbras
White musselcracker (busher; cracker)
White steenbras (pignose grunter)
Zebra (wildeperd)



Red Stumpnose, *Chrysoblephus gibbiceps*
(photo: Geoff Spiby)

²⁵ The industry of catching edible ocean fish by a handline, either from a boat or the shore



Cape Horseshoe Bat, *Rhinolophus capensis*
(photo: MB Fenton)

According to the foreword by bat biologist Dr Steven M. Goodman:

"*Bats of Southern and Central Africa: A Biogeographic and Taxonomic Synthesis* contains an extraordinary wealth of information on these animals. It is a synthesis of over a century of research in the southern portion of the continent. The authors, some of the foremost scientists in the study of African bats, have done an exceptional job in making this information available to natural historians, bat enthusiasts and scientists alike."

Bats aren't just creatures in horror movies

Some species of bats consume large numbers of mosquitoes, which are responsible for transmitting diseases such as malaria. Certain bats can consume up to 500 insects a night, so the number consumed by a colony of 1 000 bats is roughly 200 million mosquitoes a year. With a large proportion of the African continent affected by malaria every year, the important role that bats play should not be underestimated.

The 'Bat Atlas'

Background

The 'Bat Atlas', *Bats of Southern and Central Africa – A Biogeographic and Taxonomic Synthesis*, is due to be published by Wits University Press, with funding assistance from SANBI, in April 2010. The publication will be in full colour, and will include more than 80 colour plates of bats, more than 350 skull photographs, 56 colour spectrograms²⁶ of bat echolocation calls,²⁷ and 116 full-colour distribution maps. The book comprises accurate point maps of the distribution of 116 species of bats throughout South-Central Africa. Maps are based on roughly 5 500 species locality records based on museum specimens (from collections around the world), of which most were personally identified by one of the authors. Significantly, the book includes several integrated chapters on the evolution, biogeography²⁸, ecology and echolocation of bats.

The authors of this book are Ara Monadjem (University of Swaziland), Peter John Taylor (Durban Natural Science Museum), F.P.D. (Woody) Cotterill (UCT) and M. Corrie Schoeman (University of KwaZulu-Natal).



TOP LEFT: Natal Long-fingered Bat, *Miniopterus natalensis* (photo: AS Taylor)
TOP RIGHT: Angolan Wing-gland Bat, *Cistugo seabrae* (photo: M Ruedi)
BOTTOM LEFT: Percival's Short-eared Trident Bat, *Cloeotis percivali* (photo: A Monadjem)
BOTTOM RIGHT: Swinny's Horseshoe Bat, *Rhinolophus swinnyi* (photo: PJ Taylor)

²⁶ Photographic records of a spectrum

²⁷ The short ultrasonic sounds that bats make to orientate themselves in space, localize objects, and define distances of objects in complete darkness

²⁸ The science that studies the geographical distribution of animals and plants



Southern African Bird Atlas Project 2 (SABAP2)



The Southern African Bird Atlas Project 2 (SABAP2) is an updated and refined version of the first Bird Atlas Project, SABAP1, which ran from 1987 to 1991. SABAP1 culminated in 1997 with the landmark publication of two volumes of the first bird atlas, which looked at the distribution and relative abundance of Southern African birds. This publication has contributed greatly to biodiversity initiatives in Southern Africa, and has been extensively used.

Why SABAP2?

For the first time SABAP1 included maps showing the 'true distribution' of all bird species in Southern Africa, and represented a 'snapshot' of the distribution of each species during the late 1980s and early 1990s. SABAP2, a partnership project between SANBI, the UCT's ADU, and Birdlife South Africa, was launched on 1 July 2007, and covers South Africa, Lesotho and Swaziland.

Since the first bird atlas project, bird distributions in Southern Africa have continued to change, possibly more rapidly than during the previous 30 to 40 years. Large-scale landscape changes resulting in widespread habitat loss, transformation and fragmentation, and in some cases new habitat creation, coupled with climate change, have contributed to changing bird distributions. Monitoring these distributional changes is crucial if proper and effective BMPs are to be put in place to conserve bird populations and diversity in Southern Africa into the future – hence the need for SABAP2. The project focuses on the use of citizen scientists for data collection, and, as in SABAP1, aims to increase the public's interest in and awareness of birds. The project is overseen by both a steering committee and an executive committee, and is implemented by a project team.

Aims of the project

Key aims of SABAP2 include the following:

- Providing a scientifically rigorous, replicable platform for tracking through time and space the impacts of environmental change on Southern African birds by means of standardized data collection on bird distribution and an index of abundance
- An increase in public participation in biodiversity data collection and public awareness of birds through large-scale mobilization of citizen scientists/volunteers

Project Successes

- **Coverage** Gauteng has reached 100% coverage, and Mpumalanga, KwaZulu-Natal and Free State more than 50% coverage. Currently, the project has a 35,7% coverage of Southern Africa, with over 1,6 million records.



TOP: Blacksmith Lapwing, *Vanellus armatus*
(photo: Doug Harebottle)

MIDDLE: Barn Swallow, *Hirundo rustica*
(photo: Mark Anderson)

BOTTOM: Crowned Lapwing, *Vanellus coronatus*
(photo: Doug Harebottle)

OPPOSITE TOP: Blue Cranes, *Anthropoides paradiseus*
(photo: Mark Anderson)

OPPOSITE BOTTOM: Enthusiastic SABAP2
volunteers, atlassing in the Moorreburg area,
southwestern Cape

- **Automated data submission and vetting process** Records are electronically submitted to the project, and processed immediately. Each record is checked (vetted) against existing SABAP2 records plus data from SABAP1. Where a species was not recorded or was rare in SABAP1, it is flagged as 'out of range', requiring further assessment and verification.
- **Up-to-date website** The website includes near-real-time²⁹ distribution maps, observer summaries and project progress statistics (<http://sabap2.adu.org.za>). The website is automatically updated every five minutes, and observers can confirm and check their own data submissions online.
- **Human resources in place** Regional atlas committees and provincial atlas co-ordinators were set up to assist with the vetting of out-of-range records, and the promotion of the atlas in their regions.
- **Atlas challenges** Atlassers are encouraged to take part in mini-projects/challenges with defined targets within SABAP2. These mini-projects have specific goals, such as trying to determine arrival and departure times of migrants, or trying to cover a specific number of new pentads.

Challenges

- **Coverage** It is challenging to obtain coverage in critical gap areas in order to reach project targets.
- **Protocol perceptions** The project was initially perceived to be 'too difficult', which led to negative public relations, and affected participation levels.
- **Limited observer network** In the beginning, participation was slow, and converting registrations into active participants proved challenging.
- **IT issues** The network availability was erratic at times, and software development and maintenance posed some problems.
- **Funding** There is not enough funding available for the project to be completed.



Crazy about acronyms

After SABAP1, a number of focused projects were initiated to sustain the public's interest and involvement. These included CWAC (the Co-ordinated Water-bird Counts), BIRP (Birds In Reserves Project) and CAR (Co-ordinated Avifaunal Roadcounts), which all showcased the birding public's commitment to making further contributions to bird conservation in South Africa. The acronyms don't stop there. Smaller projects within SABAP2 include WHAMB (Welcome Home All Migrant Birds), which looks at both the intra-African migrants coming to Southern Africa to breed, and the Palearctic³⁰ migrants arriving for their non-breeding season. WHAMB builds on LAMP (the Long Autumn Migration Project). Then there is also BASH (the Big Atlassing Summer Holiday), which was conducted in summer. DeJaVU (December January Atlassing Vacation Unlimited) is the latest project aimed at documenting the distribution of as many species as possible, as comprehensively as possible, in the SABAP2 region in December and January 2009/10.

Taking part in SABAP2 is easy, and involves the following steps:

- Register as an observer.
- Obtain a SABAP2 starter kit.
- Obtain the relevant maps for field surveys.
- Conduct a field survey, and submit your checklists.
- Attend a bird atlas workshop or presentation.

LEFT: Setting mistnets in mid-altitude fynbos (photo: Paula Pebsworth)

FAR LEFT: African Penguin, *Spheniscus demersus* (photo: Stein Byrkjeland)

²⁹ Where information is updated almost the same time that it is received, providing the most current, up-to-date data

³⁰ One of the eight ecozones into which the world is divided, extending across Europe, North Africa and North Asia, north of the tropics

SABAP1 as a pioneer

The software used to develop SABAP1 was so successful that it has been used to develop atlas projects for other faunal groups, such as the Southern African Frog Atlas Project (SAFAP) (1996–2003); SARCA (2005–2009) and SABCA (2007–2011).

TOP LEFT: Blackbellied Bustard, *Eupodotis melanogaster* (photo: Stein Byrkjeland)
TOP RIGHT: African Black Oystercatcher, *Haematopus moquini* (photo: Rob Simmons)
BOTTOM LEFT: Black Harrier, *Circus maurus* (photo: Rob Simmons)
BOTTOM RIGHT: Black Harrier, *Circus maurus* (photo: Esme Beamish)

What are the lessons from SABAP2?

- **Lead time is essential** Data collection needs to be preceded by better lead time and consultation with stakeholders with regard to project planning.
- **Involve citizen scientists, and communicate with them** – The use of volunteers or citizen scientists is critical for large-scale data collection. Equally important is regular feedback to volunteers through the internet.
- **Training** Training volunteers in correct field procedures is critical for the success of the project, and increases levels of participation.
- **Technology** Use of advanced technology, such as the internet and GIS, has greatly improved the day-to-day operational activities of SABAP2.
- **Baseline data** Having a baseline dataset, with inclusion of other bird datasets, streamlines data checking.
- **Mentoring** One-on-one mentoring and support play a large role in creating more active participants.

For more information on SABAP2, visit <http://sabap2.adu.org.za>



Environmental Impact Assessment (EIA) Biodiversity Data Collection Tool



Specimen data in museums and herbariums, together with atlas programmes, remain the main source of locality data for species monitoring and assessments.

Digitizing and co-ordinating this data are time-consuming and labour-intensive, and rely heavily on financial assistance from donors. However, more than 5 000 site reports with species lists are submitted by specialist environmental consultants as part of the EIA process each year. These reports, which contain lists of species and occurrence

details that would be invaluable for biodiversity monitoring, are sent to both municipal and provincial conservation authorities, where they are evaluated and, with the exception of Gauteng, archived, whereafter they serve no further conservation purpose.

SANBI identified the need to collate the information captured from EIAs, and in partnership with the Norwegian Agency for Development Co-operation (NORAD) and the Global Biodiversity Information Facility (GBIF), initiated the EIA Biodiversity Data Collection Tool. SANBI has developed the tool to harvest the species locality information contained in specialist EIA reports. This is an online prototype interactive tool, which provides access to a database that gives consultants a free list of potential species occurring in the broad geographic region of interest. The minimum area size is a quarter-degree square. In exchange, the conservation community will have access to continually updated species locality records. The EIA Biodiversity Data Collection Tool effectively introduces an ongoing monitoring tool for biodiversity conservation. It forms part of a set of products aimed at streamlining biodiversity inputs into EIAs, to assess the collective impact of these inputs, and to gather the biodiversity-related outputs.

The project aims to develop the EIA Biodiversity Data Collection Tool into a fully-fledged EIA biodiversity data publishing facility in South Africa, with Gauteng as the pilot province. SANBI has already established partnerships with GBIF and the International Association for Impact Assessment (IAIA) for the data publishing facility. As part of the collaboration, lessons learned will be shared with GBIF in order to develop an EIA biodiversity data publishing framework that GBIF could roll out in collaboration with the IAIA.

The project will be rolled out at both a national and international level. Nationally, the project will run from January 2010 to April 2011, and partners include DEA, the Gauteng Department of Agriculture and Rural Development, provincial conservation agencies, SABIF and the South African chapter of IAIA (IAIAsa). On the international front, the project began in May 2008, and will run until December 2011, with partners such as IAIA and GBIF.



EIA Plant Specialist Workshop

An EIA Plant Specialist Workshop was held at Kirstenbosch on 3 August 2009. The 16 participants comprised independent consultants, representatives from CapeNature and SANBI, and staff from SANBI's TSP. The workshop included a presentation on the new Red List for South African plant species, as well as guidelines for botanical specialist consultants when finding species of conservation concern. Participants were also introduced to a tool developed by SANBI to provide feedback on Red List status and 'taxonomy of species' lists compiled by consultants.

Project objectives

National level:

- To develop a web-based EIA biodiversity data publishing facility that will facilitate sharing of information, peer review and acknowledgements of contributions
- To pilot the EIA data publishing project with the Gauteng Department of Agriculture and Rural Development and relevant consultants (making use of submitted/approved site reports)
- To conceptualize a model for project sustainability, with the aim of full project institutionalization within SANBI
- For South Africa to be the pilot country for a global rollout in partnership with GBIF
- To prepare a 'lessons learned' report, and to develop best practice guidelines
- To develop a preliminary plan for the rollout of the project to other provinces in South Africa beyond 2011

International level:

- To contribute GBIF's globally mediated biodiversity informatics tools, processes, protocols, best practices and guidelines to the South African pilot project.
- To contribute to EIA biodiversity data publishing pilot projects in India and other GBIF participant countries.
- To distribute, through GBIF's strategic application networks, the tools, processes, protocols, best practice guidelines and 'frequently asked questions' manuals to make EIA biodiversity data accessible to all.

RIGHT: *Babiana blanda*, Critically Endangered species (photo: Rupert Koopman)



OPPOSITE TOP: *Bradypodion thamnobates* (photo: Krystal Tolley)

OPPOSITE CENTRE: *Aristea nigrescens* a recently discovered species that only occurs near Wolseley, this species is listed as Endangered (photo: Rupert Koopman)

OPPOSITE BOTTOM: Red Stumpnose, *Chrysoblephus gibbiceps* (photo: Geoff Spiby)

Species Identification and Decision Support Tool for law enforcers

The challenge

One of the major challenges facing Environmental Management Inspectors (EMIs) in South Africa is the correct identification of protected flora and fauna, and more often their parts and derivatives encountered at border posts or offered for sale in local or regional markets. The wide variety of wildlife-based products on the market, from live animals and elephant ivory to *Aloe ferox* extracts and cycads, makes it almost impossible for each EMI to be able to identify such specimens to the taxonomic level required to make critical law enforcement decisions.

The solution

Being aware of this challenge and the need to provide assistance to EMIs, SANBI's TSP used NORAD funding to develop a project proposal aimed at creating a species identification and decision support tool.

In 2009, SANBI contracted TRAFFIC East/Southern Africa (TESA), the world's largest wildlife trade monitoring network, to implement the Species Identification and Decision Support Tool project. Being the joint programme of the Worldwide Fund for Nature (WWF) and the IUCN, TRAFFIC has experience and expertise in species identification and capacity building, which complement SANBI's mandate.



The purpose

The purpose of the project is to develop a decision support tool to assist EMIs with the identification of threatened species, and to advise on appropriate species-specific response strategies. As the tool will be used by EMIs with a range of identification abilities, it will be simple and user-friendly. It will make use of software to lead the user through a series of interactive steps based on easily observable traits of the organism, for example skin markings, size, feather markings, etc., until the finest possible identification is achieved for the organism. The tool will then advise the EMI on the correct regulatory response.





Paper-based versus electronic identification guides

During the consultation phase of the project, it became clear that EMIs have diverse views on the appropriate technology platform for this tool. Some supported a robust paper-based identification guide, whereas others requested an electronic, web-based identification guide that would be available even without internet or cellphone reception. SANBI chose the electronic route for the identification guide, as it appears to provide the best long-term prospects for the expansion of identification material, relatively low updating and distribution costs, and the use of SANBI's existing information technology infrastructure. After researching various options, SANBI chose the LUCID identification and diagnosis software to get the project up and running.

Progress to date, and the way forward

TRAFFIC has completed the first draft identification materials, focusing on plants and animals (including parts and derivatives) that appear on both the Threatened or Protected Species (TOPS) list, and the Convention on International Trade in Endangered Species (CITES) list. Pending the review of these materials by a panel of EMIs in early 2010, TRAFFIC will implement a test version of the guide via the internet, and after a further period of review, will launch the first phase of the project by the end of 2010. Given the complexity of the project, it is envisaged that only a prioritized list of TOPS and CITES-listed species will be included in this phase of the project, with completion of all remaining TOPS and CITES species set aside for a second phase.



TOP: The Threatened Species Identification Tool Inception Workshop (photo: David Newton)
LEFT: Faraday Street Muthi Market (photo: Vivienne Williams)

Capacitating students

SANBI promotes research on threatened species, and contributes to building capacity in biodiversity science in South Africa. In collaboration with NORAD, SANBI offers supplementary funding for MSc and PhD projects related to threatened species.

Funding of between R20 000 and R50 000 (depending on the amount requested) is made available to cover the costs of project operations and capital items. Depending on the project, the duration of the funding varies from one to three years. Criteria used to select successful projects include the following:

- The study's direct relevance to threatened species
- The study's contribution to improved management of threatened species
- The scientific merit of the proposal
- The feasibility of the project
- The study's contribution to transformation and capacity building

What some of the students are up to



RHETT BENNETT is a PhD student in the Department of Ichthyology³¹ and Fisheries Science at the South African Institute for Aquatic Biodiversity (SAIAB) at Rhodes University. Rhett is studying the habitat use, movement patterns and stock delineation of an important endemic coastal fishery species, *Lithognathus lithognathus*

(White Steenbras). One of the most valuable lessons learned from his study is the benefit of a multiple-methods approach. The holistic use of various techniques allows for each technique's results to be verified by those of the other techniques, and in so doing, provides a more robust set of results.



ANISHA DAYARAM is investigating the longevity and ecology of four long-lived grassland *suffrutex*³² species, namely *Berkheya insignis*, *Callilepis laureola*, *Tephrosia kraussiana* and *Protea simplex*. Tubers of these species were excavated, and are being dated by means of radiocarbon dating.³³ This enigmatic plant

form occupies one of the most threatened biomes, and the research aims to increase understanding of the implications that land transformation have for these four species.

“Despite a few challenges, the project is proving to be a fun and engaging undertaking, which will hopefully yield some interesting results.”



MPHO RAMOEJANE is completing his MSc at Rhodes University under the supervision of researchers from SAIAB. His research focuses on the genetics of indigenous cyprinids in southern Africa. Mpho conducted genetic analyses during a SANBI-funded genetic research project on the endangered Eastern Cape Redfin *Pseudobarbus afer* and the Goldie Barb *Barbus pallidus* in the Addo Elephant National Park.

STUDENTS SPONSORED BY TSP

2008

KIRSTY BELL

University of the Western Cape

RESEARCH TOPIC: The Desert Rain Frog Threatened Species Project

FARAH FELDMAN

Cape Peninsula University of Technology

RESEARCH TOPIC: Toads sharing secrets of migration: unraveling how Western Leopard Toads survive in an urban environment

MESHAK DLUDLU

University of Cape Town

RESEARCH TOPIC: Systematics of the Cape Psoraleeae – species delimitations, speciation and conservation

VICTORIA NDZIPHA

Rhodes University

RESEARCH TOPIC: Assessment of genetic diversity of *Pseudobarbus afer* and *Barbus pallidus* in the Sundays River and Swartkops River catchment to identify critical conservation areas within the Addo Elephant National Park, Eastern Cape

2009

RHETT BENNETT

South African Institute for Aquatic Biodiversity (SAIAB)

RESEARCH TOPIC: Habitat use, movement patterns and stock delineation of an important endemic coastal fisheries species *Lithognathus lithognathus*

JANINE FEARON

Rhodes University

RESEARCH TOPIC: An assessment of the genetic diversity and conservation status of *Prestonella* (Mollusca), a Great Escarpment endemic

³¹ The branch of zoology devoted to the study of fish

³² A subshrub; low-growing woody shrub or perennial with woody base

³³ A chemical analysis used to determine the age of organic materials based on how much of the radioisotope carbon-14 the materials contain

MINETTE KARSTENS

University of Stellenbosch

RESEARCH TOPIC: Conservation genetics of the Black Rhinoceros (*Diceros bicornis*): implications for conservation and management

BRYAN MARITZ

University of the Witwaterstrand

RESEARCH TOPIC: Ecology of the threatened Namaqua Dwarf Adder, *Bitis scheideri*

ANGELIKA SWITALA

University of Pretoria

RESEARCH TOPIC: Phylogeny and conservation of the Cape High Mountain Stag Beetle genus *Colophon* (Coleoptera: Scarabaeoidea: Lucanidae).

KARIN VAN DER WALT

SANBI and University of the Witwaterstrand

RESEARCH TOPIC: The population biology and ecology of the critically endangered succulent, *Adenium swazicum*

LISA NUPEN

University of Cape Town

RESEARCH TOPIC: Population decline and fitness in the African penguins (*Spheniscus demersus*): genetic approaches to inform the management and persistence of a marine top predator

KESHNI GOPAL

SANBI and University of Pretoria

RESEARCH TOPIC: Population genetics of coastal dolphins off South Africa

CHARLENE KUNAKA

University of Stellenbosch

RESEARCH TOPIC: Conservation of two critically endangered velvet worm species (*Opisthopatus herbertorum* and *Opisthopatus roseus*) in KwaZulu-Natal, South Africa

JESSICA DA SILVA

University of Stellenbosch

RESEARCH TOPIC: Conservation planning of South Africa's dwarf chameleons: how many are there and will they survive in a changing environment?



FARRAH FELDMAN is in the third and final year of her MTech in Nature Conservation, studying the WLT – a keystone species for conservation in Cape Town. The research involves the discovery of the toads' migration secrets, and determining how WLTs survive in an urban environment. The aim of Farrah's research is to determine by means of radio telemetry³⁴ which urban land spaces the toads utilize directly after breeding for a period of two weeks, and later to interpret the data using GIS software. It also aims to determine the population size at the study site by using photographs of their dorsal patterns, which are unique for each individual. This study has already yielded some interesting results. To date, it has been found that toads prefer to use roads as movement corridors, which is ultimately detrimental to their survival, as road kill is one of the major causes of fatalities. Toads also prefer urban gardens to the urban green corridors³⁵ adjacent to wetlands and rivers.



BRYAN MARITZ is studying the ecology of the Namaqua Dwarf Adder (*Bitis schneideri*), the world's smallest adder, which is endemic to southern Africa. The IUCN lists the species as Vulnerable, but it could equally be listed as Data Deficient given the lack of information

on its ecology and conservation biology. This lack of information demands attention if the species is to be adequately managed within its transforming habitat.

"The project has until now provided me with amazing challenges and opportunities, and continues to do so. I look forward to continuing my study."



KARIN VAN DER WALT works at the Lowveld National Botanical Garden, and has managed the Threatened Plants Programme at this garden since 2006. She registered to do an MSc (dissertation) at the University of Witwatersrand in 2009. Her research deals with the

population biology and ecology of the critically endangered succulent *Adenium swazicum*. Thus far, she has learned the following lessons in her project:

- Pilot studies are of the utmost importance to ensure that the correct survey methods are used. Monitoring is time-consuming, and if one aspect is changed, it affects everything else.
- Ensure that all plants that are monitored are properly marked to ensure they can be relocated.
- The same people should measure all plants to ensure uniformity.



MESHACK DLUDLU is doing his MSc by dissertation at UCT on the systematics of the southern African Psoraleeae, *Leguminosae*. His research uses a traditional taxonomic approach and DNA sequencing to address questions on the taxonomy and evolution of the tribe of predominantly fynbos legumes.

³⁴ Automatic transmission and measurement of data from remote sources by wire or radio or other means

³⁵ Thin strips of land that provide sufficient habitat to support wildlife, often within an urban environment, and allow the safe movement of wildlife

Red List training course



The TSP conducts an annual week-long Red List training course as part of its capacity-building objective. Course participants are taught how to conduct conservation assessments using the IUCN Red List Categories and Criteria (Version 3.1.) system.

The course is conducted by SANBI staff from the TSP, who use course material developed by the IUCN's Red List programme. Course participants include scientists and conservation officials working on a wide range of taxonomic groups, and are not restricted to South Africa. Scientists from neighbouring Southern African Development Community (SADC) countries have also been trained.

By conducting annual Red List training, SANBI assists the IUCN in creating Red-listing capacity in Southern Africa. By the end of the three-day course, participants are able to conduct their own conservation assessments. To learn more about the type of content that is covered as part of this course, which includes the Red-listing system and definitions of threatened species, please consult *Threatened Species: A guide to Red Lists and their use in conservation*.



Why are Red List assessments conducted?

Through its Species Survival Commission (SSC), the IUCN has for the past 40 years been assessing the conservation status of species, subspecies, varieties and even selected subpopulations on a global scale, in order to highlight taxa threatened by extinction. This in turn promotes their conservation. The IUCN Red List of Threatened Species provides taxonomic and conservation status and distribution information on taxa that have been globally evaluated using the IUCN Red List Categories and Criteria. This system has been designed to determine the relative risk of extinction, and the main purpose of the Red List is to catalogue and highlight those taxa that are facing a higher risk of extinction.

Adapted from www.redlist.org

What are South Africa Red Lists used for?

- National reporting on the state of biodiversity within South Africa
- Guiding conservation legislation and policy, especially with regard to which species are nationally and provincially protected
- Setting biodiversity targets for conservation planning as part of the EIA process. These are then used to indicate levels of environmental degradation.

TOP LEFT: Red List training workshop (photo: Domitilla Raimondo)

LEFT: Screenshot of IUCN Red List of Threatened Species website

Chief author and project manager:

Shona Young

Design:

Runette Louw and Jenny Young

Contributors to text:

Alan Channing

Anisha Dayaram

Ansie Dippenaar-Schoeman

Bryan Maritz

David Newton

Domitilla Raimondo

Doug Harebottle

Farrah Feldman

Ferozah Conrad

Ismail Ebrahim

John Measey

Karin van der Walt

Kerry Sink

Kirsty Bell

Krystal Tolley

Les Underhill

Lize von Staden

Marienne De Villiers

Peter Taylor

Phoebe Barnard

Rhett Bennett

Rupert Koopman

Silvia Mecenero

Solly Nkoana

Steven Goodman

Tony Rebelo

Vathiswa Zikishe

Every effort has been made to ensure the accuracy of information in this book at the time of publication and to correctly acknowledge photographers. SANBI accepts no responsibility for, and will not be liable for, any errors or omissions contained herein.

TSP Managers

DOMITILLA RAIMONDO has been the TSP Manager at SANBI since 2007 but has been working on the monitoring and assessing of threatened plant species in South Africa since 2002. She holds a BSc Honours degree in Botany and a MSc in Conservation Biology. In 2003 she started the CREW programme which involves a network of volunteers in the

monitoring and conservation of South Africa's threatened plant species. In 2009 she completed the first comprehensive conservation assessment of all plant species in South Africa, and is the first author of the publication resulting from this work: *The 2009 Red List of South African Plants*.

"I am passionate about the conservation of plant species and spend every free moment up mountains or in remnant fragments of threatened vegetation searching for South Africa's most threatened and rare plants".



SOLLY NKOANA, the TSP Manager, has a list of degrees behind his name. He obtained a BSc Degree majoring in Botany and Education from Turfloop University in 1992. He obtained both a BSc Honours Degree in Botany (1998) and a MSc Degree in Systematics and Conservation Evaluation (2004) from the University of Pretoria. He has been involved in the TSP since November 2007. His key responsibilities

include the management and co-ordination of the programme, including fulfilling SANBI's mandate to include assessments and conservation of animal taxa. Being a people's person, he enjoys his role of working closely with SANBI's network partners such as ARC, ADU, TRAFFIC and others.

"Documenting biodiversity and reducing biodiversity loss is close to my heart".

Norwegian Agency for Development Co-operation (NORAD)

SANBI's work on threatened species forms part of the co-operation between Norway and South Africa in the environmental sector. The work of SANBI's TSP has been funded by the Norwegian Agency for Development Co-operation (NORAD) via DEA. This co-operation has included three phases since 1994, and SANBI has been the recipient of funding in the second and third phases since 2003. Currently the threatened species work is the main component of Norway's support to biodiversity and conservation work in South Africa. The generous grant to SANBI's TSP from Norway has allowed the institute to pilot work on threatened animals and also meet its mandate to work on faunal as well as floral biodiversity conservation.





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