

*S*TRELITZIA 19

The vegetation of South Africa, Lesotho and Swaziland

Ladislav Mucina and Michael C. Rutherford
(Editors)



Pretoria

2006

STRELITZIA

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

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

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(Fynbos vegetation dominated by
Leucadendron laurosum on the
northern slopes of the Riviersonderend
Mountains, Western Cape)

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Foreword

Why another vegetation map of South Africa, especially considering that Acocks (1953) *Veld types of South Africa* has served two generations of scientists so well?

One answer to this, and to most questions on the purpose of scientific endeavour, is that we live in a knowledge-driven society, where informed, environmentally sensitive and rational decisions are the cornerstones of sustainable socio-economic development. But more directly, despite the utility of Acocks's map for more than half a century, our knowledge base, technologies and demands for detailed spatial information on natural resources make a new, spatially detailed map and description of our vegetation both possible and necessary.

South Africa and the continent as a whole have set ambitious development goals for the 'African Century', goals which simply cannot be met without an underpinning of sound decision support. Such growth initiatives, infrastructure needs and wise land use demands were behind the establishment, in 2004, of the South African National Biodiversity Institute (SANBI), the successor to the former National Botanical Institute (NBI) which itself had roots in the Botanical Research Institute and the National Botanical Gardens of South Africa, established in 1903 and 1913 respectively.

The parliamentary mandate given SANBI through the Biodiversity Act of 2004 includes monitoring and reporting on the status of the Republic's biodiversity, the conservation status of species and ecosystems, and on the diverse impacts on these. Such reporting requires a detailed vegetation baseline and an understanding of the dynamics of constituent ecosystems. The production of *The vegetation of South Africa, Lesotho and Swaziland* (which includes the new Map) is therefore particularly timely, given the high expectations placed by our stakeholders on SANBI and our many partners in biodiversity science.

This volume marks yet another major milestone in the history of biodiversity knowledge development in southern Africa. Over the past two centuries, the process of discovery, description, evaluation and synthesis of information on and understanding of our flora and vegetation has followed a regular cycle. Benchmarks along the way include the early botanical explorations of Thunberg, Sparrman, Masson and others at the close of the 18th century, the publication of *Flora capensis* from the mid-19th century (Harvey & Sonder 1859–1860), the pioneer ecological studies of Marloth, Bews and Adamson in the early 20th century, and the production of the first vegetation map for the country by Pole Evans in 1936.

A new wave of field work and synthesis came with Acocks's 1953 map, and the stimulus to plant taxonomy anticipated by the launch of the *Flora of southern Africa* project in the 1960s. The taxonomic agenda of the late 20th century has focussed on regional floras (Bond & Goldblatt 1984, Retief & Herman 1997, Goldblatt & Manning 2000) and some major monographs (Van Jaarsveld 1994, Goldblatt & Manning 1998, Smith & Van Wyk 1998, Linder & Kurzweil 1999, Van Jaarsveld & Koutnik 2004). Towards the end of the 20th century, slow progress with the *Flora of southern Africa* project resulted in a decision to prepare a 'Concise flora of southern Africa' while a regional programme of taxonomic capacity building—SABONET—addressed the human and institutional resource needs in this field of botany. Significant results of these initiatives are illustrated in the two mega-volumes published this year—*Checklist of flowering plants of Sub-Saharan Africa* (Klopper et al. 2006) and *A checklist of South African plants* (Germishuizen et al. 2006).

Research on the structure and function of South African ecosystems received a significant stimulus during the 1970s and 1980s, through a network of major interdisciplinary studies in the Savanna, Fynbos and Karoo Biomes, leading to several comprehensive syntheses on these (Cowling 1992, Scholes & Walker 1993, Dean & Milton 1999). Cowling et al. (1997) drew together the findings of the surge of ecological activity during these two decades in the multi-authored *Vegetation of southern Africa*, a classic synthesis with few equals elsewhere around the globe.

The succession of field research and resulting taxonomic and ecological syntheses prompted the need for a new generation vegetation map and descriptive memoir. While vegetation surveys had been active through the later decades of the 20th century, they had been widely scattered and unco-ordinated—responding to the needs of conservation agencies and land use planners rather than to establishing an integrated regional synthesis. In 1996 the VEGMAP Project was initiated to prepare a successor to *Veld types of South Africa*.

Acocks's (1953) classic study was the last of the great, single-authored works on the flora or vegetation of South Africa. By the turn of the 20th century, South Africa had built an uncommon ability, by global standards, to bring together large teams of natural scientists to tackle national priorities. The power of electronic information management, while never able to replace the critical importance of humble field natural history observations, has nevertheless made possible the collection and integration of vast databases—not achievable just a few decades ago. In particular, the power of Geographical Information Systems has aided the immense task of integrating spatial information at widely differing scales and detail.

The task of preparing a new Vegetation Map fell to a succession of co-ordinators, and acknowledgement should be made to the initial work of David McDonald and Michael O'Callaghan. It soon became clear that a full-time commitment to the project was needed, and Michael Rutherford's wide experience in southern African vegetation science made him an obvious candidate. In assembling a team of about 100 contributors, further support in the huge task of synthesising diverse datasets was essential, and the wealth of experience of Ladislav Mucina, who had then recently arrived in South Africa from Europe, was perfectly timed.

The VEGMAP Project soon grew into a major intellectual and organisational challenge. The sheer volume of field data, the diversity of vegetation classification and mapping methodologies used, and the 10 000 species included in the survey data, extended the project well beyond its initial five-year timeframe. But the resulting map, released ahead of this descriptive memoir, is already finding wide application and great utility in both its hard copy and electronic formats.

SANBI can be justly proud of the achievements of its professional staff, and those of its many collaborating institutions, as it faces the demands of the new century. This volume, which includes the map, will most surely serve South Africa and beyond as effectively as its remarkable predecessor, Acocks's *Veld types*. The advantages of electronic information systems will allow more regular revisions to both the map and the memoir than was possible for *Veld types*, and users are encouraged to communicate with SANBI should they have suggestions on improvements to future versions of this study.

The continuing support of the national Department of Environmental Affairs and Tourism and of the Norwegian Government to this project, is gratefully acknowledged. Special tribute should also be paid to the many dozens of dedicated fieldworkers whose collective toil under the African sun is reflected in this remarkable volume.



Brian J. Huntley

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August 2006

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