Vegetation Field Atlas of Continental South Africa, Lesotho and Swaziland

Ladislav Mucina, Michael C. Rutherford, Leslie W. Powrie, Adriaan van Niekerk & Johannes H. van der Merwe (Editors)
Ladislav (Laco) Mucina was born on 28 May 1956 in Piešťany (then Czechoslovakia, today Slovakia) and received his education in Slovakia, where he obtained various scientific degrees and pedagogical qualifications at the Comenius University and Slovak Academy of Sciences, both in Bratislava, and later at the Technical University Berlin. He spent a postdoctoral period at the University of Nijmegen in the Netherlands and later lectured at universities in Austria, Germany, Italy, Sweden, Kuwait, South Africa (Pretoria, QwaQwa, Stellenbosch) and Australia. Currently he serves as Winthrop Professor and the Iluka Chair in Vegetation Science and Biogeography at the University of Western Australia, Perth. Recently he had been appointed as Professor Extraordinaire at the Department of Geography and Environmental Studies of Stellenbosch University. Prof. Mucina is a long-serving member of executive and advisory bodies and working groups of the International Association for Vegetation Science (IAVS). He is co-founder of the journal *Applied Vegetation Science* and former Chief Editor of the *Journal of Vegetation Science*. In South Africa he founded the National Vegetation Database and participated in management of the National Vegetation Mapping project. Prof. Mucina is working on a wide range of botanical research topics, including vegetation science (vegetation surveys, mapping, data-banking), population and evolutionary biology, plant systematics and biogeography. He has participated in the vegetation survey of Slovakia and Austria, and Europe, studied vegetation patterning and population ecology of Central European dry grasslands, contributed to syntaxonomic calibration of the EUNIS habitat system of the European Union, and participated in several crucial studies into ecology and conservation of indigenous forests. At present he pursues research in vegetation mapping in Western Australia and is active in functional and evolutionary community ecology focusing on rehabilitation processes in species-rich shrublands and general vegetation dynamics.

Michael Rutherford, born on 28 May 1947 in Durban, obtained his PhD in botany from Stellenbosch University. His early vegetation studies were conducted in savannas of northern Namibia and the Limpopo Province of South Africa where he was a project leader of the South African Savanna Ecosystem Project at Nylsvley while employed by the former Botanical Research Institute (BRI) in Pretoria. He was head of the Stress Ecology Research Group of the BRI and later the National Botanical Institute (NBI), based at the University of Cape Town. In 1995, he was appointed Chief Specialist Scientist at the NBI and later the South African National Biodiversity Institute (SANBI) at the Kirstenbosch Research Centre, and served on the executive of the NBI for several years. His research has spanned primary production ecology, ecophysiology, ecological impacts of invasive alien plants, pollution and allelochemical effects, biodiversity conservation and land transformation, modelling the impact of climate change on plant diversity, and vegetation mapping. He is first author of the well-known work *Biomes of southern Africa*, the second edition published in 1994. More recently, before his retirement from SANBI in 2012, he led the publication of a heptalogy of papers on the impacts of herbivore-driven land degradation on plant diversity across the rangeland biomes of South Africa. He received a British Council award for study in the United Kingdom and accepted research fellowships in Germany. He is an alumnus of the International Institute for Applied Systems Analysis (IIASA) in Austria. Currently resident in the Peak District of the United Kingdom, he remains a Research Associate of the Department of Botany and Zoology at Stellenbosch University and he continues to make inputs into southern African ecological research.
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This series has replaced Memoirs of the Botanical Survey of South Africa and Annals of the Kirstenbosch Botanic Gardens, which SANBI inherited from its predecessor organisations.

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

Ladislav Mucina1,2,3,4, Michael C. Rutherford2,4, Leslie W. Powrie4, Adriaan van Niekerk1 & Johannes H. van der Merwe5 (Editors)

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With contributions by:


* Deceased

Citing this publication: See ‘Citation suggestions’ on page 3.

ISBN: 978-1-919976-97-6

Obtainable from: SANBI Bookshop, Private Bag X101, Pretoria, 0001 South Africa.
Tel.: +27 12 843 5000
E-mail: bookshop@sanbi.org.za
Website: www.sanbi.org
Printed by: Business Print, Address: 318 Derdepoort Road, Silverton, Pretoria, Website: www.businessprint.co.za, Tel: 012 843 7600, Fax: 012 843 7610/11

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We dedicate this Atlas to the memory of C. Robert Scott-Shaw (1953–2012), one of the key members of the Team of the Vegetation Map of South Africa, Lesotho and Swaziland, who spent his life in serving botany and nature conservation in his beloved home province – KwaZulu-Natal
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Introduction

Why this Atlas?

The publication of the Vegetation of South Africa, Lesotho and Swaziland (known among peers as ‘the VegMap’), edited by Laco Mucina & Mike Rutherford, and assisted by Les Powrie and about 100 other co-authors, marked a milestone on a long journey laid down by South African vegetation science and plant ecology (Mucina & Rutherford 2006a). The classification of South Africa’s terrestrial ecosystems and featuring the diversity of vegetation types on a map resulted in a resource now widely used not only by botanists, vegetation scientists and plant ecologists, but also by users of botanical, vegetation and ecological information including those involved in zoology, other biological sciences, tertiary education, environmental consulting, nature conservation, and policy-making. Since its publication in 2006 (although the book became available only in early 2007) the book describing the vegetation of South Africa accrued more than 1 200 citations (and counting, according to Google Search), or 153+ citations per year (Publish or Perish [computer program] 1 March 2014). What then, is the role of this ‘Atlas’, which reprints Chapter 18 of the VegMap (Mucina et al. 2006) – the vegetation map itself?

The reason for producing the field atlas is that the VegMap book as a tool has two major drawbacks: it is heavy (over 3.8 kg) and delicate (printed on high-quality, heavy paper, but poorly resistant to water). Thus it is not well-suited to handling in the field and under wet conditions. The Atlas, consisting of thirty-one pages of the map itself and eight pages of legend and printed on tear-and-waterproof 240 g/m² Rock Paper, should become a map itself and eight pages of legend and printed on tear-and-waterproof 240 g/m² Rock Paper, should become a welcome companion to each field-based researcher. This should boost the use of the vegetation map and allow errors or omissions to be more easily detected; resulting in further improvements to the vegetation map.

The map work included in this Atlas is based on Chapter 18 of the abovementioned Vegetation of South Africa, Lesotho and Swaziland (Mucina & Rutherford 2006a). No conceptual changes have been made to the contents of this Atlas as yet. We have, however, added a map of the Cape Peninsula at a scale of approximately 1:200 000 (see page 47) that features one new vegetation unit (FFh 11 Peninsula Shale Fynbos) to demonstrate that vegetation mapping in South Africa has not come to a halt, and that new information is still being incorporated (see also http://www.sanbi.org.za and search for ‘vegetation map updates’). Height contours above sea level (isohypses) have been added to emphasise the rugged regional topography and to test this layer for informative power at finer mapping scales.

The vegetation maps of the Prince Edward Islands (see Smith & Mucina 2006) have not been included since we understand that a new, more detailed mapping (using high-precision satellite imagery and extensive ground-truthing) should be implemented in the near future. This unique part of South African nature deserves separate attention.

How to use this Atlas

The Atlas is presented here as a systematic series of A4 maps. These depict 435 of the vegetation types of our sub-continental region. Not depicted in this edition is ‘AZm 1 Cape Kelp Beds’, described in Mucina & Rutherford (2006a), yet not depicted by any of the mapping products resulting from the VegMap project due to lack of reliable field data. Mapping of marine, riverine and aquatic ecosystems is being undertaken as part of the further development of South Africa’s National Ecosystem Classification System, which underpins a range of ecosystem-level planning, assessment and monitoring (Driver et al. 2012; SANBI 2013).

The mapping in this chapter corresponds closely to the large 1:1 000 000 wall map of Mucina et al. (2005, 2007) and is printed at this same convenient scale. Grey outlines around polygons help to differentiate between adjacent vegetation units.

The A4 map pages include an area of overlap at the edges with adjacent maps and contain navigational arrows to the adjacent sections of the map. The series of maps is preceded by an index map giving the page numbers of the atlas as well as the legend to the vegetation types with the colours and codes shown on the map.

Given the large number of colours required for the Atlas, the codes provide the definitive identity of vegetation types. For convenience this legend is reprinted as a separate booklet in a sleeve within the back cover of the book (Mucina & Rutherford 2006a). Geographical names approved by the South African Geographical Names Council and gazetted before 1 January 2005 have been used.

Associated text and electronic files

This Atlas does not immediately serve the purpose of informing the user about the full nature of the mapping units. This is the task of the interpretative manual (Mucina & Rutherford 2006a), which, among other aspects, features the detailed description of each mapping unit. This ‘meta-information’ about the mapping units also included a compact disc (Mucina & Rutherford 2006b), containing the GIS (Geographical Information Systems) shape files of the map in a sleeve on the inside front cov-
er of the book (Mucina & Rutherford 2006a). Later this book and the new version of the CD were released in a double-CD format (Mucina & Rutherford 2010). The CD featuring the vegetation map shape files also contains ArcView, ArcGIS and ArcExplorer mapping projects, and software (ArcReader and ArcExplorer) suitable for viewing the map on a computer. This is a particularly valuable and effective means of zooming in to view very small polygons and intricately divided vegetation types that are difficult to see on the printed maps, as well as for overlaying personal GPS positions and other spatial data on the map. Some attributes are displayed when clicking on a polygon in the electronic map, including the code used in the book; name of the vegetation type; conservation target; percentage of the vegetation type that is protected; percentage of the vegetation type that is unaltered; conservation status and protection status of the vegetation type; area in square kilometres of the vegetation type; area in square kilometres of the specific polygon; code without space used on the map; sort order (using numbers for biome, bioregion and vegetation type); codes and names for biome, group and bioregion; and IDs for vegetation type, biome, group and bioregion used for linking data tables.

For display purposes, the vegetation map was published in wall-poster format (four separate sheets in 1:1 000 000 scale) in two editions (Mucina et al. 2005, 2007). The maps of biomes (Figure 1) and bioregions (Figure 2) were produced, appropriately, at much less detailed scales and are to be found in Chapter 3 of Rutherford et al. (2006a).

Credits

Credits of work underpinning the mapping efforts are detailed in the individual major chapters (Chapter 4 through Chapter 14, and with organisation affiliations in Chapter 1 of Mucina & Rutherford (2006a)) and are therefore not repeated here. The order of the editors and the contributing authors follows the volume of contribution towards the definition of the vegetation mapping concepts and the extent of their mapping area. It follows strictly the same order as in Chapter 18 of Vegetation of South Africa, Lesotho and Swaziland. Detailed credits are featured in the relevant chapters of the Vegetation of South Africa, Lesotho and Swaziland. Ilze Boonzaaier (Centre for Geographic Analysis, Stellenbosch Univer-
sity) joined the original team and was instrumental in cartography of the new Cape Peninsula map. The editing and compilation of the material included in this Atlas was undertaken by the original three editors of the VegMap (L. Mucina, M.C. Rutherford and L.W. Powrie), who were joined by the cartographic editors, J.H. van der Merwe and A. van Niekerk (Centre for Geographic Analysis, Stellenbosch University). A.R. Rebelo, N. Helme & P.M. Holmes are the authors of the new concept of the unit ‘FPh 11 Peninsula Shale Fynbos’. Small adjustments to the vegetation unit borders in the Milnerton estuary were done by L. Mucina (based on fieldwork and using Google Earth coverage: http://earth.google.com).

Citation suggestions

**Full citation:**


**Citation for vegetation map of City of Cape Town:**

**Figure 2** Bioregions of South Africa, Lesotho and Swaziland.
References


Maps

Index map
Legend to the Vegetation Units and Topographical Features

**FYNBOS BIOME**

**Sandstone Fynbos**
- FFs 1: Bokkeveld Sandstone Fynbos
- FFs 2: Graafwater Sandstone Fynbos
- FFs 3: Ollants Sandstone Fynbos
- FFs 4: Cederberg Sandstone Fynbos
- FFs 5: Winterhoek Sandstone Fynbos
- FFs 6: Piketberg Sandstone Fynbos
- FFs 7: North Hex Sandstone Fynbos
- FFs 8: South Hex Sandstone Fynbos
- FFs 9: Peninsula Sandstone Fynbos
- FFs 10: Hawequas Sandstone Fynbos
- FFs 11: Kogelberg Sandstone Fynbos
- FFs 12: Overberg Sandstone Fynbos
- FFs 13: North Sonderend Sandstone Fynbos
- FFs 14: South Sonderend Sandstone Fynbos
- FFs 15: North Langeberg Sandstone Fynbos
- FFs 16: South Langeberg Sandstone Fynbos
- FFs 17: Potberg Sandstone Fynbos
- FFs 18: North Outerinqua Sandstone Fynbos
- FFs 19: South Outerinqua Sandstone Fynbos
- FFs 20: Tsitsikamma Sandstone Fynbos
- FFs 21: North Rooiember Sandstone Fynbos

**Quartzite Fynbos**
- FFq 1: Stinkfonteinberge Quartzite Fynbos
- FFq 2: Swartrivierskamps Quartzite Fynbos
- FFq 3: Matjesfontein Quartzite Fynbos
- FFq 4: Breede Quartzite Fynbos
- FFq 5: Groothoek Quartzite Fynbos
- FFq 6: Suurivier Quartzite Fynbos

**Sand Fynbos**
- FFd 1: Namaqualand Sand Fynbos
- FFd 2: Leipoldtville Sand Fynbos
- FFd 3: Hopefield Sand Fynbos
- FFd 4: Atlantis Sand Fynbos
### DESERT BIOME

#### Namib Desert Bioregion
- Dn 1 Alexander Bay Coastal Duneveld
- Dn 2 Namib Lichen Fields
- Dn 3 Western Gariep Plains Desert
- Dn 4 Western Gariep Lowland Desert
- Dn 5 Western Gariep Hills Desert

#### Gariep Desert Bioregion
- Dg 1 Noms Mountain Desert
- Dg 2 Richtersberg Mountain Desert
- Dg 3 Richtersveld Sheet Wash Desert
- Dg 4 Kwaggaung Mountain Desert
- Dg 5 Kahams Mountain Desert
- Dg 6 Helskloof Canyon Desert
- Dg 7 Northern Nababiepsberge Mountain Desert
- Dg 8 Southern Nababiepsberge Mountain Desert
- Dg 9 Eastern Gariep Plains Desert
- Dg 10 Eastern Gariep Rocky Desert

#### Trans-Escarpment Succulent Karoo Bioregion
- SKt 1 Western Bushmanland Klipveld
- SKt 2 Hantam Karoo
- SKt 3 Roggeveld Karoo

#### Rainshadow Valley Karoo Bioregion
- SKv 1 Doringrivier Quartzite Karoo
- SKv 2 Swartruggens Quartzite Karoo
- SKv 3 Agter-Sederberg Shrubland
- SKv 4 Tanqua Escarpment Shrubland
- SKv 5 Tanqua Karoo
- SKv 6 Koedoesberge-Moordenaars Karoo
- SKv 7 Robertson Karoo
- SKv 8 Western Little Karoo
- SKv 9 Western Gwarrieveld
- SKv 10 Little Karoo Quartz Vygieveld
- SKv 11 Eastern Little Karoo
- SKv 12 Willowmore Gwarrieveld

### NAMA-KAROO BIOME

#### Bushmanland Bioregion
- NKB 1 Lower Gariep Broken Veld
- NKB 2 Blouputs Karroid Thornveld
- NKB 3 Bushmanland Arid Grassland
- NKB 4 Bushmanland Sandy Grassland
- NKB 5 Kalahari Karroid Shrubland
- NKB 6 Bushmanland Basin Shrubland
**Upper Karoo Bioregion**
- NKu 1 Western Upper Karoo
- NKu 2 Upper Karoo Hardeveld
- NKu 3 Northern Upper Karoo
- NKu 4 Eastern Upper Karoo

**Lower Karoo Bioregion**
- NKL 1 Gamka Karoo
- NKL 2 Eastern Lower Karoo
- NKL 3 Lower Karoo Gwarieveld
- NKL 4 Albany Broken Veld

**Mesic Highveld Grassland Bioregion**
- Gm 1 Zastron Moist Grassland
- Gm 2 Senqu Montane Shrubland
- Gm 3 Eastern Free State Clay Grassland
- Gm 4 Eastern Free State Sandy Grassland
- Gm 5 Basotho Montane Shrubland
- Gm 6 Frankfort Highveld Grassland
- Gm 7 Northern Free State Shrubland
- Gm 8 Soweto Highveld Grassland
- Gm 9 Tsakane Clay Grassland
- Gm 10 Egoë Granite Grassland
- Gm 11 Rand Highveld Grassland
- Gm 12 Eastern Highveld Grassland
- Gm 13 Amersfoort Highveld Clay Grassland
- Gm 14 Wakkerstroom Montane Grassland
- Gm 15 Paulpietersburg Moist Grassland
- Gm 16 KaNgwane Montane Grassland
- Gm 17 Barberton Montane Grassland
- Gm 18 Lydenburg Montane Grassland
- Gm 19 Sekhukhune Montane Grassland
- Gm 20 Leolo Summit Sourveld
- Gm 21 Lydenburg Thornveld
- Gm 22 Northern Escarpment Dolomite Grassland
- Gm 23 Northern Escarpment Quartzite Sourveld
- Gm 24 Northern Escarpment Afromontane Fynbos
- Gm 25 Woodbush Granite Grassland
- Gm 26 Wolker Dolomite Grassland
- Gm 27 Strydoort Summit Sourveld
- Gm 28 Soutpansberg Summit Sourveld
- Gm 29 Waterberg-Magaliesberg Summit Sourveld

**GRASSLAND BIOME**

**Drakensberg Grassland Bioregion**
- Gd 1 Amathole Montane Grassland
- Gd 2 Amathole Mistbelt Grassland
- Gd 3 Stormberg Plateau Grassland
- Gd 4 Southern Drakensberg Highland Grassland
- Gd 5 Northern Drakensberg Highland Grassland
- Gd 6 Drakensberg-Amathole Afromontane Fynbos
- Gd 7 uKhahlamba Basalt Grassland
- Gd 8 Lesotho Highland Basalt Grassland
- Gd 9 Western Lesotho Basalt Shrubland
- Gd 10 Drakensberg Afroalpine Heathland

**Dry Highveld Grassland Bioregion**
- Gh 1 Karoo Escarpment Grassland
- Gh 2 Aliwal North Dry Grassland
- Gh 3 Xhariep Karroid Grassland
- Gh 4 Besemkaree Koppies Shrubland
- Gh 5 Bloemfontein Dry Grassland
- Gh 6 Central Free State Grassland
- Gh 7 Winburg Grassy Shrubland
- Gh 8 Bloemfontein Karroid Shrubland
- Gh 9 Western Free State Clay Grassland

**Vaal-Vet Sandy Grassland**
- Gh 10 Vaal-Vet Sandy Grassland

**Vredefort Dome Granite Grassland**
- Gh 11 Vredefort Dome Granite Grassland

**Vaal Reefs Dolomite Sinkhole Woodland**
- Gh 12 Vaal Reefs Dolomite Sinkhole Woodland

**Klerksdorp Thornveld**
- Gh 13 Klerksdorp Thornveld

**Western Highveld Sandy Grassland**
- Gh 14 Western Highveld Sandy Grassland

**Carletonville Dolomite Grassland**
- Gh 15 Carletonville Dolomite Grassland

**Eastern Free State Clay Grassland**
- Gm 3 Eastern Free State Clay Grassland

**Eastern Free State Sandy Grassland**
- Gm 4 Eastern Free State Sandy Grassland

**Basotho Montane Shrubland**
- Gm 5 Basotho Montane Shrubland

**Frankfort Highveld Grassland**
- Gm 6 Frankfort Highveld Grassland

**Northern Free State Shrubland**
- Gm 7 Northern Free State Shrubland

**Zastron Moist Grassland**
- Gm 8 Zastron Moist Grassland

**Tsakane Clay Grassland**
- Gm 9 Tsakane Clay Grassland

**Egoë Granite Grassland**
- Gm 10 Egoë Granite Grassland

**Rand Highveld Grassland**
- Gm 11 Rand Highveld Grassland

**Eastern Highveld Grassland**
- Gm 12 Eastern Highveld Grassland

**Amersfoort Highveld Clay Grassland**
- Gm 13 Amersfoort Highveld Clay Grassland

**Wakkerstroom Montane Grassland**
- Gm 14 Wakkerstroom Montane Grassland

**Paulpietersburg Moist Grassland**
- Gm 15 Paulpietersburg Moist Grassland

**KaNgwane Montane Grassland**
- Gm 16 KaNgwane Montane Grassland

**Barberton Montane Grassland**
- Gm 17 Barberton Montane Grassland

**Lydenburg Montane Grassland**
- Gm 18 Lydenburg Montane Grassland

**Sekhukhune Montane Grassland**
- Gm 19 Sekhukhune Montane Grassland

**Leolo Summit Sourveld**
- Gm 20 Leolo Summit Sourveld

**Lydenburg Thornveld**
- Gm 21 Lydenburg Thornveld

**Northern Escarpment Dolomite Grassland**
- Gm 22 Northern Escarpment Dolomite Grassland

**Northern Escarpment Quartzite Sourveld**
- Gm 23 Northern Escarpment Quartzite Sourveld

**Northern Escarpment Afromontane Fynbos**
- Gm 24 Northern Escarpment Afromontane Fynbos

**Woodbush Granite Grassland**
- Gm 25 Woodbush Granite Grassland

**Wolker Dolomite Grassland**
- Gm 26 Wolker Dolomite Grassland

**Strydoort Summit Sourveld**
- Gm 27 Strydoort Summit Sourveld

**Soutpansberg Summit Sourveld**
- Gm 28 Soutpansberg Summit Sourveld

**Waterberg-Magaliesberg Summit Sourveld**
- Gm 29 Waterberg-Magaliesberg Summit Sourveld
FORESTS

Zonal & Intrazonal Forests

<table>
<thead>
<tr>
<th>FOz 1</th>
<th>FOz 2</th>
<th>FOz 3</th>
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<td>Northern Mistbelt Forest</td>
<td>Scarp Forest</td>
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<td>Northern Coastal Forest</td>
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Azonal Forests

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<td>Lowveld Riverine Forest</td>
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AZONAL VEGETATION

Estuarine Vegetation

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Seashore Vegetation

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<td>Namaqualand Seashore Vegetation</td>
<td>Cape Seashore Vegetation</td>
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Eastern Strandveld

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<td>Subtropical Dune Thicket</td>
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Alluvial Vegetation

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<td>Fynbos Riparian Vegetation</td>
<td>Cape Lowland Alluvial Vegetation</td>
<td>Lower Gariep Alluvial Vegetation</td>
<td>Upper Gariep Alluvial Vegetation</td>
<td>Highveld Alluvial Vegetation</td>
<td>Albany Alluvial Vegetation</td>
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Freshwater Wetlands

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<td>Cape Lowland Freshwater Wetlands</td>
<td>Cape Vernal Pools</td>
<td>Eastern Temperate Freshwater Wetlands</td>
<td>Drakensberg Wetlands</td>
<td>Lesotho Mires</td>
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Inland Saline Vegetation

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<td>Namaqualand Salt Pans</td>
<td>Southern Kalahari Mekgacha</td>
<td>Southern Kalahari Salt Pans</td>
<td>Bushmanland Vloere</td>
<td>Southern Karoo Riviere</td>
<td>Tanqua Wash Riviere</td>
<td>Muscadel Riviere</td>
<td>Cape Inland Salt Pans</td>
<td>Highveld Salt Pans</td>
<td>Subtropical Salt Pans</td>
</tr>
</tbody>
</table>
Mr Leslie W. Powrie

Leslie Powrie was born in Krugersdorp on 23 February 1954. He is currently based at the South African National Biodiversity Institute (SANBI) at the Kirstenbosch Research Centre in Cape Town. He is a leader in the indexing (transcription) of images of southern African biodiversity specimens, field notes and collecting registers to make the images searchable online. He obtained his MSc in botany (chemical taxonomy of some members of the Proteaceae) from the University of Cape Town. He has been an information technology adviser for more than ten years, enabling many of his colleagues to use technology more effectively in their research and research products, including maps, graphs, tables, analyses, spellcheckers, and so forth. He has also managed the technological aspects of the National Vegetation Map of South Africa, Lesotho and Swaziland <http://www.sanbi.org.za/node/4309>, and has contributed extensively to the book describing the vegetation <http://www.sanbi.org.za/node/5416> as well as the wall map <http://www.sanbi.org.za/node/5415>. He manages the National Vegetation Database of South Africa <http://www.sanbi.org.za/node/5313>. He has been with SANBI in its former identities as National Botanical Gardens (NBG), Botanical Research Institute (BRI) and National Botanical Institute (NBI) since 1985, and has been involved in bioclimatic modelling, ecology, stress ecology, landscape ecology, threatened ecosystems, degradation studies and other research work, botany and education at the Lowveld National Botanical Garden, scientist in the Stress Ecology Research Programme and managing Information Technology for SANBI, Cape Town. His main employment history prior to joining the NBG includes work in biochemical research at the medical school of Stellenbosch University, teaching at Herzlia Middle School in Cape Town and horticultural research and development at Pratley Perlite Mining Company in Krugersdorp.

Prof. Adriaan van Niekerk

Adriaan van Niekerk, born on 29 November 1970 in Cape Town, is an Assistant Professor at the Department of Geography and Environmental Studies, Stellenbosch University (SU), where he has been a lecturer since obtaining his MSc degree (cum laude) in 1997. During his early academic career he focussed on the development and introduction of undergraduate Geographical Information Technology (GIT) courses, including satellite remote sensing and computer-based cartography. His early research interests included the development of web-based mapping and spatial analysis applications. After the completion of his PhD research in 2008, he was appointed as the Director of the Centre for Geographical Analysis (CGA) at SU where he carried out various research and consulting projects for government and private institutions. Currently Prof. van Niekerk’s main research interest is the development of Geographical Information Systems (GIS) and remote sensing (earth observation) techniques to support decisions concerning land use, bio-geographical, environmental and socio-economic problems. He is the project leader of a wide range of research activities involving spatial modelling, geographical object-based image and terrain analysis, as well as land cover and vegetation mapping. Prof. van Niekerk also has a keen interest in cartography and has produced and published many wall maps and atlases. He is a registered professional Geographical Information Science (GISC) practitioner and an active member (and former secretary) of the GeoSpatial Information Society of South Africa (GISSA). He chairs the South African Council for Natural Scientific Professions’ (SACNASP) GeoSpatial Science professional advisory committee.

Prof. Johannes H. van der Merwe

Hannes van der Merwe, born on 24 March 1952 in Ceres, South Africa, is a South African citizen. He received his education in South Africa and obtained scientific degrees and qualifications at Stellenbosch University, spent a postdoctoral period at the University of Leuven in Belgium, served as lecturer at Fort Hare University and served as cartographer, lecturer, professor and head of department in Geography and Environmental Studies at Stellenbosch University in South Africa. He was part-time director and chairman of the board of the Centre for Geographical Analysis at Stellenbosch University. Prof. van der Merwe is a member of IAIAsa and has served on the board of the Society of South African Geographers (SSAG) and as evaluation panel member of the National Research Foundation (NRF), Journal of South African Geographers, Acta Academica and Water SA. He is a rated scientist and has engaged in postgraduate teaching and supervision, research and publication in a range of geographical fields. These include cartography, geomorphology, environmental analysis, GIS, spatial and statistical analysis, research methods, land use and environmental analysis and management, regional management and planning problems, spatial information handling, mapping and analysis, rural and ecotourism potential, management and impact. He has acted as cartographer and editor of atlases, among which the National Atlas of South West Africa (Namibia), Coastal Sensitivity Atlas of Southern Africa, Reader’s Digest Atlas of Southern Africa, Vegetation Atlas of South Africa, Linguistic Atlas of South Africa, Kagiso Junior and Senior Desk Atlas and several published map series. At present he pursues research in environmental analysis and management and the application of spatial analytical technology.
This booklet is a product of the National Vegetation Mapping Project that gave South Africa a comprehensive classification and description of more than 400 vegetation types and a new, modern vegetation map. Chapter 18 of the manual to the vegetation map is republished here in an atlas format for use in the field. The Field Atlas features the vegetation of South Africa (excluding the sub-Antarctic islands), Lesotho and Swaziland on 46 sheets. As a new addition, an original detailed map of the vegetation of the Cape Peninsula has been added to mark the direction of further development of fine-scale vegetation mapping in South Africa. The Field Atlas is printed on water-proof paper to make it fit to withstand adverse weather conditions during field work.
Vegetation Map of the Cape Peninsula

(Original Cape, South Africa)

Rebelo AG', Low AB', Holmes PM', Euston-Brown DWM', Macina L'4

2014

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Projection: Albers
Central Meridian: 18.5
Standard Parallel 1: 32
Standard Parallel 2: 42
Geographic Coordinate System: WGS. 1984
Source of data: 1:50,000 CAMP Plan data coverage

Legend:
- Towns
- National road
- Main road
- Secondary road
- Protected area boundary
- River
- 20 m contour

Key:
- FFb: Peninsula Sandstone Fynbos
- FFt: Cape Flats Sand Fynbos
- FFh: Hangklip Sand Fynbos
- FFh: Peninsula Shale Fynbos
- FFh: Peninsula Granite Fynbos
- FFh: Swartland Shale Renosterveld
- FFh: Peninsula Shale Renosterveld
- FFh: Swartland Granite Renosterveld
- FFh: Swartland Shrub Renosterveld
- FFh: Cape Flats Dune Strandveld
- FFh: Swartland Dune Renosterveld
- FFh: Southern and Temperate Forest
- AZb: Cape Estuarine Self-shores
- AZb: Cape Estuarine Wetland
- AZb: Cape Estuarine Vegetation
- AZb: Cape Lowland Freshwater Wetland
- W1: Freshwater Lakes
- WK: Reclaimed Land

South Africa

Cape Peninsula

Table Bay

Green Point

Seapoint

Camps Bay

Muizenburg

Koketji

Fish Hoek

Noordhoek

Scarborough

Simon's Town

Menskoppie

Maitland

Table Bay

Cape Point

Cape of Good Hope

W1

WK

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