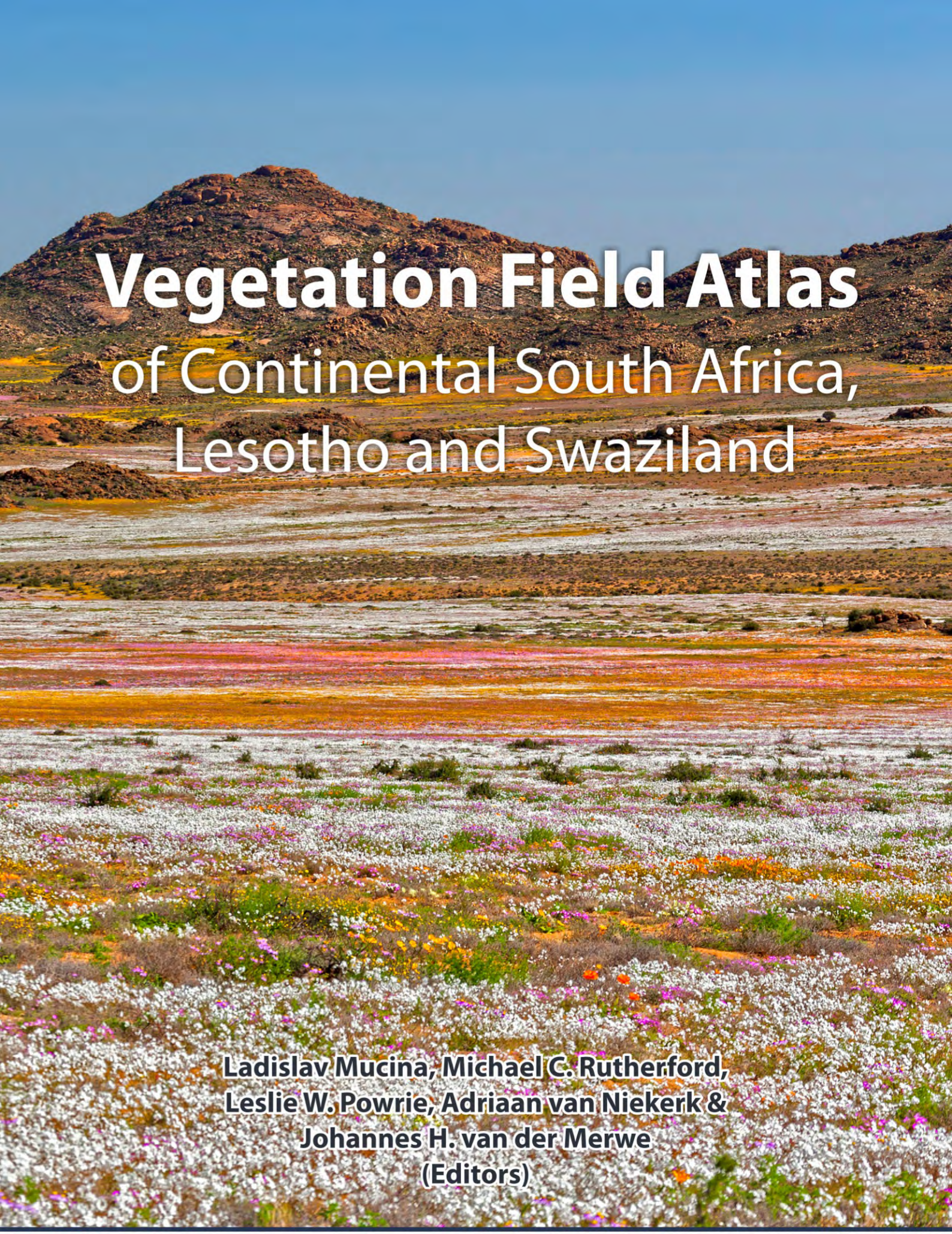

Vegetation Field Atlas of Continental South Africa, Lesotho and Swaziland

Ladislav Mucina, Michael C. Rutherford,
Leslie W. Powrie, Adriaan van Niekerk &
Johannes H. van der Merwe
(Editors)

Strelitzia 33

Prof. Ladislav Mucina

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.

Dr Michael C. Rutherford

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.

STRELITZIA 33

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SANBI
Biodiversity for Life
South African National Biodiversity Institute

Pretoria
2014

STRELITZIA

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 Mucina[1,2,3,4,5], Michael C. Rutherford[2,4], Leslie W. Powrie[4], Adriaan van Niekerk[5] & Johannes H. van der Merwe[5] (Editors)

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* Deceased

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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

Table of Contents

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/m^2 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-

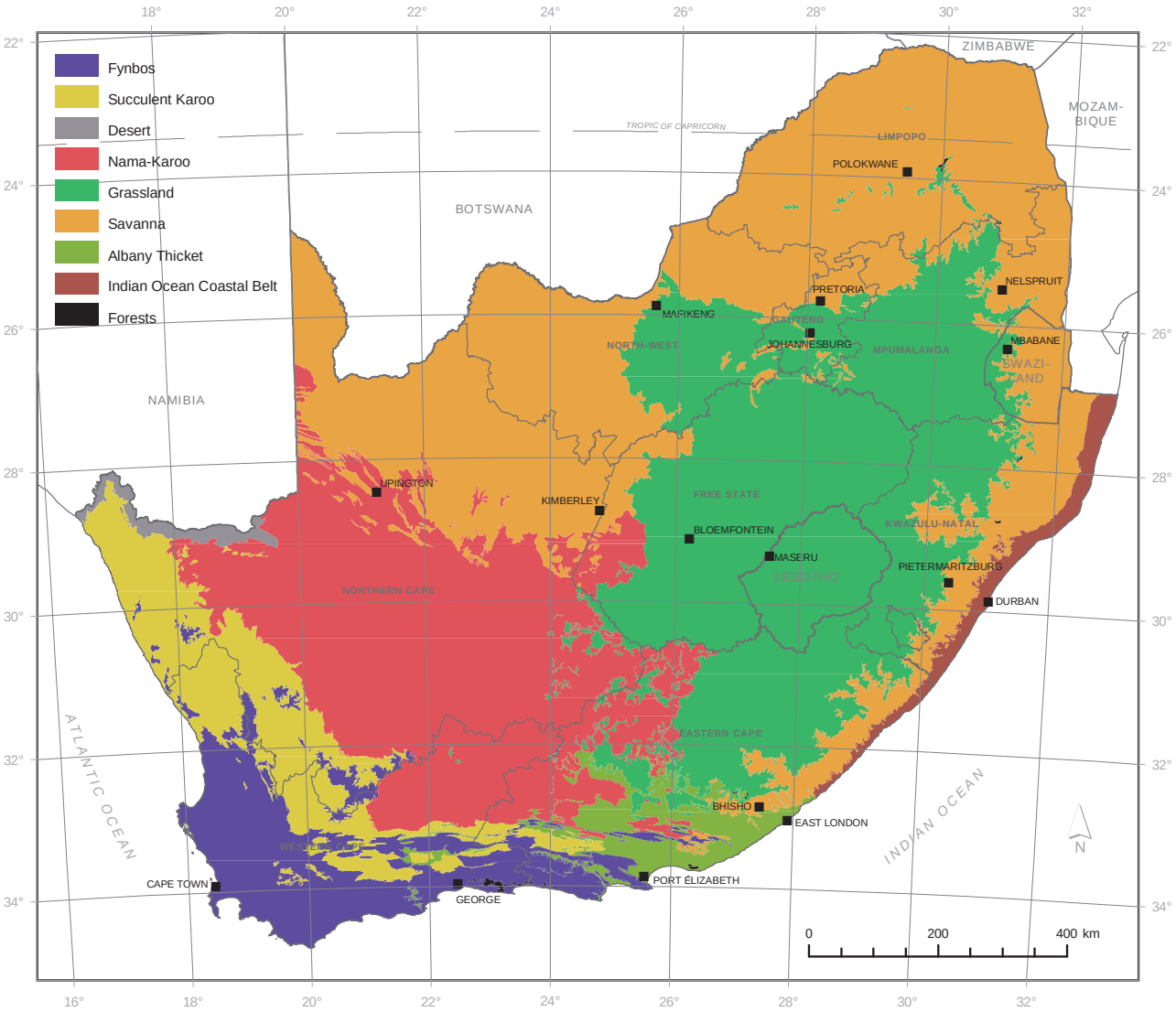

Figure 1 Biomes of South Africa, Lesotho and Swaziland.

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 'FFh 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:

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Citation for vegetation map of City of Cape Town:

REBELO, A.G., LOW, A.B., HOLMES, P.M., EUSTON-BROWN, D.I.W. & MUCINA, L. 2014. Vegetation map of the City of Cape Town (Western Cape, South Africa). In L. Mucina, M.C. Rutherford, L.W. Powrie, A. van Niekerk & J.H. van der Merwe (Eds), Vegetation Field Atlas of Continental South Africa, Lesotho and Swaziland. *Strelitzia* 33. South African National Biodiversity Institute, Pretoria.

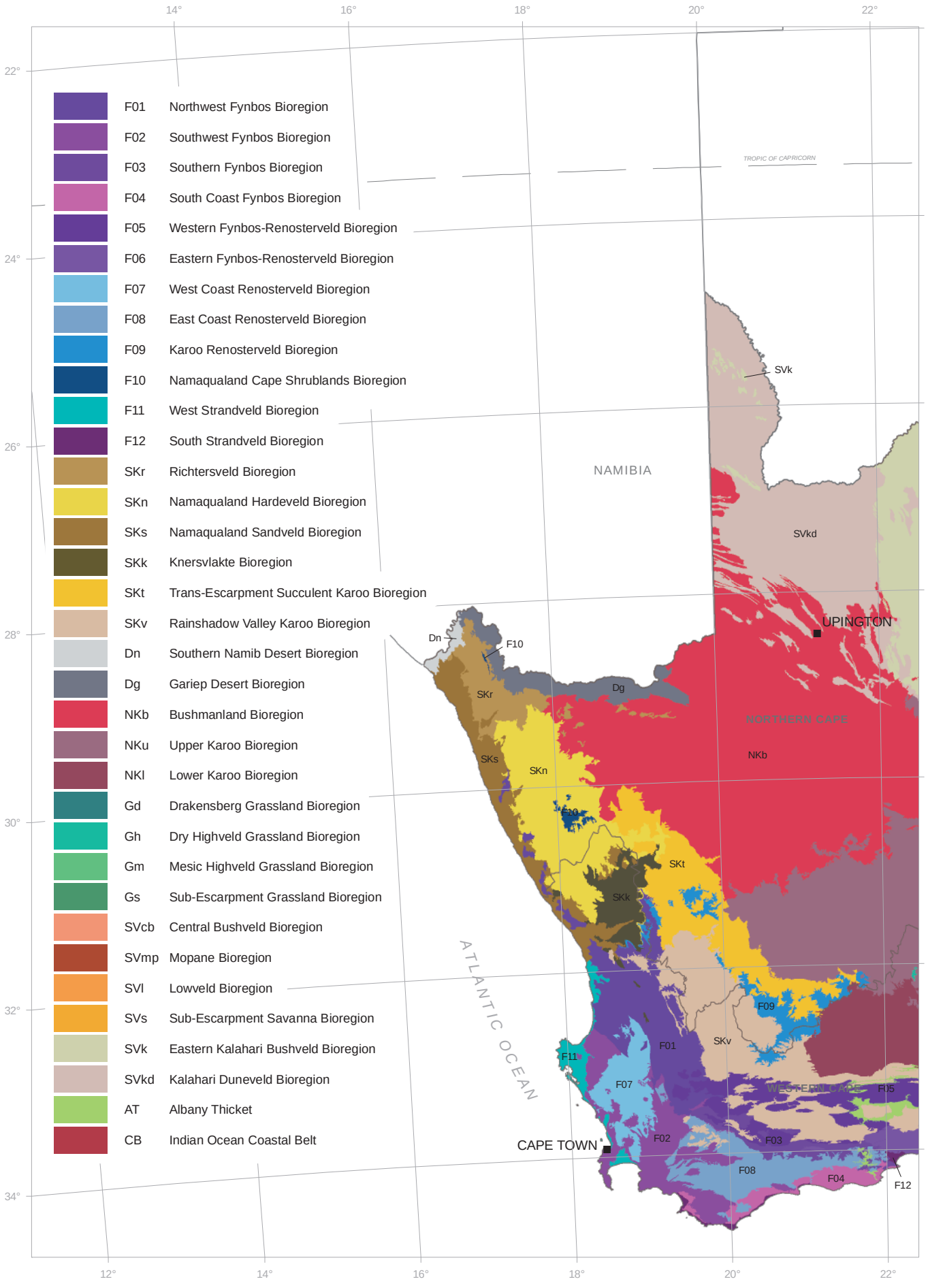
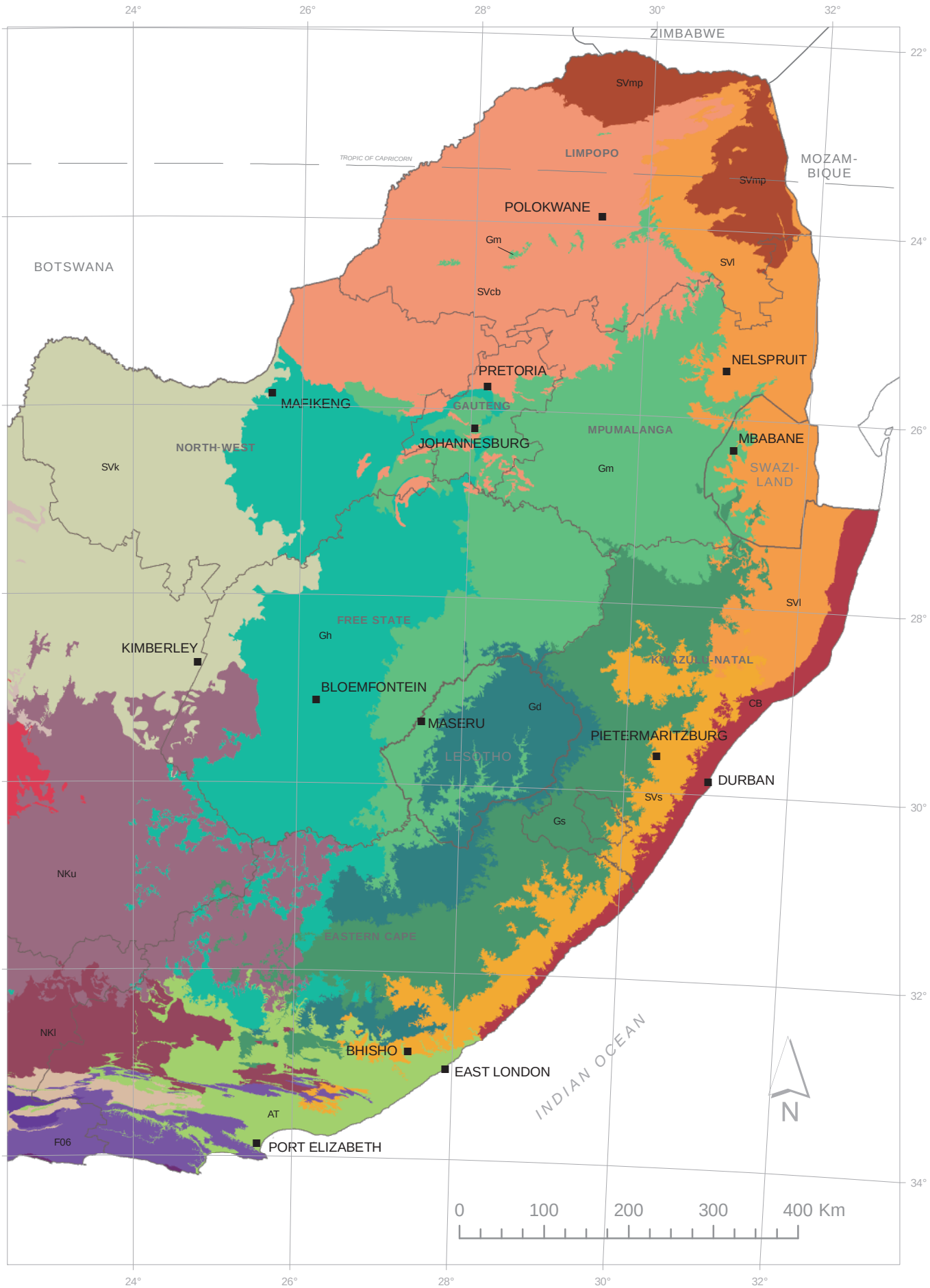


Figure 2 Bioregions of South Africa, Lesotho and Swaziland.


24°
26°
28°
30°
32°
22°
24°
26°
28°
30°
32°
34°
ZIMBABWE
MOZAM-
BIQUE
BOTSWANA
TROPIC OF CAPRICORN
LIMPOPO
POLOKWANE
NORTH-WEST
MAFIKENG
PRETORIA
GAUTENG
JOHANNESBURG
MPUMALANGA
NELSPRUIT
MBABANE
SWAZI-
LAND
FREE STATE
KIMBERLEY
BLOEMFONTEIN
MASERU
LESOTHO
KWAZULU-NATAL
PIETERMARITZBURG
DURBAN
EASTERN CAPE
BHISHO
EAST LONDON
PORT ELIZABETH
INDIAN OCEAN
SVmp
Gm
SVl
SVcb
SVk
Gh
Gd
CB
SVs
Gs
NKu
NKl
AT
F06
N
0
100
200
300
400 Km

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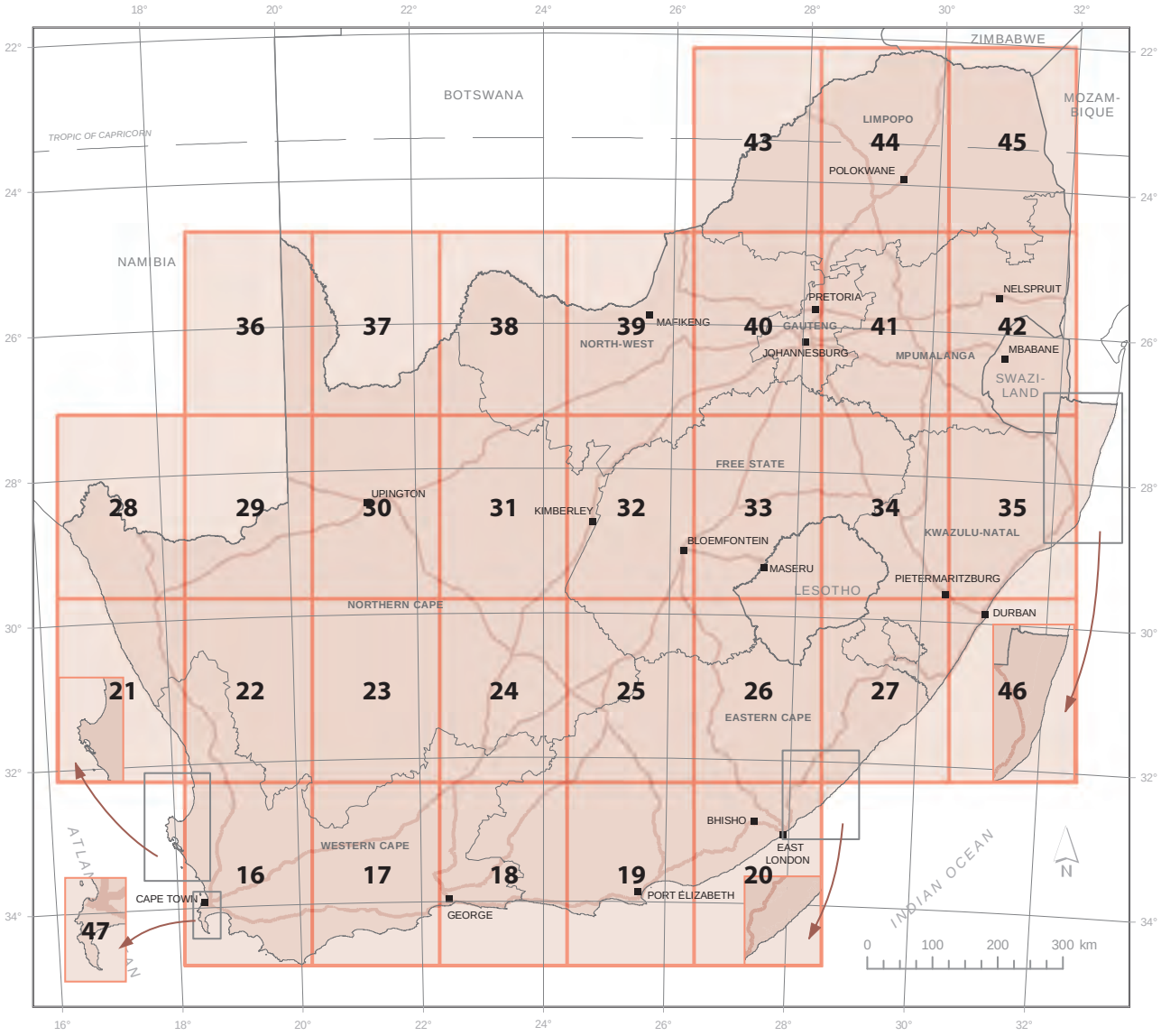
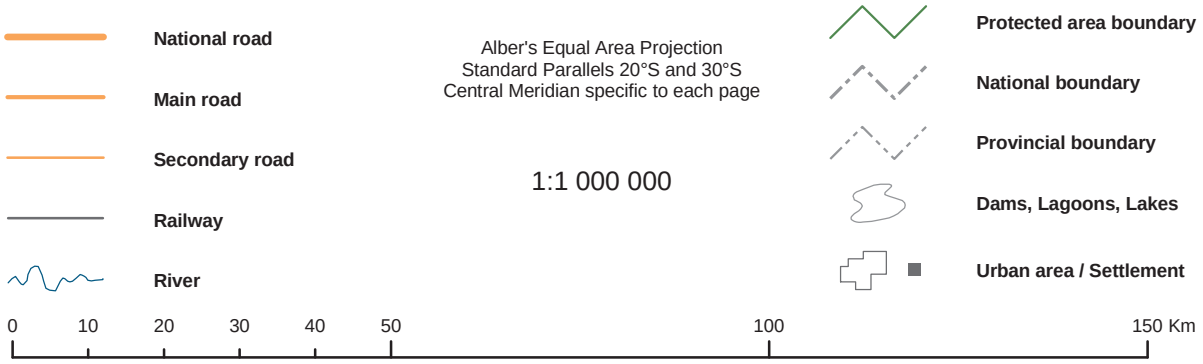
Maps

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 Olifants 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 Outeniqua Sandstone Fynbos
- FFs 19 South Outeniqua Sandstone Fynbos
- FFs 20 Tsitsikamma Sandstone Fynbos
- FFs 21 North Rooiberg Sandstone Fynbos
- FFs 22 South Rooiberg Sandstone Fynbos
- FFs 23 North Swartberg Sandstone Fynbos
- FFs 24 South Swartberg Sandstone Fynbos
- FFs 25 North Kammanassie Sandstone Fynbos
- FFs 26 South Kammanassie Sandstone Fynbos
- FFs 27 Kouga Sandstone Fynbos
- FFs 28 Kouga Grassy Sandstone Fynbos
- FFs 29 Algoa Sandstone Fynbos
- FFs 30 Western Altimontane Sandstone Fynbos
- FFs 31 Swartberg Altimontane Sandstone Fynbos

Quartzite Fynbos

- FFq 1 Stinkfonteinberge Quartzite Fynbos
- FFq 2 Swartruggens Quartzite Fynbos
- FFq 3 Matjiesfontein Quartzite Fynbos
- FFq 4 Breede Quartzite Fynbos
- FFq 5 Grootrivier Quartzite Fynbos
- FFq 6 Suurberg Quartzite Fynbos

Sand Fynbos

- FFd 1 Namaqualand Sand Fynbos
- FFd 2 Leipoldtville Sand Fynbos
- FFd 3 Hopefield Sand Fynbos
- FFd 4 Atlantis Sand Fynbos

FFd 5 Cape Flats Sand Fynbos
FFd 6 Hangklip Sand Fynbos
FFd 7 Agulhas Sand Fynbos
FFd 8 Breede Sand Fynbos
FFd 9 Albertinia Sand Fynbos
FFd 10 Knysna Sand Fynbos
FFd 11 Southern Cape Dune Fynbos

Shale Fynbos

FFh 1 Kouebokkeveld Shale Fynbos
FFh 2 Matjiesfontein Shale Fynbos
FFh 3 Swartberg Shale Fynbos
FFh 4 Breede Shale Fynbos
FFh 5 Cape Winelands Shale Fynbos
FFh 6 Elgin Shale Fynbos
FFh 7 Greyton Shale Fynbos
FFh 8 Montagu Shale Fynbos
FFh 9 Garden Route Shale Fynbos
FFh 10 Suurberg Shale Fynbos

Shale Band Vegetation

FFb 1 Northern Inland Shale Band Vegetation
FFb 2 Western Coastal Shale Band Vegetation
FFb 3 Central Inland Shale Band Vegetation
FFb 4 Central Coastal Shale Band Vegetation
FFb 5 Eastern Inland Shale Band Vegetation
FFb 6 Eastern Coastal Shale Band Vegetation

Conglomerate Fynbos

FFt 1 Kango Conglomerate Fynbos
FFt 2 Loerie Conglomerate Fynbos

Alluvium Fynbos

FFa 1 Kouebokkeveld Alluvium Fynbos
FFa 2 Breede Alluvium Fynbos
FFa 3 Swartland Alluvium Fynbos
FFa 4 Lourensford Alluvium Fynbos

Granite Fynbos

FFg 1 Kamiesberg Granite Fynbos
FFg 2 Boland Granite Fynbos
FFg 3 Peninsula Granite Fynbos
FFg 4 Robertson Granite Fynbos
FFg 5 Garden Route Granite Fynbos

Silcrete Fynbos

FFc 1 Swellendam Silcrete Fynbos

Ferricrete Fynbos

FFf 1 Elim Ferricrete Fynbos
FFf 2 Potberg Ferricrete Fynbos

Limestone Fynbos

FFl 1 Agulhas Limestone Fynbos
FFl 2 De Hoop Limestone Fynbos
FFl 3 Canca Limestone Fynbos

Shale Renosterveld

FRs 1 Vanrhynsdorp Shale Renosterveld
FRs 2 Nieuwoudtville Shale Renosterveld
FRs 3 Roggeveld Shale Renosterveld
FRs 4 Ceres Shale Renosterveld
FRs 5 Central Mountain Shale Renosterveld
FRs 6 Matjiesfontein Shale Renosterveld
FRs 7 Montagu Shale Renosterveld
FRs 8 Breede Shale Renosterveld
FRs 9 Swartland Shale Renosterveld
FRs 10 Peninsula Shale Renosterveld
FRs 11 Western Rûens Shale Renosterveld
FRs 12 Central Rûens Shale Renosterveld
FRs 13 Eastern Rûens Shale Renosterveld
FRs 14 Mossel Bay Shale Renosterveld
FRs 15 Swartberg Shale Renosterveld

FRs 16 Uniondale Shale Renosterveld
FRs 17 Langkloof Shale Renosterveld
FRs 18 Baviaanskloof Shale Renosterveld
FRs 19 Humansdorp Shale Renosterveld

Granite Renosterveld

FRg 1 Namaqualand Granite Renosterveld
FRg 2 Swartland Granite Renosterveld
FRg 3 Robertson Granite Renosterveld

Dolerite Renosterveld

FRd 1 Nieuwoudtville-Roggeveld Dolerite Renosterveld
FRd 2 Hantam Plateau Dolerite Renosterveld

Alluvium Renosterveld

FRa 1 Breede Alluvium Renosterveld
FRa 2 Swartland Alluvium Renosterveld

Silcrete Renosterveld

FRc 1 Swartland Silcrete Renosterveld
FRc 2 Rûens Silcrete Renosterveld

Limestone Renosterveld

FRl 1 Kango Limestone Renosterveld

Western Strandveld

FS 1 Lambert's Bay Strandveld
FS 2 Saldanha Granite Strandveld
FS 3 Saldanha Flats Strandveld
FS 4 Saldanha Limestone Strandveld
FS 5 Langebaan Dune Strandveld
FS 6 Cape Flats Dune Strandveld
FS 7 Overberg Dune Strandveld
FS 8 Blombos Strandveld
FS 9 Groot Brak Dune Strandveld

SUCCULENT KAROO BIOME

Richtersveld Bioregion Bioregion

SKr 1 Central Richtersveld Mountain Shrubland
SKr 2 Upper Annisvlakte Succulent Shrubland
SKr 3 Goariep Mountain Succulent Shrubland
SKr 4 Lekkersing Succulent Shrubland
SKr 5 Vyftienmyl se Berge Succulent Shrubland
SKr 6 Stinkfonteinberge Eastern Apron Shrubland
SKr 7 Northern Richtersveld Scorpionstailveld
SKr 8 Rosyntjieberg Succulent Shrubland
SKr 9 Tatasberg Mountain Succulent Shrubland
SKr 10 Die Plate Succulent Shrubland
SKr 11 Rooiberg Quartz Vygieveld
SKr 12 Kosiesberg Succulent Shrubland
SKr 13 Southern Richtersveld Scorpionstailveld
SKr 14 Southern Richtersveld Inselberg Shrubland
SKr 15 Anenous Plateau Shrubland
SKr 16 Umdaus Mountains Succulent Shrubland
SKr 17 Eenriet Plains Succulent Shrubland
SKr 18 Bushmanland Inselberg Shrubland
SKr 19 Aggeneys Gravel Vygieveld

Namaqualand Hardeveld Bioregion

SKn 1 Namaqualand Klipkoppe Shrubland
SKn 2 Namaqualand Shale Shrubland
SKn 3 Namaqualand Blomveld
SKn 4 Namaqualand Heuweltjieveld
SKn 5 Platbakkies Succulent Shrubland
SKn 6 Kamiesberg Mountains Shrubland

Namaqualand Sandveld Bioregion

SKs 1 Richtersveld Coastal Duneveld
SKs 2 Northern Richtersveld Yellow Duneveld
SKs 3 Southern Richtersveld Yellow Duneveld
SKs 4 Richtersveld Sandy Coastal Scorpionstailveld
SKs 5 Richtersveld Red Duneveld

SKs 6 Oograbies Plains Sandy Grassland
SKs 7 Namaqualand Strandveld
SKs 8 Namaqualand Coastal Duneveld
SKs 9 Namaqualand Inland Duneveld
SKs 10 Riethuis-Wallekraal Quartz Vygieveld
SKs 11 Namaqualand Arid Grassland
SKs 12 Namaqualand Spinescent Grassland
SKs 13 Klawer Sandy Shrubland

Knersvlakte Bioregion

SKk 1 Northern Knersvlakte Vygieveld
SKk 2 Central Knersvlakte Vygieveld
SKk 3 Knersvlakte Quartz Vygieveld
SKk 4 Knersvlakte Shale Vygieveld
SKk 5 Vanrhynsdorp Gannabosveld
SKk 6 Knersvlakte Dolomite Vygieveld
SKk 7 Citrusdal Vygieveld
SKk 8 Piketberg Quartz Succulent Shrubland

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
SKv 13 Prince Albert Succulent Karoo
SKv 14 Steytlerville Karoo

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 Kwaggarug 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

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 Gwarrieveld
- NKl 4 Albany Broken Veld

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
- Gh 10 Vaal-Vet Sandy Grassland
- Gh 11 Vredefort Dome Granite Grassland
- Gh 12 Vaal Reefs Dolomite Sinkhole Woodland
- Gh 13 Klerksdorp Thornveld
- Gh 14 Western Highveld Sandy Grassland
- Gh 15 Carletonville Dolomite Grassland

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 Egoli 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 Wolkberg Dolomite Grassland
- Gm 27 Strydpoort Summit Sourveld
- Gm 28 Soutpansberg Summit Sourveld
- Gm 29 Waterberg-Magaliesberg Summit Sourveld

Sub-Escarpment Grassland Bioregion

- Gs 1 Northern Zululand Mistbelt Grassland
- Gs 2 Ithala Quartzite Sourveld
- Gs 3 Low Escarpment Moist Grassland
- Gs 4 Northern KwaZulu-Natal Moist Grassland
- Gs 5 Northern KwaZulu-Natal Shrubland
- Gs 6 KwaZulu-Natal Highland Thornveld
- Gs 7 Income Sandy Grassland
- Gs 8 Mooi River Highland Grassland
- Gs 9 Midlands Mistbelt Grassland
- Gs 10 Drakensberg Foothill Moist Grassland
- Gs 11 Southern KwaZulu-Natal Moist Grassland
- Gs 12 East Griqualand Grassland
- Gs 13 Mabela Sandy Grassland
- Gs 14 Mthatha Moist Grassland
- Gs 15 Tsomo Grassland
- Gs 16 Queenstown Thornveld
- Gs 17 Tarkastad Montane Shrubland
- Gs 18 Bedford Dry Grassland

SAVANNA BIOME

Central Bushveld Bioregion

- SVcb 1 Dwaalboom Thornveld
- SVcb 2 Madikwe Dolomite Bushveld
- SVcb 3 Zeerust Thornveld
- SVcb 4 Dwarsberg-Swartruggens Mountain Bushveld
- SVcb 5 Pilanesberg Mountain Bushveld
- SVcb 6 Marikana Thornveld
- SVcb 7 Norite Koppies Bushveld
- SVcb 8 Moot Plains Bushveld
- SVcb 9 Gold Reef Mountain Bushveld
- SVcb 10 Gauteng Shale Mountain Bushveld
- SVcb 11 Andesite Mountain Bushveld
- SVcb 12 Central Sandy Bushveld
- SVcb 13 Loskop Mountain Bushveld
- SVcb 14 Loskop Thornveld
- SVcb 15 Springbokvlakte Thornveld
- SVcb 16 Western Sandy Bushveld
- SVcb 17 Waterberg Mountain Bushveld
- SVcb 18 Roodeberg Bushveld
- SVcb 19 Limpopo Sweet Bushveld
- SVcb 20 Makhado Sweet Bushveld
- SVcb 21 Soutpansberg Mountain Bushveld
- SVcb 22 VhaVenda Miombo
- SVcb 23 Polokwane Plateau Bushveld
- SVcb 24 Mamabolo Mountain Bushveld
- SVcb 25 Poung Dolomite Mountain Bushveld
- SVcb 26 Ohrigstad Mountain Bushveld
- SVcb 27 Sekhukhune Plains Bushveld
- SVcb 28 Sekhukhune Mountain Bushveld

Mopane Bioregion

- SVmp 1 Musina Mopane Bushveld
- SVmp 2 Limpopo Ridge Bushveld
- SVmp 3 Cathedral Mopane Bushveld
- SVmp 4 Mopane Basalt Shrubland
- SVmp 5 Tsende Mopaneveld
- SVmp 6 Lowveld Rugged Mopaneveld
- SVmp 7 Phalaborwa-Timbavati Mopaneveld
- SVmp 8 Mopane Gabbro Shrubland

Lowveld Bioregion

- SVl 1 Makuleke Sandy Bushveld
- SVl 2 Nwambyia-Pumbe Sandy Bushveld
- SVl 3 Granite Lowveld
- SVl 4 Delagoa Lowveld
- SVl 5 Tshokwane-Hlane Basalt Lowveld
- SVl 6 Gabbro Grassy Bushveld
- SVl 7 Gravelotte Rocky Bushveld
- SVl 8 Tzaneen Sour Bushveld
- SVl 9 Legogote Sour Bushveld
- SVl 10 Pretoriuskop Sour Bushveld

SVl 11 Malelane Mountain Bushveld
SVl 12 Kaalrug Mountain Bushveld
SVl 13 Barberton Serpentine Sourveld
SVl 14 Swaziland Sour Bushveld
SVl 15 Northern Lebombo Bushveld
SVl 16 Southern Lebombo Bushveld
SVl 17 Lebombo Summit Sourveld
SVl 18 Tembe Sandy Bushveld
SVl 19 Western Maputaland Sandy Bushveld
SVl 20 Western Maputaland Clay Bushveld
SVl 21 Makatini Clay Thicket
SVl 22 Northern Zululand Sourveld
SVl 23 Zululand Lowveld
SVl 24 Zululand Coastal Thornveld

Sub-Escarpment Savanna Bioregion

SVs 1 Thukela Valley Bushveld
SVs 2 Thukela Thornveld
SVs 3 KwaZulu-Natal Hinterland Thornveld
SVs 4 Ngongoni Veld
SVs 5 KwaZulu-Natal Sandstone Sourveld
SVs 6 Eastern Valley Bushveld
SVs 7 Bhisho Thornveld

Eastern Kalahari Bushveld Bioregion

SVk 1 Mafikeng Bushveld
SVk 2 Stella Bushveld
SVk 3 Schweizer-Reneke Bushveld
SVk 4 Kimberley Thornveld
SVk 5 Vaalbos Rocky Shrubland
SVk 6 Schmidtsdrif Thornveld
SVk 7 Ghaap Plateau Vaalbosveld
SVk 8 Kuruman Vaalbosveld
SVk 9 Kuruman Thornveld
SVk 10 Kuruman Mountain Bushveld
SVk 11 Molopo Bushveld
SVk 12 Kathu Bushveld
SVk 13 Olifantshoek Plains Thornveld
SVk 14 Postmasburg Thornveld
SVk 15 Koranna-Langeberg Mountain Bushveld
SVk 16 Gordonia Plains Shrubland

Kalahari Duneveld Bioregion

SVkd 1 Gordonia Duneveld
SVkd 2 Gordonia Kameeldoring Bushveld
SVkd 3 Auob Duneveld
SVkd 4 Nossob Bushveld

ALBANY THICKET BIOME

AT 1 Southern Cape Valley Thicket
AT 2 Gamka Thicket
AT 3 Groot Thicket
AT 4 Gamtoos Thicket
AT 5 Sundays Noorsveld
AT 6 Sundays Thicket
AT 7 Coega Bontveld
AT 8 Kowie Thicket
AT 9 Albany Coastal Belt
AT 10 Great Fish Noorsveld
AT 11 Great Fish Thicket
AT 12 Buffels Thicket
AT 13 Eastern Cape Escarpment Thicket
AT 14 Camdebo Escarpment Thicket

INDIAN OCEAN COASTAL BELT

CB 1 Maputaland Coastal Belt
CB 2 Maputaland Wooded Grassland
CB 3 KwaZulu-Natal Coastal Belt
CB 4 Pondoland-Ugu Sandstone Coastal Sourveld
CB 5 Transkei Coastal Belt

FORESTS

Zonal & Intrazonal Forests

FOz 1 Southern Afrotemperate Forest
FOz 2 Northern Afrotemperate Forest
FOz 3 Southern Mistbelt Forest
FOz 4 Northern Mistbelt Forest
FOz 5 Scarp Forest
FOz 6 Southern Coastal Forest
FOz 7 Northern Coastal Forest
FOz 8 Sand Forest
FOz 9 Ironwood Dry Forest

Azonal Forests

FOa 1 Lowveld Riverine Forest
FOa 2 Swamp Forest
FOa 3 Mangrove Forest

AZONAL VEGETATION

Estuarine Vegetation

AZe 1 Arid Estuarine Salt Marshes
AZe 2 Cape Estuarine Salt Marshes
AZe 3 Subtropical Estuarine Salt Marshes

Seashore Vegetation

AZd 1 Namib Seashore Vegetation
AZd 2 Namaqualand Seashore Vegetation
AZd 3 Cape Seashore Vegetation
AZd 4 Subtropical Seashore Vegetation

Eastern Strandveld

AZs 1 Algoa Dune Strandveld
AZs 2 Albany Dune Strandveld
AZs 3 Subtropical Dune Thicket

Alluvial Vegetation

AZa 1 Fynbos Riparian Vegetation
AZa 2 Cape Lowland Alluvial Vegetation
AZa 3 Lower Gariep Alluvial Vegetation
AZa 4 Upper Gariep Alluvial Vegetation
AZa 5 Highveld Alluvial Vegetation
AZa 6 Albany Alluvial Vegetation
AZa 7 Subtropical Alluvial Vegetation

Freshwater Wetlands

AZf 1 Cape Lowland Freshwater Wetlands
AZf 2 Cape Vernal Pools
AZf 3 Eastern Temperate Freshwater Wetlands
AZf 4 Drakensberg Wetlands
AZf 5 Lesotho Mires
AZf 6 Subtropical Freshwater Wetlands

Inland Saline Vegetation

AZi 1 Namaqualand Riviere
AZi 2 Namaqualand Salt Pans
AZi 3 Southern Kalahari Mekgacha
AZi 4 Southern Kalahari Salt Pans
AZi 5 Bushmanland Vloere
AZi 6 Southern Karoo Riviere
AZi 7 Tanqua Wash Riviere
AZi 8 Muscadel Riviere
AZi 9 Cape Inland Salt Pans
AZi 10 Highveld Salt Pans
AZi 11 Subtropical Salt Pans

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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.

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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.

SANBI
Biodiversity for Life
South African National Biodiversity Institute

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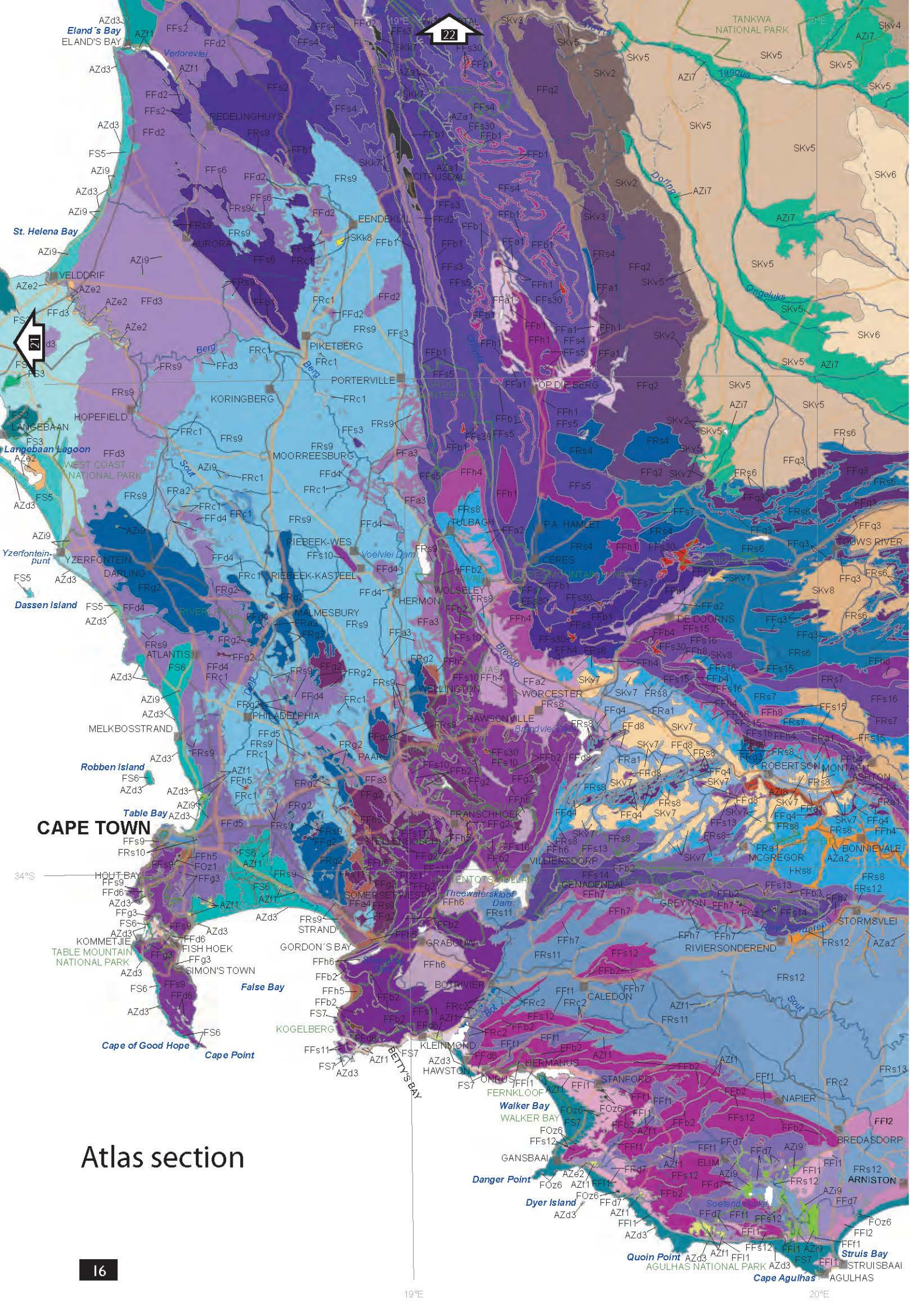
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KORINGBERG
HOPEFIELD
LANGEBAAN
Langebaan Lagoon
WEST COAST NATIONAL PARK
MOORREESBURG
YZERFONTEIN
DARLING
Yzerfontein-punt
Dassen Island
RIEBEEK-WES
RIEBEEK-KASTEEL
Voëlvlei Dam
MALMESBURY
ATLANTIS
MELKBOSSTRAND
PHILADELPHIA
Robben Island
Table Bay
HOUT BAY
KOMMETJIE
TABLE MOUNTAIN NATIONAL PARK
SIMON'S TOWN
False Bay
Cape of Good Hope
Cape Point
STRAND
GORDON´S BAY
FISH HOEK
SOMERSET WEST
STELLENBOSCH
PAARL
WELLINGTON
TULBAGH
WOLSELEY
HERMON
RAWSONVILLE
WORCESTER
Brandvlei Dam
Theewaterskloof Dam
ROBERTSON
MONTAGU
ASHTON
BONNIEVALE
MCGREGOR
VILLIERSDORP
GENADENDAL
GREYTON
RIVIERSONDEREND
STORMSVLEI
BOTRIVIER
CALEDON
HERMANUS
STANFORD
NAPIER
GANSBAAI
BREDASDORP
ARNISTON
Walker Bay
WALKER BAY
Danger Point
Dyer Island
Quoin Point
AGULHAS NATIONAL PARK
Cape Agulhas
AGULHAS
Struis Bay
STRUISBAAI
TANKWA NATIONAL PARK
TOUWS RIVER
DE DOORNS
OP DIE BERG
PA HAMLET
ERES
Berg
Sout
Breede
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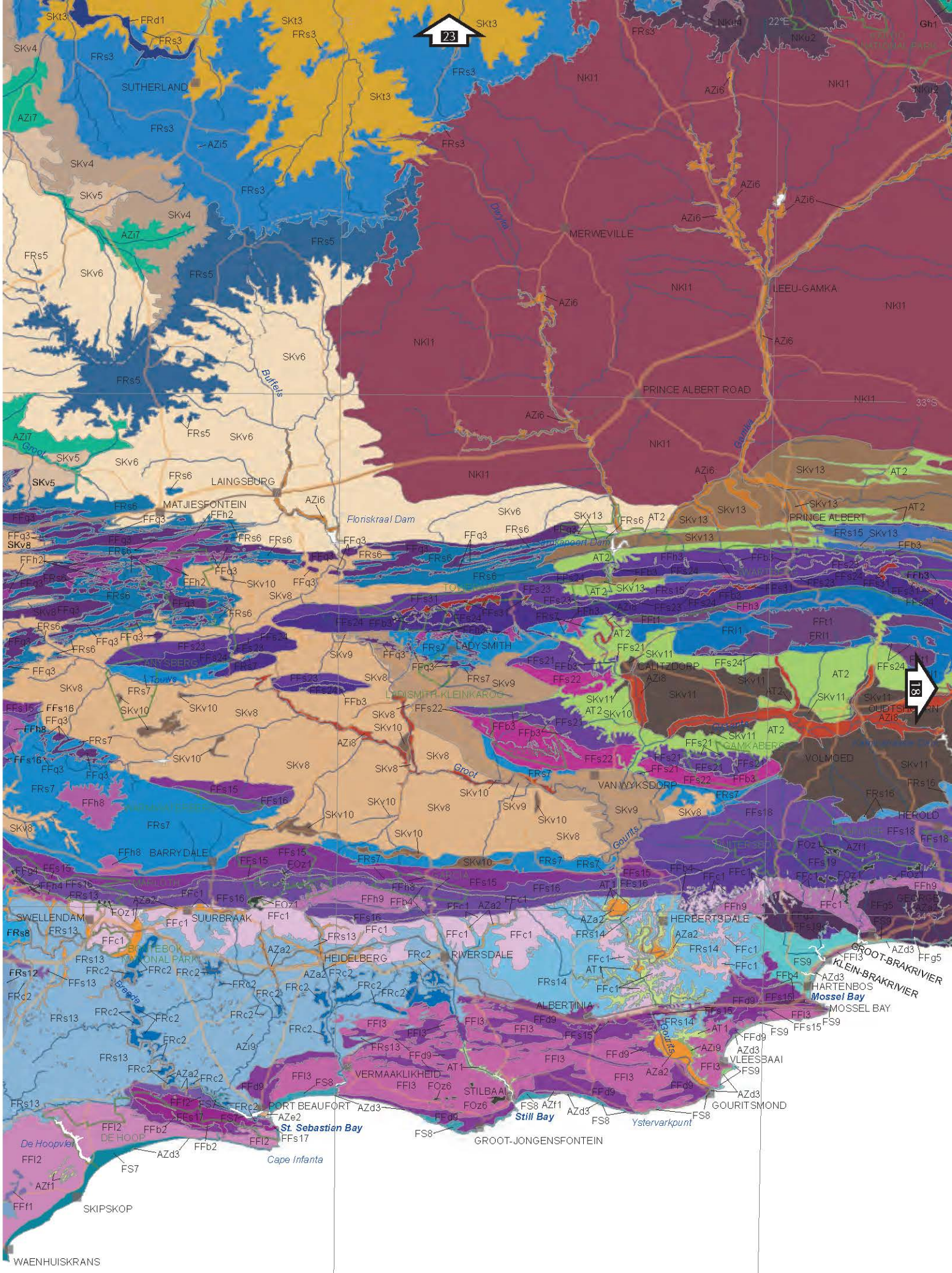
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SWELLENDAM
SUURBRAAK
HERBERTSDALE
HEIDELBERG
RIVERSDALE
HARTENBOS
MOSSEL BAY
ALBERTINIA
VERMAAKLIKHEID
STILBAAI
GOURITSMOND
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DE HOOP
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Buffels
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Cape Infanta
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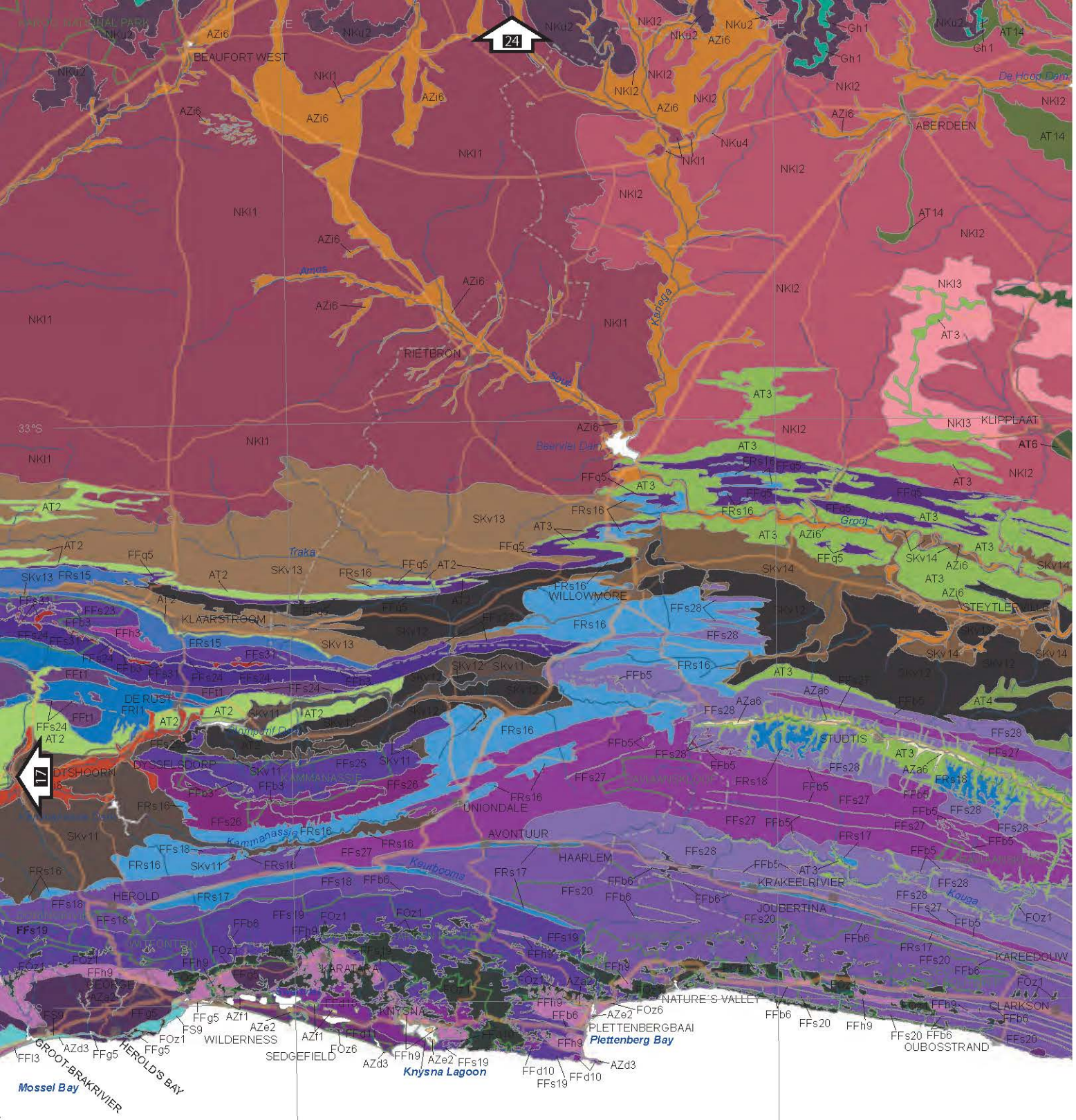
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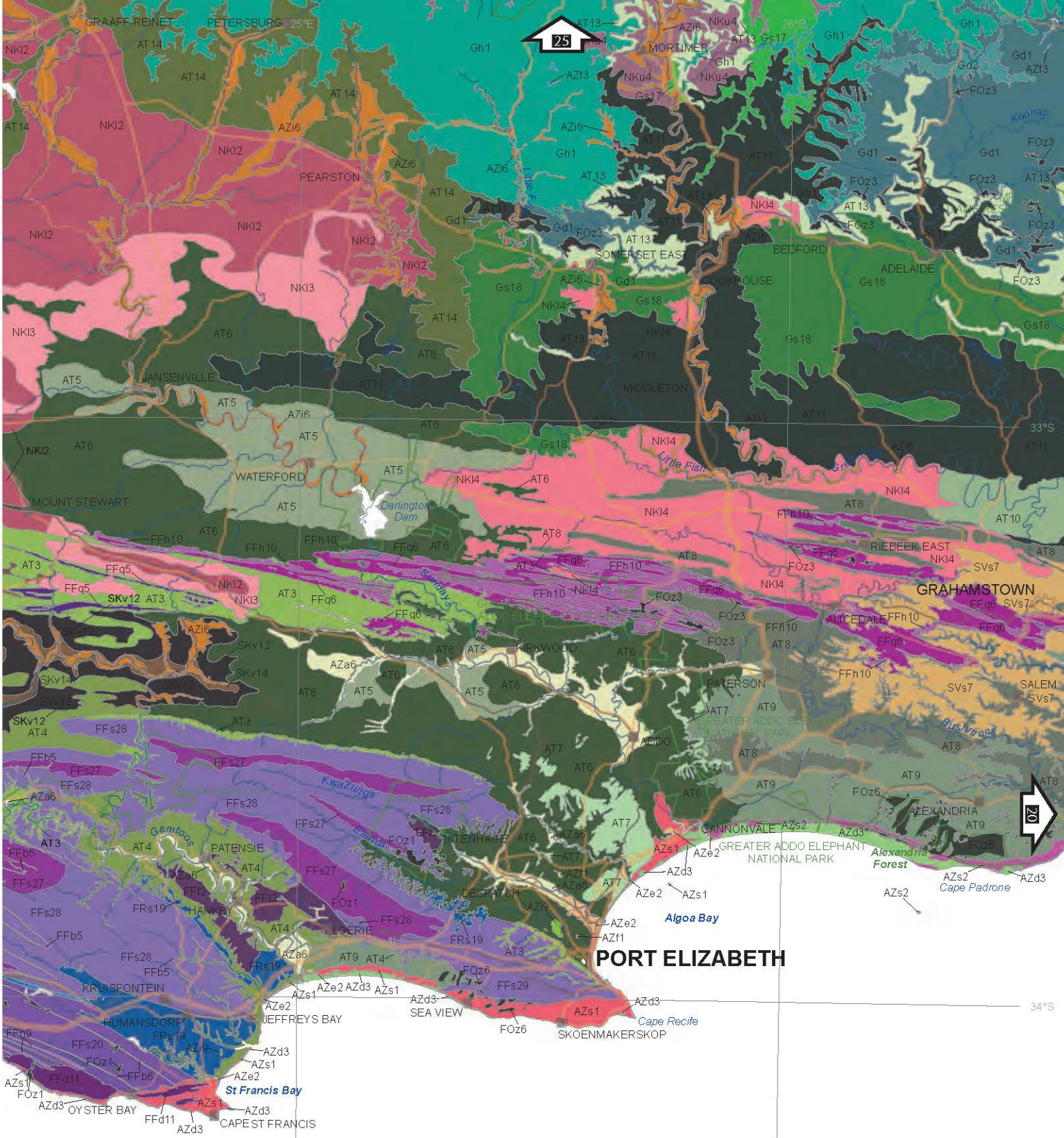
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MOUNT STEWART
Darlington Dam
Little Fish
Sundays
GRAHAMSTOWN
RIEBEEK-EAST
ALICEDALE
KIRKWOOD
PATERSON
SALEM
ADDO
GREATER ADDO ELEPHANT NATIONAL PARK
CANNONVALE
ALEXANDRIA
Alexandria Forest
Cape Padrone
Algoa Bay
PORT ELIZABETH
Cape Recife
SKOENMAKERSKOP
SEA VIEW
JEFFREYS BAY
HUMANSDORP
KRUISFONTEIN
HANKEY
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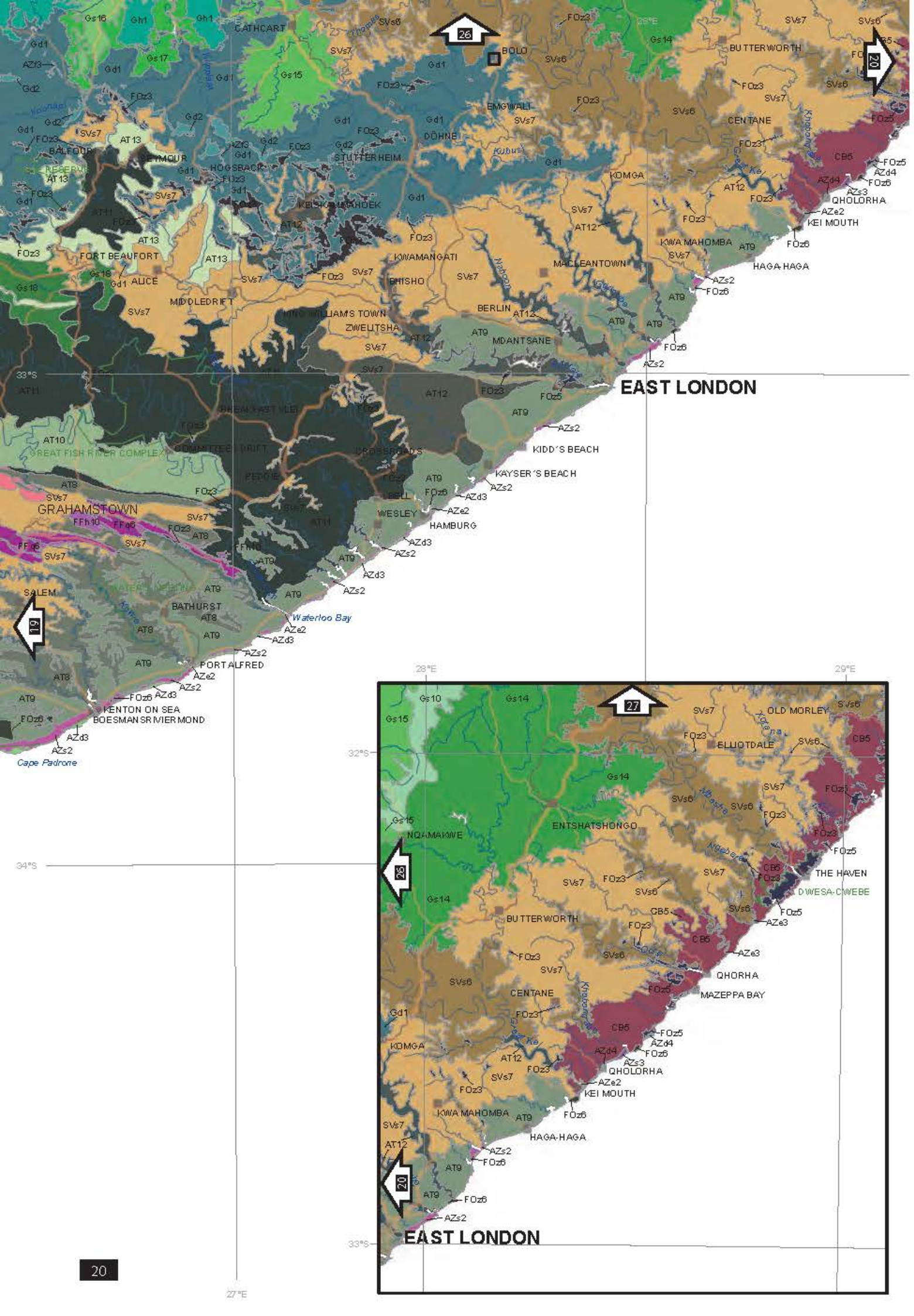
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KWA MAHOMBA
MACLEANTOWN
HAGA-HAGA
QHOLORHA
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ALICE
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GREAT FISH RIVER COMPLEX
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PEDDIE
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PORT ALFRED
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BOESMANSRIVIERMOND
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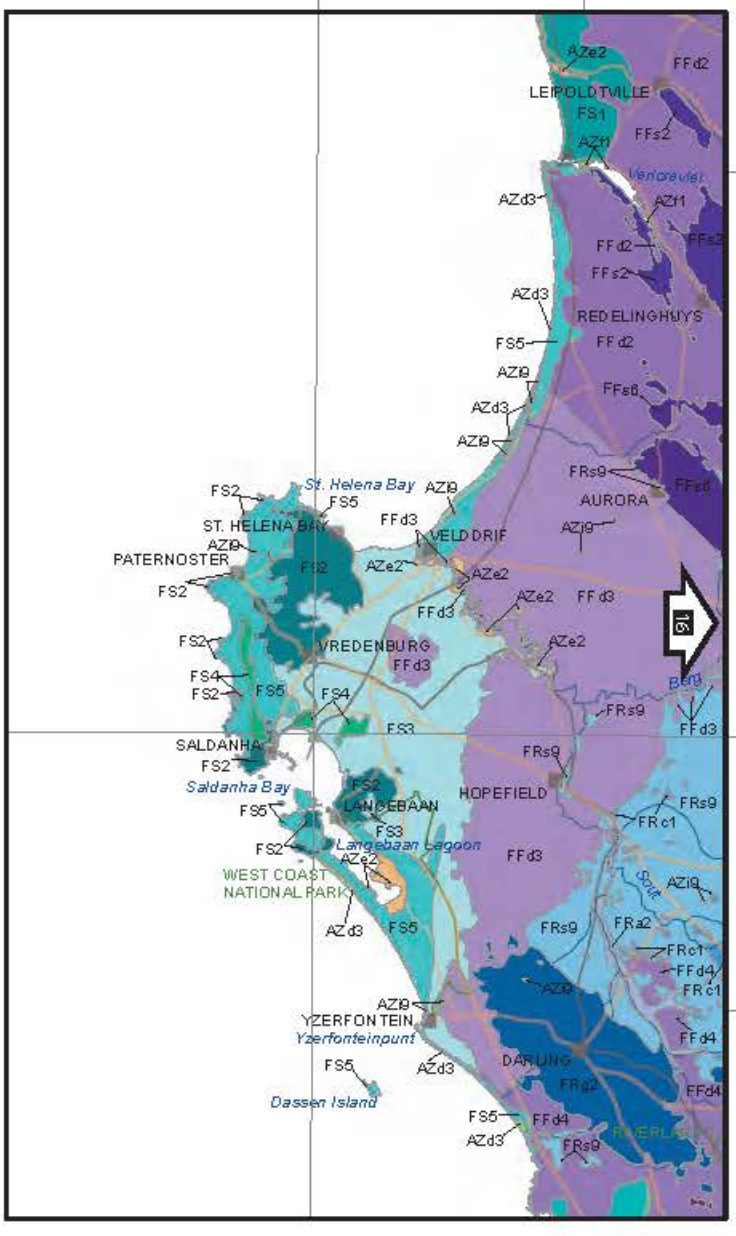
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Langebaan Lagoon
WEST COAST
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FFd4
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33°S

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Melkbospunt
Swartklip
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NAMAQUA NATIONAL PARK
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KAMIESKROON
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HONDEKLIPBAAI
Platklippunt
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KOTZESRUS
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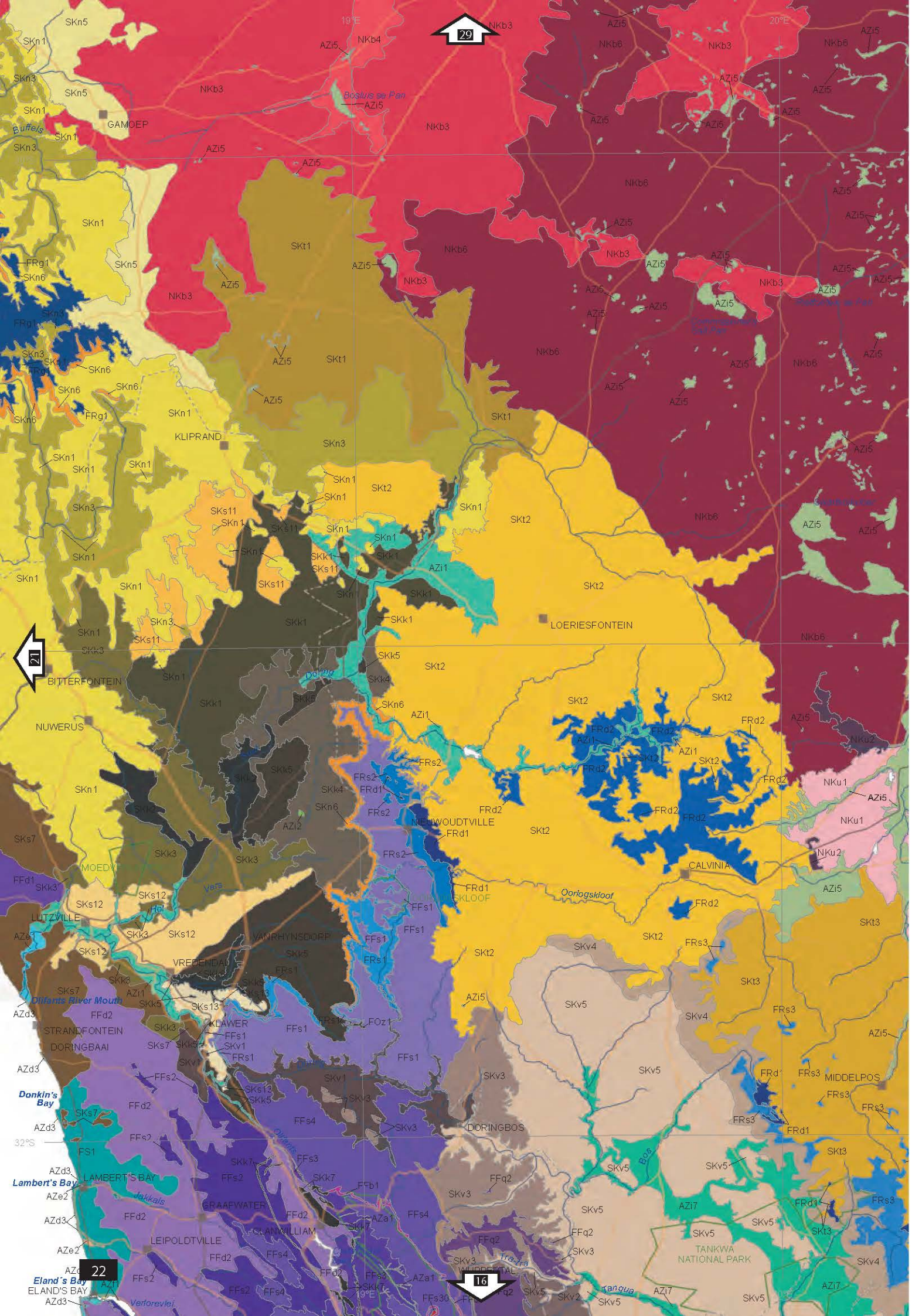
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LUTZVILLE
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VREDENDAL
KLAWER
STRANDFONTEIN
DORINGBAAI
LAMBERT'S BAY
GRAAFWATER
LEIPOLDTVILLE
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NIEUWOUDTVILLE
CALVINIA
DORINGBOS
MIDDELPOS
TANKWA
NATIONAL PARK
Buffels
Bosluis se Pan
Oorlogskloof
Olifants River Mouth
Donkin's Bay
Lambert's Bay
Eland's Bay
Verloreviei
Tra-Tra
Tanqua
SKn5
SKn1
SKn3
SKn6
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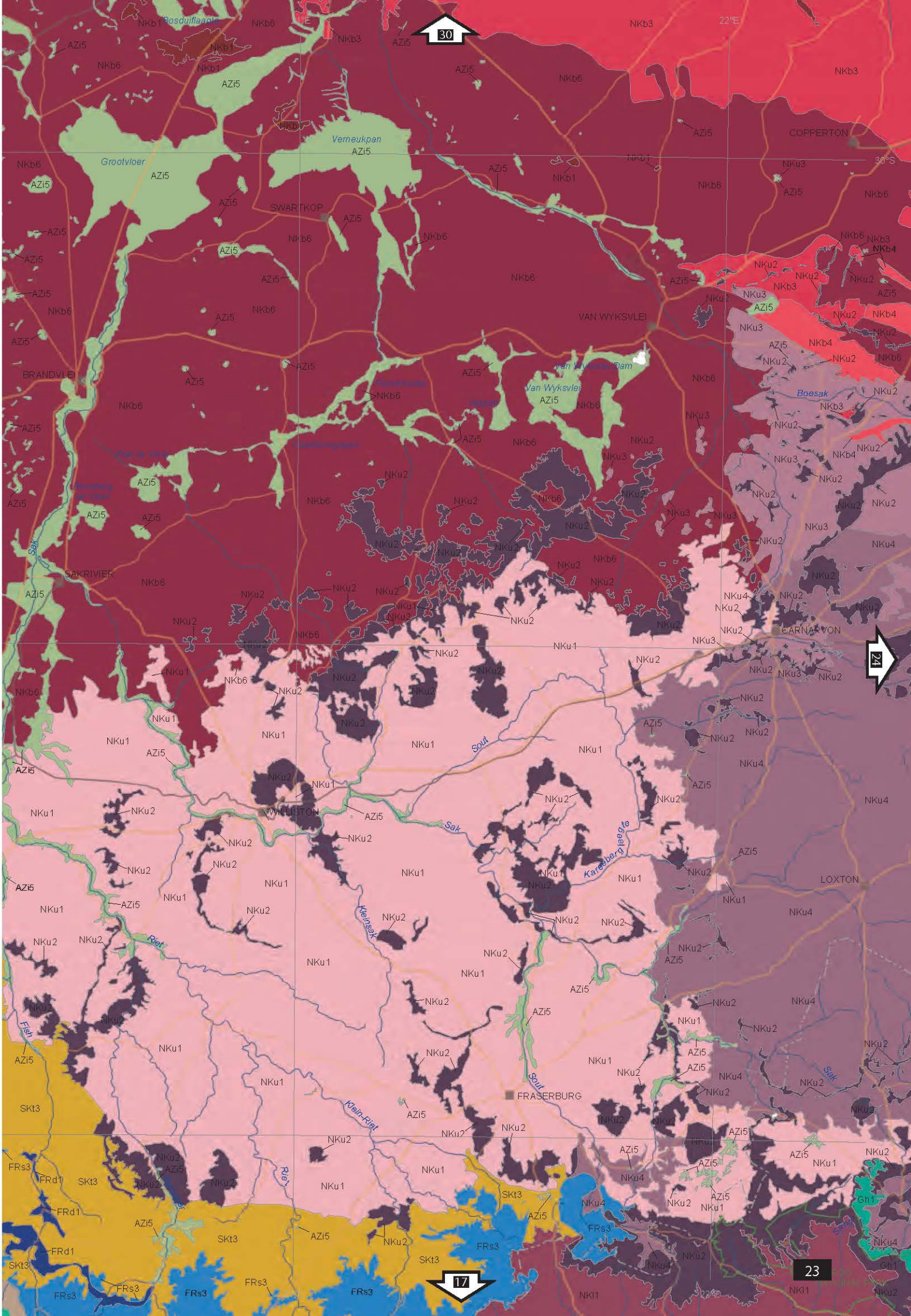
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22°E
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COPPERTON
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Van Wyksvlei
Boesak
SAKRIVIER
CARNARVON
LOXTON
VICTORIA WEST
FRASERBURG
Sak
Sout
Riet
Fish
Klein-Riet
Kleinsak
Karreebergbeegte
NKb1
NKb3
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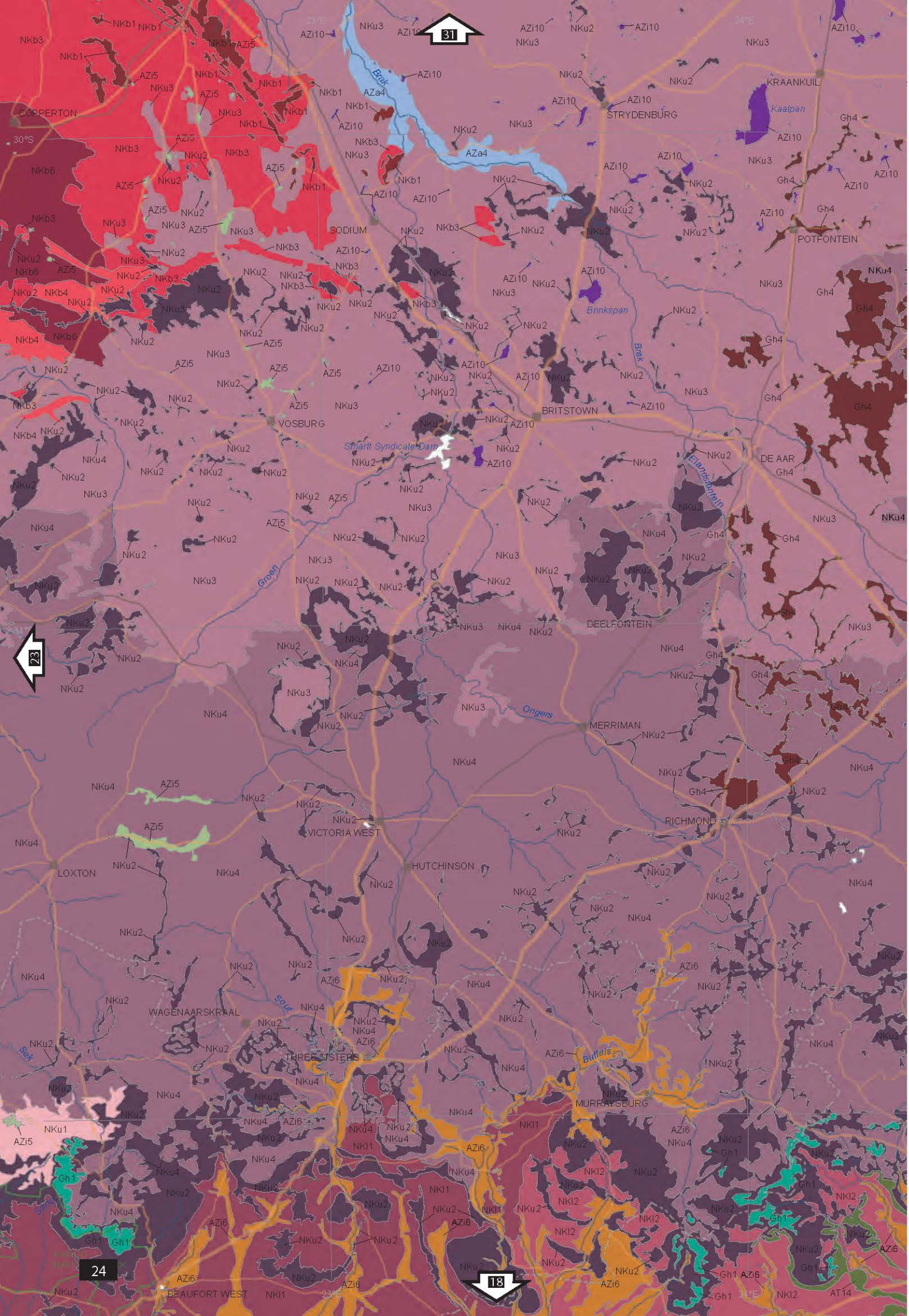
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RICHMOND
VICTORIA WEST
HUTCHINSON
LOXTON
WAGENAARSKRAAL
THREE SISTERS
MURRAYSBURG
BEAUFORT WEST
Brak
Groen
Ongers
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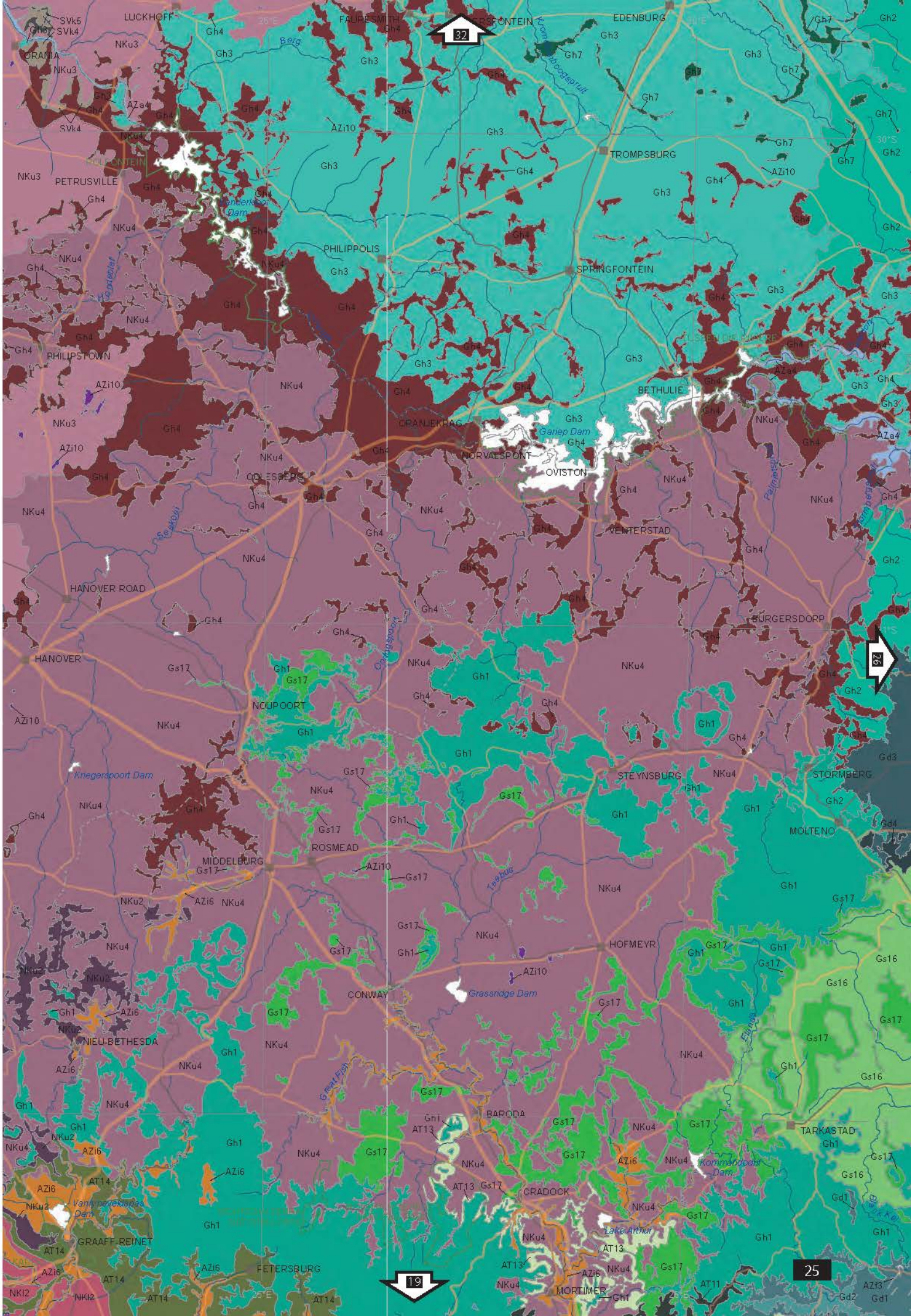
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ORANJERAG
NORVALSPONT
OVISTON
COLESBERG
VENTERSTAD
HANOVER ROAD
HANOVER
BURGERSDORP
NOUPOORT
STEYNSBURG
STORMBERG
MOLTENO
ROSMEAD
MIDDELBURG
HOFMEYR
CONWAY
NIEU-BETHESDA
BARODA
TARKASTAD
CRADOCK
GRAAFF-REINET
FETERSBURG
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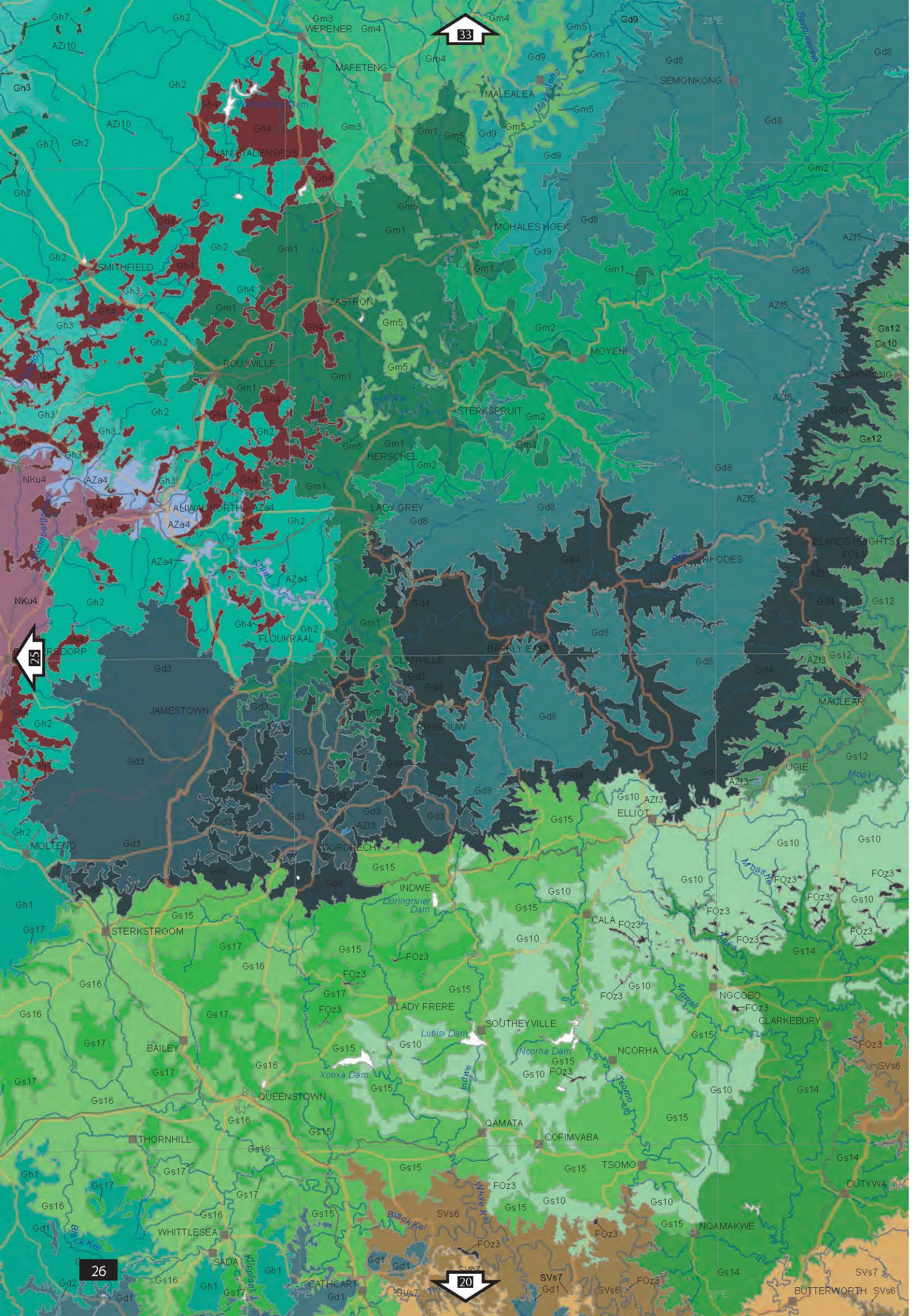
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HERSCHEL
ALIWAL NORTH
LADY GREY
RHODES
ELANDS HEIGHTS
FLOUKRAAL
CLARENVILLE
JAMESTOWN
ROSSOUW
MACLEAR
UGIE
ELLIOT
MOLTENO
DORDRECHT
INDWE
STERKSTROOM
CALA
NGCOBO
CLARKEBURY
LADY FRERE
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QUEENSTON
QAMATA
COFIMVABA
THORNHILL
TSOMO
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BUTTERWORTH
Doringrivier Dam
Lubisi Dam
Ncorha Dam
Xonxa Dam
Orange
Caledon
Mohokare
Senqu
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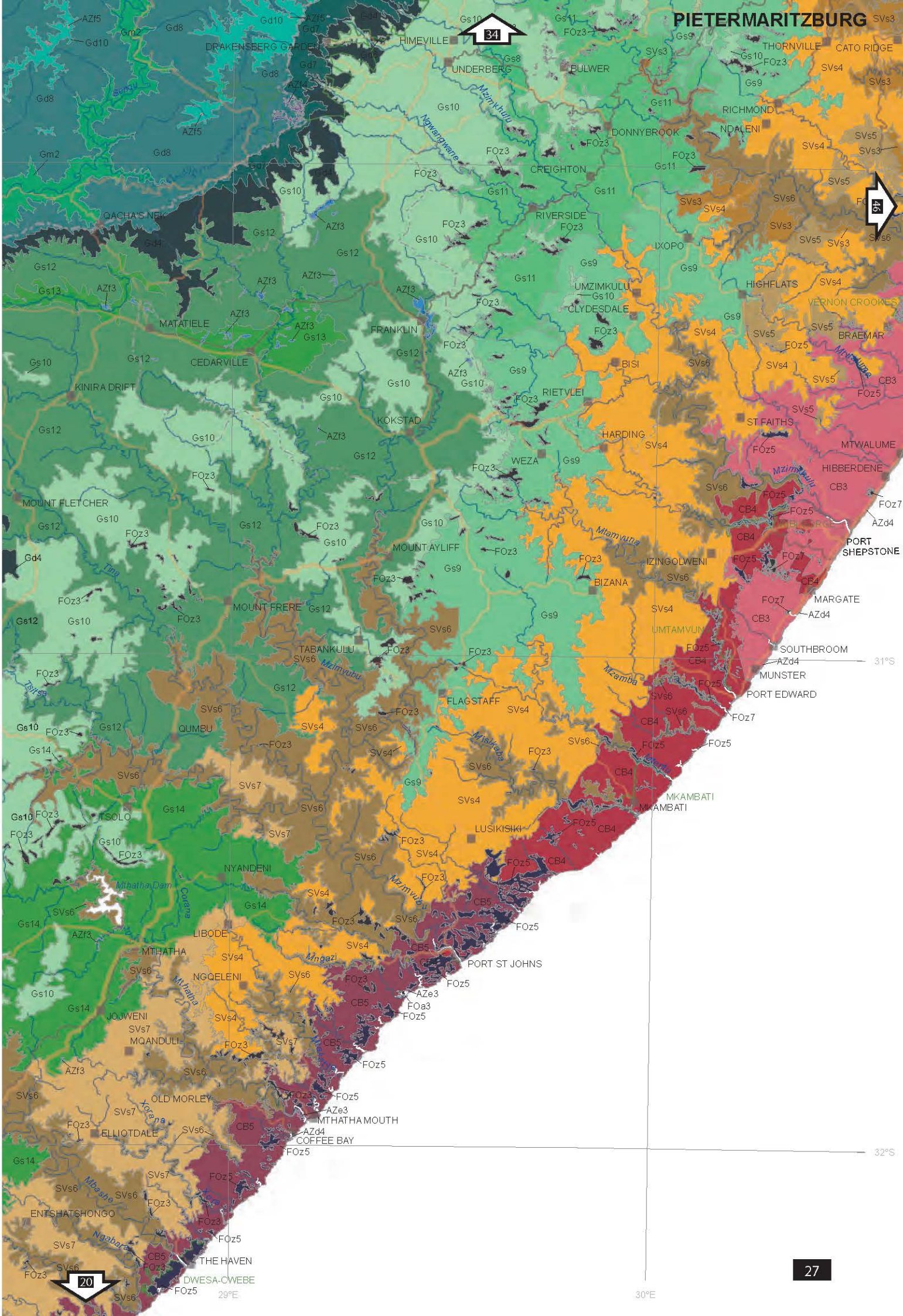

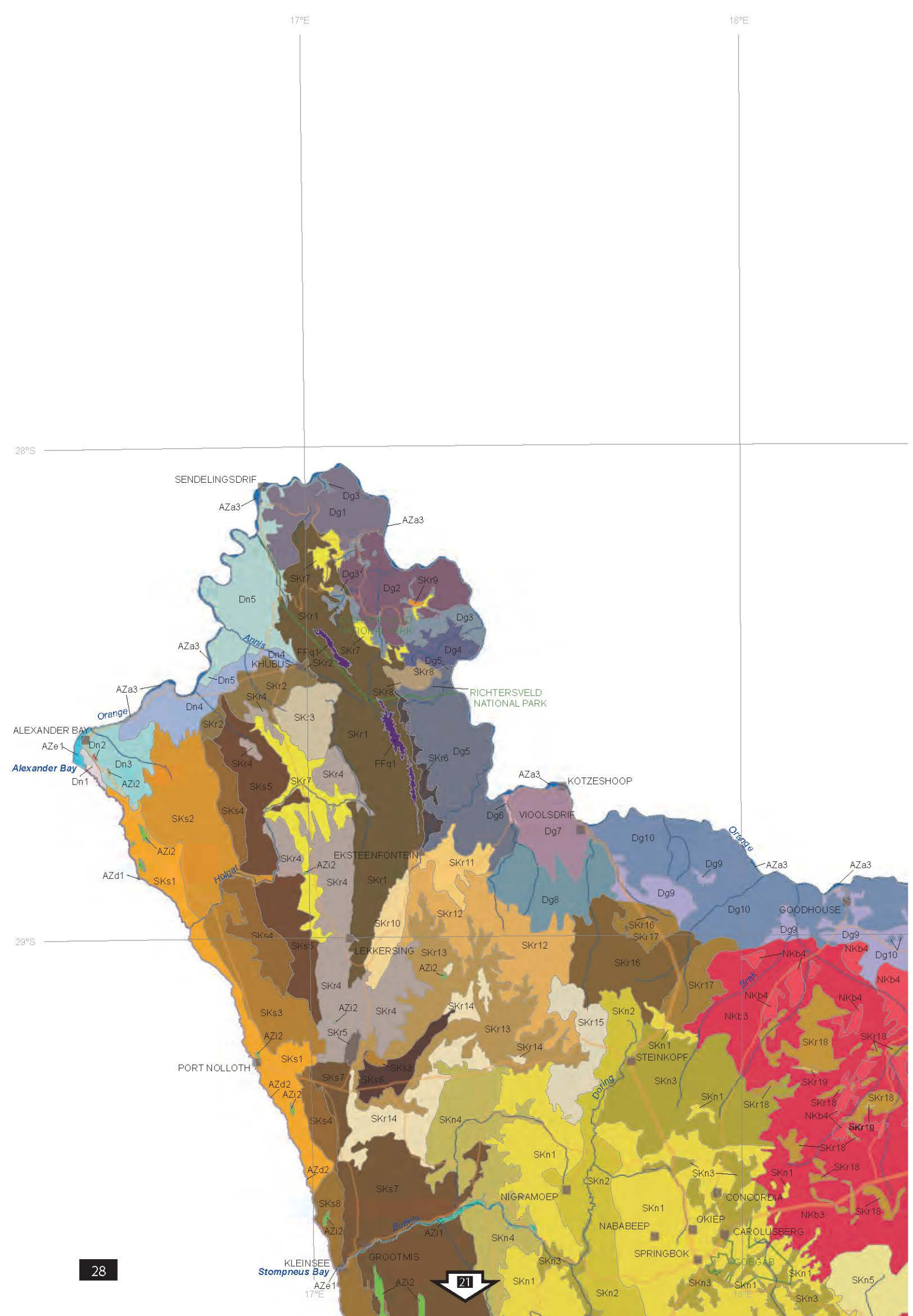
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SKr9
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SKr7
Dg4
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SKr2
Dg5
SKr8
Dn5
AZa3
SKr2
SKr8
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NATIONAL PARK
SKr4
Orange
Dn4
SKr3
SKr2
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SKr4
FFq1
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Alexander Bay
Dn3
AZa3
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SKr12
Dg10
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SKr10
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SKs4
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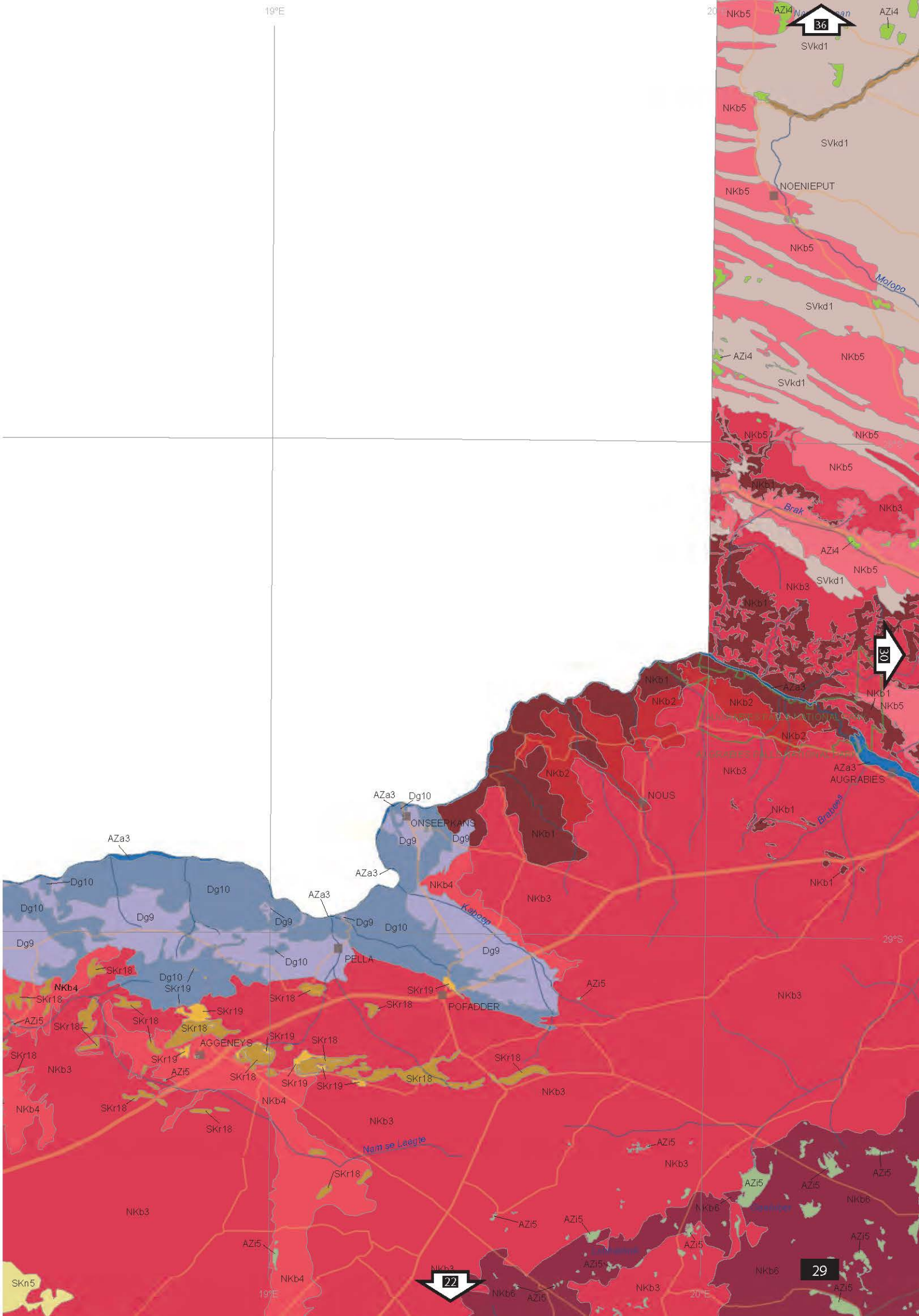
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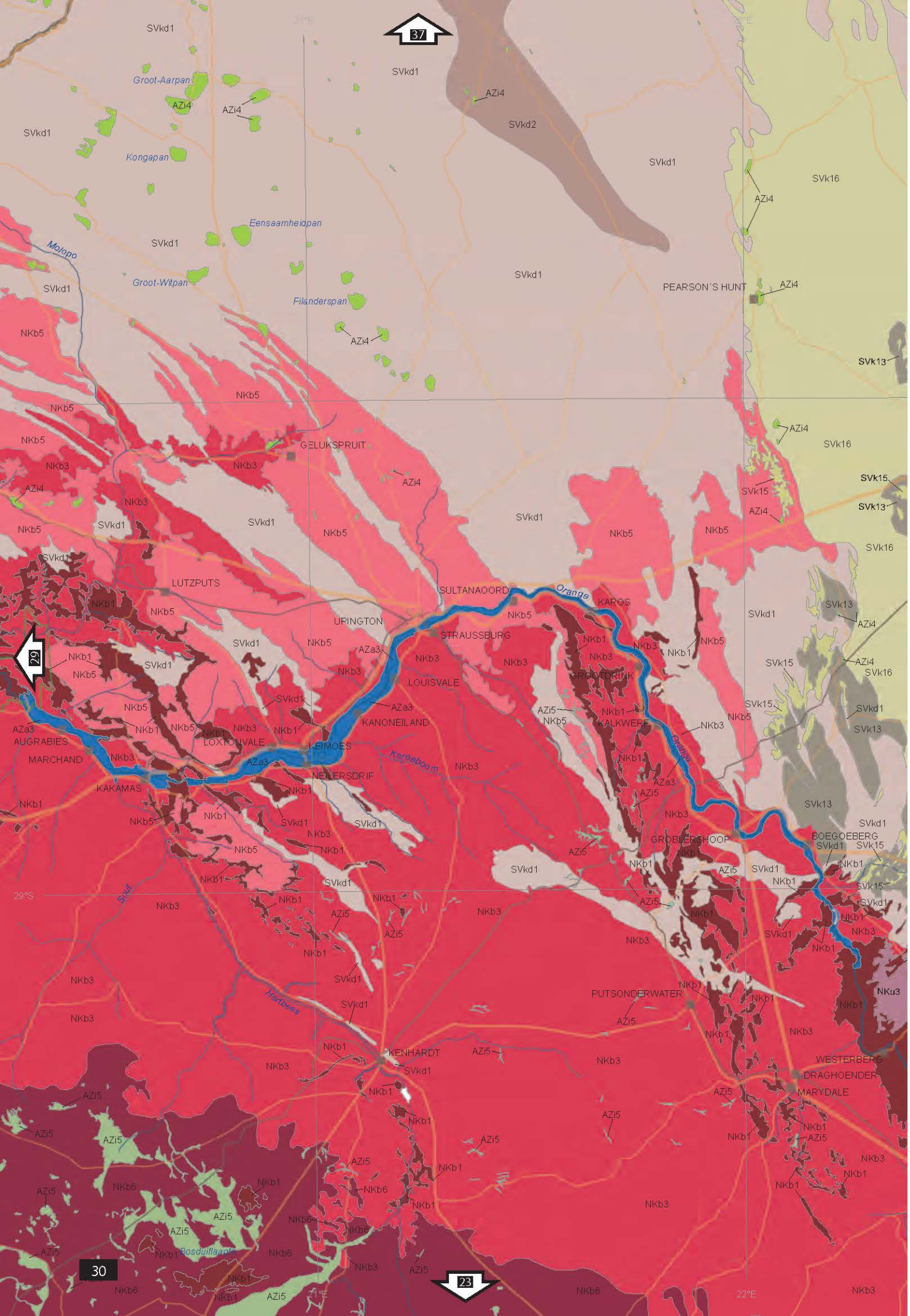
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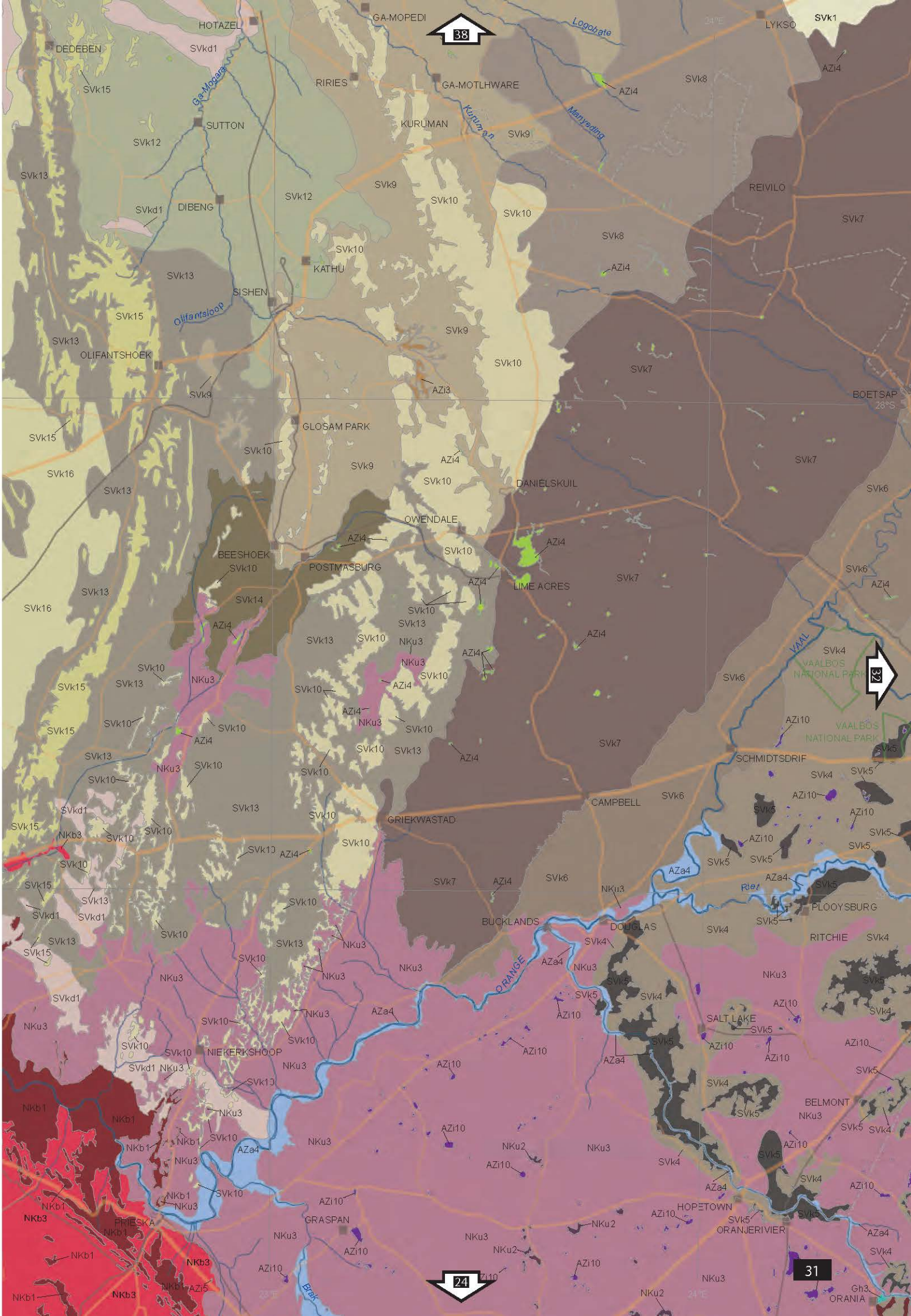
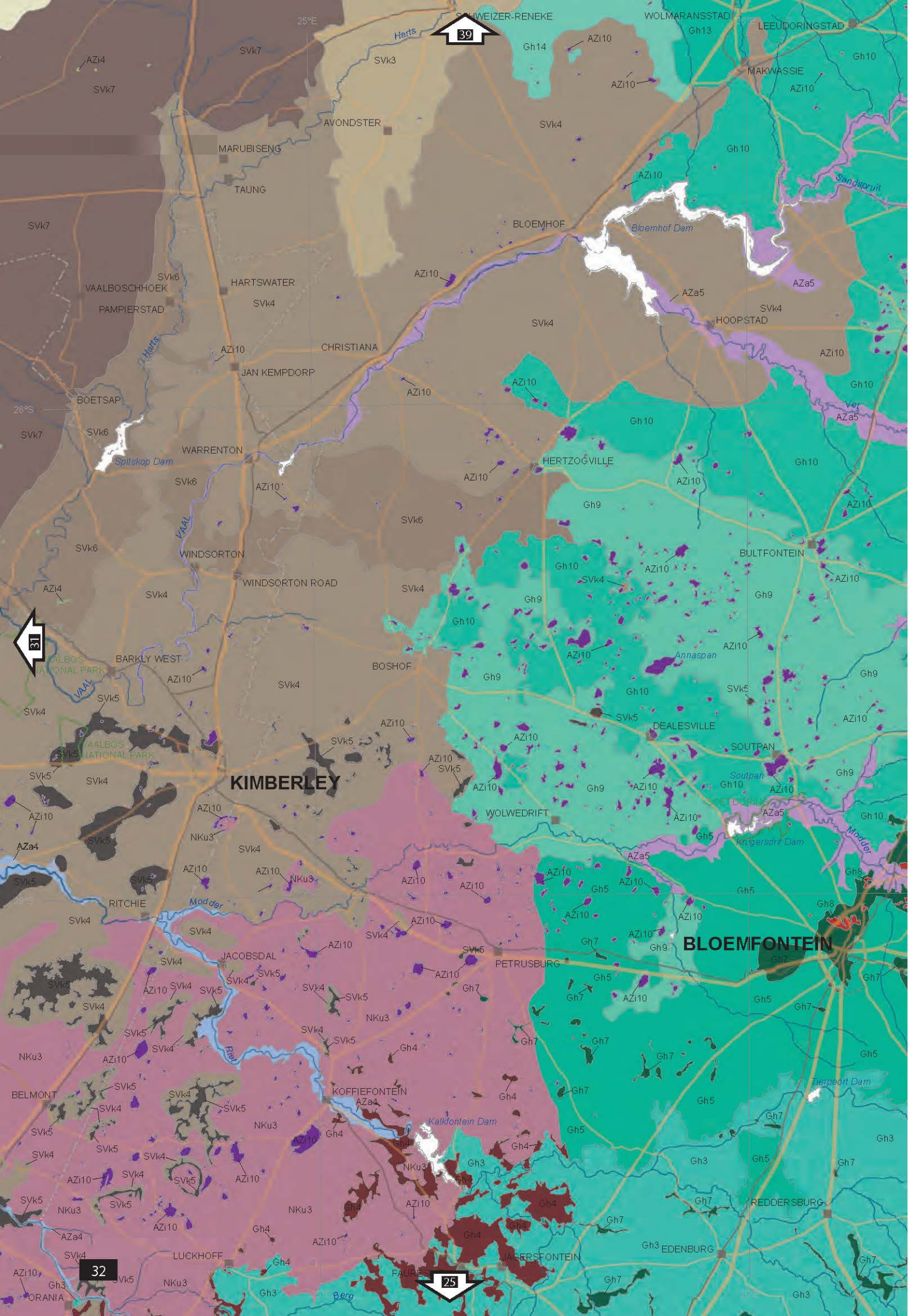
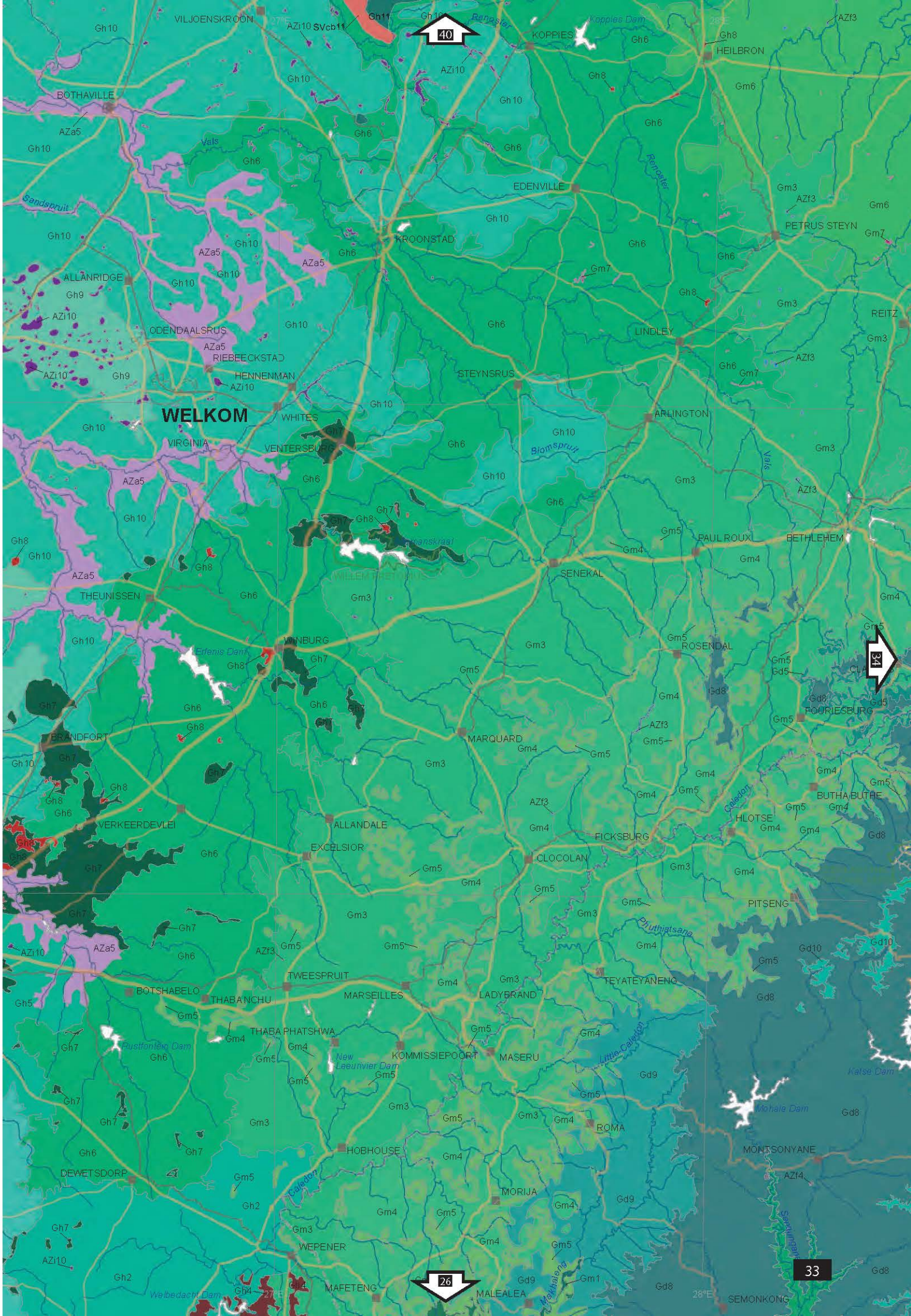
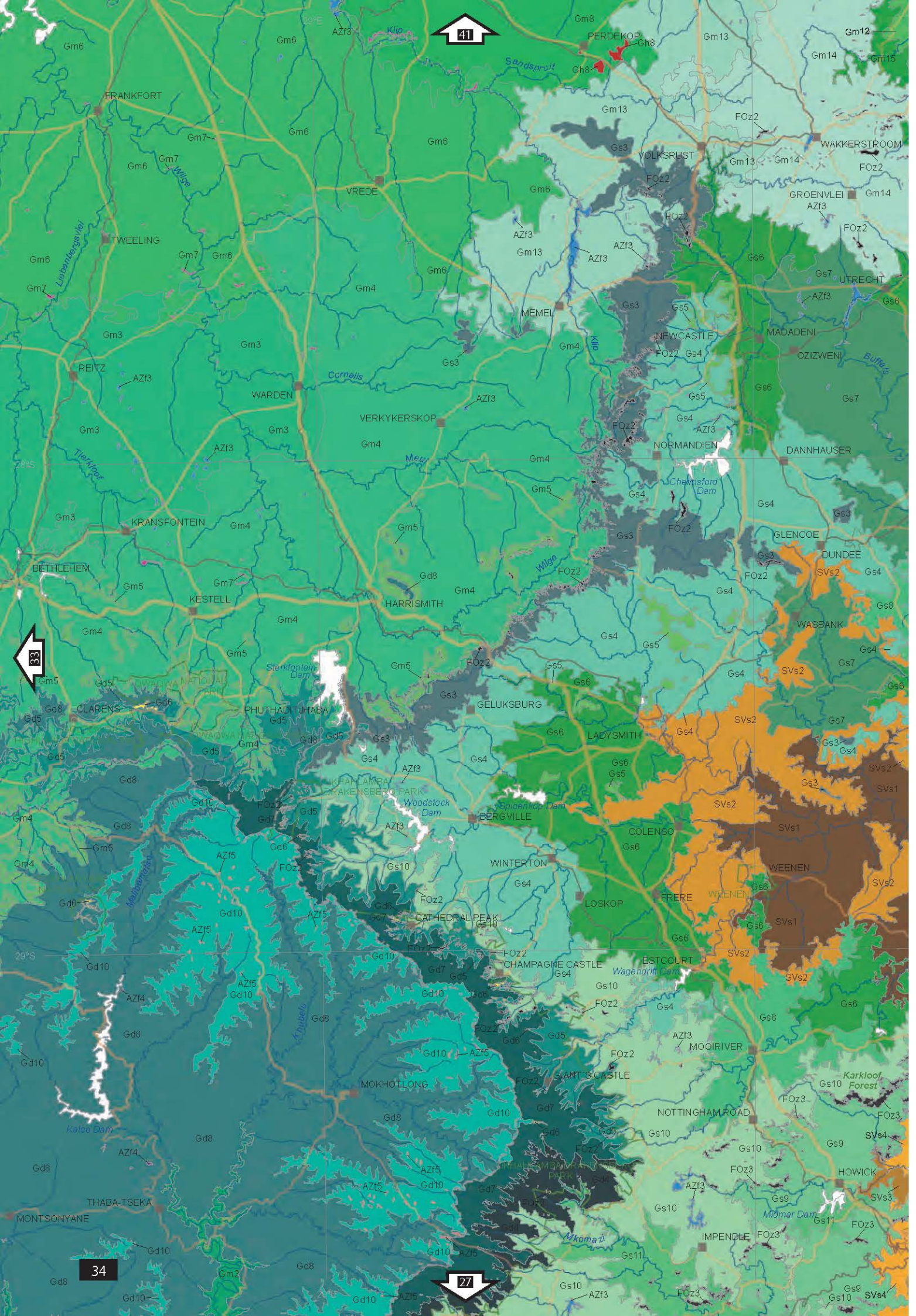
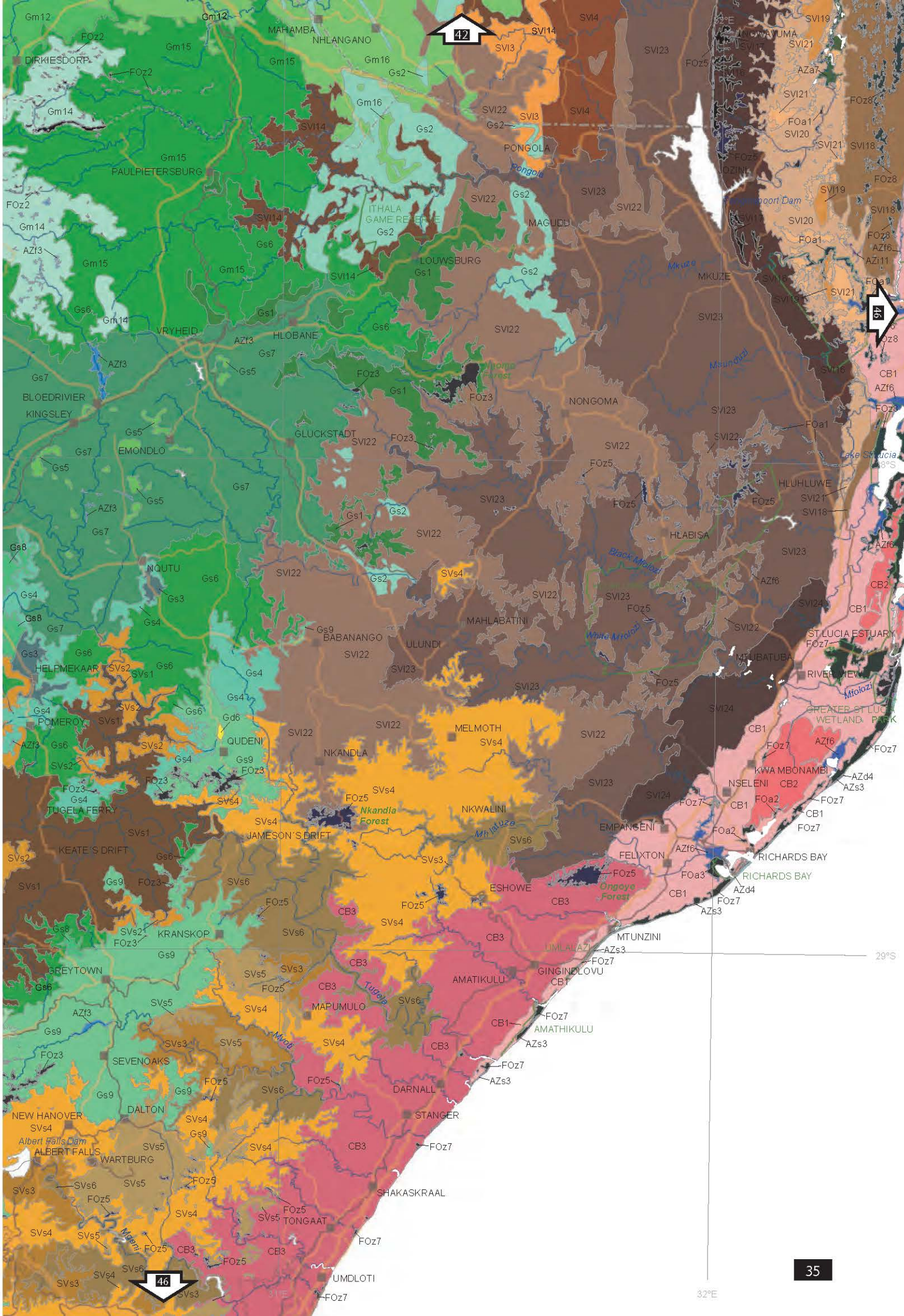
Orange
KAROS
UPINGTON
STRAUSSBURG
GROOTDRINK
LOUISVALE
KANONEILAND
KALKWERF
AUGRABIES
LOXTONVALE
KEIMOES
MARCHAND
Kareeboom
NEILERSDRIF
KAKAMAS
GROBLERSHOOP
BOEGOEBERG
PUTSONDERWATER
KENHARDT
WESTERBERG
DRAGHOENDER
MARYDALE
Hartbees
Bosduiflaagte
Soul
29°S
21°E
22°E
SVkd1
SVkd2
SVk16
SVk15
SVk13
NKb5
NKb3
NKb1
NKb6
NKu3
AZi4
AZi5
AZa3

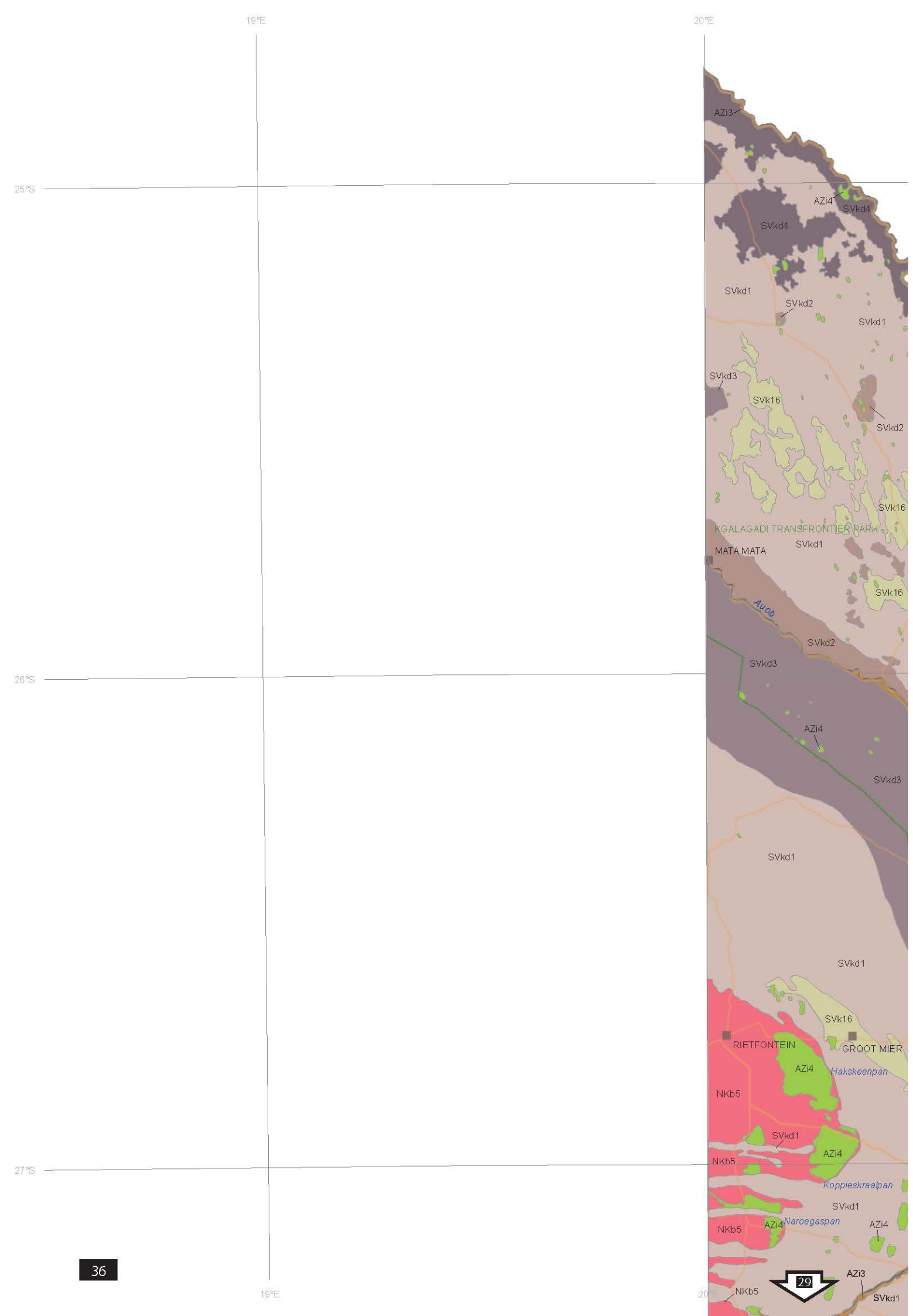

HOTAZEL
GA-MOPEDI
38
Logobate
LYKSO
SVk1
DEDEBEN
SVkd1
SVk15
Ga-Mogara
RIRIES
GA-MOTLHWARE
AZi4
SVk8
SUTTON
KURUMAN
Kuruman
Manyeding
SVk9
SVk12
SVk13
DIBENG
SVk10
REIVILO
SVk7
KATHU
SISHEN
Olifantsloop
OLIFANTSHOEK
AZi3
BOETSAP
28°S
GLOSAM PARK
SVk16
DANIELSKUIL
SVk6
OWENDALE
BEESHOEK
POSTMASBURG
LIME ACRES
SVk14
NKu3
VAAL
SVk4
VAALBOS
NATIONAL PARK
32
AZi10
SCHMIDTSDRIF
SVk5
CAMPBELL
GRIEKWASTAD
AZa4
Riet
PLOOYSBURG
NKb3
BUCKLANDS
DOUGLAS
RITCHIE
ORANGE
SALT LAKE
NIEKERKSHOOP
NKb1
BELMONT
NKu2
HOPETOWN
ORANJERIVIER
PRIESKA
GRASPAN
Brak
24
31
ORANIA
Gh3

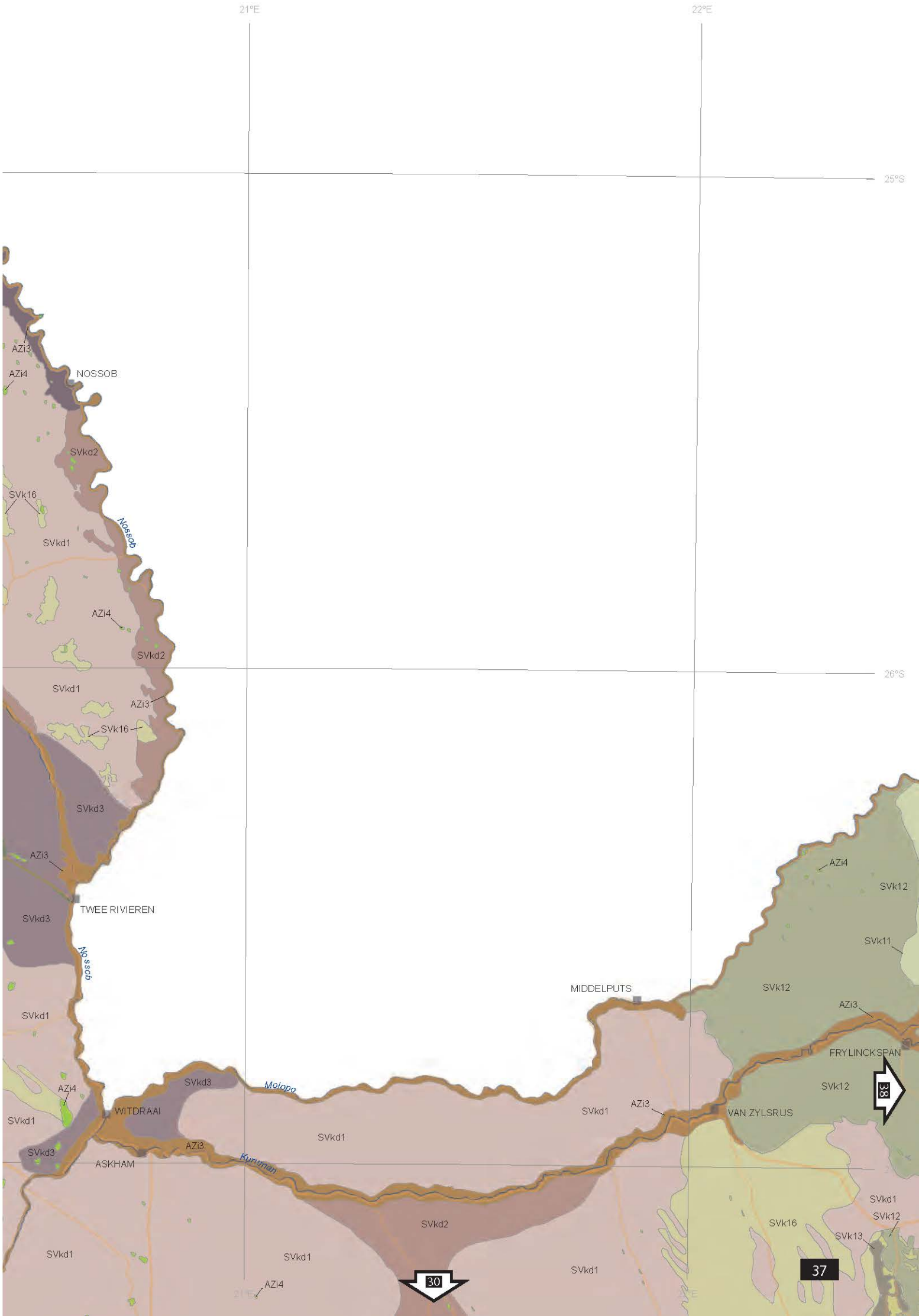

SCHWEIZER-RENEKE
WOLMARANSSTAD
LEEUDORINGSTAD
MAKWASSIE
AVONDSTER
MARUBISENG
TAUNG
BLOEMHOF
Bloemhof Dam
Sandspruit
VAALBOSCHHOEK
HARTSWATER
PAMPIERSTAD
HOOPSTAD
CHRISTIANA
JAN KEMPDORP
BOETSAP
WARRENTON
Spitskop Dam
HERTZOGVILLE
WINDSORTON
WINDSORTON ROAD
BULTFONTEIN
BARKLY WEST
BOSHOF
Annaspan
DEALESVILLE
SOUTPAN
Soutpan
KIMBERLEY
WOLWEDRIFT
Krugersdrif Dam
Modder
RITCHIE
JACOBSDAL
PETRUSBURG
BLOEMFONTEIN
Riet
KOFFIEFONTEIN
Kalkfontein Dam
Tierpoort Dam
BELMONT
REDDERSBURG
LUCKHOFF
JAGERSFONTEIN
EDENBURG
FAURE
ORANIA
Vet
Harts
VAAL
39
31
32
25


WELKOM
VILJOENSKROON
KOPPIES
HEILBRON
BOTHAVILLE
EDENVILLE
PETRUS STEYN
KROONSTAD
ALLANRIDGE
ODENDAALSRUS
RIEBEECKSTAD
HENNENMAN
LINDLEY
REITZ
STEYNSRUS
WHITES
VIRGINIA
VENTERSBURG
ARLINGTON
PAUL ROUX
BETHLEHEM
SENEKAL
THEUNISSEN
WINBURG
ROSENDAL
FOURIESBURG
BRANDFORT
MARQUARD
VERKEERDEVLEI
ALLANDALE
EXCELSIOR
FICKSBURG
CLOCOLAN
HLOTSE
BUTHA BUTHE
PITSENG
TWEESPRUIT
BOTSHABELO
THABANCHU
MARSEILLES
LADYBRAND
TEYATEYANENG
THABA PHATSHWA
KOMMISSIEPOORT
MASERU
ROMA
MONTSONYANE
HOBHOUSE
DEWETSDORP
MORIJA
WEPENER
MAFETENG
MALEALEA
SEMONKONG
Vals
Sandspruit
Renoster
Koppies Dam
Blomspruit
Caledon
Little Caledon
Phuthiatsana
Katse Dam
Mohale Dam
Makhaleng
Senqunyane
Erfenis Dam
Rustfontein Dam
New Leeuwvier Dam
Welbedacht Dam
40
34
26
33


41
33
34
27
29°E
29°S
Klip
Sandspruit
PERDEKOP
FRANKFORT
Wilge
VREDE
TWEELING
Liebenbergsvlei
REITZ
Cornelis
WARDEN
VERKYKERSKOP
Tierkloof
Meul
KRANSFONTEIN
BETHLEHEM
KESTELL
HARRISMITH
Sterkfontein Dam
CLARENS
PHUTHADITJHABA
GELUKSBURG
Woodstock Dam
BERGVILLE
Spioenkop Dam
Malibamatso
WINTERTON
LOSKOP
FRERE
CATHEDRAL PEAK
CHAMPAGNE CASTLE
Wagendrift Dam
ESTCOURT
LADYSMITH
COLENSO
WEENEN
Knubelo
MOKHOTLONG
GIANT'S CASTLE
MOOIRIVER
Karkloof Forest
NOTTINGHAM ROAD
Kalse Dam
THABA-TSEKA
MONTSONYANE
Mkomazi
Midmar Dam
IMPENDLE
HOWICK
MEMEL
NEWCASTLE
VOLKSRUST
WAKKERSTROOM
GROENVLEI
UTRECHT
MADADENI
OZIZWENI
Buffels
NORMANDIEN
DANNHAUSER
Chelmsford Dam
GLENCOE
DUNDEE
WASBANK


42
46
46
Gm12
Gm15
Gm16
Gm14
FOz2
AZf3
Gs1
Gs2
Gs5
Gs6
Gs7
Gs8
Gs9
Gd6
SVI14
SVI22
SVI23
SVI24
SVs1
SVs2
SVs3
SVs4
SVs5
SVs6
CB1
CB2
CB3
AZd4
AZs3
FOz3
FOz5
FOz7
MAHAMBA
NHLANGANO
DIRKIESDORP
PAULPIETERSBURG
ITHALA GAME RESERVE
PONGOLA
MAGUDU
LOUWSBURG
VRYHEID
HLOBANE
BLOEDRIVIER
KINGSLEY
GLUCKSTADT
EMONDLO
NQUTU
HELPMEKAAR
POMEROY
QUDENI
TUGELA FERRY
JAMESON'S DRIFT
KEATE'S DRIFT
KRANSKOP
GREYTOWN
SEVENOAKS
DALTON
NEW HANOVER
ALBERT FALLS
WARTBURG
Albert Falls Dam
BABANANGO
ULUNDI
MAHLABATINI
NONGOMA
HLABISA
MKUZE
MELMOTH
NKANDLA
NKWALINI
Nkandla Forest
Ongoye Forest
ESHOWE
AMATIKULU
MAPUMULO
DARNALL
STANGER
SHAKASKRAAL
TONGAAT
UMDLOTI
MTUNZINI
GINGINDLOVU
AMATHIKULU
EMPANGENI
FELIXTON
RICHARDS BAY
MTUBATUBA
HLUHLUWE
ST LUCIA ESTUARY
GREATER ST LUCIA WETLAND PARK
KWA MBONAMBI
NSELENI
Pongola
Pongolapoort Dam
Mkuze
Mfolozi
Black Mfolozi
White Mfolozi
Mhlatuze
Tugela
Mvoti
Mdloti
29°S
31°E
32°E


19°E
20°E
25°S
26°S
27°S
AZi3
AZi4
SVkd4
SVkd1
SVkd2
SVkd3
SVk16
KGALAGADI TRANSFRONTIER PARK
MATA MATA
Auob
RIETFONTEIN
GROOT MIER
Hakskeenpan
NKb5
Koppieskraalpan
Naroegaspan
29


21°E
22°E
25°S
26°S
AZi3
AZi4
NOSSOB
SVkd2
SVk16
SVkd1
Nossob
AZi4
SVkd2
SVkd1
AZi3
SVk16
SVkd3
AZi3
TWEE RIVIEREN
SVkd3
Nossob
SVkd1
AZi4
SVkd1
WITDRAAI
SVkd3
ASKHAM
AZi3
SVkd3
Molopo
SVkd1
Kuruman
SVkd2
SVkd1
SVkd1
AZi4
30
MIDDELPUTS
AZi4
SVk12
SVk11
SVk12
AZi3
FRYLINCKSPAN
SVk12
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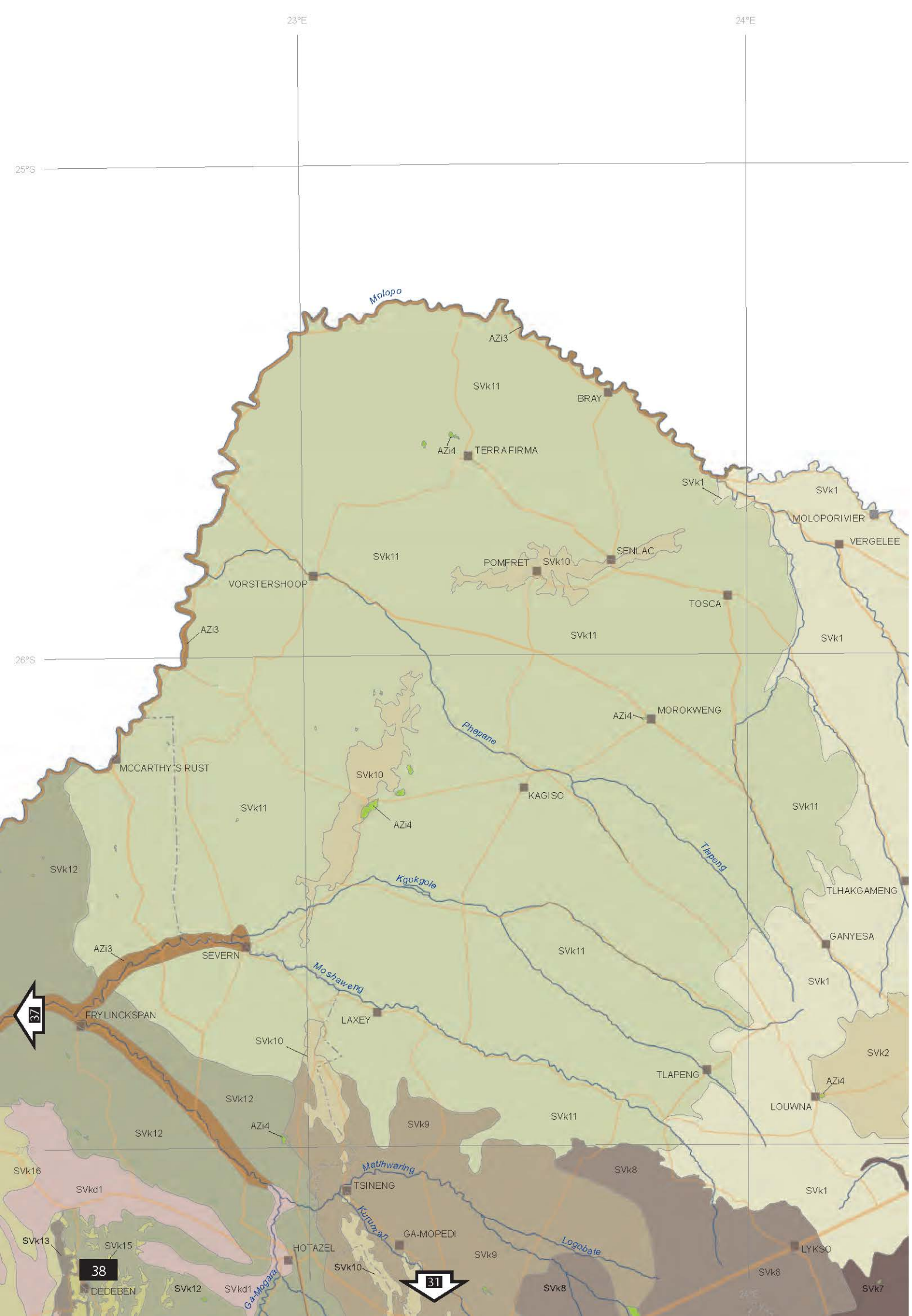
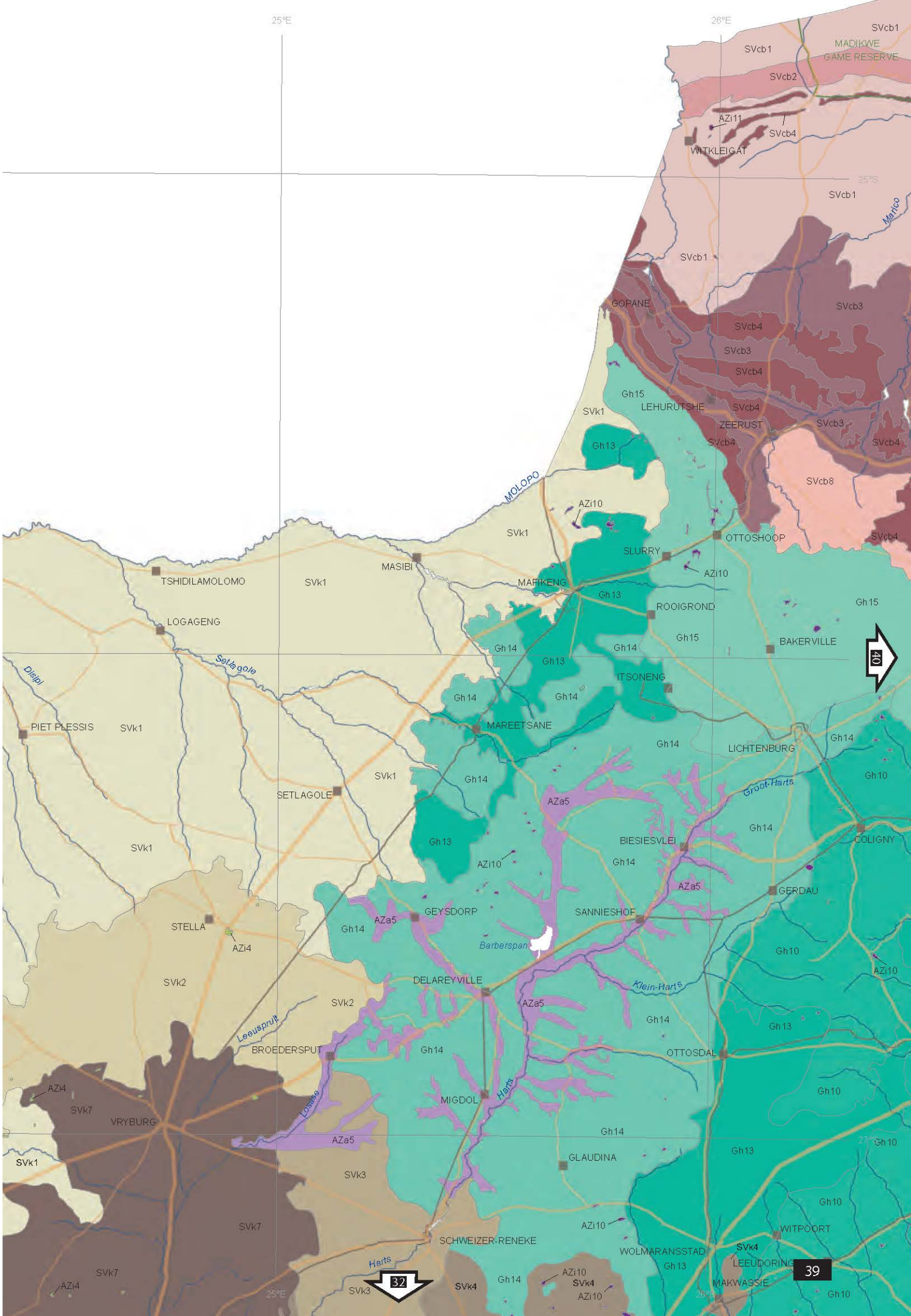
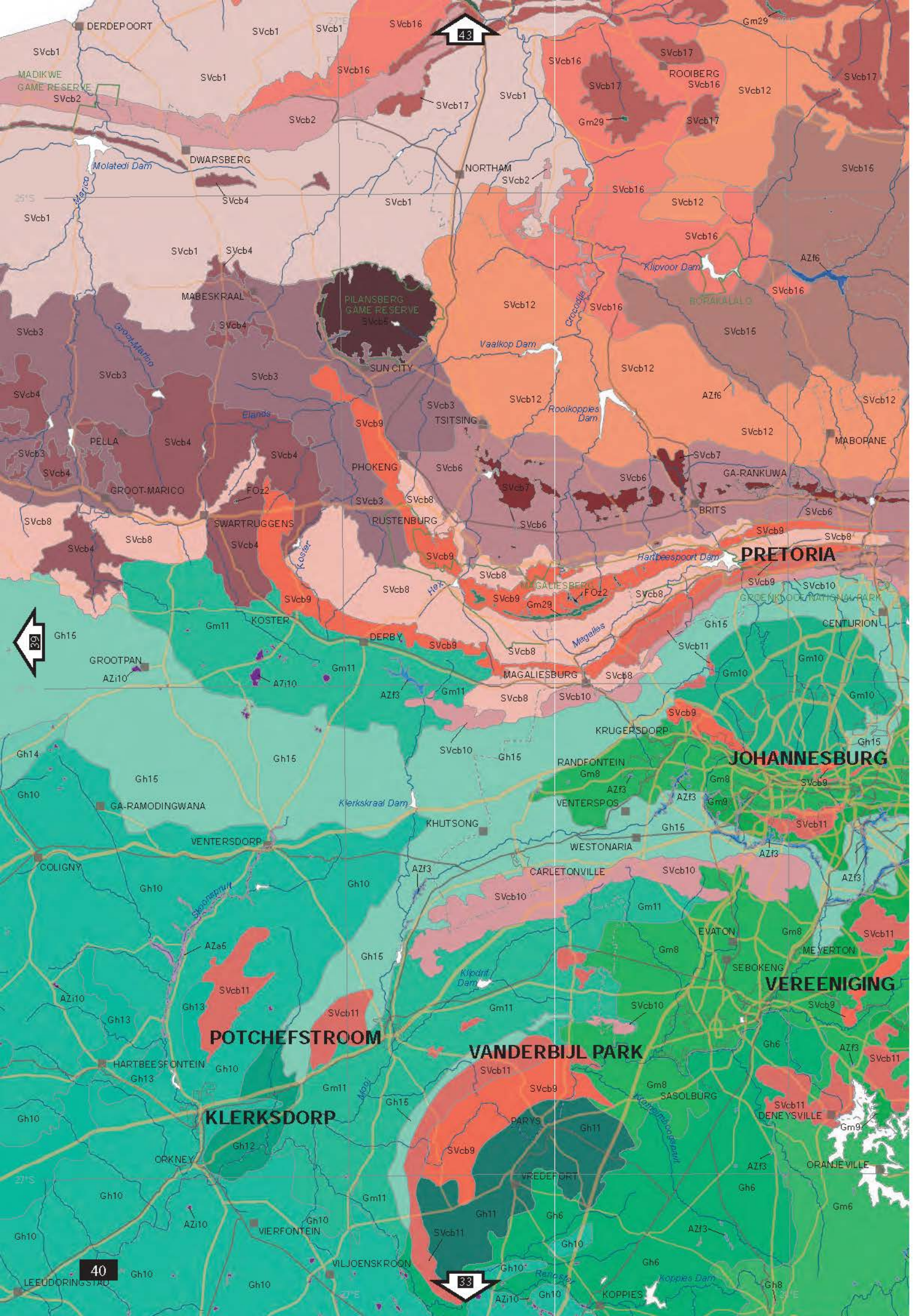
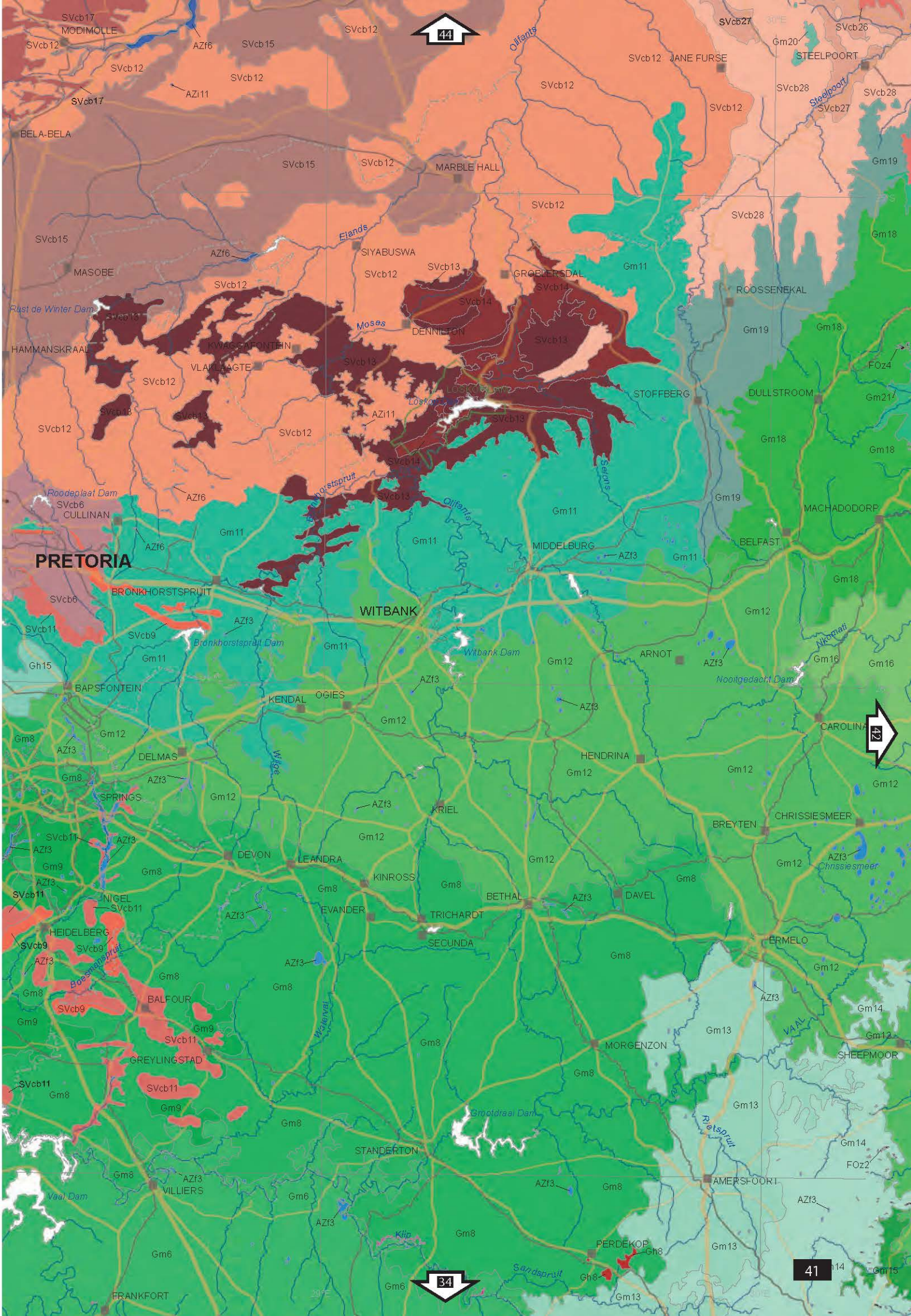
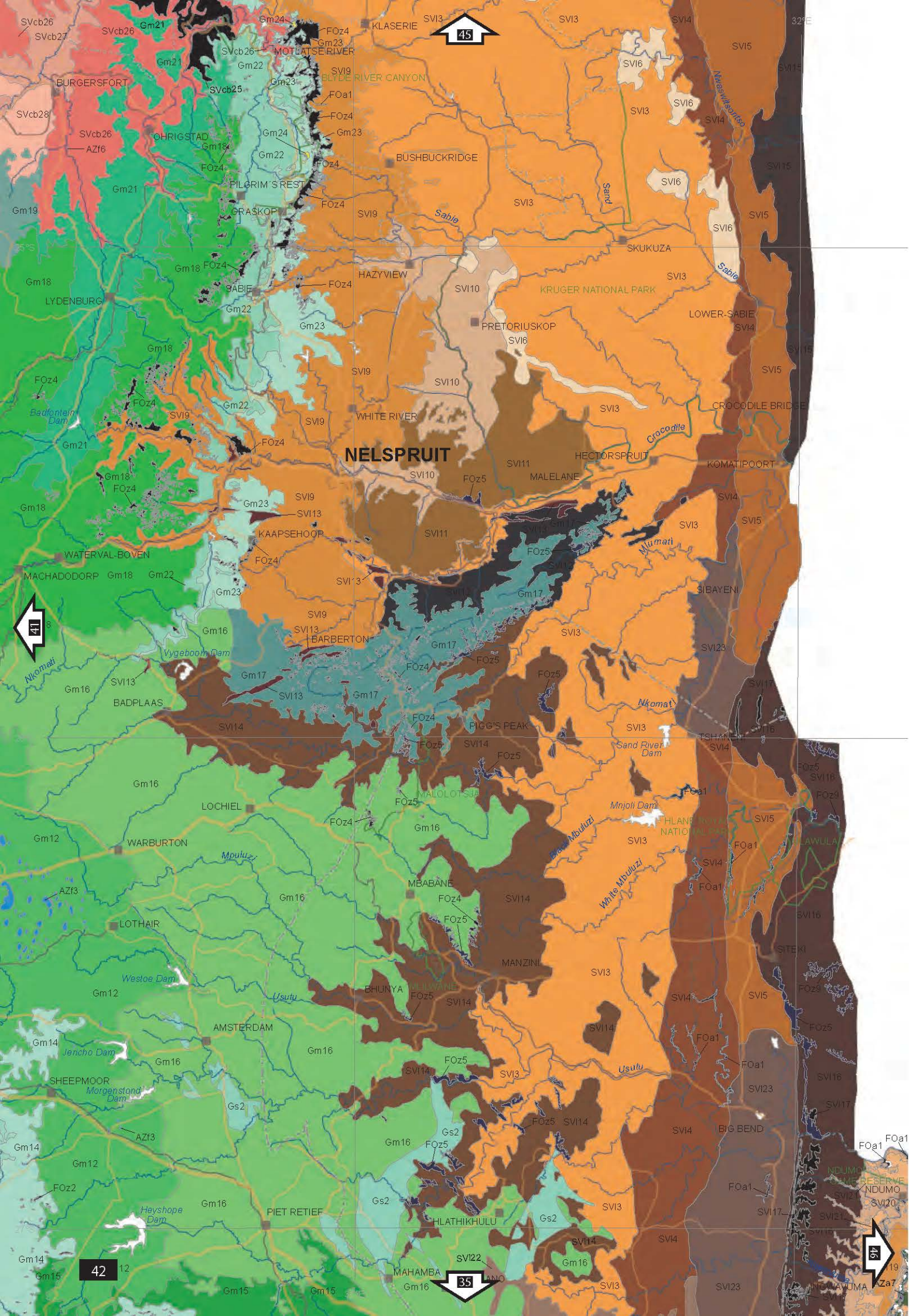
SVkd1
AZi3
VAN ZYLSRUS
SVkd1
SVk16
SVkd1
SVk12
SVk13
37

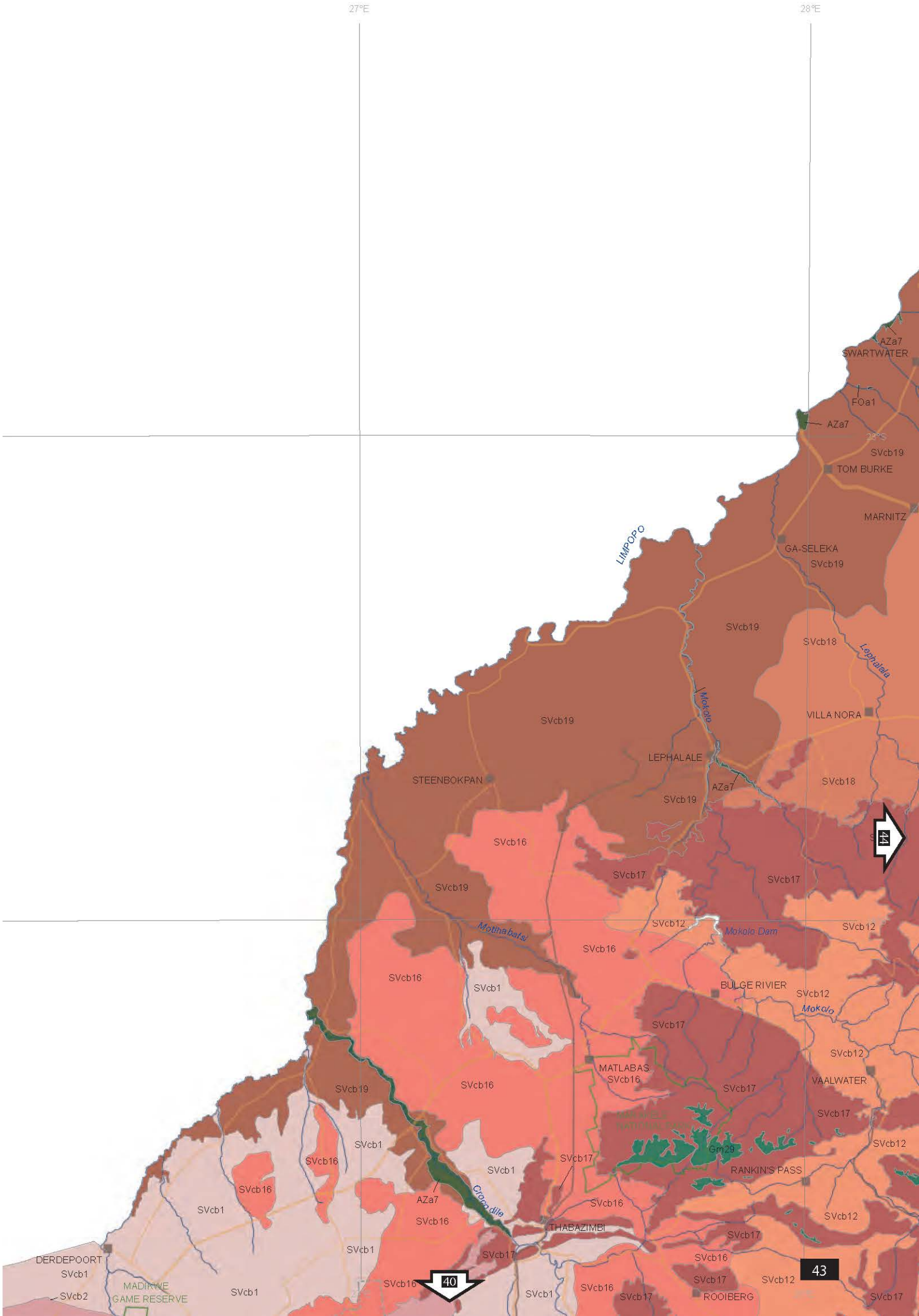

23°E
24°E
25°S
26°S
Molopo
AZi3
SVk11
BRAY
AZi4
TERRA FIRMA
SVk1
MOLOPORIVIER
VERGELEË
SENLAC
POMFRET
SVk10
VORSTERSHOOP
TOSCA
AZi3
MOROKWENG
Phepane
MCCARTHY'S RUST
KAGISO
SVk12
Kgokgole
Tlapeng
TLHAKGAMENG
GANYESA
AZi3
SEVERN
Moshaweng
37
FRYLINCKSPAN
LAXEY
TLAPENG
SVk2
LOUWNA
Matlhwaring
TSINENG
Kuruman
GA-MOPEDI
Logobate
LYKSO
SVk13
SVk15
38
HOTAZEL
31
DEDEBEN
Ga-Mogara
SVk16
SVkd1
SVk7

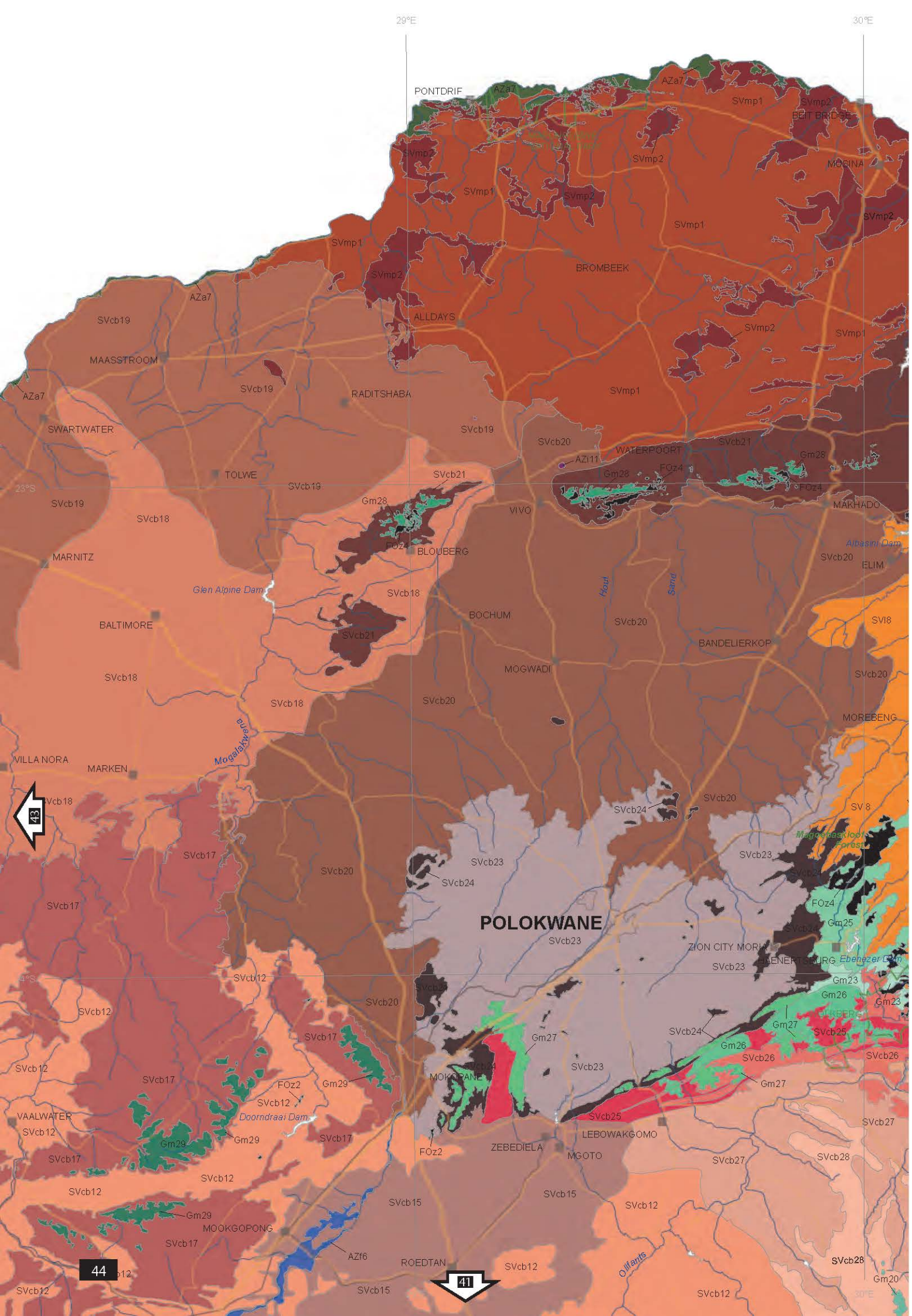

25°E
26°E
25°S
SVcb1
MADIKWE GAME RESERVE
SVcb2
AZi11
SVcb4
WITKLEIGAT
Marico
GOPANE
SVcb3
SVcb4
SVcb3
SVcb4
Gh15
LEHURUTSHE
SVcb4
SVk1
ZEERUST
SVcb3
Gh13
SVcb4
SVcb4
SVcb8
MOLOPO
AZi10
SVk1
OTTOSHOOP
SVcb4
SLURRY
MASIBI
AZi10
TSHIDILAMOLOMO
SVk1
MAFIKENG
Gh13
ROOIGROND
Gh15
LOGAGENG
Gh15
BAKERVILLE
Setlagole
Gh14
Gh14
Gh13
Dispi
ITSONENG
Gh14
Gh14
PIET PLESSIS
SVk1
MAREETSANE
Gh14
LICHTENBURG
Gh14
SVk1
Gh14
Gh10
Groot-Harts
SETLAGOLE
AZa5
Gh14
SVk1
Gh13
BIESIESVLEI
COLIGNY
AZi10
Gh14
AZa5
GERDAU
GEYSDORP
SANNIESHOF
STELLA
AZa5
Gh14
AZi4
Barberspan
Gh10
AZi10
SVk2
DELAREYVILLE
Klein-Harts
SVk2
AZa5
Leeuspruit
Gh14
Gh13
BROEDERSPUT
Gh14
OTTOSDAL
AZi4
Gh10
MIGDOL
Harts
SVk7
Losaas
VRYBURG
Gh14
AZa5
27°S
Gh10
SVk1
GLAUDINA
Gh13
SVk3
Gh10
AZi10
SVk7
WITPOORT
SCHWEIZER-RENEKE
SVk4
WOLMARANSSTAD
LEEUDORING
Harts
Gh13
SVk7
AZi10
SVk4
AZi4
SVk3
Gh14
AZi10
MAKWASSIE
Gh10
25°E
26°E
32
SVk4
AZi10
39
40

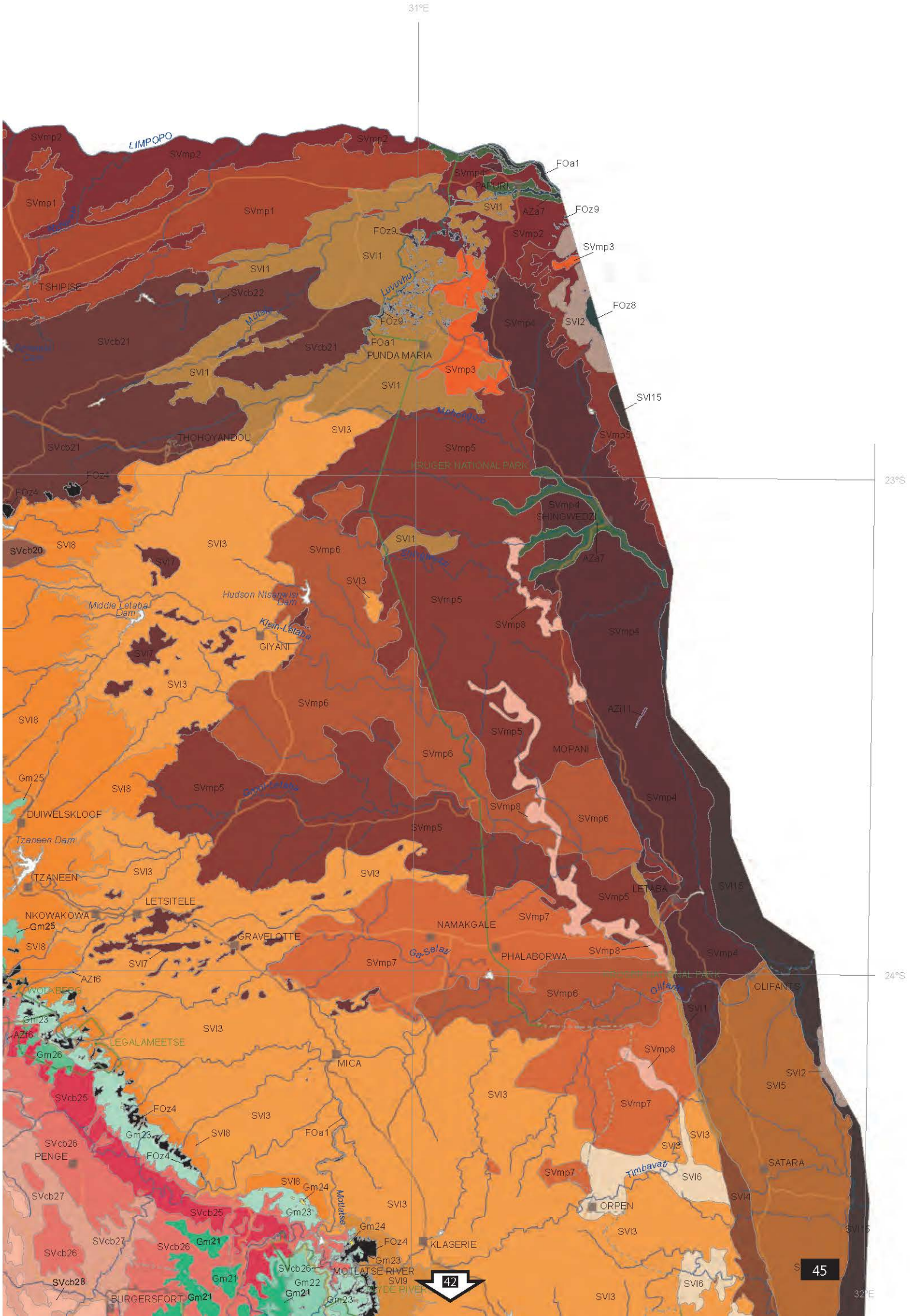

DERDEPOORT
MADIKWE GAME RESERVE
DWARSBERG
Molatedi Dam
NORTHAM
ROOIBERG
MABESKRAAL
PILANSBERG GAME RESERVE
SUN CITY
Vaalkop Dam
Klipvoor Dam
Crocodile
BORAKALALO
Rooikoppies Dam
TSITSING
PELLA
PHOKENG
GA-RANKUWA
MABOPANE
BRITS
GROOT-MARICO
SWARTRUGGENS
RUSTENBURG
Koster
Hex
Hartbeespoort Dam
PRETORIA
MAGALIESBERG
GROENKLOOF NATIONAL PARK
CENTURION
KOSTER
DERBY
Magalies
GROOTPAN
MAGALIESBURG
KRUGERSDORP
JOHANNESBURG
RANDFONTEIN
VENTERSPOS
WESTONARIA
GA-RAMODINGWANA
Klerkskraal Dam
KHUTSONG
VENTERSDORP
COLIGNY
CARLETONVILLE
Skoonspruit
EVATON
MEYERTON
SEBOKENG
VEREENIGING
Kliprif Dam
POTCHEFSTROOM
VANDERBIJL PARK
HARTBEESFONTEIN
SASOLBURG
Koppiesmaalsspruit
DENEYSVILLE
KLERKSDORP
PARYS
ORKNEY
VREDEPORT
ORANJEVILLE
VIERFONTEIN
VILJOENSKROON
Renoster
Koppies Dam
KOPPIES
LEEUDORINGSTAD
43
33
501
40

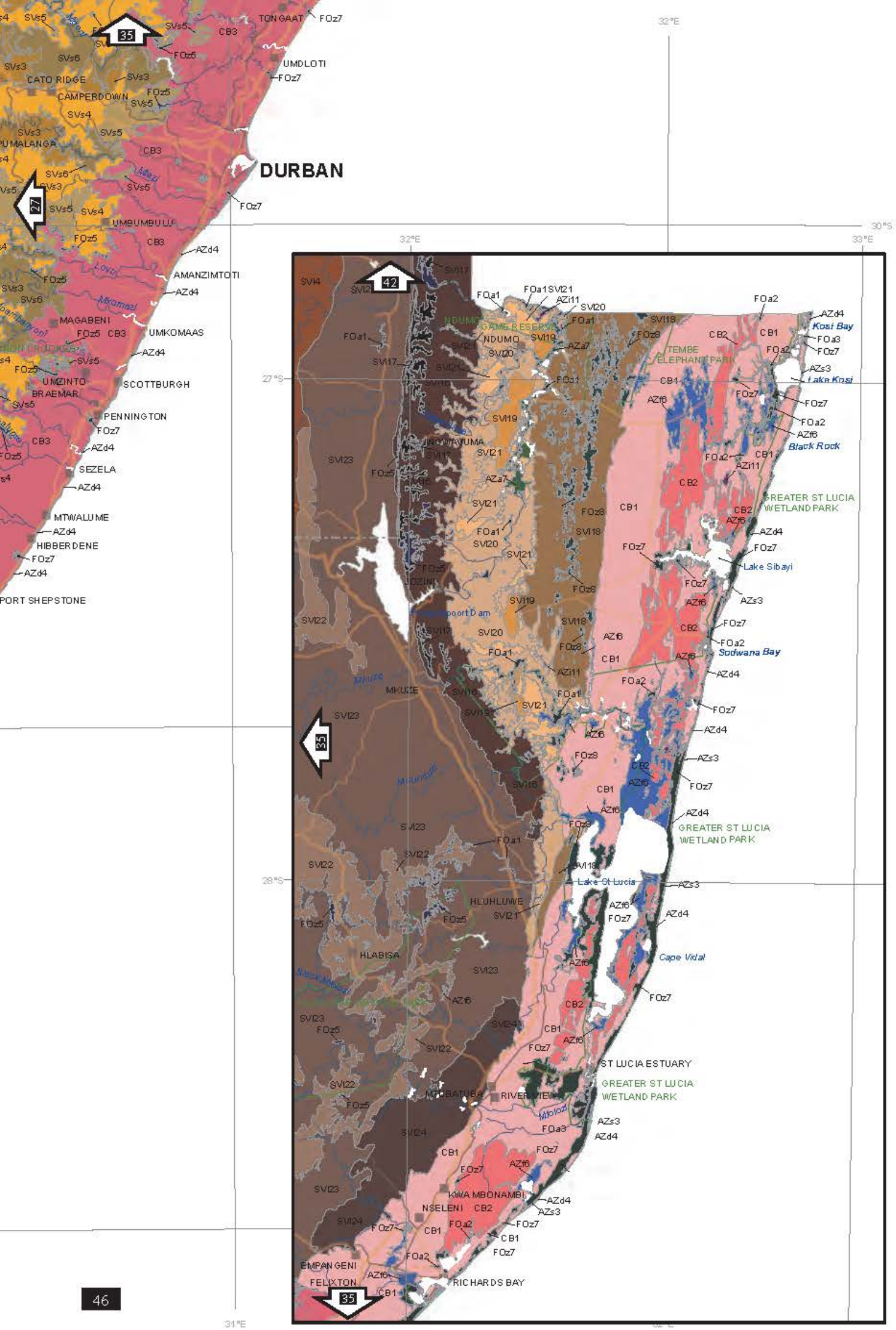

PRETORIA
WITBANK
MODIMOLLE
BELA-BELA
MASOBE
HAMMANSKRAAL
MARBLE HALL
SIYABUSWA
GROBLERSDAL
ROOSSENEKAL
DENNILTON
KWAGGAFONTEIN
VLAKLAAGTE
STOFFBERG
DULLSTROOM
MACHADODORP
BELFAST
MIDDELBURG
CULLINAN
BRONKHORSTSPRUIT
BAPSFONTEIN
KENDAL
OGIES
DELMAS
SPRINGS
ARNOT
CAROLINA
HENDRINA
KRIEL
BREYTEN
CHRISSIESMEER
DEVON
LEANDRA
KINROSS
BETHAL
DAVEL
EVANDER
TRICHARDT
SECUNDA
ERMELO
NIGEL
HEIDELBERG
BALFOUR
GREYLINGSTAD
VILLIERS
FRANKFORT
STANDERTON
MORGENZON
SHEEPMOOR
AMERSFOORT
PERDEKOP
JANE FURSE
STEELPOORT
Olifants
Elands
Moses
Rust de Winter Dam
Roodeplaat Dam
Bronkhorstspruit Dam
Witbank Dam
Nooitgedacht Dam
Chrissiesmeer
Grootdraai Dam
Vaal Dam
Sandspruit
Klip
Wilge
Waterval
Boesmanspruit
Rietspruit
VAAL
Steelpoort
Olifants
Loskop Dam
Loskop
Bronkhorstspruit
Selons
Olifants
Nkomati
44
42
34
41

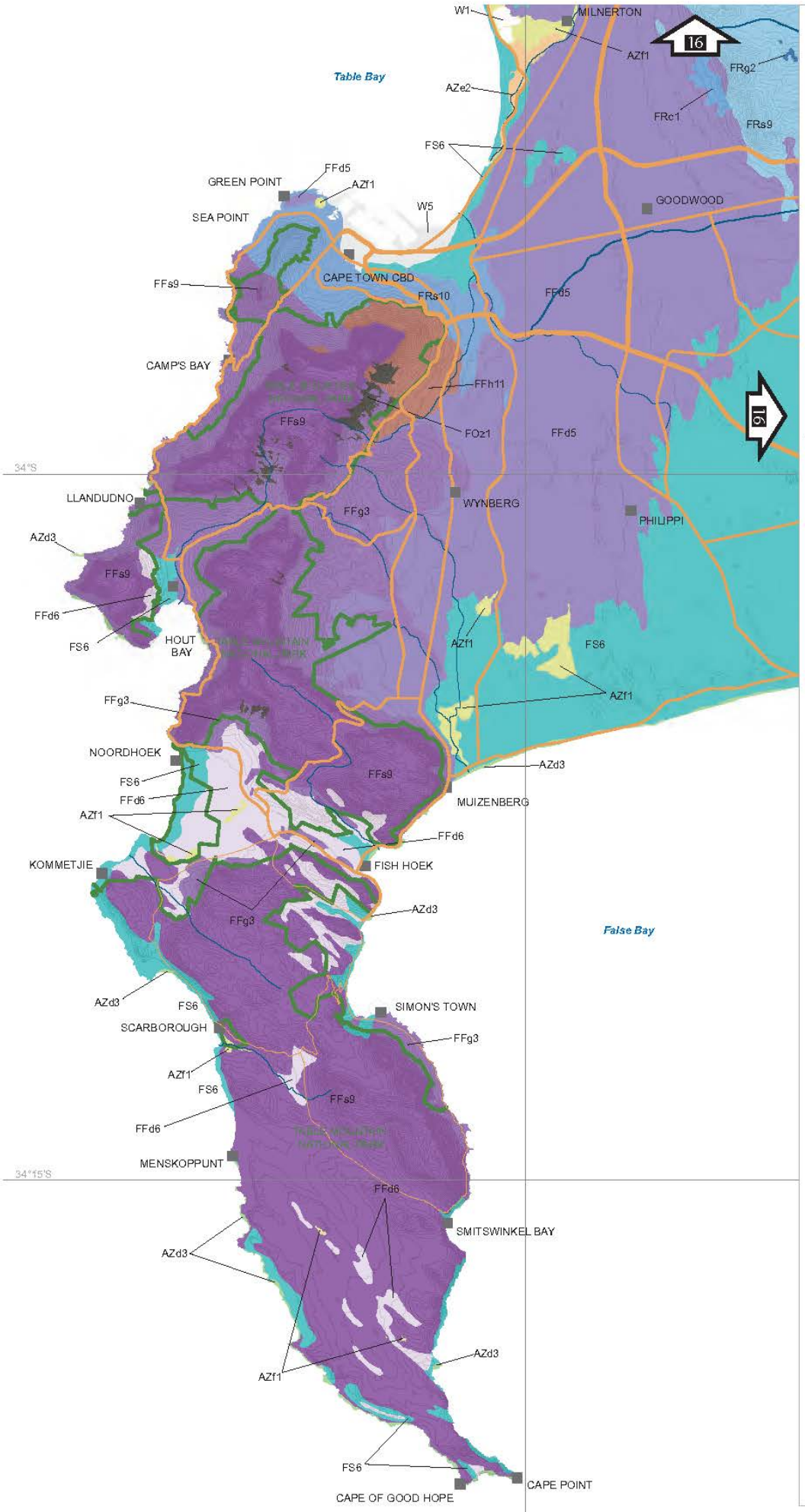

NELSPRUIT
KLASERIE
MOTLATSE RIVER
BLYDE RIVER CANYON
BURGERSFORT
OHRIGSTAD
PILGRIM'S REST
GRASKOP
BUSHBUCKRIDGE
SABIE
LYDENBURG
HAZYVIEW
SKUKUZA
KRUGER NATIONAL PARK
PRETORIUSKOP
LOWER-SABIE
CROCODILE BRIDGE
WHITE RIVER
HECTORSPRUIT
KOMATIPOORT
MALELANE
KAAPSEHOOP
WATERVAL-BOVEN
MACHADODORP
BARBERTON
SIBAYENI
BADPLAAS
PIGG'S PEAK
LOCHIEL
WARBURTON
MBABANE
LOTHAIR
MANZINI
BHUNYA
AMSTERDAM
SHEEPMOOR
PIET RETIEF
HLATHIKHULU
MAHAMBA
BIG BEND
SITEKI
TSHANENI
Badfontein Dam
Vygeboom Dam
Jericho Dam
Morgenstond Dam
Westoe Dam
Heyshope Dam
Sand River Dam
Mnjoli Dam
Crocodile
Sabie
Sand
Nkomati
Mpuluzi
Usutu
Mlumati
Nwaswitsontso
White Mbuluzi
Black Mbuluzi
45
41
42
35
46


27°E
28°E
AZa7
SWARTWATER
FOa1
AZa7
SVcb19
TOM BURKE
MARNITZ
LIMPOPO
GA-SELEKA
SVcb19
SVcb19
SVcb18
Lephalala
Mokolo
VILLA NORA
SVcb19
LEPHALALE
STEENBOKPAN
AZa7
SVcb18
SVcb19
44
SVcb16
SVcb17
SVcb17
SVcb19
Mokolo Dam
SVcb12
SVcb12
Matlhabatsi
SVcb16
SVcb16
SVcb1
BULGE RIVIER
SVcb12
Mokolo
SVcb17
SVcb12
MATLABAS
SVcb16
VAALWATER
SVcb19
SVcb16
SVcb17
SVcb17
SVcb1
Gm29
SVcb12
SVcb16
SVcb17
SVcb1
RANKIN'S PASS
SVcb16
AZa7
Crocodile
SVcb1
SVcb16
SVcb16
SVcb12
THABAZIMBI
SVcb17
SVcb1
SVcb17
SVcb16
DERDEPOORT
SVcb1
43
SVcb16
SVcb17
SVcb12
SVcb2
MADIKWE
GAME RESERVE
SVcb1
40
SVcb1
SVcb16
SVcb17
ROOIBERG
SVcb17


29°E
30°E
PONTDRIF
AZa7
SVmp1
SVmp2
BEIT BRIDGE
MOSINA
BROMBEEK
ALLDAYS
MAASSTROOM
SVcb19
RADITSHABA
SWARTWATER
TOLWE
WATERPOORT
AZi11
Gm28
FOz4
MARHADO
VIVO
SVcb21
Gm28
FOz4
BLOUBERG
MARNITZ
Albasini Dam
ELIM
SVcb20
Glen Alpine Dam
SVcb18
BALTIMORE
BOCHUM
Hout
Sand
BANDELIERKOP
SVI8
MOGWADI
SVcb20
SVcb18
MOREBENG
Mogalakwena
VILLA NORA
MARKEN
43
SVcb24
SV 8
Magoebaskloof Forest
SVcb23
SVcb17
SVcb20
FOz4
POLOKWANE
Gm25
ZION CITY MORIA
SVcb23
EBENEZERBURG
Ebenezer Dam
Gm23
Gm26
SVcb12
Gm27
SVcb25
SVcb26
MOKOPANE
SVcb17
FOz2
Gm29
SVcb12
Doorndraai Dam
VAALWATER
LEBOWAKGOMO
SVcb27
ZEBEDIELA
MGOTO
SVcb28
SVcb15
MOOKGOPONG
AZf6
ROEDTAN
41
Olifants
Gm20
44


31°E
23°S
24°S
32°E
LIMPOPO
Mutale
Luvuvhu
Mutshindudi Dam
Mthongwe
Klein-Letaba
Middle Letaba Dam
Hudson Ntsanwisi Dam
Groot-Letaba
Tzaneen Dam
Ga-selati
Olifants
Timbavati
Motlatse
Klein Olifants
TSHIPISE
THOHOYANDOU
PUNDA MARIA
KRUGER NATIONAL PARK
SHINGWEDZI
GIYANI
MOPANI
TZANEEN
DUIWELSKLOOF
LETSITELE
NKOWAKOWA
GRAVELOTTE
NAMAKGALE
PHALABORWA
LETABA
OLIFANTS
SATARA
ORPEN
LEGALAMEETSE
MICA
PENGE
KLASERIE
MOTLATSE RIVER
BURGERSFORT
SVmp1
SVmp2
SVmp3
SVmp4
SVmp5
SVmp6
SVmp7
SVmp8
SVI1
SVI2
SVI3
SVI4
SVI5
SVI6
SVI7
SVI8
SVI9
SVI15
AZa7
AZf6
AZf11
FOa1
FOz4
FOz8
FOz9
SVcb20
SVcb21
SVcb22
SVcb25
SVcb26
SVcb27
SVcb28
Gm21
Gm22
Gm23
Gm24
Gm25
Gm26
42
45


DURBAN
TONGAAT
UMDLOTI
CATO RIDGE
CAMPERDOWN
UMBUMBULU
AMANZIMTOTI
MAGABENI
UMKOMAAS
UMZINTO
SCOTTBURGH
BRAEMAR
PENNINGTON
SEZELA
MTWALUME
HIBBERDENE
PORT SHEPSTONE
NDUMO GAME RESERVE
TEMBE ELEPHANT PARK
Kosi Bay
Lake Kosi
Black Rock
GREATER ST LUCIA WETLAND PARK
Lake Sibayi
Sodwana Bay
Lake St Lucia
Cape Vidal
ST LUCIA ESTUARY
GREATER ST LUCIA WETLAND PARK
KWA MBONAMBI
NSELENI
EMPANGENI
FELIXTON
RICHARDS BAY
HLABISA
HLUHLUWE
MKUZE
27°S
28°S
30°S
31°E
32°E
33°E



Vegetation Map of the Cape Peninsula

(Western Cape, South Africa)

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2014

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0 1 2 4 6 8 Km

Projection: Albers
Central Meridian: 18.5
Standard Parallel 1: -20
Standard Parallel 2: -30
Geographic Coordinate System: WGS 1984
Sources of GIS layers: Vegmap 2012
Sources of rivers: 1:500 000 DWAF rivers coverage

- Town
- National road
- Main road
- Secondary road
- Protected area boundary
- River
- 20 m contour

- FFs9: Peninsula Sandstone Fynbos
- FFd5: Cape Flats Sand Fynbos
- FFd6: Hangklip Sand Fynbos
- FFh11: Peninsula Shale Fynbos
- FFg3: Peninsula Granite Fynbos
- FRs9: Swartland Shale Renosterveld
- FRs10: Peninsula Shale Renosterveld
- FRg2: Swartland Granite Renosterveld
- FRc1: Swartland Silcrete Renosterveld
- FS6: Cape Flats Dune Strandveld
- FOz1: Southern Afrotemperate Forest
- AZe2: Cape Estuarine Salt Marshes
- AZd3: Cape Seashore Vegetation
- AZf1: Cape Lowland Freshwater Wetlands
- W1: Freshwater Lakes
- W5: Reclaimed Land