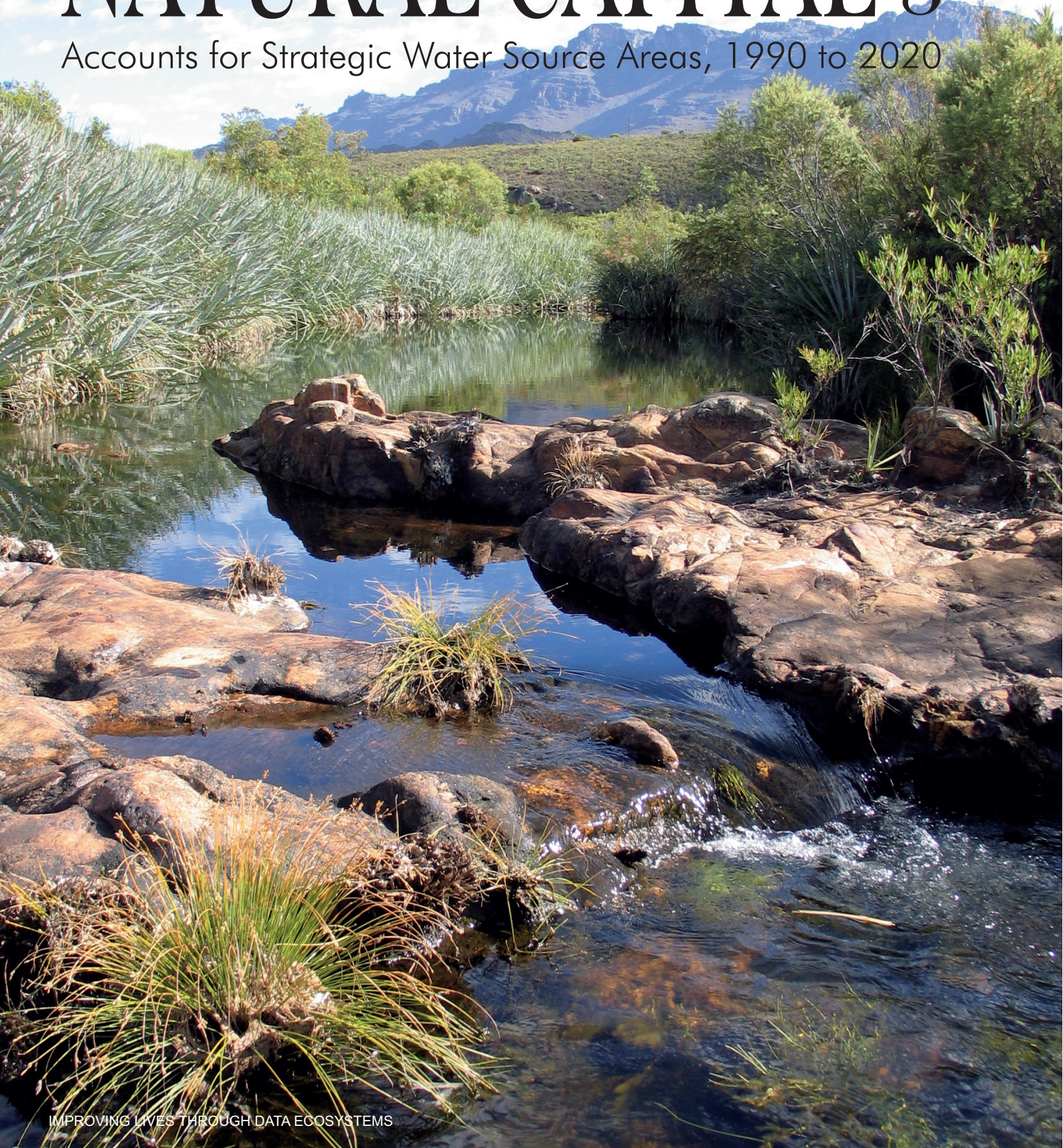


NATURAL CAPITAL 3

Accounts for Strategic Water Source Areas, 1990 to 2020



IMPROVING LIVES THROUGH DATA ECOSYSTEMS



Forestry, Fisheries and the Environment
Statistics South Africa

SANBI

Biodiversity for Life

South African National Biodiversity Institute



NATURAL CAPITAL ³

Accounts for Strategic Water Source Areas, 1990 to 2020

Embargoed until:
30 March 2023
13:30

Statistics South Africa

Joe De Beer

Discussion document. D0401.3 (March 2023)

Deputy Director-General: Economic Statistics

Accounts for Strategic Water Source Areas, 1990 to 2020 / Statistics South Africa

Published by Statistics South Africa, Private Bag X44, Pretoria 0001
© Statistics South Africa, 2023

Users may apply or process this data, provided Statistics South Africa (Stats SA) is acknowledged as the original source of the data; that it is specified that the application and/or analysis is the result of the user's independent processing of the data; and that neither the basic data nor any reprocessed version or application thereof may be sold or offered for sale in any form whatsoever without prior permission from Stats SA.

Stats SA Library Cataloguing-in-Publication (CIP) Data

Accounts for Strategic Water Source Areas, 1990 to 2020 / Statistics South Africa. Pretoria: Statistics South Africa, 2023

Accounts for Strategic Water Source Areas, 1990 to 2020
Discussion document no. D0401.3. Statistics South Africa.
Pretoria: Statistics South Africa, March 2023
Title continuous in English only

Discussion document no. D0401.3
314 pages

A complete set of Stats SA publications is available at the Stats SA Library and the following libraries:

National Library of South Africa, Pretoria Division
National Library of South Africa, Cape Town Division
Library of Parliament, Cape Town
Bloemfontein Public Library
Natal Society Library, Pietermaritzburg
Johannesburg Public Library
Eastern Cape Library Services, Qonce
Central Regional Library, Polokwane
Central Reference Library, Mbombela
Central Reference Collection, Kimberley
Central Reference Library, Mmabatho

This report is available on the Stats SA website: www.statssa.gov.za

For technical enquiries, please contact:

Name: Riaan Grobler

Tel.: 012 310 3474

Email: RiaanG@statssa.gov.za

Recommended citation: Statistics South Africa (Stats SA). 2023. Natural Capital Series 3: Accounts for Strategic Water Source Areas, 1990 to 2020. Discussion document D0401.3. Produced in collaboration with the South African National Biodiversity Institute and the Department of Forestry, Fisheries and the Environment. Statistics South Africa, Pretoria.

PREFACE

Natural Capital Accounting (NCA) is a growing field of work globally, in which South Africa is an acknowledged leader. NCA includes accounting for environmental assets such as land, water, minerals and energy, and also for ecosystem assets and ecosystem services, with an international standard, the System of Environmental-Economic Accounting (SEEA), in place for these accounts. This report is part of Statistics South Africa's (Stats SA) *Natural Capital* series and presents South Africa's first accounts for Strategic Water Source Areas (SWSAs).

Stats SA is proud to have been involved in the development of the SEEA through, amongst other things, its role on the United Nations (UN) Statistical Commission, the UN Committee of Experts on Environmental-Economic Accounting (UNCEE) and related technical committees. Stats SA as a custodian and coordinator of national statistics is embracing working in partnership with other organs of state to produce the statistics needed to make decisions for sustainable national development, including through NCA. Stats SA has developed natural capital accounts in the form of environmental economic accounts, including water, fisheries, mineral and energy accounts, since the early 2000s. Stats SA is pleased to be a collaborating partner with the Department of Forestry, Fisheries and the Environment (DFFE) and South African National Biodiversity Institute (SANBI) in developing ecosystem accounts and related thematic accounts in line with SEEA Ecosystem Accounting (adopted by the UN in March 2021).

The *Accounts for Strategic Water Source Areas, 1990 to 2020*, is an example of thematic accounts for ecological infrastructure assets. Ecological infrastructure refers to naturally functioning ecosystems that provide valuable services and benefits to people, such as water-related services, from supplying the water that feeds our dams, to removing pollutants, to lessening the risk of floods and droughts. As with built infrastructure, it is important to manage and maintain ecological infrastructure to prevent it from becoming degraded. SWSAs are assets of particular policy relevance as South Africa grapples with water insecurity and climate change, making investing in this ecological infrastructure even more crucial.

"The future of policymaking and implementation is upon us and experience has taught us that without measurement, our boat will not sail far". These are the words of the late Mr Jackson Mthembu quoted in the foreword of the Stats SA Strategic Plan. Statistics that come from accounts such as in this publication add to the richness of evidence available to decision- and policy makers. Using the best available data in South Africa and applying robust, globally endorsed methodologies, NCA can help public and private sectors understand more about the interactions between the economy, society and the environment. Information from NCA can be used to monitor and report on progress against achieving the goals of the National Development Plan and the global Sustainable Development Goals.

This report is published as a discussion document in the *Natural Capital* series. In addition to contributing to the implementation of South Africa's National NCA Strategy, which was published by Stats SA in June 2021, it also contributes to advancing knowledge on NCA and its application in a developing country context.

ACKNOWLEDGEMENTS

This report was produced as part of the *Ecological Infrastructure for Water Security (EI4WS)* project (2018 to 2025), funded by the Global Environment Facility (GEF), implemented by Development Bank of Southern Africa, supported by Department of Forestry, Fisheries and the Environment (DFFE), and executed by the South African National Biodiversity Institute (SANBI). This was done in partnership with the Department of Water and Sanitation (DWS) and the Water Research Commission (WRC) along with a range of other organisations and institutions. Statistics South Africa (Stats SA) is acknowledged as a partner in the EI4WS project related to the development of natural capital accounts for water-related ecological infrastructure.

The contents of the report are the sole responsibility of Stats SA and do not necessarily reflect the views of the GEF or the DBSA.

Amanda Driver (SANBI) and Riaan Grobler (Stats SA) are acknowledged as NCA leads in their institutions. SANBI is acknowledged as the technical lead in compiling the accounts. Specific acknowledgements are given to Amanda Driver (SANBI) for strategic leadership from inception to completion of the accounts and Aimee Ginsburg (SANBI) as the principal lead in the planning and execution of the accounts. Nokuthula Mahlangu (SANBI) is acknowledged for her technical leadership in preparing data for and compiling the accounts, documenting the technical processes involved and making the maps. Mookho Makanyane, Phumlani Zuma and Luvuyo Kani (SANBI) are acknowledged for their considerable help in data preparation, coding and data analysis, and development of maps and graphs from the accounts. This report was written through the collaborative effort of Amanda Driver, Aimee Ginsburg, Luvuyo Kani, Nokuthula Mahlangu, Mookho Makanyane and Phumlani Zuma. Robert Parry and Riaan Grobler (Stats SA) are acknowledged for their editorial support and guidance.

Members of the Technical Working Group for the Accounts for Strategic Water Source Areas are acknowledged for their guidance, including representatives of DFFE, DWS, SANBI, Stats SA and the Centre for Water Resources Research (CWRR) at the University of KwaZulu-Natal (UKZN). The following people are acknowledged for various technical and review inputs (in alphabetical order by surname): Rob Anderson (Stats SA), Yakeen Atwaru (DWS), Gemma Bouwer (Stats SA), David Clark (CWRR, UKZN), Nontutuzelo Pearl Gola (SANBI), Jacqueline Jay (DFFE), Nancy Job (SANBI), Malefyane Mautla (Stats SA) and Marinda Snyman (Stats SA).

Stakeholders who participated in a validation workshop provided valuable feedback and input that influenced additional analysis and contextual information that has been included in this report.

The accounting tables presented in this report were derived using the Environmental Systems Modelling Platform (EnSym; The State of Victoria, 2018), which is freely available. Mark Eigenraam (Institute for Development of Environmental-Economic Accounting – IDEEA Group) is acknowledged for his technical support on EnSym.

The photograph on the front cover showing a river in the Cederberg was provided courtesy of Caroline Gelderblom.



TABLE OF CONTENTS

PREFACE	I
ACKNOWLEDGEMENTS	II
TABLE OF CONTENTS	III
LIST OF FIGURES	V
LIST OF TABLES	XIII
ABBREVIATIONS	XVI
1 INTRODUCTION	1
1.1 WHAT IS NATURAL CAPITAL ACCOUNTING?	1
1.2 WHAT ARE SWSAs?	1
1.3 PURPOSE AND SCOPE OF THE ACCOUNTS FOR SWSAs	4
1.4 STRUCTURE OF THE REPORT	6
2 ESSENTIAL FOUNDATIONS FOR ACCOUNTS FOR SWSAs	7
2.1 DATASET FOR SWSAs FOR SURFACE WATER	7
2.2 SOUTH AFRICAN NATIONAL LAND COVER DATA	7
2.3 PROTECTED AREA DATASET	11
2.4 SPATIAL DATASETS USED IN ADDITIONAL ANALYSIS AND PRESENTATION	16
3 KEY FINDINGS ACROSS ALL SWSAs	21
3.1 PROFILE OF SWSAs IN RELATION TO BIOMES, PROVINCES AND WATER MANAGEMENT AREAS	21
3.2 LAND ACCOUNTS ACROSS ALL SWSAs	30
3.3 ACCOUNTS FOR PROTECTED AREAS ACROSS ALL SWSAs	44
4 KEY FINDINGS PER SWSA	58
4.1 TABLE MOUNTAIN SWSA	58
4.2 BOLAND SWSA	66
4.3 GROOT WINTERHOEK SWSA	73
4.4 LANGEBERG SWSA	80
4.5 SWARTBERG SWSA	88
4.6 OUTENIQUA SWSA	95
4.7 KOUGA SWSA	102
4.8 TSITSIKAMMA SWSA	109
4.9 AMATHOLE SWSA	116
4.10 EASTERN CAPE DRakensBERG SWSA	123
4.11 SOUTHERN DRakensBERG SWSA	130
4.12 NORTHERN DRakensBERG SWSA	138
4.13 MALOTI DRakensBERG SWSA	146
4.14 MFOLOZI HEADWATERS SWSA	153
4.15 ENKANGALA GRASSLAND SWSA	160
4.16 UPPER VAAL SWSA	168

4.17	UPPER USUTU SWSA	175
4.18	MBABANE HILLS SWSA	183
4.19	MPUMALANGA DRAKENSBERG SWSA	190
4.20	WOLKBERG SWSA.....	198
4.21	SOUTPANSBERG SWSA	205
4.22	WATERBERG SWSA.....	212
5	DIRECTIONS FOR FUTURE WORK.....	219
6	REFERENCES	221
APPENDIX 1: BRIEF DESCRIPTION OF THE TERRESTRIAL BIOMES OF SOUTH AFRICA....		223
APPENDIX 2: PROPORTION OF SWSAS ACROSS PROVINCES, DISTRICT MUNICIPALITIES AND METROPOLITAN MUNICIPALITIES.....		226
APPENDIX 3: ACCOUNT TABLES FOR LAND ACCOUNTS FOR EACH SWSA		228
APPENDIX 4: ACCOUNT TABLES FOR PROTECTED AREAS IN EACH SWSA.....		272
PREVIOUS PUBLICATIONS IN THE NATURAL CAPITAL SERIES		294

LIST OF FIGURES

Figure 1.	Spatial distribution of SWSAs for surface water in South Africa, Lesotho and Eswatini	3
Figure 2.	South African National Land Cover 2020, showing main land cover classes (tier 2) .	10
Figure 3.	Protected areas in South Africa in 2020, based on the South African Protected Areas Database	12
Figure 4.	District and metropolitan municipalities within South Africa's nine provinces, showing codes assigned by the Municipal Demarcation Board	17
Figure 5.	Terrestrial biomes of South Africa	19
Figure 6.	SWSAs in relation to terrestrial biomes	23
Figure 7.	Biome composition of SWSAs	25
Figure 8.	SWSAs showing Water Management Area boundaries	27
Figure 9:	Population density per SWSA in 2011, based on the population census	30
Figure 10.	Proportion of main land cover classes (tier 2) in all SWSAs in 1990 (a) and 2020 (b) and for South Africa's mainland in 1990 (c) and 2020 (d)	36
Figure 11.	Spatial distribution of main land cover classes (tier 2) in SWSAs, 2020	39
Figure 12.	Composition of main land cover classes (tier 2) per SWSA (group 1), 1990, 2014, 2018, 2020	40
Figure 13.	Composition of main land cover classes (tier 2) per SWSA (group 2), 1990, 2014, 2018, 2020	41
Figure 14.	Proportion of natural or semi-natural land cover per SWSA, 2020, in relation to an ecological function threshold of 60,0%	43
Figure 15.	Spatial distribution of protection in SWSAs in 2020 for all protected area types combined	50
Figure 16.	Proportion of total SWSA extent protected and not protected in 1990 (a) and 2020 (b) and proportion South Africa's mainland protected and not protected in 1990 (c) and 2020 (d)	51
Figure 17.	Total extent protected and not protected per SWSA in 2020, in hectares	52
Figure 18.	Proportion protected per SWSA, 1990, 2014, 2018, 2020	53
Figure 19.	Spatial distribution of protected areas in SWSAs in 2020 by protected area type	54
Figure 20.	Composition of the protected area estate in all SWSAs combined in 1990 (a) and 2020 (b) and for South Africa's mainland in 1990 (c) and 2020 (d)	55
Figure 21.	Cumulative extent of the protected area estate per SWSA (group 1) by protected area type, 1990, 2014, 2018 and 2020, in hectares	56
Figure 22.	Cumulative extent of the protected area estate per SWSA (group 2) by protected area type, 1990, 2014, 2018 and 2020, in hectares	57
Figure 23.	District municipalities in and around Table Mountain SWSA	59
Figure 24.	Terrestrial biomes in and around Table Mountain SWSA	59

Figure 25.	Main source of water for households living in Table Mountain SWSA based on the 2011 population census	60
Figure 26.	Land cover classes (tier 2) in Table Mountain SWSA, 2020.....	62
Figure 27.	Land cover composition (tier 2) in Table Mountain SWSA, 1990, 2014, 2018, 2020.....	62
Figure 28.	Protected areas occurring wholly or partially within Table Mountain SWSA, 2020	64
Figure 29.	Proportion of Table Mountain SWSA protected, 1990, 2014, 2018, 2020	64
Figure 30.	Extent of protected areas in Table Mountain SWSA by protected area type, 1990, 2014, 2018, 2020, in hectares.....	65
Figure 31.	District municipalities in and around Boland SWSA.....	66
Figure 32.	Terrestrial biomes in and around Boland SWSA.....	67
Figure 33.	Main source of water for domestic use for households living in Boland SWSA, based on the 2011 population census	67
Figure 34.	Land cover classes (tier 2) in Boland SWSA, 2020	69
Figure 35.	Land cover composition (tier 2) in Boland SWSA, 1990, 2014, 2018, 2020	69
Figure 36.	Protected areas occurring wholly or partially within Boland SWSA, 2020	71
Figure 37.	Proportion of Boland SWSA protected, 1990, 2014, 2018, 2020.....	71
Figure 38.	Extent of protected areas in Boland SWSA by protected area type, 1990, 2014, 2018, 2020.....	72
Figure 39.	District municipalities in and around Groot Winterhoek SWSA.....	73
Figure 40.	Terrestrial biomes in and around Groot Winterhoek SWSA.....	74
Figure 41.	Main sources of water for domestic use for households living in Groot Winterhoek SWSA, based on the 2011 population census	74
Figure 42.	Land cover classes (tier 2) in Groot Winterhoek SWSA, 2020	76
Figure 43.	Land cover composition (tier 2) in Groot Winterhoek SWSA, 1990, 2014, 2018, 2020.....	76
Figure 44.	Protected areas occurring wholly or partially within Groot Winterhoek SWSA, 2020.....	78
Figure 45.	Proportion of Groot Winterhoek SWSA protected, 1990, 2014, 2018, 2020.....	78
Figure 46.	Extent of protected areas in Groot Winterhoek SWSA by protected area type, 1990, 2014, 2018, 2020	79
Figure 47.	District municipalities in and around Langeberg SWSA.....	80
Figure 48.	Terrestrial biomes in and around Langeberg SWSA.....	81
Figure 49.	Main source of water for domestic use for households living in Langeberg SWSA, based on the 2011 population census	81
Figure 50.	Land cover classes (tier 2) in Langeberg SWSA, 2020	84

Figure 51.	Land cover composition (tier 2) in Langeberg SWSA, 1990, 2014, 2018, 2020	84
Figure 52.	Protected area types occurring wholly or partially within Langeberg SWSA, 2020	86
Figure 53.	Proportion of Langeberg SWSA protected, 1990, 2014, 2018, 2020.....	86
Figure 54.	Extent of protected areas in Langeberg SWSA by protected area type, 1990, 2014, 2018, 2020.....	87
Figure 55.	District municipalities in and around Swartberg SWSA.....	88
Figure 56.	Terrestrial biomes in and around Swartberg SWSA	89
Figure 57.	Main source of water for domestic use for households living in Swartberg SWSA based on the 2011 population census	89
Figure 58.	Land cover classes (tier 2) in Swartberg SWSA, 2020	91
Figure 59.	Land cover composition (tier 2) in Swartberg SWSA, 1990, 2014, 2018, 2020.....	91
Figure 60.	Protected area types occurring wholly or partially within Swartberg SWSA, 2020	93
Figure 61.	Proportion of Swartberg SWSA protected, 1990, 2014, 2018, 2020	93
Figure 62.	Extent of protected areas in Swartberg SWSA by protected area type, 1990, 2014, 2018, 2020.....	94
Figure 63.	District municipalities in and around Outeniqua SWSA	95
Figure 64.	Terrestrial biomes in and around Outeniqua SWSA	96
Figure 65.	Main source of water for domestic use for households living in Outeniqua SWSA, based on the 2011 population census	96
Figure 66.	Land cover classes (tier 2) in Outeniqua SWSA, 2020	98
Figure 67.	Land cover composition (tier 2) of Outeniqua SWSA, 1990, 2014, 2018, 2020	98
Figure 68.	Protected areas occurring wholly or partially within Outeniqua SWSA, 2020.....	100
Figure 69.	Proportion of Outeniqua SWSA protected, 1990, 2014, 2018, 2020	100
Figure 70.	Extent of protected areas in Outeniqua SWSA by protected area type, 1990, 2014, 2018, 2020.....	101
Figure 71.	District municipalities in and around Kouga SWSA.....	102
Figure 72.	Terrestrial biomes in and around Kouga SWSA	103
Figure 73.	Main source of water for domestic use for households living in Kouga SWSA, based on the 2011 population census	103
Figure 74.	Land cover classes (tier 2) in Kouga SWSA, 2020	105
Figure 75.	Land cover composition (tier 2) in Kouga SWSA, 1990, 2014, 2018, 2020.....	105
Figure 76.	Protected areas occurring wholly or partially within Kouga SWSA, 2020	107
Figure 77.	Proportion of Kouga SWSA protected, 1990, 2014, 2018, 2020	107
Figure 78.	Extent of protected areas in Kouga SWSA by protected area type, 1990, 2014, 2018, 2020.....	108

Figure 79.	District municipalities in and around Tsitsikamma SWSA.....	109
Figure 80.	Terrestrial biomes in and around Tsitsikamma SWSA.....	110
Figure 81.	Main source of water for domestic use for households living in Tsitsikamma SWSA, based on the 2011 population census	110
Figure 82.	Land cover classes (tier 2) in Tsitsikamma SWSA, 2020	112
Figure 83.	Land cover composition (tier 2) in Tsitsikamma SWSA, 1990, 2014, 2018, 2020	112
Figure 84.	Protected areas occurring wholly or partially within Tsitsikamma SWSA, 2020	114
Figure 85.	Proportion of Tsitsikamma SWSA protected, 1990, 2014, 2018, 2020.....	114
Figure 86.	Extent of protected areas in Tsitsikamma SWSA by protected area type, 1990, 2014, 2018, 2020.....	115
Figure 87.	District municipalities in and around Amathole SWSA.....	116
Figure 88.	Terrestrial biomes in and around Amathole SWSA.....	117
Figure 89.	Main source of water for domestic use for households living in Amathole SWSA, based on the 2011 population census	117
Figure 90.	Land cover classes (tier 2) in Amathole SWSA, 2020	119
Figure 91.	Land cover composition (tier 2) in Amathole SWSA, 1990, 2014, 2018, 2020	119
Figure 92.	Protected areas occurring wholly or partially within Amathole SWSA, 2020	121
Figure 93.	Proportion of Amathole SWSA protected, 1990, 2014, 2018, 2020.....	121
Figure 94.	Extent of protected areas in Amathole SWSA by protected area type, 1990, 2014, 2018, 2020.....	122
Figure 95.	District municipalities in and around Eastern Cape Drakensberg SWSA	123
Figure 96.	Terrestrial biomes in and around Eastern Cape Drakensberg SWSA	124
Figure 97.	Main source of water for domestic use for households living in Eastern Cape Drakensberg SWSA, based on the 2011 population census	124
Figure 98.	Land cover classes (tier 2) in Eastern Cape Drakensberg SWSA, 2020	126
Figure 99.	Land cover composition (tier 2) in Eastern Cape Drakensberg SWSA, 1990, 2014, 2018, 2020.....	126
Figure 100.	Protected areas occurring wholly or partially within Eastern Cape Drakensberg SWSA, 2020	128
Figure 101.	Proportion of Eastern Cape Drakensberg SWSA protected, 1990, 2014, 2018, 2020.....	128
Figure 102.	Extent of protected areas in Eastern Cape Drakensberg SWSA by protected area type, 1990, 2014, 2018, 2020.....	129
Figure 103.	District municipalities in and around Southern Drakensberg SWSA.....	130
Figure 104.	Terrestrial biomes in and around Southern Drakensberg SWSA	131
Figure 105.	Main source of water for domestic use for households living in Southern Drakensberg SWSA, based on the 2011 population census	131

Figure 106.	Land cover classes (tier 2) in Southern Drakensberg SWSA, 2020	134
Figure 107.	Land cover composition (tier 2) in Southern Drakensberg SWSA, 1990, 2014, 2018, 2020.....	134
Figure 108.	Protected areas occurring wholly or partially within Southern Drakensberg SWSA, 2020	136
Figure 109.	Proportion of Southern Drakensberg SWSA protected, 1990, 2014, 2018, 2020	137
Figure 110.	Extent of protected areas in Southern Drakensberg SWSA by protected area type, 1990, 2014, 2018, 2020.....	137
Figure 111.	District municipalities in and around Northern Drakensberg SWSA	138
Figure 112.	Terrestrial biomes in and around Northern Drakensberg SWSA	139
Figure 113.	Main source of water for domestic use for households living in Northern Drakensberg SWSA, based on the 2011 population census	139
Figure 114.	Land cover classes (tier 2) in Northern Drakensberg SWSA, 2020.....	142
Figure 115.	Land cover composition (tier 2) in Northern Drakensberg SWSA, 1990, 2014, 2018, 2020.....	142
Figure 116.	Protected areas occurring wholly or partially within Northern Drakensberg SWSA, 2020	144
Figure 117.	Proportion of Northern Drakensberg SWSA protected, 1990, 2014, 2018, 2020	144
Figure 118.	Extent of protected areas in Northern Drakensberg SWSA by protected area type, 1990, 2014, 2018, 2020.....	145
Figure 119.	District municipalities in and around Maloti Drakensberg SWSA.....	146
Figure 120.	Terrestrial biomes in and around Maloti Drakensberg SWSA	147
Figure 121.	Main source of water for domestic use for households living in Maloti Drakensberg SWSA, based on the 2011 population census	147
Figure 122.	Land cover classes (tier 2) in Maloti Drakensberg SWSA, 2020	149
Figure 123.	Land cover composition (tier 2) in Maloti Drakensberg SWSA, 1990, 2014, 2018, 2020.....	149
Figure 124.	Protected areas occurring wholly or partially within Maloti Drakensberg SWSA, 2020.....	151
Figure 125.	Proportion of Maloti Drakensberg SWSA protected, 1990, 2014, 2018, 2020	151
Figure 126.	Extent of protected areas in Maloti Drakensberg SWSA by protected area type, 1990, 2014, 2018, 2020	152
Figure 127.	District municipalities in and around Mfolozi Headwaters SWSA	153
Figure 128.	Terrestrial biomes in and around Mfolozi Headwaters SWSA	154
Figure 129.	Main source of water for domestic use for households living in Mfolozi Headwaters SWSA, based on the 2011 population census	154
Figure 130.	Land cover classes (tier 2) in Mfolozi Headwaters SWSA, 2020	156

Figure 131.	Land cover composition (tier 2) in Mfolozi Headwaters SWSA, 1990, 2014, 2018, 2020.....	156
Figure 132.	Protected areas occurring wholly or partially within Mfolozi Headwaters SWSA, 2020.....	158
Figure 133.	Proportion of Mfolozi Headwaters SWSA protected, 1990, 2014, 2018, 2020	159
Figure 134.	Extent of protected areas in Mfolozi Headwaters SWSA by protected area type, 1990, 2014, 2018, 2020	159
Figure 135.	District municipalities in and around Enkangala Grassland SWSA	160
Figure 136.	Terrestrial biomes in and around Enkangala Grassland SWSA	161
Figure 137.	Main source of water for domestic use for households living in Enkangala Grassland SWSA, based on the 2011 population census	161
Figure 138.	Land cover classes (tier 2) in Enkangala Grassland SWSA, 2020	164
Figure 139.	Land cover composition (tier 2) in Enkangala Grassland SWSA, 1990, 2014, 2018, 2020.....	164
Figure 140.	Protected areas occurring wholly or partially within Enkangala Grassland SWSA, 2020.....	166
Figure 141.	Proportion of Enkangala Grassland SWSA protected, 1990, 2014, 2018, 2020	167
Figure 142.	Extent of protected areas in Enkangala Grassland SWSA by protected area type, 1990, 2014, 2018, 2020	167
Figure 143.	District municipalities in and around Upper Vaal SWSA.....	168
Figure 144.	Terrestrial biomes in and around Upper Vaal SWSA.....	169
Figure 145.	Main source of water for domestic use for households living in Upper Vaal SWSA, based on the 2011 population census.....	169
Figure 146.	Land cover classes (tier 2) in Upper Vaal SWSA, 2020.....	171
Figure 147.	Land cover composition (tier 2) in Upper Vaal SWSA, 1990, 2014, 2018, 2020	171
Figure 148.	Protected areas occurring wholly or partially within Upper Vaal SWSA, 2020	173
Figure 149.	Proportion of Upper Vaal SWSA protected, 1990, 2014, 2018, 2020.....	173
Figure 150.	Extent of protected areas in Upper Vaal SWSA by protected area type, 1990, 2014, 2018, 2020.....	174
Figure 151.	District municipalities in and around Upper Usutu SWSA.....	175
Figure 152.	Terrestrial biomes in and around Upper Usutu SWSA.....	176
Figure 153.	Main source of water for domestic use for households living in Upper Usutu SWSA, based on the 2011 population census	176
Figure 154.	Land cover classes (tier 2) in Upper Usutu SWSA, 2020	179
Figure 155.	Land cover composition (tier 2) in Upper Usutu SWSA, 1990, 2014, 2018, 2020	179
Figure 156.	Protected areas occurring wholly or partially within Upper Usutu SWSA, 2020	181
Figure 157.	Proportion of Upper Usutu SWSA protected, 1990, 2014, 2018, 2020.....	181

Figure 158.	Extent of protected areas in Upper Usutu SWSA by protected area type, 1990, 2014, 2018, 2020.....	182
Figure 159.	District municipalities in and around Mbabane Hills SWSA	183
Figure 160.	Terrestrial biomes in and around Mbabane Hills SWSA	184
Figure 161.	Main source of water for domestic use for households living in Mbabane Hills SWSA, based on the 2011 population census	184
Figure 162.	Land cover classes (tier 2) in Mbabane Hills SWSA, 2020.....	186
Figure 163.	Land cover composition (tier 2) in Mbabane Hills SWSA, 1990, 2014, 2018, 2020	186
Figure 164.	Protected areas occurring wholly or partially within Mbabane Hills SWSA, 2020	188
Figure 165.	Proportion of Mbabane Hills SWSA protected, 1990, 2014, 2018, 2020	189
Figure 166.	Extent of protected areas in Mbabane Hills SWSA by protected area type, 1990, 2014, 2018, 2020	189
Figure 167.	District municipalities in and around Mpumalanga Drakensberg SWSA	190
Figure 168.	Terrestrial biomes in and around Mpumalanga Drakensberg SWSA	191
Figure 169.	Main source of water for domestic use for households living in Mpumalanga Drakensberg SWSA, based on the 2011 population census	191
Figure 170.	Land cover classes (tier 2) in Mpumalanga Drakensberg SWSA, 2020	194
Figure 171.	Land cover composition (tier 2) in Mpumalanga Drakensberg SWSA, 1990, 2014, 2018, 2020	194
Figure 172.	Protected areas occurring wholly or partially within Mpumalanga Drakensberg SWSA, 2020	196
Figure 173.	Proportion of Mpumalanga Drakensberg SWSA protected, 1990, 2014, 2018, 2020.....	197
Figure 174.	Extent of protected areas in Mpumalanga Drakensberg SWSA by protected area type, 1990, 2014, 2018, 2020.....	197
Figure 175.	District municipalities in and around Wolkberg SWSA.....	198
Figure 176.	Terrestrial biomes in and around Wolkberg SWSA.....	199
Figure 177.	Main source of water for domestic use for households living in Wolkberg SWSA, based on the 2011 population census	199
Figure 178.	Land cover classes (tier 2) in Wolkberg SWSA, 2020	201
Figure 179.	Land cover composition (tier 2) of Wolkberg SWSA, 1990, 2014, 2018, 2020.....	201
Figure 180.	Protected areas occurring wholly or partially within Wolkberg SWSA, 2020	203
Figure 181.	Proportion of Wolkberg SWSA protected, 1990, 2014, 2018, 2020.....	203
Figure 182.	Extent of protected areas in Wolkberg SWSA by protected area type, 1990, 2014, 2018, 2020.....	204
Figure 183.	District municipalities in and around Soutpansberg SWSA	205

Figure 184.	Terrestrial biomes in and around Soutpansberg SWSA	206
Figure 185.	Main source of water for domestic use for households living in Soutpansberg SWSA, based on the 2011 population census	206
Figure 186.	Land cover classes (tier 2) in Soutpansberg SWSA, 2020	208
Figure 187.	Land cover composition (tier 2) in Soutpansberg SWSA, 1990, 2014, 2018, 2020	209
Figure 188.	Protected areas occurring wholly or partially within Soutpansberg SWSA, 2020	210
Figure 189.	Proportion of Soutpansberg SWSA protected, 1990, 2014, 2018, 2020	211
Figure 190.	Extent of protected areas in Soutpansberg SWSA by protected area type, 1990, 2014, 2018, 2020	211
Figure 191.	District municipalities in and around Waterberg SWSA	212
Figure 192.	Terrestrial biomes in and around Waterberg SWSA	213
Figure 193.	Main source of water for domestic use for households living in Waterberg SWSA, based on the 2011 population census	213
Figure 194.	Land cover classes (tier 2) in Waterberg SWSA, 2020	215
Figure 195.	Land cover composition (tier 2) in Waterberg SWSA, 1990, 2014, 2018, 2020	215
Figure 196.	Protected areas occurring wholly or partially within Waterberg SWSA, 2020	217
Figure 197.	Proportion of Waterberg SWSA protected, 1990, 2014, 2018, 2020	218
Figure 198.	Extent of protected areas in Waterberg SWSA by protected area type, 1990, 2014, 2018, 2020	218

LIST OF TABLES

Table 1.	Grouping of South African National Land Cover 1990 and 2014 classes into tiers for accounting purposes	9
Table 2.	Grouping of South African National Land Cover 2018 and 2020 detailed classes into tiers for accounting purposes	9
Table 3.	Description of types of protected areas in South Africa	13
Table 4.	SWSAs organised from west to east, with grouping for graphs, full extent of each SWSA, area within South Africa (in hectares), and proportion within South Africa	22
Table 5.	Biome composition of SWSAs.....	24
Table 6.	Provincial distribution of SWSAs	26
Table 7.	Distribution of SWSAs across Water Management Areas	27
Table 8.	Estimated total population per SWSA in 2011, based on the extent of SWSAs within South Africa and the 2011 population census, reported as people per km ²	29
Table 9.	Land account for main land cover classes (tier 2) for all SWSAs combined, 1990–2014, 2014–2018 and 2018–2020, in hectares.....	34
Table 10.	Land account for main land cover classes (tier 2) for all SWSAs combined, 1990–2020, in hectares.....	35
Table 11.	Land cover composition (tier 2) per SWSA, 2020, in hectares and as a proportion of total SWSA area.....	37
Table 12.	Proportion of natural or semi-natural land cover and intensively modified land cover per SWSA in 2020, and changes in natural or semi-natural and intensively modified land cover per SWSA 1990 to 2020	42
Table 13.	Extent account for protected areas in all SWSAs combined, 1990–2014, 2014–2018 and 2018–2020, in hectares, based on declaration dates in the South African Protected Areas Database	47
Table 14.	Extent account for protected area in all SWSAs combined, 1990–2020, in hectares, based on declaration dates in the South African Protected Areas Database	47
Table 15.	Protected area types per SWSA, 2020, also showing change in protection between 1990 and 2020, in hectares and as a percentage	48
Table 16.	Indicators drawn from the land account for Table Mountain SWSA, 1990 to 2020	61
Table 17.	Indicators drawn from the protected area account for Table Mountain SWSA, 1990 to 2020.....	63
Table 18.	Indicators drawn from the land account for Boland SWSA, 1990 to 2020	68
Table 19.	Indicators drawn from the protected area account for Boland SWSA, 1990 to 2020.....	70
Table 20.	Indicators drawn from the land account for Groot Winterhoek SWSA, 1990 to 2020.....	75
Table 21.	Indicators drawn from the protected area account for Groot Winterhoek SWSA, 1990 to 2020.....	77

Table 22.	Indicators drawn from the land account for Langeberg SWSA, 1990 to 2020	83
Table 23.	Indicators drawn from the protected area account for Langeberg SWSA, 1990 to 2020.....	85
Table 24.	Indicators drawn from the land account for Swartberg SWSA, 1990 to 2020.....	90
Table 25.	Indicators drawn from the protected area account for Swartberg SWSA, 1990 to 2020.....	92
Table 26.	Indicators drawn from the land account for Outeniqua SWSA, 1990 to 2020.....	97
Table 27.	Indicators drawn from the protected area account for Outeniqua SWSA, 1990 to 2020.....	99
Table 28.	Indicators drawn from the land account for Kouga SWSA, 1990 to 2020	104
Table 29.	Indicators drawn from the protected area account for Kouga SWSA, 1990 to 2020.....	106
Table 30.	Indicators drawn from the land account for Tsitsikamma SWSA, 1990 to 2020	111
Table 31.	Indicators drawn from the protected area account for Tsitsikamma SWSA, 1990 to 2020.....	113
Table 32.	Indicators drawn from the land account for Amathole SWSA, 1990 to 2020	118
Table 33.	Indicators drawn from the protected area account for Amathole SWSA, 1990 to 2020.....	120
Table 34.	Indicators drawn from the land account for Eastern Cape Drakensberg SWSA, 1990 to 2020.....	125
Table 35.	Indicators drawn from the protected area account for Eastern Cape Drakensberg SWSA, 1990 to 2020	127
Table 36.	Indicators drawn from the land account for Southern Drakensberg SWSA, 1990 to 2020.....	133
Table 37.	Indicators drawn from the protected area account for Southern Drakensberg SWSA, 1990 to 2020	135
Table 38.	Indicators drawn from the land account for Northern Drakensberg SWSA, 1990 to 2020.....	141
Table 39.	Indicators drawn from the protected area account for Northern Drakensberg SWSA, 1990 to 2020	143
Table 40.	Indicators drawn from the land account for Maloti Drakensberg SWSA, 1990 to 2020.....	148
Table 41.	Indicators drawn from the protected area account for Maloti Drakensberg SWSA, 1990 to 2020.....	150
Table 42.	Indicators drawn from the land account for Mfolozi Headwaters SWSA, 1990 to 2020.....	155
Table 43.	Indicators drawn from the protected area account for Mfolozi Headwaters SWSA, 1990 to 2020.....	157
Table 44.	Indicators drawn from the land account for Enkangala Grassland SWSA, 1990 to 2020.....	163

Table 45.	Indicators drawn from the protected area account for Enkangala Grassland SWSA, 1990 to 2020	165
Table 46.	Indicators drawn from the land account for Upper Vaal SWSA, 1990 to 2020	170
Table 47.	Indicators drawn from the protected area account for Upper Vaal SWSA, 1990 to 2020.....	172
Table 48.	Indicators drawn from the land account for Upper Usutu SWSA, 1990 to 2020	178
Table 49.	Indicators drawn from the protected area account for Upper Usutu SWSA, 1990 to 2020.....	180
Table 50.	Indicators drawn from the land account for Mbabane Hills SWSA, 1990 to 2020	185
Table 51.	Indicators drawn from the protected area account for Mbabane Hills SWSA, 1990 to 2020	187
Table 52.	Indicators drawn from the land account for Mpumalanga Drakensberg SWSA, 1990 to 2020.....	193
Table 53.	Indicators drawn from the protected area account for Mpumalanga Drakensberg SWSA, 1990 to 2020	195
Table 54.	Indicators drawn from the land account for Wolkberg SWSA, 1990 to 2020	200
Table 55.	Indicators drawn from the protected area account for Wolkberg SWSA, 1990 to 2020.....	202
Table 56.	Indicators drawn from the land account for Soutpansberg SWSA, 1990 to 2020	208
Table 57.	Indicators drawn from the protected area account for Soutpansberg SWSA, 1990 to 2020	210
Table 58.	Indicators drawn from the land account for Waterberg SWSA, 1990 to 2020	214
Table 59.	Indicators drawn from the protected area account for Waterberg SWSA, 1990 to 2020.....	216

ABBREVIATIONS

BSU	Basic Spatial Unit
CMA	Catchment Management Agency
DALRRD	Department of Agriculture, Land Reform and Rural Development
DFFE	Department of Forestry, Fisheries and the Environment
DPME	Department of Planning Monitoring and Evaluation
DWS	Department of Water and Sanitation
GET	Global Ecosystem Typology
GTI	GeoTerraImage
ha	Hectare
IUCN	International Union for Conservation of Nature
MDB	Municipal Demarcation Board
MEC	Member of the Executive Council
MTSF	Medium-Term Strategic Framework
NBA	National Biodiversity Assessment
NCA	Natural Capital Accounting
NSDF	National Spatial Development Framework
NWRS	National Water Resource Strategy
OECM	Other Effective Area-based Conservation Measure
SAIIAE	The South African Inventory of Inland Aquatic Ecosystems
SAL	Small Area Layer
SAPAD	South African Protected Areas Database
SA-NECS	South African National Ecosystem Classification System
SANLC	South African National Land Cover
SANParks	South African National Parks
SANBI	South African National Biodiversity Institute
SEEA	System of Environmental-Economic Accounting
Stats SA	Statistics South Africa
SWSA	Strategic Water Source Area
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
WRC	Water Research Commission
WMA	Water Management Area
WWF	World Wildlife Fund

1 INTRODUCTION

This report presents the results of South Africa's first set of accounts for Strategic Water Source Areas (SWSAs). This section provides background on Natural Capital Accounting (NCA), SWSAs, and accounts for SWSAs, including the scope of the accounts, their purpose and key indicators that can be drawn from the accounts.

1.1 What is Natural Capital Accounting?

NCA refers to the use of an accounting framework to provide a systematic way to measure and report on stocks and flows of natural capital, analogous to accounts for other forms of capital. It is a broad term that includes accounting for individual environmental assets or resources, both biotic and abiotic (such as water, minerals, energy, timber, fish), as well as accounting for ecosystem assets and ecosystem services. NCA provides a common framework for measuring and tracking over time, the contribution of ecosystems and natural resources to social and economic goals, such as water security, food security and job creation, and provides a wealth of information that can improve planning and decision-making related to the management of natural resources.

Using an accounting framework provides well-accepted, broadly based and globally consistent information on the nature of humanity's connection to the environment and how this is changing over time. Regular production of natural capital accounts can therefore provide standardised statistical information (comparable between countries, or between administrative units within a country, and over time) for tracking and reporting on progress towards sustainable development, including goals and targets set out in policies, frameworks and plans at international, continental, national, provincial or local levels. NCA can provide information to inform economic policy and decision-making for sustainable development.

To this end, the **System of Environmental-Economic Accounting (SEEA)** has been developed by the United Nations (UN) to organise and present statistics on the environment and its relationship with the economy. It is a statistical system that brings together economic and environmental information into a common framework. The SEEA contains an internationally agreed set of standard concepts, definitions, classifications, accounting rules and tables to produce internationally comparable statistics and indicators for policymaking, analysis and research. The **SEEA Central Framework**¹ describes methods to account for changes in land cover, pollution and waste, as well as to account for stocks and use of natural resources (water, minerals, energy, timber, fish, soil). To complement this, **SEEA Ecosystem Accounting**² describes methods to account for ecosystems and their services, using a spatial approach (UN, 2021). SEEA Ecosystem Accounting includes guidance on compiling thematic accounts related to ecosystems, such as the accounts presented in this report. Thematic accounts draw together information from various accounts linked to a thematic area of policy relevance.

1.2 What are SWSAs?

South Africa has less than half of the global average annual rainfall, making water a scarce and strategic resource. Rainfall is uneven across the country and areas that receive high rainfall and produce high volumes of surface water are thus of great significance. Given the scarcity of surface water, South Africa also depends on groundwater resources, which makes areas of high groundwater recharge of strategic significance. SWSAs are natural source areas for water that supply disproportionately large volumes of water per unit area and that are considered of strategic significance for water security from a national planning perspective, either for surface water, groundwater or both. SWSAs can be described as "water

¹ <https://seea.un.org/content/seea-central-framework>

² <https://seea.un.org/ecosystem-accounting>

factories” that support growth and development needs that are often a long distance away from the SWSAs themselves. They contribute significantly to the overall surface and ground water supply of the country.

SWSAs are national ecological infrastructure assets that are essential for water security, which in turn underpins national development goals such as inclusive growth, employment creation and reducing poverty. Ecological infrastructure refers to naturally functioning ecosystems that generate or deliver valuable services and benefits to people and the economy (SANBI, 2016). Water-related ecological infrastructure includes wetlands, rivers, riparian areas and SWSAs, and their associated catchments, which contribute to the production of clean water, flood moderation, prevention of erosion and drought resilience, also supporting resilience to climate change. Ecological infrastructure is just as important as built infrastructure, such as dams that hold water which flow from upstream SWSAs, and ecological infrastructure in good condition often enhances the effectiveness of built infrastructure. SWSAs for surface water have been calculated to supply water that sustains half of the country’s population, two thirds of national economic activity, 70% of irrigated agriculture and more than 90% of urban water users, originating from just 8% of South Africa’s land area (Nel et al., 2017; Le Maitre et al., 2018).

The concept of SWSAs has gained widespread attention over the last several years and has been integrated into a range of national policies and frameworks. The Medium-Term Strategic Framework (MTSF) of the Department of Forestry, Fisheries and the Environment (DFFE) includes a target related to securing SWSAs to enhance the ability of SWSAs to deliver maximum quantity of good quality fresh water for people, economic activity and ecosystems, both within and downstream of SWSAs, in a way that helps assure efficient, equitable and sustainable water supply and access to water for all. To support the achievement of this target, DFFE has identified a range of mechanisms which can contribute to securing SWSAs, including formal protection, appropriate management of water resources, appropriate land-use planning, environmental authorisation processes, and restoration of ecosystems where required (DFFE, 2022).

The National Spatial Development Framework (NSDF) (DALRRD and DPME, 2021) identifies SWSAs as key components of a National Ecological Infrastructure Network and highlights the need to manage and restore SWSAs for socio-economic benefits they provide to people, cities and economies in both the regions in which they are located and the regions to which they supply water. The NSDF recommends that land-uses that reduce run-off or stream flow, or affect water quality (e.g. mining, plantations, crop production and overgrazing) should be avoided in SWSAs, that wetlands in SWSAs should be kept in good condition or rehabilitated, and that invasive alien plants in SWSAs should be cleared.

In the National Water Resource Strategy 3 (NWRS 3) (DWS, 2021), the Department of Water and Sanitation (DWS) has prioritised action around SWSAs. The NWRS 3 recognises SWSAs as strategic national assets that are vital for water security, and they need to be acknowledged as such at the highest level across all sectors. It includes a strategic objective “To rehabilitate and protect ecological infrastructure, including Strategic Water Source areas”, emphasising that appropriate management of SWSAs can produce significant returns in terms of water quality and quantity and that investing in SWSAs is an important mechanism for long-term adaptation to the effects of climate change on water provision growth and development.

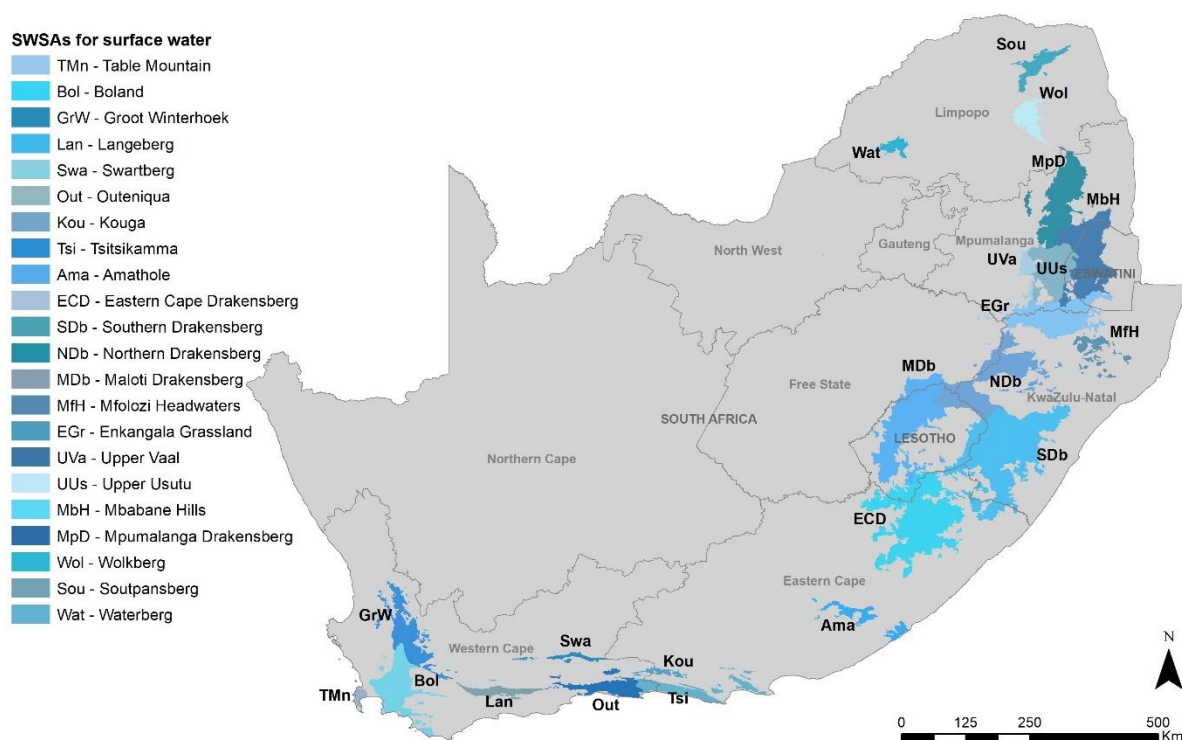
The spatial identification and delineation of SWSAs has progressed over the past fifteen years, with increasing precision in each iteration (see Section 2). The most recent delineation of SWSAs at a fine spatial scale using the best available data and latest geostatistical approaches delineates 22 SWSAs for surface water across South Africa’s mainland (Lotter and Le Maitre, 2021) (Figure 1). SWSAs for groundwater have also been identified but have been delineated only at a broad spatial scale (Le Maitre et al., 2018). **The accounts for SWSAs presented in this report deal only with SWSAs for surface water.** For simplicity, references to SWSAs in this document should be understood to mean SWSAs for surface water.

Of the 22 SWSAs for surface water, seven are transboundary SWSAs (four shared with Lesotho and three with Eswatini) (see Table 4 in Section 3.1). SWSAs for surface water make up 10% of the total land area of South Africa, Lesotho and Eswatini and provide 50% of the combined mean annual run-off of these three countries (Le Maitre et al., 2018). The accounts for SWSAs presented in this report deal

only with the portions of these transboundary SWSAs that fall within South Africa, which, as noted earlier, make up 8%³ of South Africa's land area.

SWSAs intersect with areas where there is substantial socio-economic activity. This contributes to numerous drivers of change that can impact on the functioning of water-related ecosystems and ecological infrastructure in SWSAs and quantity and quality of water they supply. The main pressures include the alteration of flow through dams and abstraction of water, removal of natural vegetation along riverbanks or wetlands through cultivation, mining or urban development, growth and spread of invasive alien species, inadequate grazing management which causes erosion, and pollution from point and diffuse sources. These pressures often interact with each other, compounding the overall impact (DFFE, 2022). Pressures on the ecological condition of SWSAs are often linked to intensive land uses such as cultivation, urban development and mining which have substantial ecological impacts in themselves and can also result in fragmentation of the landscape, further impacting the condition of those natural areas and patches that remain intact. The primary way to maintain healthy, well-functioning water-related ecological infrastructure is to maintain water-related ecosystems and their associated catchments and landscapes in a natural or at least semi-natural state. It is important that the use and management of land, rivers and wetlands in SWSAs does not compromise their water production function.

Figure 1. Spatial distribution of SWSAs for surface water in South Africa, Lesotho and Eswatini



³ This figure was confirmed as 8,2% in these accounts (see Table 4).

1.3 Purpose and scope of the accounts for SWSAs

The accounts presented in this document deal with land cover and protected areas within SWSAs for surface water. They draw on methods developed in two previously published natural capital accounts: *Land and Terrestrial Ecosystem Accounts, 1990 to 2014* (Stats SA, 2020), and *Accounts for Protected Areas, 1900 to 2020* (Stats SA, 2021).

Two sets of accounts for SWSAs were compiled: land accounts for SWSAs, and accounts for protected areas in SWSAs. Both sets of accounts were compiled for a period of three decades from 1990 to 2020, divided into three accounting periods: 1990 to 2014, 2014 to 2018 and 2018 to 2020. These accounting periods were based on the availability of time series land cover data for those years, as explained in Section 2.2. The accounts are reported for all SWSAs combined (see Section 3) and then for each SWSA individually (see Section 4).

1.3.1 Land accounts for SWSAs

Land accounts for SWSAs use time series land cover data to measure the changing extent and share of different types of land cover within SWSAs. The accounts distinguish between natural or semi-natural land cover on the one hand and a range of intensively modified land cover classes on the other, and can show where natural or semi-natural areas within SWSAs have been converted to intensive land uses such as cultivation, urban development and mining. Tracking the remaining natural or semi-natural extent from one accounting period to another is useful because it enables an analysis of which SWSAs have experienced loss of natural or semi-natural areas, which in turn may have a negative impact on the supply of water-related ecosystem services from those SWSAs. The accounts can be used to examine which intensive land uses have replaced natural and semi-natural areas within SWSAs and how this has changed over time, which could reflect socio-economic patterns or trends and can be used to inform the implementation and monitoring of measures to secure SWSAs.

Land accounts for SWSAs describe changes in land cover in SWSAs in absolute (hectares) and percentage terms. For the purposes of simplifying the analysis as well as presentation of results, detailed land cover classes have been aggregated, as explained in Section 1 and detailed in Appendix 1. Deeper investigation of changes is possible for those who wish to access the detailed accounting tables and even the accompanying spatial data layers.

Through the presentation of information in a consistent and standardised accounting format, accounts can yield a range of information and indicators that can be applied in decision-making. **Key indicators that can be drawn from land accounts for SWSAs are:**

- extent of different land cover classes in SWSAs;
- proportion of different land cover classes in SWSAs; and
- change in extent or proportion of land cover classes in SWSAs.

These indicators can be extracted for all SWSAs combined or for individual SWSAs and can be compared with the same indicators for South Africa's mainland as a whole.

1.3.2 Accounts for protected areas in SWSAs

Accounts for protected areas in SWSAs use time series data about the extent of different types of protected areas to measure changes in formal protection within SWSAs. As noted above, formal protection is one of several mechanisms for securing SWSAs and the benefits they provide.

Protected areas are areas of land or sea that are protected by law and managed primarily for biodiversity conservation (DEA, 2016). The National Environmental Management: Protected Areas Act (Act No. 57 of 2003) (hereafter referred to as the Protected Areas Act) is the central piece of legislation for the establishment and management of the protected area estate. It recognises seven main types of land-

based protected areas: National Parks, Nature Reserves, Protected Environments, Mountain Catchment Areas, Forest Nature Reserves, Forest Wilderness Areas, and World Heritage Sites. These are described briefly in Table 3 in Section 2.3. Marine Protected Areas are also recognised but are not relevant for these accounts as SWSAs occur on South Africa's terrestrial mainland. For more detailed background information about protected areas in South Africa see the *Accounts for Protected Areas, 1900 to 2020* (Stats SA, 2021).

Accounts for protected areas in SWSAs describe changes in the protected area estate within SWSAs, providing a standardised approach to tracking the size and composition of the protected area estate in absolute (hectare) and percentage terms. Similar to the land accounts for SWSAs, the presentation of information in a consistent and standardised accounting format means that a range of indicators can be extracted from accounts for protected areas in SWSAs.

Key indicators that can be drawn from accounts for protected areas in SWSAs are:

- size of the protected area estate in SWSAs;
- proportion of SWSAs that is protected;
- change in the size of the protected area estate in SWSAs; and
- composition of the protected area estate in SWSAs.

These indicators can be extracted for all SWSAs combined or for individual SWSAs and can be compared with the same indicators for South Africa's mainland as a whole.

1.3.3 What's not included in these accounts

As noted in Section 1.2, the accounts for SWSAs presented in this report deal only with SWSAs for surface water. SWSAs for groundwater have not yet been delineated at a fine enough spatial scale to make accounts for those areas possible. For the seven transboundary SWSAs, the accounts deal only with the portions that fall within South Africa.

Ecosystem accounting allows for accounts of the extent and condition of ecosystems as well as accounts for ecosystem services. The accounts presented here focus on intensively modified land cover classes within SWSAs and do not include accounts for natural terrestrial ecosystems or for freshwater ecosystems (rivers and wetlands) within SWSAs. Contextual information about terrestrial biomes in SWSAs is provided in Section 3.1.1 but there is no detailed account for terrestrial ecosystem types in SWSAs. Future work may include the development of extent and condition accounts for terrestrial, river and wetland ecosystems within SWSAs.

The accounts presented here provide information about where natural or semi-natural areas have been converted to intensive land uses. However, they do not provide information about the ecological condition of the remaining natural or semi-natural areas. As discussed in Section 2.2, it is not possible to distinguish reliably between natural and semi-natural areas based on land cover data or to derive consistent information about ecological condition. Factors influencing the ecological condition of natural and semi-natural areas in SWSAs (over and above outright removal of natural vegetation) include invasive woody plant species, abstraction of water, overgrazing, altered fire regimes, pollution and fragmentation. Further work would be required to develop sufficiently systematic spatial data on these pressures to allow for ecosystem condition accounts to be developed.

These accounts do not include an analysis of ecosystem service flows from SWSAs, but this may be included in future iterations. Ecosystem services that may be relevant to address include water supply, water flow regulation, water purification, soil erosion control services and flood control services.

No information about land ownership is included in the accounts, either within SWSAs as a whole or within the protected area estate in SWSAs. Land in South Africa, including land in protected areas, can be owned privately, communally or by the state. Currently there is insufficient detailed and

comprehensive spatial information about land ownership to include this in the accounts, but this may become possible in future.

Protected areas declared in terms of the Protected Areas Act are complemented by conservation areas, which are areas not formally protected by law but informally protected by the current owners and users, and managed at least partly for biodiversity conservation. These areas include botanical gardens, conservation zoned areas of United Nations Educational, Scientific and Cultural Organization (UNESCO) Biosphere Reserves, buffer zones around World Heritage Sites, areas protected by spatial planning laws (e.g. zoning for conservation use) and areas protected by conservation servitudes. They are also sometimes known as “other effective area-based conservation measures” (OECMs). Conservation areas fall outside the scope of these accounts but could be included in future iterations if suitable datasets are available.

The purpose of these accounts is not to gather all available information about SWSAs in one place or to provide a comprehensive reference document on SWSAs. Several key sources on SWSAs are readily available, including but not limited to Nel et al., 2017, Le Maitre et al., 2018 and CER, 2019.

1.4 Structure of the report

This report is structured in five sections as follows:

- Section 1: Introduction (this section) – introduces NCA and the SEEA, explains what SWSAs are and why they are important, and outlines the purpose and scope of these accounts.
- Section 2: Essential foundations – describes the foundational datasets used in these accounts.
- Section 3: Key findings – presents the results of the accounts for all SWSAs combined and compares selected indicators across all SWSAs.
- Section 4: Key findings – presents the results of the accounts for each SWSA individually.
- Section 5: Directions for future work – makes recommendations for future work on accounts for SWSAs.

The report is accompanied by a supplementary Excel workbook containing account tables that can be downloaded from the Statistics South Africa (Stats SA) website (<http://www.statssa.gov.za/>). A Sources and Methods Report which gives details on data sources used and the methodology, is available from Stats SA on request.

2 ESSENTIAL FOUNDATIONS FOR ACCOUNTS FOR SWSAs

Accounts for SWSAs are inherently spatial, in other words geographical. This means that producing the accounts requires the use of geospatial information. This section describes the foundational spatial datasets used in the creation of these accounts, namely:

- Dataset for SWSAs for surface water;
- South African National Land Cover datasets; and
- Protected Area dataset.

To produce the accounts these datasets are used together with the national Basic Spatial Unit (BSU) layer, a grid of 1-hectare (ha) (100 x 100 m) cells which provides a consistent spatial framework for integrating data from a range of sources, including ecosystem-related data as well as demographic and economic data. Information about the BSU is available in a separate BSU report as well as in the Sources and Methods Report for these accounts, which are available from Stats SA on request.

This section also lists spatial datasets used in additional analysis done to provide relevant context for SWSAs.

2.1 Dataset for SWSAs for surface water

The spatial data for SWSAs for surface water used for compiling these accounts was the fine-scale delineation of SWSAs developed in 2021 (Lötter and Le Maitre, 2021), known as *2021 Strategic Water Source Areas for surface water*. The spatial data are freely available from the [SANBI Biodiversity GIS](#) website.

It represents the best available information on the location of SWSAs for surface water, using the latest geostatistical approaches to delineate the boundaries of SWSAs at a fine resolution of 90 x 90 m. This fine-scale delineation of SWSAs for surface water replaced the broad-scale delineation of SWSAs for surface water developed in 2018 (Le Maitre et al., 2018), and was approved by the Spatial Task Team for SWSAs convened by the South African National Biodiversity Institute (SANBI) and the Government Authorities Committee for SWSAs convened by DFFE. The fine-scale delineation of SWSAs for surface water 2021 is a multi-purpose product that can support the integration of SWSAs into a range of catchment- and local-level planning, management and regulatory processes.

Delineating SWSAs was done across South Africa, Lesotho and Eswatini because of the shared catchments that feed into water supply systems in South Africa. SWSAs therefore extend across the three countries. Of the total area of all SWSAs combined, 80,7% occurs in SA (10 020 720 ha), 12,4% in Lesotho (1 534 544 ha) and 6,9% in Eswatini (855 425 ha) (Table 4 in Section 3.1). Eastern Cape Drakensberg, Southern Drakensberg, Northern Drakensberg and Maloti Drakensberg SWSAs are transboundary SWSAs with Lesotho, and Enkangala Grasslands, Upper Usutu and Mbabane Hills SWSAs are transboundary SWSAs with Eswatini. As noted in Section 1.3, this report deals only with SWSAs or portions of SWSAs that fall within South Africa.

2.2 South African National Land Cover data

Land cover data are spatial data concerning different types of physical and biological cover found on Earth's surface. These can be natural, semi-natural or intensively modified (such as cultivation, urban settlements and mines) and are generally organised into land cover classes.

South Africa's National Land Cover (SANLC) dataset is derived, as is typical, from remotely sensed imagery. The SANLC datasets are raster datasets that contain more than 70 land cover classes covering a wide range of natural and human-modified landscape characteristics. Each raster cell is assigned a single code representing the land cover class that covers the majority of that cell, which is determined from analysis of multiple satellite images. The term "land cover" is used "loosely to incorporate both land-cover and land-use information" (GTI, 2015) and the term "land cover classes" is used for simplicity rather than referring each time to "land cover/land use classes". The SANLC datasets and metadata reports are freely available from [DFFE](#).

SANLC datasets have been produced for the years 1990 (GTI, 2016), 2013-14⁴ (GTI, 2015), 2018 (GTI, 2019) and 2020 (DFFE, 2020). The 1990 and 2014 SANLC datasets were generated using equivalent image data (being 30-meter multi-seasonal Landsat 8 imagery) and mapped 72 land cover classes using procedures that ensured the datasets were consistent and comparable in terms of scale and detail. From 2018 onwards, SANLC datasets have been generated from 20-meter multi-seasonal Sentinel 2 satellite imagery and map 73 land cover classes, some of which differ from the 72 classes used in SANLC 1990 and 2014. The SANLC 2018 and 2020 datasets have been generated to provide as close as possible a repeat of the SANLC 1990 and SANLC 2014 data content, format and landscape representations. This is because a key intention behind the production of the SANLC dataset is to expand the time series of available national land-cover datasets in support of long-term environmental monitoring and change detection.

Whilst there have been multiple attempts to standardise a global land cover classification system, there is no single internationally agreed land cover classification system, although most follow a similar hierarchical classification. South Africa has approved the South African Land Cover Classes and Definitions in terms of section 11(2) of the Spatial Data Infrastructure Act, 2003 (Act No. 54 of 2003) (DRDLR 2017). The SANLC is aligned with this standard.

For the purpose of simplifying analysis and reporting, the SANLC classes are aggregated into groups in a hierarchical structure of increasingly aggregated levels. The South African Land Cover Classes and Definitions (DRDLR 2017) offers a hierarchy of four levels. For natural capital accounts, a slightly different grouping of land cover classes across four hierarchical tiers is used. The grouping was done in such a way that the classes in tiers 1, 2 and 3 are aligned with likely intensity of ecological impact and also linked to socio-economic drivers of change in the landscape as far as possible. These tiers were used in the national Land and Terrestrial Ecosystem Accounts (Stats SA, 2020) and are used in the land accounts for SWSAs presented here.

The grouping of land cover classes into tiers for accounting purposes is illustrated in Table 1 for the 1990 and 2014 SANLC data and in Table 2 for the 2018 and 2020 SANLC data. Tier 1 (broad land cover classes) and tier 2 (main land cover classes) remain the same across all four years.⁵ The detailed land cover classes (tier 3) for 1990 and 2014 are similar to those for 2018 and 2020, with some differences⁶. The tables illustrate that there were differences in the SANLC classes (tier 4) in 1990 and 2014 compared with 2018 and 2020. The details of the crosswalk of the SANLC classes to the tiers for accounting purposes are contained in the Sources and Methods Report for these accounts.

Figure 2 shows the SANLC 2020 grouped into main land cover classes (tier 2).

⁴ Henceforth, for simplicity, this will be referred to as South African National Land Cover 2014, and not 2013-14.

⁵ There is a minor change in the name of the second tier 2 class from "commercial crops" to "commercial field crops", which is a more descriptive name. It does not reflect any substantive change.

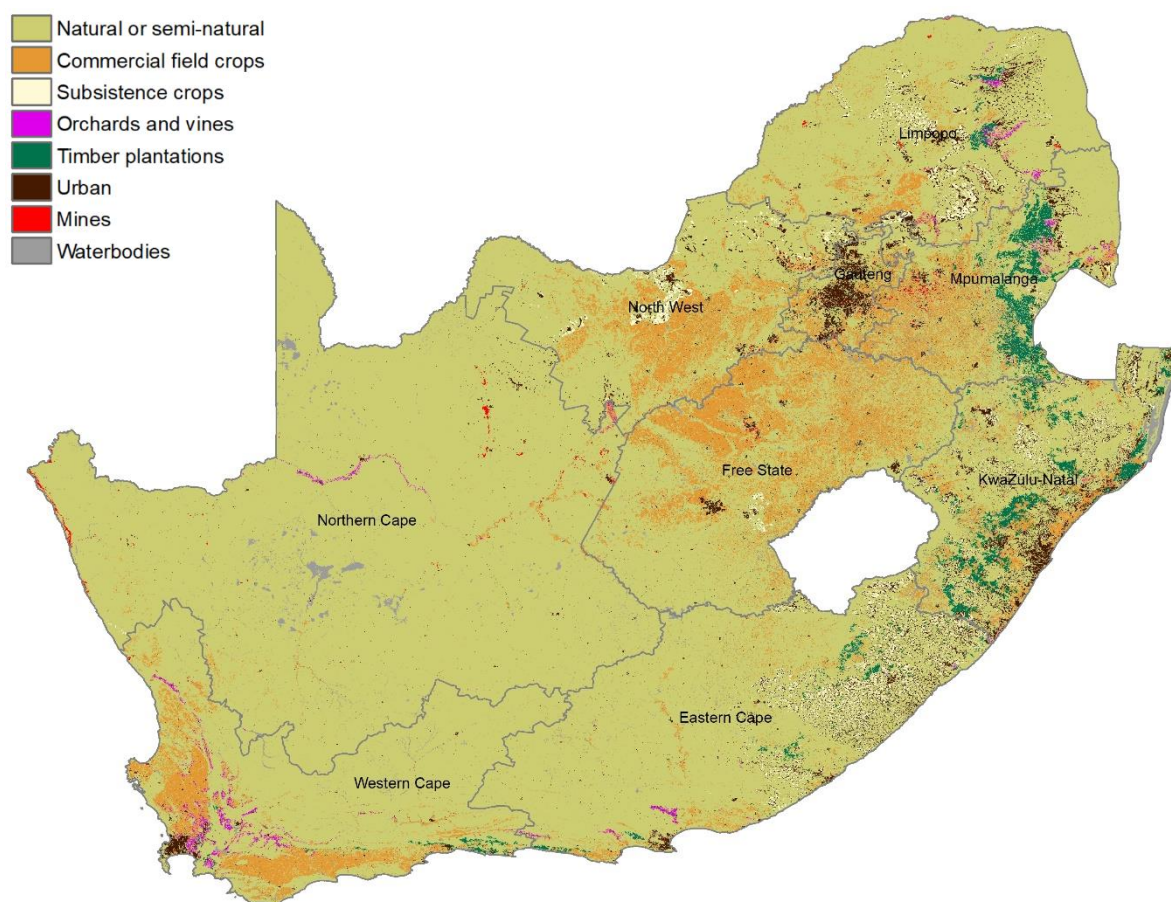
⁶ At tier 3 (detailed land cover classes), some additional distinction in irrigation methods of commercial crops was possible in 2018 and 2020, which is important in terms of the likely intensity of ecological impact. Also, the distinction between natural and artificial waterbodies that was possible in 2018 and 2020 may be useful.

Table 1. Grouping of South African National Land Cover 1990 and 2014 classes into tiers for accounting purposes

Broad land cover classes <i>Tier 1: 4 classes</i>	Main land cover classes <i>Tier 2: 8 classes</i>	Detailed land cover classes <i>Tier 3: 20 classes</i>	SANLC classes in 1990 and 2014 <i>Tier 4: 72 classes</i>
Natural or semi-natural	Natural or semi-natural	Natural or semi-natural	8 land cover classes
Cultivated	Commercial crops	Cultivated commercial fields Cultivated commercial pivots Sugarcane	4 land cover classes 3 land cover classes 6 land cover classes
	Subsistence crops	Subsistence crops	3 land cover classes
	Orchards and vines	Orchards Vines	3 land cover classes 3 land cover classes
	Timber plantations	Timber plantations	3 land cover classes
	Urban	Urban parkland Urban industrial Urban commercial Urban built-up (other) Urban residential Urban township Urban informal Urban smallholding Urban village Urban school and sports ground	4 land cover classes 1 land cover class 1 land cover class 4 land cover classes 4 land cover classes 4 land cover classes 4 land cover classes 4 land cover classes 4 land cover classes 1 land cover class
	Mines	Mines	5 land cover classes
Waterbodies	Waterbodies	Waterbodies	3 land cover classes

Table 2. Grouping of South African National Land Cover 2018 and 2020 detailed classes into tiers for accounting purposes

Broad land cover classes <i>Tier 1: 4 classes</i>	Main land cover classes <i>Tier 2: 8 classes</i>	Detailed land cover classes <i>Tier 3: 19 classes</i>	SANLC classes in 2018 and 2020 <i>Tier 4 (73 classes)</i>
Natural or semi-natural	Natural or semi-natural	Natural or semi-natural	21 land cover classes
Cultivated	Commercial field crops	Commercial field crops (dryland) Commercial field crops (non-pivot irrigated) Commercial pivot crops (pivot) Sugarcane	2 land cover classes 1 land cover class 1 land cover class 3 land cover classes
	Subsistence crops	Subsistence crops	1 land cover class
	Orchards and vines	Orchards Vines	1 land cover class 1 land cover class
	Timber plantations	Timber plantations	3 land cover classes
	Urban	Residential formal Residential informal Smallholdings Village Recreational fields Commercial Industrial and transport	5 land cover classes 4 land cover classes 4 land cover classes 2 land cover classes 4 land cover classes 1 land cover class 2 land cover classes
	Mines	Mines	5 land cover classes
Waterbodies	Waterbodies	Natural waterbodies	10 land cover classes
		Artificial waterbodies	2 land cover classes

Figure 2. South African National Land Cover 2020, showing main land cover classes (tier 2)

Source: DFFE, 2020

The reliability of the land cover change statistics is influenced by the accuracy of the input data against which change is determined. SANLC has high levels of accuracy of land cover classes as assessed and reported for each dataset using a method described in detail in the metadata reports (GTI, 2015; GTI, 2016; GTI, 2019; GTI, 2021). The overall map accuracy for the SANLC 2013-14 dataset was 81,3%, with a mean land cover class accuracy of 91,2% (GTI, 2015). No accuracy assessment was undertaken on the 1990 SANLC dataset as no suitable historical reference data was available but as it has the same mapping and modelling procedure as the 2014 SANLC, this is considered a reliable indication of likely mapping accuracies (GTI, 2016). The accuracy levels for many of the intensively modified land cover classes (such as cultivation, urban settlements and mines) are higher than the average map accuracy (for example, 100,0% for cultivated sugarcane pivots and >96,0% for urban township, village, residential, informal, and schools and sports fields). The overall map accuracy for the SANLC 2018 dataset is 90,1%, with a mean class accuracy of 89,6%, whilst the overall map accuracy for the SANLC 2020 land-cover dataset is 85,5%, with a mean class accuracy of 84,7%. As with the 2013-14 dataset, the accuracy for many of the intensively modified land cover classes is higher than the average map accuracy. This is important as the focus of the land accounts for SWSAs presented here is primarily on changes in the intensively modified classes.

“Mapping, and by association, change detection in natural landscapes, such as woodland, grassland and shrublands etc. are typically more challenging; since these landscape features typically do not have ‘hard’ boundaries, but rather gradients, within which a class boundary must be defined” (GTI, 2019). Mapping accuracy for these classes is lowest. Potential implications of these differences in the land accounts are minimised by grouping all natural or semi-natural land cover classes together in the grouping for accounting purposes.

The term “natural” is used to describe areas in which species composition, vegetation structure and ecological processes are largely intact, reflecting a more or less natural state prior to substantial human modification. The term “natural” is used with full recognition that in the current context of the Anthropocene there are no ecosystems that are untouched by human influence, so it does not imply a pristine or wilderness state and includes areas that are near-natural rather than strictly natural. The term semi-natural is used to describe areas in which species composition no longer reflects a natural state and vegetation structure has also changed, but in which ecological processes remain largely intact or have been largely restored. Examples of semi-natural areas include areas invaded by invasive alien plant species, rangelands that have been heavily grazed, and previously cultivated areas that have lain fallow for several years or more (also called secondary natural areas). Intensively modified areas include urban areas, mined areas and cultivated areas.

Natural and semi-natural areas exist on a continuum, so drawing a definitive line between natural, near natural and semi-natural is challenging. At this stage, it is not possible to reliably distinguish natural areas from semi-natural areas based on remotely sensed imagery so these are grouped together for all tiers. The distinction between natural or semi-natural areas and intensively modified areas (such as cultivation, urban settlements and mines) is much easier to identify based on remotely sensed imagery, making it possible to delineate intensively modified areas reliably in these accounts. In future accounts it would be ideal to distinguish spatially between natural areas and semi-natural areas, which will likely require non-satellite derived data to be incorporated. Such spatial information could be used to develop accounts for ecological condition in SWSAs.

The SANLC includes land cover classes that relate to water surfaces, such as wetlands, water seasonal and water permanent. Although these classes have been retained in the accounting tables under the collective “waterbodies” class, they are not disaggregated in this report. Land cover data are not well suited to mapping inland water ecosystems, which require non-satellite derived data to map with any certainty. South Africa has more comprehensive and accurate sources of data for inland water ecosystems, including rivers and wetlands, and for artificial waterbodies such as dams. A specific focus on river and wetland ecosystems within SWSAs is outside the scope of these accounts but could be included in future iterations (refer to Section 1.3).

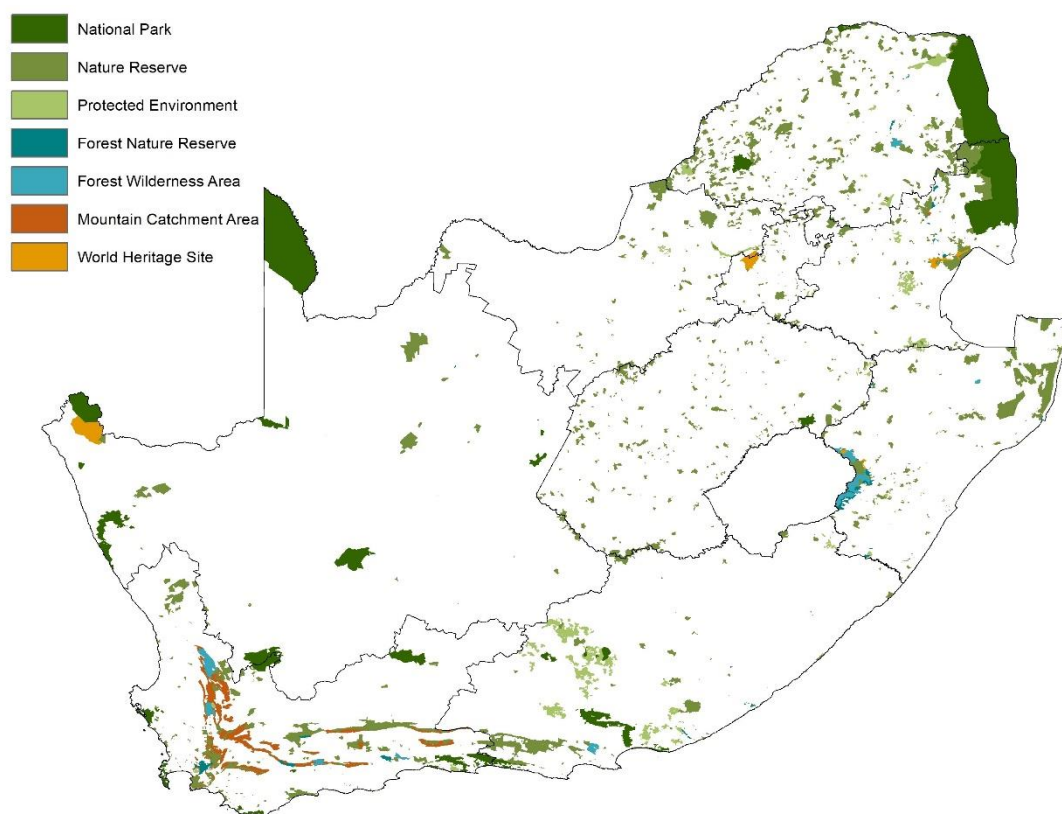
2.3 Protected area dataset

The protected area dataset used for compiling these accounts was derived from the South African Protected Areas Database (SAPAD), which is a spatial data inventory of protected areas in South Africa that is developed and maintained by DFFE. This is the same dataset as was used in the *Accounts for Protected Areas, 1900 to 2020* (Stats SA, 2021).

DFFE acquires, develops, maintains and uses spatial data on protected areas in support of its internal business functions and public services it provides, including monitoring and reporting requirements in relation to protected areas. The data is in the public domain and available freely on [DFFE's website](#). DFFE acquires several protected area datasets from outside sources such as national and provincial conservation authorities which are incorporated into SAPAD. SAPAD captures the areas under formal legislative protection in terms of the Protected Areas Act. It therefore includes National Parks, Nature Reserves, Special Nature Reserves, Protected Environments, Mountain Catchment Areas, Forest Nature Reserves, Forest Wilderness Areas, World Heritage Sites and Marine Protected Areas. The legal status of the areas is audited against official gazettes before inclusion into SAPAD. This auditing is an ongoing task, leading to gradual improvements in the accuracy of the database. SAPAD is updated and released quarterly.

In these accounts, only land-based protected areas are included. The accounts include declarations of protected areas up until the end of 2020 (Figure 3). Table 3 provides a short description of each of the types of protected area included in the accounts.

Figure 3. Protected areas in South Africa in 2020, based on the South African Protected Areas Database



Source: Stats SA, 2021

Table 3. Description of types of protected areas in South Africa

Type of protected area	Description	Declared by	Management authority
National Park	<p>Means an area which was a park in terms of the National Parks Act, 1976 (Act No. 57 of 1976), or an area declared in terms of section 20 of the Protected Areas Act (Act No. 57 of 2003).</p> <p>National Parks protect areas of national or international biodiversity importance or contain a viable, representative sample of South Africa's natural systems, scenic areas or cultural heritage sites. They provide spiritual, scientific, educational, recreational and tourism opportunities which are environmentally compatible; and contribute to economic development, where feasible.</p> <p>National Parks are managed by South African National Parks (SANParks). The declaration is binding on the property (title deed restriction) and on the landowner (where a contract with a landowner exists, it is usually for 99 years or in perpetuity).</p> <p>A National Park may be declared on state, private or communal land.</p>	Minister of Environment	SANParks. May involve co-management agreements with private landowners, Communal Property Associations or the occupiers of communal land.
Nature Reserve	<p>Means an area declared in terms of section 23 of the Protected Areas Act, or an area which before or after commencement of this Act was or is designated in terms of provincial legislation for a purpose aligned with section 23(2) of the Protected Areas Act.</p> <p>Nature Reserves are declared to supplement the system of National Parks of South Africa, and to protect areas of significant natural features or biodiversity, of scientific, cultural, historical or archaeological interest; or is in need of long-term protection for the maintenance of its biodiversity, provision of ecosystems services, sustainable flow of natural products to meet local community needs and enable continuation of traditional consumptive uses, and provide for nature-based recreation and tourism.</p> <p>A Nature Reserve may be declared on state, private or communal land. The declaration is binding on the property (title deed restriction binding on successor in title) and on the landowner. Where a contract with a landowner exists, it is usually for 99 years or in perpetuity.</p> <p>Nature Reserves are usually managed by provincial conservation authorities or by private landowners, Communal Property Associations or the occupiers of communal land.</p> <p>This type of declaration involves more stringent management regulations than in a Protected Environment and restricts unsustainable land use.</p>	Minister or MEC for Environment	Any suitable person, organisation or organ of state.

Type of protected area	Description	Declared by	Management authority
Protected Environment	<p>Means an area declared in terms of section 28 of the Protected Areas Act, or an area which before or after the commencement of this Act was or is declared or designated in terms of provincial legislation for a purpose for which that area could in terms of section 28(2) be declared as a protected environment; or an area which was a lake area in terms of the Lake Areas Development Act, 1975 (Act No. 39 of 1975).</p> <p>Protected Environments are declared to regulate the area as a buffer zone for the conservation and protection of a Special Nature Reserve, National Park, Marine Protected Area, World Heritage Site or Nature Reserve; to enable owners of the land to take collective action to conserve biodiversity, natural characteristics, scientific, cultural, historical, archaeological or geological value, scenic and landscape value or provision of environmental goods and services; to protect a specific ecosystem outside of a Special Nature Reserve, National Park, World Heritage Site or Nature Reserve; and to ensure sustainable use.</p> <p>A Protected Environment may be declared on state, private or communal land. Declaration is less restrictive in terms of restricted land uses than National Parks or Nature Reserves. The declaration is binding on property (optional title deed restriction) and binding on the landowner.</p>	Minister or MEC for Environment	Any suitable person, organisation or organ of state.
Forest Nature Reserve	<p>Means an area declared as a protected area in terms of section 8 of the National Forests Act, 1998 (Act No. 84 of 1998). If any such area has been declared as or included in a Special Nature Reserve, National Park or Nature Reserve declared in terms of the Protected Areas Act, such area must be managed as, or as part of, the Special Nature Reserve, National Park or Nature Reserve in accordance with an agreement concluded between the Minister of Environment and the Cabinet member responsible for forestry (should these differ).</p> <p>Note that in the National Forests Act, "forest" includes (a) a natural forest, a woodland and a plantation; (b) the forest produce in it; and (c) the ecosystems which it makes up. This is a broader definition than the definition of the indigenous forest biome in the National Vegetation Map (see Appendix 1).</p>	Requirements as per National Forests Act, 1998 (Act No. 84 of 1998)	
Forest Wilderness Area			
Mountain Catchment Area	Means an area declared under section 2 of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).	Requirements as per the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970)	
World Heritage Site	Means a World Heritage Site in terms of the World Heritage Convention Act, 1999 (Act No. 49 of 1999). They are landmarks or areas considered as: 'cultural heritage' from the point of view of history, art, science, aesthetic, ethnological or anthropology; or 'natural heritage' of outstanding universal value from the aesthetic, scientific, conservation or natural beauty point of view. They are identified in terms of the Convention concerning the protection of the World Cultural and Natural Heritage adopted in 1972 by UNESCO.	Requirements as per the World Heritage Convention Act, 1999 (Act No. 49 of 1999).	
Special Nature Reserve	<p>An area which was a Special Nature Reserve in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or an area declared in terms of section 18 of the Protected Areas Act.</p> <p>Special Nature Reserves are declared to protect highly sensitive, outstanding ecosystems, species or geological or physical features in the area; and to make the area primarily available for scientific research or environmental monitoring.</p>	Minister of Environment	Any suitable person, organisation or organ of state.

Further information about the protected area dataset and the steps involved in data cleaning and preparation for compilation of the accounts using Skowno et al (2019) are provided in Stats SA (2021). Several points are summarised here for the reader's information:

- SAPAD includes state owned, privately owned and communally owned protected areas.
- A strength of the dataset is that it includes protected area names, types and declaration dates in a manner that provides a time series for the accounts.
- There are cases in which portions of a World Heritage Site have also been declared as another type of protected area, leading to spatial overlaps between World Heritage Sites and other types of protected area. For instance, the Cape Floristic Region Protected Area World Heritage Site overlaps with sites also declared as National Parks or Nature Reserves or Forest Wilderness Areas or Mountain Catchment Areas. In the protected area dataset, a primary and a secondary protected area type was captured for such sites. "World Heritage Site" is always the secondary type. To avoid double-counting, the account tables reflect only the primary type. As a result, the World Heritage Site extent in the account tables reflects only those portions of the World Heritage Site that are not also declared as another type of protected area.
- SAPAD has several limitations, including: discrepancies between the date of establishment vs declaration date and missing dates of declaration in some cases, although this impacts mostly on protected areas established earlier than 1990; some of the privately owned Nature Reserves declared prior to the promulgation of the Protected Areas Act have still to be validated; and the dataset does not include withdrawals of declaration, although these have been extremely rare.
- The protected area dataset has incomplete information on land ownership in protected areas, and information regarding whether protected areas (or portions thereof) were declared through biodiversity stewardship programmes still needs to be improved to support inclusion of these aspects in the accounts.

Notwithstanding these limitations, confidence in the information in the protected area dataset on the size, location and type of protected areas from 2000 onwards is high, with errors of commission or omission generally of very limited spatial extent. This means that the dataset provides a firm foundation for the accounts, particularly for the later accounting periods.

The period 1990 to 2020 has been divided into three accounting periods, with intervals from 1990 to 2014, 2014 to 2018, and 2018 to 2020, to align with the dates for which national land cover datasets are available. The protected area dataset was used to construct spatial data layers reflecting the protected area estate at the opening date of 1990 and the closing date of each accounting period based on declaration dates.

2.4 Spatial datasets used in additional analysis and presentation

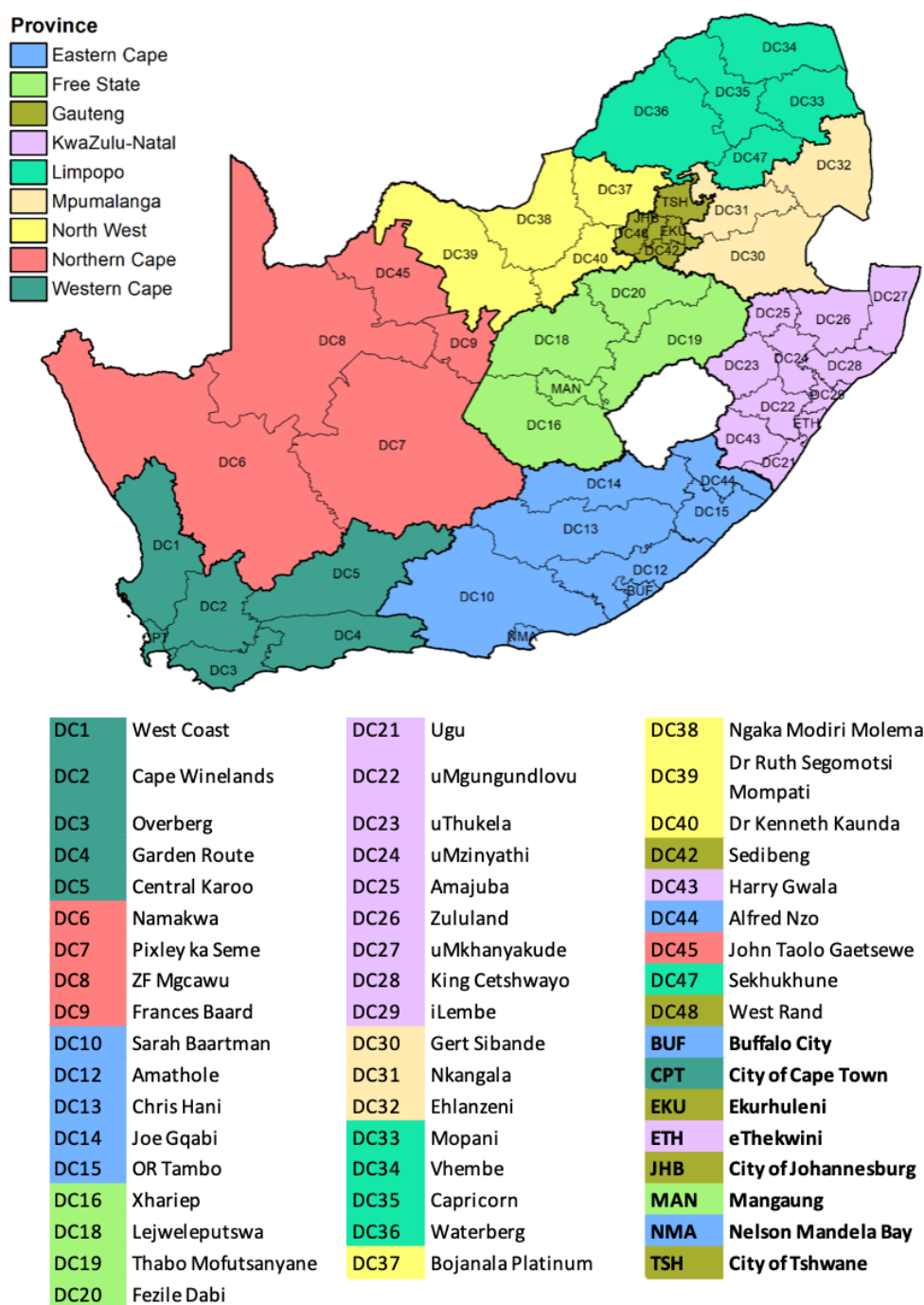
This section describes the spatial datasets used in additional spatial analysis included in this results report. The datasets are listed and described below:

- Administrative boundaries for provinces and municipalities;
- Water Management Areas;
- National Vegetation Map;
- Population census data; and
- Rivers and large dams.

2.4.1 Administrative boundaries

The administrative boundaries that were used are the provincial boundaries and district municipality boundaries. The dataset for district municipalities includes metropolitan municipalities. Both these datasets are in the public domain and available freely from the Municipal Demarcation Board (MDB) [Spatial Knowledge Hub](#). District municipalities and metropolitan municipalities (shown in Figure 4) are assigned a unique code by the MDB. These codes together with the full municipality name and the province in which the municipality occurs are also provided in Figure 4. These datasets were intersected with SWSAs to provide the proportion of SWSAs in each province and municipality.

Figure 4. District and metropolitan municipalities within South Africa's nine provinces, showing codes assigned by the Municipal Demarcation Board



Source: Municipal Demarcation Board, 2022

2.4.2 Water Management Areas

Water governance and management in South Africa is organised by Water Management Areas (WMAs), which are intended to be managed by Catchment Management Agencies (CMAs). CMAs are responsible for integrated water resource management of the WMAs in terms of the National Water Act (Act 36 of 1998). Two CMAs have been formally established (Inkomati-Usuthu CMA and Breede-Olifants CMA). In other WMAs, DWS regional offices function as proto-CMAs. There are nine WMAs in South Africa (South Africa, 2016; see Figure 8 in Section 3.1.3). A process is underway, led by DWS, to reduce the number of WMAs from nine to six.

2.4.3 National Vegetation Map

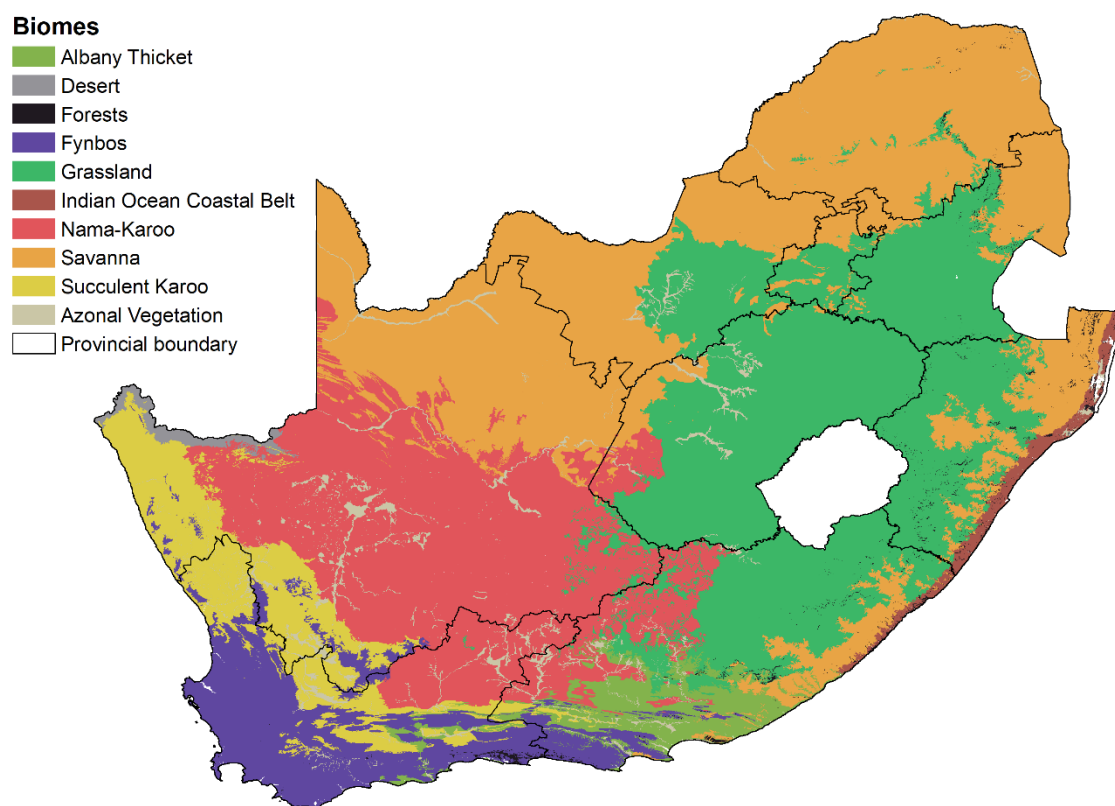
South Africa has a National Ecosystem Classification System (SA-NECS) that includes classification systems and maps of all ecosystem types in the country, across the terrestrial, inland water (river and wetland), estuarine and marine realms, with around one thousand distinct ecosystem types recognised altogether (Dayaram et al, 2021).

The SA-NECS aligns well with the Global Ecosystem Typology (GET) developed by the International Union for Conservation of Nature (IUCN),⁷ which is the reference classification for ecosystem types in SEEA Ecosystem Accounting.

Terrestrial ecosystem types are represented by vegetation types identified in the South African portion of the Vegetation Map of South Africa, Lesotho and Swaziland (SANBI, 2018a) (referred to as the National Vegetation Map). Vegetation types are relatively homogenous units in the landscape, identified based on their biophysical characteristics such as species distribution, community composition, underlying geology and soil types, altitude, and rainfall gradients. Vegetation types are delineated based on their historical or potential extent, prior to major human modification of the landscape.

The National Vegetation Map comprises 458 vegetation types in South Africa that are grouped into nine biomes based on similar characteristics (Figure 5). The biomes are used as part of the contextual information provided for each SWSA. They are also used in the *Land and Terrestrial Ecosystem Accounts, 1990 to 2014* (Stats SA, 2020). Appendix 1 provides a brief description of each biome based on its characteristic physiognomy and climatic conditions. The National Vegetation Map also includes some wetlands, reflected as “azonal vegetation” (i.e. not belonging to a particular biome), and a few large inland waterbodies, but wetlands and waterbodies were not mapped systematically across the country as part of the development of the National Vegetation Map. The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (Van Deventer et al., 2018) provides a much more comprehensive map and classification of wetlands than the azonal biome in the National Vegetation Map.

⁷ <https://iucnrl.org/about-rle/ongoing-initiatives/global-ecosystem-typology/>

Figure 5. Terrestrial biomes of South Africa

Source: SANBI, 2019

2.4.4 Population census data

The South African Census of 2011 was the third comprehensive census performed by Stats SA since the democratic elections in 1994 (Stats SA, 2012). Data from the fourth comprehensive census performed in 2022 was not yet available at the time of writing and developing these accounts. Census 2011 data were intersected with SWSAs to provide estimates of:

- Total population, from which approximate population density per SWSA was calculated.
- The main water source for households living in SWSAs. Every household questioned during Census 2011 was asked: “What is this household’s MAIN source of WATER for household use?” Responses to the question could be: Regional/local water scheme (operated by municipality or other water service providers); Borehole; Spring; Rainwater tank; Dam/pool/stagnant water; River/stream; Water vendor; Water tanker; or Other. Responses do not imply this was the household’s sole source of water. For the purposes of these accounts, the interest was especially in whether households abstract their water directly from rivers, streams or springs (so these were grouped) or boreholes (which draw from groundwater). Water tanker and water vendor were grouped. Dam/pool/stagnant water and rainwater tank were grouped with Other.

In order to link census data spatially to SWSAs, the SWSA dataset was intersected with the Small Area Layer (SAL) dataset. Small Areas are an aggregation of census data from Enumerator Areas created to protect the confidentiality of respondents. Small Areas that overlapped fully or partially with SWSAs were selected. For Small Areas that overlapped partially, a pro-rata proportion of the variables listed above was calculated based on the proportion of the Small Area that overlapped with the SWSA. Further detail is provided in the Sources and Methods report for these accounts.

2.4.5 Rivers and large dams

Information on rivers and large dams is portrayed in orientation maps for individual SWSAs in Section 4. These spatial data were extracted from the first version of the SAIIE released in July 2018 (Van Deventer et al., 2018). The National Biodiversity Assessment (NBA) 2018 rivers dataset was selected for visualisation. This includes all major rivers of the country and excludes smaller tributaries (mostly of first and second order) and headwater streams, which are too numerous to include in a national assessment. Large dams were selected for visualisation from the many different types of artificial wetlands, such as smaller farm dams, reservoirs, waste-water treatment works and other artificial water bodies.

Further information about both datasets is available from [SANBI BGIS under the project for NBA 2018 Inland Aquatic component](#).

3 KEY FINDINGS ACROSS ALL SWSAs

This section presents key findings from the accounts for all SWSAs at the national level. It is divided into three sub-sections:

- A short profile of the SWSAs, drawing on information from the account tables as well as additional contextual information to show their distribution across biomes, provinces and WMAs, as well as total population and population density in SWSAs.
- Key findings from the land accounts for SWSAs, aggregated for all SWSAs and comparing SWSAs with each other.
- Key findings from the accounts for protected areas in SWSAs, aggregated for all SWSAs and comparing SWSAs with each other.

A selection of findings is highlighted to illustrate the types of information that can be extracted from the accounts and presented in graphs or maps. A wide range of further findings and analyses are possible based on the underlying account tables.

Note that in the tables a '0' means zero value, a blank cell contains no information, and a dash indicates values that cannot be calculated.

3.1 Profile of SWSAs in relation to biomes, provinces and Water Management Areas

SWSAs are located across the country stretching over several biomes, provinces and WMAs. In total, they cover 10 020 720 ha or 8,2% of South Africa's mainland. SWSAs vary greatly in size, with Southern Drakensberg SWSA having the largest extent of 2 013 693 ha (of which 1 842 165 ha falls within South Africa) and Table Mountain SWSA having the smallest extent of 47 246 ha (Table 4).

For the purposes of presenting results in this report, the SWSAs are ordered from west to east and numbered 1 to 22 in that order. In some instances, abbreviated names are used for presentation purposes.

Table 4. SWSAs organised from west to east, with grouping for graphs, full extent of each SWSA, area within South Africa (in hectares), and proportion within South Africa

Order from west to east	Grouping for graphs	SWSA name in full	Abbreviated name	Full extent (ha)	Extent within SA (ha)	Proportion of SA mainland	Proportion of SWSA within SA
1	Group 1	Table Mountain	TMn	47 246	47 246	0,0%	100,0%
2		Boland	Bol	608 054	608 054	0,5%	100,0%
3		Groot Winterhoek	GrW	518 310	518 310	0,4%	100,0%
4		Langeberg	Lan	171 527	171 527	0,1%	100,0%
5		Swartberg	Swa	77 983	77 983	0,1%	100,0%
6		Outeniqua	Out	304 237	304 237	0,2%	100,0%
7		Kouga	Kou	63 099	63 099	0,1%	100,0%
8		Tsitsikamma	Tsi	322 208	322 208	0,3%	100,0%
9		Amathole	Ama	200 112	200 112	0,2%	100,0%
10		Eastern Cape Drakensberg	ECD	1 603 365	1 452 814	1,2%	90,6%
11		Southern Drakensberg	SDB	2 013 693	1 842 165	1,5%	91,5%
12	Group 2	Northern Drakensberg	NDB	1 031 475	868 838	0,7%	84,2%
13		Maloti Drakensberg	MDb	1 204 544	154 716	0,1%	12,8%
14		Mfolozi Headwaters	MfH	192 049	192 049	0,2%	100,0%
15		Enkangala Grassland	EGr	858 643	788 092	0,6%	91,8%
16		Upper Vaal	UVa	139 415	139 415	0,1%	100,0%
17		Upper Usutu	UUs	619 675	539 322	0,4%	87,0%
18		Mbabane Hills	MbH	1 000 296	295 775	0,2%	29,6%
19		Mpumalanga Drakensberg	MpD	837 248	837 248	0,7%	100,0%
20		Wolkberg	Wol	259 627	259 627	0,2%	100,0%
21		Soutpansberg	Sou	234 682	234 682	0,2%	100,0%
22		Waterberg	Wat	103 201	103 201	0,1%	100,0%
Total				12 410 689	10 020 720	8,2%	80,7%

3.1.1 Biome composition of SWSAs

SWSAs span five of South Africa's nine biomes (Figure 6) (see Appendix 1 for brief description of biomes). The composition of each SWSA by biome is shown in Table 5 and Figure 7. This reflects the historical extent of these biomes, prior to major human modification of the landscape. The remaining natural extent of each biome in each SWSA will in many cases be less than its historical extent, depending on the extent to which previously natural areas have been converted to intensive land uses.

SWSAs in the western part of the country fall mainly in the Fynbos biome and cover 24,6% of the biome. In the central and south-eastern parts of the country, SWSAs fall predominantly in the Grassland biome. The Grassland biome is the second largest biome in South Africa and plays an important role in water provision, evident by the fact that 63,4% of the total area of SWSAs falls in this biome. In the north-eastern part of the country SWSAs fall mainly in the Savanna biome. Indigenous forests occur in most SWSAs but make up small proportions of SWSAs, reflecting partly that the Forest biome is South Africa's smallest biome, making up less than 0,5% of the mainland. Forests tend to occur in patches, few of which cover areas greater than 1 km², with areas greater than this common only in the southern Cape and Lowveld Escarpment. Added together, indigenous forests cover only 2,2% of SWSAs. However, 47,8% of indigenous forests in South Africa occur in SWSAs.

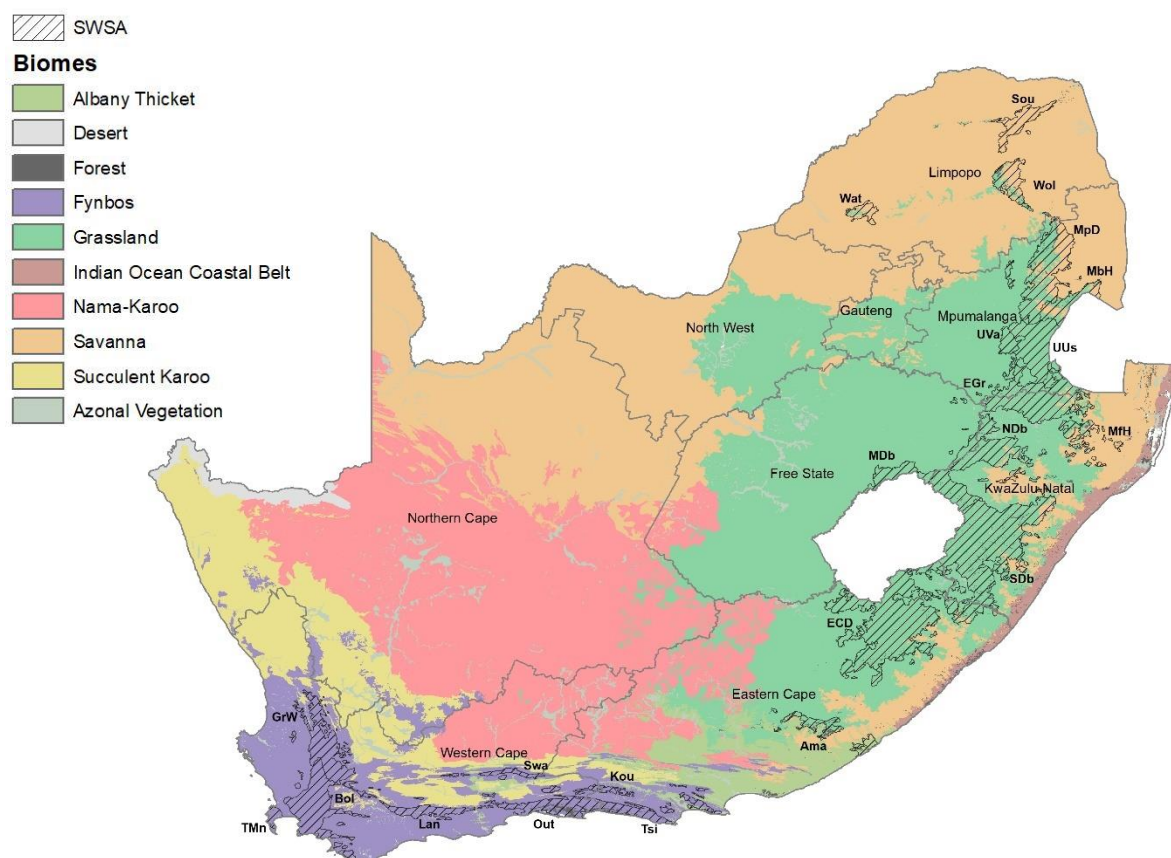
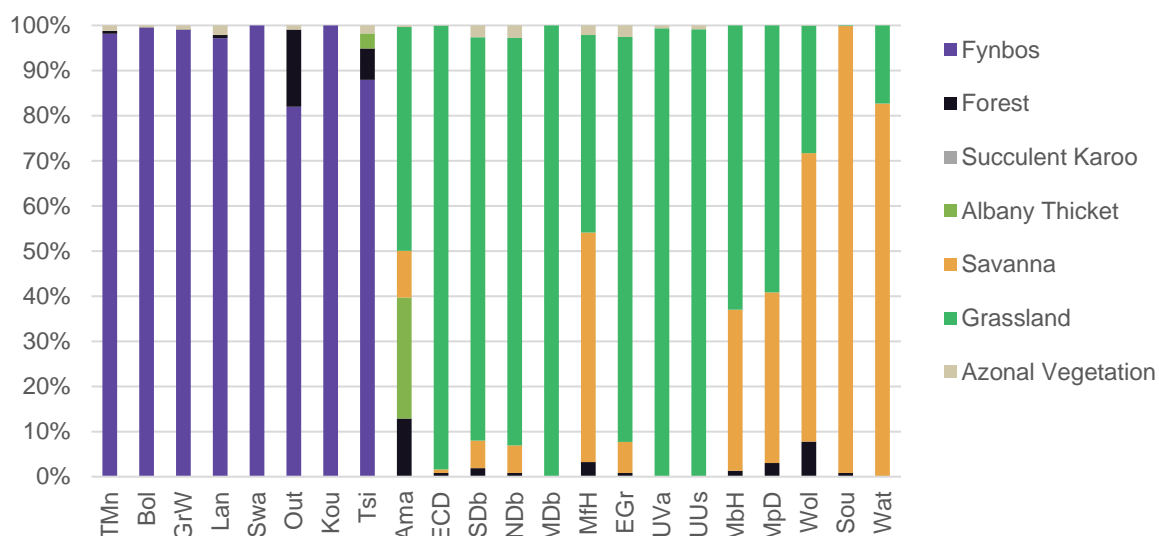
Figure 6. SWSAs in relation to terrestrial biomes

Table 5. Biome composition of SWSAs

SWSAs	Fynbos	Succulent Karoo	Albany Thicket	Grassland	Savanna	Forest	Azonal Vegetation
Table Mountain	98,2%					0,7%	1,2%
Boland	99,5%					0,1%	0,4%
Groot Winterhoek	99,0%	0,1%					0,9%
Langeberg	97,2%		0,0%			0,7%	2,1%
Swartberg	100,0%						
Outeniqua	82,0%					17,1%	0,9%
Kouga	100,0%						
Tsitsikamma	88,0%		3,3%			6,9%	1,8%
Amathole			26,8%	49,6%	10,4%	12,9%	0,4%
Eastern Cape Drakensberg				98,4%	0,8%	0,8%	0,0%
Southern Drakensberg				89,4%	6,1%	1,9%	2,6%
Northern Drakensberg				90,3%	6,1%	0,8%	2,8%
Maloti Drakensberg				100,0%			
Mfolozi Headwaters				43,8%	50,8%	3,3%	2,1%
Enkangala Grassland				89,8%	6,9%	0,8%	2,5%
Upper Vaal				99,4%		0,0%	0,6%
Upper Usutu				99,0%		0,1%	0,9%
Mbabane Hills				63,0%	35,7%	1,3%	
Mpumalanga Drakensberg				59,2%	37,8%	3,0%	
Wolkberg				28,3%	63,9%	7,8%	0,0%
Soutpansberg				0,1%	99,1%	0,8%	
Waterberg				17,3%	82,7%		
Total area of biome in SA (ha)	8 165 366	7 821 579	3 531 231	33 090 325	39 418 522	462 518	2 742 873
Area of biome covered by SWSAs (ha)	2 005 153	621	64 310	6 351 848	1 254 797	221 033	123 004
Proportion of biome covered by SWSAs	24,6%	0,0%	1,8%	19,2%	3,2%	47,8%	4,5%
Proportion of total area of all SWSAs falling within biome	20,0%	0,0%	0,6%	63,4%	12,5%	2,2%	1,2%

Figure 7. Biome composition of SWSAs

Note: Refer to Table 4 for full names of SWSAs.

3.1.2 Provincial distribution of SWSAs

SWSAs for surface water occur in six of South Africa's nine provinces, as shown in Figure 1 and Table 6. SWSAs cover 33,5% of KwaZulu-Natal, 26,5% of Mpumalanga, 14,0% of Western Cape, 12,9% of Eastern Cape, 4,8% of Limpopo and 2,1% of Free State. Gauteng, North West and Northern Cape do not contain SWSAs of national importance for surface water. However, these provinces do contain water source areas that are important from a provincial perspective. There has yet to be systematic identification of sub-national water source areas in South Africa, but this may be done in future. All provinces contain areas that are of strategic importance for groundwater, but as discussed they are not within the scope of these accounts (see Sections 1.2 and 1.3).

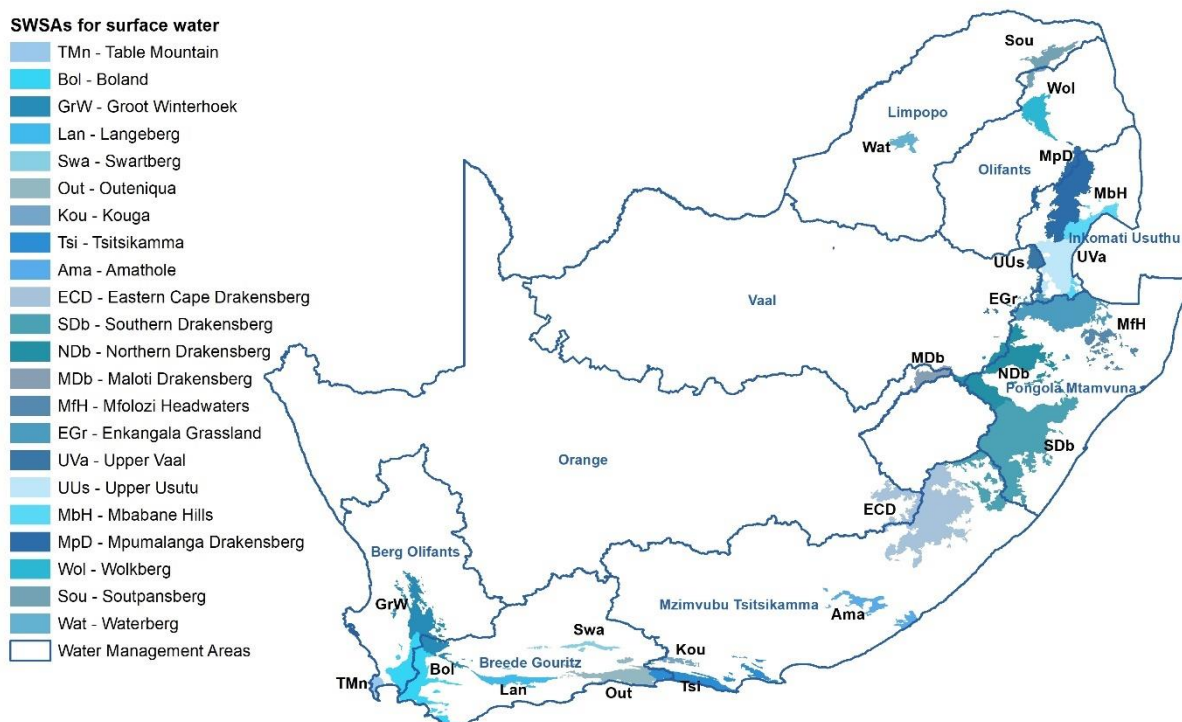
For individual SWSAs that are shared between provinces, the proportion falling into each province is provided in Section 4.

Table 6. Provincial distribution of SWSAs

Province	Total area of province	Area of province covered by SWSAs (ha)	Proportion of province covered by SWSAs	Names of SWSAs in province
Eastern Cape	16 884 228	2 181 081	12,9%	Amathole, Eastern Cape Drakensberg, Kouga, Southern Drakensberg, Tsitsikamma
Free State	12 982 488	276 057	2,1%	Enkangala Grasslands, Maloti Drakensberg, Northern Drakensberg, Upper Vaal
Gauteng	1 817 814	0	0,0%	
KwaZulu-Natal	9 329 945	3 121 956	33,5%	Enkangala Grasslands, Mfolozi Headwaters, Northern Drakensberg, Southern Drakensberg
Limpopo	12 574 338	601 032	4,8%	Mpumalanga Drakensberg, Soutpansberg, Waterberg, Wolkberg
Mpumalanga	7 649 527	2 027 078	26,5%	Enkangala Grasslands, Mbabane Hills, Mpumalanga Drakensberg, Upper Usuthu, Upper Vaal
North West	10 487 080	0	0,0%	
Northern Cape	37 285 988	0	0,0%	
Western Cape	12 955 045	1 813 516	14,0%	Boland, Groot Winterhoek, Kouga, Langeberg, Outeniqua, Swartberg, Table Mountain, Tsitsikamma

3.1.3 Distribution of SWSAs in relation to Water Management Areas

SWSAs occur in all of South Africa's nine WMAs, as shown in Figure 8 and Table 7. SWSAs cover 43,9% of the Inkomati-Usuthu WMA, 34,5% of the Pongola-Mtamvuna WMA, 15,5% of the Breede-Gouritz WMA, 12,3% of the Mzimvubu-Tsitsikamma WMA, 9,6% of the Berg-Olifants WMA, 5,7% of the Olifants WMA, 2,6% of the Limpopo WMA, 1,2% of the Vaal WMA and 1,1% of the Orange WMA. Almost all SWSAs fall across more than one WMA.

Figure 8. SWSAs showing Water Management Area boundaries**Table 7. Distribution of SWSAs across Water Management Areas**

Water Management Area	Total area of WMA	Area of WMA covered by SWSA (ha)	Proportion of WMA covered by SWSA	Names of SWSAs in the WMA
Berg-Olifants	7 021 197	676 439	9,6%	Boland, Groot Winterhoek, Table Mountain
Breede-Gouritz	7 229 009	1 119 460	15,5%	Boland, Groot Winterhoek, Kouga, Langeberg, Outeniqua, Swartberg, Tsitsikamma
Inkomati-Usuthu	3 654 564	1 604 586	43,9%	Enkangala Grassland, Mbabane Hills, Mpumalanga Drakensberg, Upper Usutu, Upper Vaal
Limpopo	10 949 651	285 449	2,6%	Soutpansberg, Waterberg, Wolkberg
Mzimvubu-Tsitsikamma	16 317 196	2 004 780	12,3%	Amathole, Eastern Cape Drakensberg, Kouga, Outeniqua, Southern Drakensberg, Tsitsikamma
Olifants	7 362 850	417 835	5,7%	Mpumalanga Drakensberg, Soutpansberg, Wolkberg
Orange	35 474 642	402 326	1,1%	Eastern Cape Drakensberg, Maloti Drakensberg, Northern Drakensberg,
Pongola-Mtamtmtuna	9 343 628	3 220 019	34,5%	Enkangala Grassland, Mbabane Hills, Mfolozi Headwaters, Northern Drakensberg, Southern Drakensberg, Upper Usutu
Vaal	24 624 336	287 908	1,2%	Enkangala Grassland, Maloti Drakensberg, Northern Drakensberg, Upper Usutu, Upper Vaal

3.1.4 Population and population density of SWSAs

Demographic characteristics of SWSAs can provide important information for planning and decision making. This section includes total population and population density per SWSA. Future work could include additional demographic characteristics and indicators for SWSAs drawn from the population Census. These could include, for example, household income and employment status.

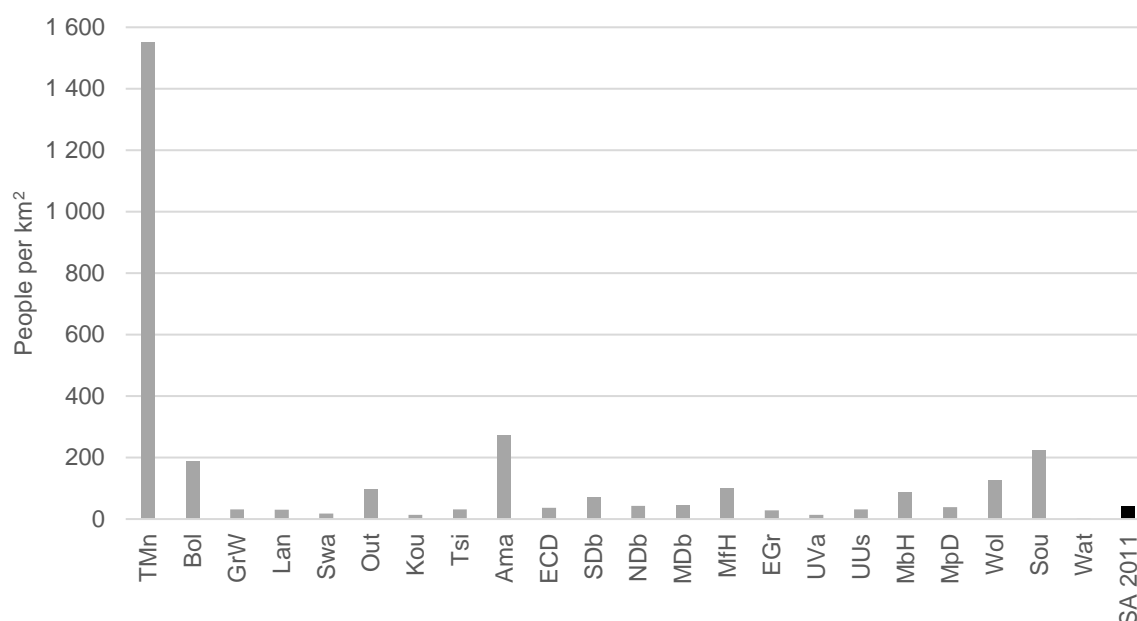
As discussed in Section 2.4.4, data from the population Census for 2022 was not yet available at the time of developing these accounts. Future work should include updating the information provided here with information from the more recent census.

The estimated total population per SWSA in 2011 (Table 8 and Figure 9) ranged from a low of 2 643 in Waterberg SWSA to a high of 1 324 309 in Southern Drakensberg SWSA, with a mean of 336 470 across all SWSAs. The estimated total population for all SWSAs combined was 7 402 337, which was 14,3% of South Africa's total population.

Population density in 2011 ranged from approximately 2,6 people per km² in Waterberg SWSA to approximately 1 550,8 people per km² in Table Mountain SWSA, with a mean population density of approximately 140,1 people per km² across all SWSAs. This compares to a population density of 42,4 people per km² for South Africa as a whole.

Table 8. Estimated total population per SWSA in 2011, based on the extent of SWSAs within South Africa and the 2011 population census, reported as people per km²

SWSA	Area (ha)	Area (km ²)	Estimated total population	Approximate population density (people per km ²)
Table Mountain	47 246	472,5	732 701	1 550,8
Boland	608 054	6 080,5	1 149 001	189,0
Groot Winterhoek	518 310	5 183,1	163 876	31,6
Langeberg	171 527	1 715,3	52 124	30,4
Swartberg	77 983	779,8	13 876	17,8
Outeniqua	304 237	3 042,4	296 890	97,6
Kouga	63 099	631,0	8 902	14,1
Tsitsikamma	322 208	3 222,1	102 870	31,9
Amathole	200 112	2 001,1	543 149	271,4
Eastern Cape Drakensberg	1 452 814	14 528,1	537 614	37,0
Southern Drakensberg	1 842 165	18 421,7	1 324 309	71,9
Northern Drakensberg	868 838	8 688,4	369 370	42,5
Maloti Drakensberg	154 716	1 547,2	70 438	45,5
Mfolozi Headwaters	192 049	1 920,5	194 150	101,1
Ekgangala Grassland	788 092	7 880,9	223 012	28,3
Upper Vaal	139 415	1 394,2	19 008	13,6
Upper Usutu	539 322	5 393,2	170 354	31,6
Mbabane Hills	295 775	2 957,8	259 521	87,7
Mpumalanga Drakensberg	837 248	8 372,5	324 968	38,8
Wolkberg	259 627	2 596,3	323 409	124,6
Soutpansberg	234 682	2 346,8	520 152	221,6
Waterberg	103 201	1 032,0	2 643	2,6
Mean for all SWSAs	-	-	336 470	140,1
Total for all SWSAs	10 020 720	100 207,2	7 402 337	73,9
South Africa 2011	121 966 453	1 219 664,5	51 770 560	42,4

Figure 9: Population density per SWSA in 2011, based on the population census

Note: Refer to Table 4 for full names of SWSAs.

3.2 Land accounts across all SWSAs

Table 9 shows the land account for all SWSAs combined. It gives the opening stock for each tier 2 land cover class (natural or semi-natural, commercial field crops, subsistence crops, orchards and vines, timber plantations, urban, mines and waterbodies) in 1990 and the closing stock at the end of each accounting period (2014, 2018, 2020). For each accounting period, additions, reductions and net change are shown for each land cover class. The net change in stock (shown in the shaded rows) is calculated as the area that was added to any one land cover class (additions to stock) minus the area that was converted to something else (reductions in stock) over that period. The net change is expressed in hectares and as a percentage of the opening stock. The table also presents how much of each land class has stayed the same within each accounting period in absolute and percentage terms. This value is calculated by subtracting the reductions in hectares from the opening stock in hectares. Spatial turnover is an indicator of change in the spatial distribution of land cover classes and is also presented in both absolute and percentage terms. Although the results in this report are aggregated to main land cover classes (tier 2) to simplify presentation and interpretation, deeper investigation of changes is possible using the detailed account tables and even the accompanying spatial data layers.

Building on Table 9, Table 10 aggregates changes for all SWSAs combined over the three accounting periods to show only the 1990 and 2020 values. This is useful for highlighting overall net change in each land cover class across all the accounting periods combined.

The pie charts in Figure 10 show the proportion of main land cover classes (tier 2) in all SWSAs in both 1990 and 2020 and compare these to the proportions for South Africa as a whole in those years. This highlights how land cover composition of all SWSAs combined differs from land cover composition for the whole of South Africa.

Table 11 summarises information from the land account tables for individual SWSAs (Appendix 3) to show land cover composition (tier 2) for each SWSA in 2020, in hectares and as a proportion of total SWSA area. This highlights which SWSAs have the largest and smallest extent of each main land cover class, in absolute and percentage terms. This table can be viewed together with Figure 11, which provides a map of main land cover classes (tier 2) in all SWSAs in 2020.

Figure 12 and Figure 13 illustrate how the composition of main land cover classes (tier 2) changed in each SWSA in each accounting period, enabling comparison of land cover composition over time within and between SWSAs.

Table 12 compares the extent of natural or semi-natural land cover with the extent of intensively modified land cover per SWSA in 2020, in both absolute and percentage terms. It also shows the change in natural or semi-natural land cover between 1990 and 2020, and the change in intensively modified land cover between 1990 and 2020 per SWSA, in absolute and percentage terms. This highlights which SWSAs have the most or least natural or semi-natural land cover, which have the most or least intensively modified land cover, and which experienced the greatest changes over the period 1990 to 2020.

Figure 14 compares the proportion of natural or semi-natural land cover for each SWSA in 2020 with an ecological function threshold of 60,0%. This ecological function threshold was used in the Land and Terrestrial Ecosystem Accounts (Stats SA, 2020) to highlight biomes and ecosystem types whose ecological functioning is likely to have been negatively impacted by conversion of natural areas to intensively modified areas. Ecosystems and landscapes can tolerate a certain amount of decline in natural area before their essential characteristics are compromised. Critical thresholds are often difficult to determine even in retrospect, and almost always difficult to predict. Nevertheless, the ecological literature⁸ suggests that, as a rule of thumb, when less than approximately 60,0% of the natural area within an ecosystem or landscape remains, its ecological functioning begins to break down. In practice the exact level of this threshold varies between ecosystems depending on landscape structure and other characteristics but this is nevertheless useful as a guide. In the context of SWSAs, this means that if less than 60,0% of a SWSA remains natural or semi-natural (or conversely if more than 40,0% of a SWSA has been converted to an intensively modified land cover class) its ecological functioning is likely to be compromised, which would have implications for its ability to support water security.

Key findings from the land accounts for SWSAs, drawn from across the tables and figures described above, include:

- In 2020, 68,7% (6 888 660 ha) of the total area of all SWSAs remained natural or semi-natural, compared with 70,6% in 1990 (Table 9 and Figure 10). This means there was a net decrease of 181 141 ha in natural or semi-natural land cover in SWSAs over the 30 years from 1990 to 2020. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.
- In 2020, the six intensively modified land cover classes (commercial field crops, subsistence crops, orchards and vines, timber plantations, urban and mines) made up 28,8% (2 885 994 ha) of the total area of all SWSAs, compared with 27,2% in 1990. This was a higher proportion than for South Africa's mainland as a whole, in which intensively modified land cover made up 15,7% in 1990 and 16,2% in 2020 (Figure 10).
- The proportion of timber plantations was much larger in SWSAs than in South Africa's mainland as a whole in both 1990 and 2020. In 2020, timber plantations made up 13,9% of the total area of SWSAs compared with 1,7% of the total area of South Africa's mainland.
- Among the intensively modified land cover classes, the largest net increase in absolute terms between 1990 and 2020 in all SWSAs combined was an increase of 71 847 ha (5,4%) in timber plantations, from 1 319 754 ha in 1990 to 1 391 601 ha in 2020 (Table 10). Spatially, timber plantations are more abundant in the east of the country than in the west.
- Among the intensively modified land cover classes, the largest net percentage increase between 1990 and 2020 in all SWSAs combined was a 51,9% increase in mines, from 3 444 ha

⁸ For example, Andren (1999), Desmet (2018), Fahrig (2001), SANBI (2013).

in 1990 to 5 233 ha in 2020. The second largest net percentage increase was a 16,5% increase in urban areas, from 395 052 ha in 1990 to 460 329 ha in 2020.

- Commercial field crops made up 6,3% (633 212 ha) of land cover across all SWSAs in 2020 (Table 9). SWSAs with the largest extent of commercial field crops in 2020 were Southern Drakensberg (154 382 ha), Enkangala Grassland (52 394 ha) and Boland (52 328 ha). SWSAs with the highest proportion of commercial field crops in 2020 were Upper Vaal (28,4%), Maloti Drakensberg (22,1%) and Langeberg (16,6%) (Table 11).
- Subsistence crops made up 2,5% (248 893 ha) of land cover across all SWSAs in 2020. SWSAs with the largest extent of subsistence crops in 2020 were Eastern Cape Drakensberg (105 368 ha), Southern Drakensberg (68 693 ha) and Northern Drakensberg (25 515 ha). SWSAs with the highest proportion of subsistence crops in 2020 were Eastern Cape Drakensberg (7,3%), Mfolozi Headwaters (5,7%) and Southern Drakensberg (3,7%).
- Orchards and vines made up 1,5% (146 726 ha) of land cover across all SWSAs in 2020. SWSAs with the largest extent of orchards and vines in 2020 were Boland (66 302 ha), Groot Winterhoek (19 998 ha) and Mpumalanga Drakensberg (19 704 ha). SWSAs with the highest proportion of orchards and vines in 2020 were Boland (10,9%), Soutpansberg (6,8%) and Wolkberg (6,6%).
- Timber plantations made up 13,9% (1 391 601 ha) of land cover across all SWSAs in 2020. SWSAs with the largest extent of timber plantations in 2020 were Mpumalanga Drakensberg (330 024 ha), Southern Drakensberg (329 108 ha) and Upper Usutu (216 149 ha). SWSAs with the highest proportion of timber plantations in 2020 were Upper Usutu (40,1%), Mpumalanga Drakensberg (39,4%) and Mbabane Hills (22,0%).
- Urban areas made up 4,6% (460 329 ha) of land cover across all SWSAs in 2020. SWSAs with the largest extent of urban areas in 2020 were Southern Drakensberg (123 349 ha), Eastern Cape Drakensberg (79 084 ha) and Soutpansberg (36 968 ha). SWSAs with the highest proportion of urban areas in 2020 were Table Mountain (39,8%), Soutpansberg (15,8%) and Amathole (7,8%).
- Mines made up 0,1% (5 233 ha) of land cover across all SWSAs in 2020. SWSAs with the largest extent of mines in 2020 were Upper Vaal (1 216 ha), Northern Drakensberg (1 027 ha) and Mpumalanga Drakensberg (948 ha). SWSAs with the highest proportion of mining land cover in 2020 were Upper Vaal (0,9%) and Table Mountain (0,4%).
- SWSAs with the highest proportion of natural or semi-natural land cover in 2020 were Kouga (99,1%), Swartberg (98,5%), Waterberg (92,7%), Groot Winterhoek (87,1%) and Northern Drakensberg (81,7%).
- Three SWSAs had less than 60,0% natural or semi-natural land cover in 2020: Upper Usutu (40,9%), Table Mountain (50,4%), Mpumalanga Drakensberg (51,3%) (Figure 14). As discussed above, 60,0% natural or semi-natural land cover represents a threshold for retaining ecological functioning of the landscape. Ecological functioning in these SWSAs is likely to have been substantially impacted.
- SWSAs that were at or close to the threshold of 60,0% natural or semi-natural land cover in 2020 were Upper Vaal (60,1%), Southern Drakensberg (60,4%), Wolkberg (63,4%), Soutpansberg (63,4%) and Mbabane Hills (64,8%).
- SWSAs in which there were net increases of greater than 20 000 ha in intensively modified land cover (for all intensively modified land cover classes combined) between 1990 and 2020 were: Southern Drakensberg (56 011 ha), Enkangala Grassland (51 186 ha), Eastern Cape Drakensberg (42 042 ha), Upper Usutu (21 544 ha) and Northern Drakensberg (21 384 ha) (Table 12).

- SWSAs with a net percentage increase of greater than 10,0% in intensively modified land cover (for all intensively modified land cover classes combined) between 1990 and 2020 were: Kouga (123,8%, from a low base of 21 ha) (Table 28), Enkangala Grassland (35,7%), Northern Drakensberg (19,1%), Eastern Cape Drakensberg (16,1%), Upper Vaal (14,2%) and Mfolozi Headwaters (10,6%).
- SWSAs with a combination of a relatively low proportion of natural or semi-natural land cover (close to or below 60,0% in 2020) and large net increases in intensively modified land cover in either absolute or percentage terms between 1990 and 2020 were Upper Usutu, Upper Vaal and Southern Drakensberg.
- SWSAs in which there were large increases in intensively modified land cover in both absolute and percentage terms between 1990 and 2020 were Enkangala Grassland (51 186 ha or 35,7%), Eastern Cape Drakensberg (42 042 ha or 16,1%) and Northern Drakensberg (21 384 ha or 19,1%).

Table 9. Land account for main land cover classes (tier 2) for all SWSAs combined, 1990–2014, 2014–2018 and 2018–2020, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	7 069 801	603 277	265 684	144 167	1 319 754	395 052	3 444	219 541	10 020 720
Total additions to stock	409 308	110 752	65 013	34 639	225 338	51 494	2 699	47 321	946 564
Total reductions in stock	449 342	99 572	44 359	12 082	223 046	39 639	1 914	76 610	946 564
Net change in stock	-40 034	11 180	20 654	22 557	2 292	11 855	785	-29 289	0
<i>Net change as % of opening</i>	<i>-0,6%</i>	<i>1,9%</i>	<i>7,8%</i>	<i>15,6%</i>	<i>0,2%</i>	<i>3,0%</i>	<i>22,8%</i>	<i>-13,3%</i>	
Unchanged (opening – reductions)	6 620 459	503 705	221 325	132 085	1 096 708	355 413	1 530	142 931	
<i>Unchanged as % of opening</i>	<i>93,6%</i>	<i>83,5%</i>	<i>83,3%</i>	<i>91,6%</i>	<i>83,1%</i>	<i>90,0%</i>	<i>44,4%</i>	<i>65,1%</i>	
Spatial turnover (additions + reductions)	858 650	210 324	109 372	46 721	448 384	91 133	4 613	123 931	
<i>Spatial turnover as % of opening</i>	<i>12,1%</i>	<i>34,9%</i>	<i>41,2%</i>	<i>32,4%</i>	<i>34,0%</i>	<i>23,1%</i>	<i>133,9%</i>	<i>56,5%</i>	
Opening stock 2014**	7 029 767	614 457	286 338	166 724	1 322 046	406 907	4 229	190 252	10 020 720
Total additions to stock	362 469	115 733	49 164	20 813	197 192	78 378	2 696	100 400	926 845
Total reductions in stock	464 556	122 171	78 046	48 039	142 293	27 244	1 774	42 722	926 845
Net change in stock	-102 087	-6 438	-28 882	-27 226	54 899	51 134	922	57 678	0
<i>Net change as % of opening</i>	<i>-1,5%</i>	<i>-1,0%</i>	<i>-10,1%</i>	<i>-16,3%</i>	<i>4,2%</i>	<i>12,6%</i>	<i>21,8%</i>	<i>30,3%</i>	
Unchanged (opening – reductions)	6 565 211	492 286	208 292	118 685	1 179 753	379 663	2 455	147 530	
<i>Unchanged as % of opening</i>	<i>93,4%</i>	<i>80,1%</i>	<i>72,7%</i>	<i>71,2%</i>	<i>89,2%</i>	<i>93,3%</i>	<i>58,1%</i>	<i>77,5%</i>	
Spatial turnover (additions + reductions)	827 025	237 904	127 210	68 852	339 485	105 622	4 470	143 122	
<i>Spatial turnover as % of opening</i>	<i>11,8%</i>	<i>38,7%</i>	<i>44,4%</i>	<i>41,3%</i>	<i>25,7%</i>	<i>26,0%</i>	<i>105,7%</i>	<i>75,2%</i>	
Opening stock 2018**	6 927 680	608 019	257 456	139 498	1 376 945	458 041	5 151	247 930	10 020 720
Total additions to stock	145 605	56 375	19 103	18 183	70 116	24 158	1 021	34 815	369 376
Total reductions in stock	184 625	31 182	27 666	10 955	55 460	21 870	939	36 679	369 376
Net change in stock	-39 020	25 193	-8 563	7 228	14 656	2 288	82	-1 864	0
<i>Net change as % of opening</i>	<i>-0,6%</i>	<i>4,1%</i>	<i>-3,3%</i>	<i>5,2%</i>	<i>1,1%</i>	<i>0,5%</i>	<i>1,6%</i>	<i>-0,8%</i>	
Unchanged (opening – reductions)	6 743 055	576 837	229 790	128 543	1 321 485	436 171	4 212	211 251	
<i>Unchanged as % of opening</i>	<i>97,3%</i>	<i>94,9%</i>	<i>89,3%</i>	<i>92,1%</i>	<i>96,0%</i>	<i>95,2%</i>	<i>81,8%</i>	<i>85,2%</i>	
Spatial turnover (additions + reductions)	330 230	87 557	46 769	29 138	125 576	46 028	1 960	71 494	
<i>Spatial turnover as % of opening</i>	<i>4,8%</i>	<i>14,4%</i>	<i>18,2%</i>	<i>20,9%</i>	<i>9,1%</i>	<i>10,0%</i>	<i>38,1%</i>	<i>28,8%</i>	
Closing stock 2020	6 888 660	633 212	248 893	146 726	1 391 601	460 329	5 233	246 066	10 020 720

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

**The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

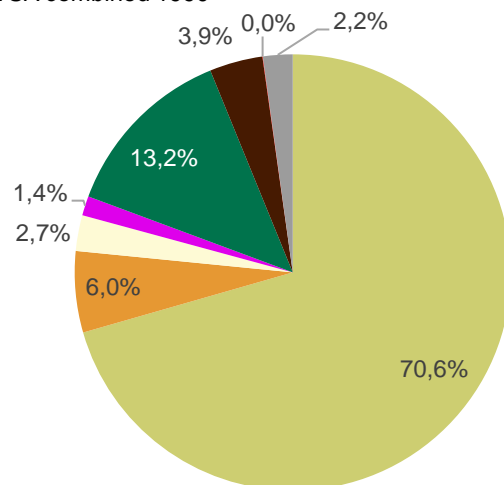
Table 10. Land account for main land cover classes (tier 2) for all SWSAs combined, 1990–2020, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	7 069 801	603 277	265 684	144 167	1 319 754	395 052	3 444	219 541	10 020 720
Total additions to stock	421 261	137 877	43 850	34 859	304 287	97 136	4 114	106 676	1 150 060
Total reductions in stock	602 402	107 942	60 641	32 300	232 440	31 859	2 325	80 151	1 150 060
Net change in stock	-181 141	29 935	-16 791	2 559	71 847	65 277	1 789	26 525	0
<i>Net change as % of opening</i>	<i>-2,6%</i>	<i>5,0%</i>	<i>-6,3%</i>	<i>1,8%</i>	<i>5,4%</i>	<i>16,5%</i>	<i>51,9%</i>	<i>12,1%</i>	
Unchanged (opening – reductions)	6 467 399	495 335	205 043	111 867	1 087 314	363 193	1 119	139 390	
<i>Unchanged as % of opening</i>	<i>91,5%</i>	<i>82,1%</i>	<i>77,2%</i>	<i>77,6%</i>	<i>82,4%</i>	<i>91,9%</i>	<i>32,5%</i>	<i>63,5%</i>	
Spatial turnover (additions + reductions)	1 023 663	245 819	104 491	67 159	536 727	128 995	6 439	186 827	
<i>Spatial turnover as % of opening</i>	<i>14,5%</i>	<i>40,7%</i>	<i>39,3%</i>	<i>46,6%</i>	<i>40,7%</i>	<i>32,7%</i>	<i>187,0%</i>	<i>85,1%</i>	
Closing stock 2020	6 888 660	633 212	248 893	146 726	1 391 601	460 329	5 233	246 066	10 020 720

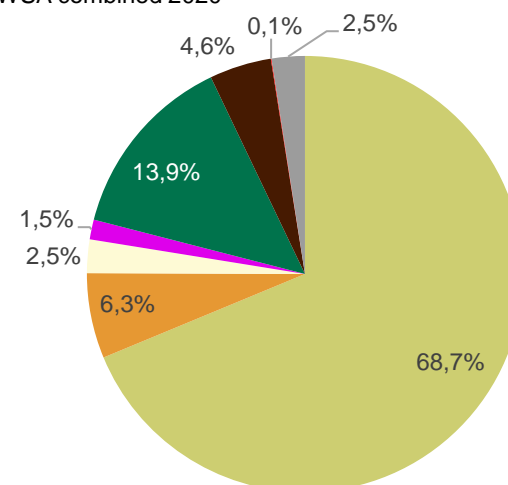
* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 10. Proportion of main land cover classes (tier 2) in all SWSAs in 1990 (a) and 2020 (b) and for South Africa's mainland in 1990 (c) and 2020 (d)

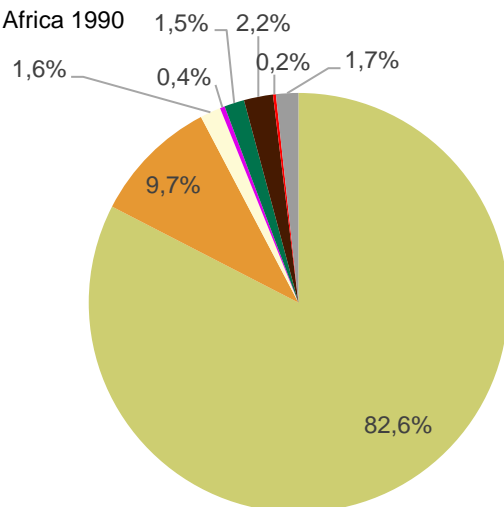
a) All SWSA combined 1990



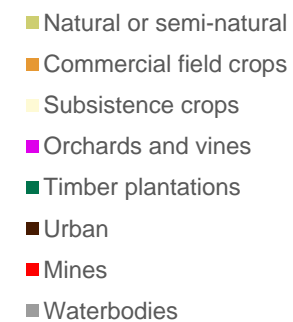
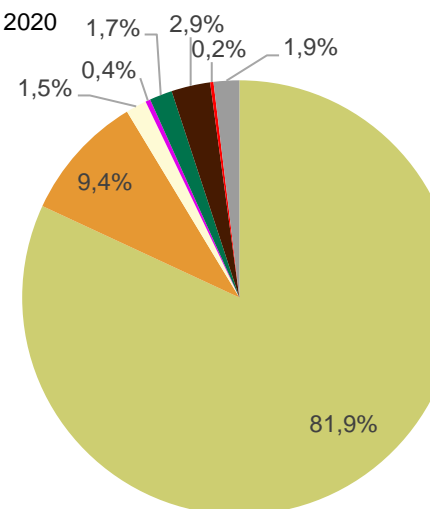
b) All SWSA combined 2020



c) South Africa 1990



d) South Africa 2020



Source for (c): Stats SA, 2020

Source for (d): calculated from SANLC, 2020

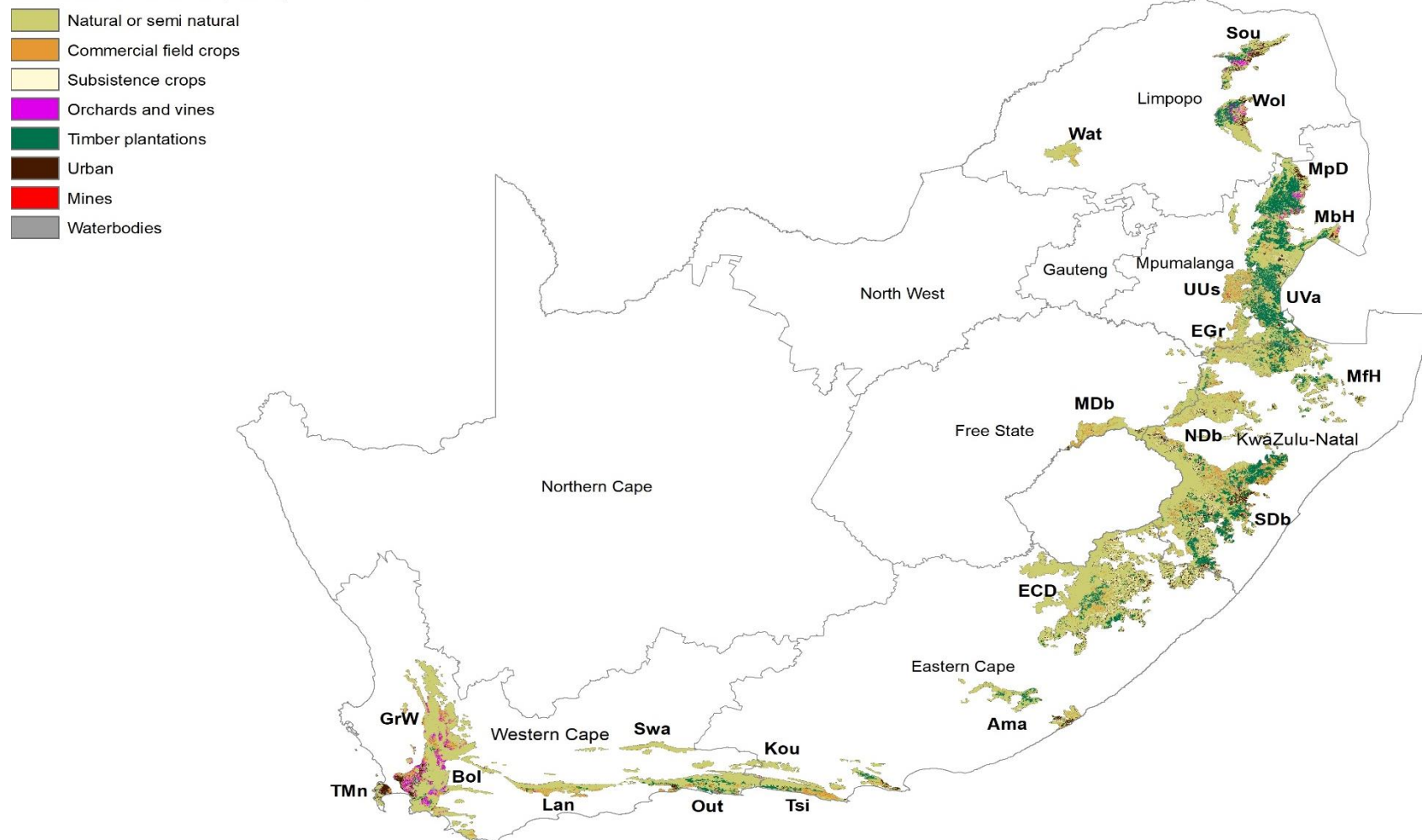
Table 11. Land cover composition (tier 2) per SWSA, 2020, in hectares and as a proportion of total SWSA area

SWSA	Unit	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Table Mountain	ha	23 818	1 268	0	526	1 160	18 808	211	1 455	47 246
	%	50,4%	2,7%	0,0%	1,1%	2,5%	39,8%	0,4%	3,1%	100,0%
Boland	ha	422 580	52 328	6	66 302	16 017	31 151	421	19 249	608 054
	%	69,5%	8,6%	0,0%	10,9%	2,6%	5,1%	0,1%	3,2%	100,0%
Groot Winterhoek	ha	451 303	35 699	4	19 998	1 118	1 560	43	8 585	518 310
	%	87,1%	6,9%	0,0%	3,9%	0,2%	0,3%	0,0%	1,7%	100,0%
Langeberg	ha	132 974	28 457	0	873	5 614	894	26	2 689	171 527
	%	77,5%	16,6%	0,0%	0,5%	3,3%	0,5%	0,0%	1,6%	100,0%
Swartberg	ha	76 820	1 032	0	12	8	5	0	106	77 983
	%	98,5%	1,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,1%	100,0%
Outeniqua	ha	226 079	20 905	0	649	44 539	9 163	45	2 857	304 237
	%	74,3%	6,9%	0,0%	0,2%	14,6%	3,0%	0,0%	0,9%	100,0%
Kouga	ha	62 521	47	0	0	0	0	0	531	63 099
	%	99,1%	0,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,8%	100,0%
Tsitsikamma	ha	240 780	39 489	231	1 279	30 605	7 714	47	2 063	322 208
	%	74,7%	12,3%	0,1%	0,4%	9,5%	2,4%	0,0%	0,6%	100,0%
Amathole	ha	147 535	8 793	3 569	266	22 993	15 604	84	1 268	200 112
	%	73,7%	4,4%	1,8%	0,1%	11,5%	7,8%	0,0%	0,6%	100,0%
Eastern Cape Drakensberg	ha	1 130 490	34 415	105 368	38	84 413	79 084	91	18 915	1 452 814
	%	77,8%	2,4%	7,3%	0,0%	5,8%	5,4%	0,0%	1,3%	100,0%
Southern Drakensberg	ha	1 112 315	154 382	68 693	1 588	329 108	123 349	236	52 494	1 842 165
	%	60,4%	8,4%	3,7%	0,1%	17,9%	6,7%	0,0%	2,8%	100,0%
Northern Drakensberg	ha	710 186	50 336	25 515	98	20 065	36 504	1 027	25 107	868 838
	%	81,7%	5,8%	2,9%	0,0%	2,3%	4,2%	0,1%	2,9%	100,0%
Maloti Drakensberg	ha	114 551	34 264	93	102	1 600	2 293	29	1 784	154 716
	%	74,0%	22,1%	0,1%	0,1%	1,0%	1,5%	0,0%	1,2%	100,0%
Mfolozi Headwaters	ha	134 583	1 473	10 920	54	29 753	14 192	52	1 022	192 049
	%	70,1%	0,8%	5,7%	0,0%	15,5%	7,4%	0,0%	0,5%	100,0%
Enkangala Grassland	ha	567 706	52 394	16 718	352	107 775	17 055	262	25 830	788 092
	%	72,0%	6,6%	2,1%	0,0%	13,7%	2,2%	0,0%	3,3%	100,0%
Upper Vaal	ha	83 736	39 559	0	31	3 458	562	1 216	10 853	139 415
	%	60,1%	28,4%	0,0%	0,0%	2,5%	0,4%	0,9%	7,8%	100,0%

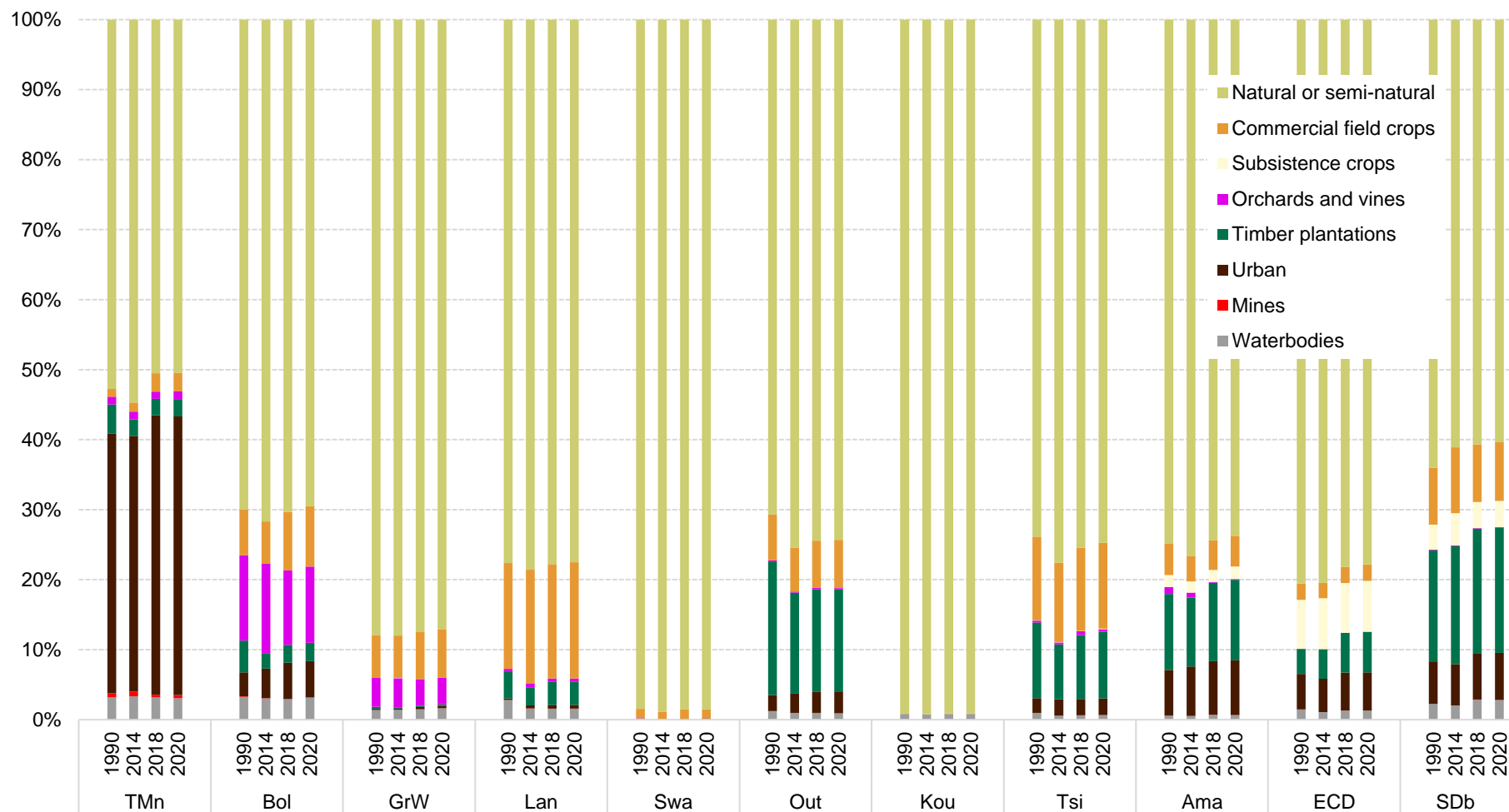
Table 11. Land cover composition (tier 2) per SWSA, 2020, in hectares and as a proportion of total SWSA area (concluded).

SWSA	Unit	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Upper Usutu	ha	220 723	41 610	6 531	78	216 149	10 469	340	43 422	539 322
	%	40,9%	7,7%	1,2%	0,0%	40,1%	1,9%	0,1%	8,1%	100,0%
Mbabane Hills	ha	191 667	6 987	8 294	1 735	65 039	13 176	34	8 843	295 775
	%	64,8%	2,4%	2,8%	0,6%	22,0%	4,5%	0,0%	3,0%	100,0%
Mpumalanga Drakensberg	ha	429 295	17 489	360	19 704	330 024	23 707	948	15 721	837 248
	%	51,3%	2,1%	0,0%	2,4%	39,4%	2,8%	0,1%	1,9%	100,0%
Wolkberg	ha	164 624	4 443	515	17 037	52 899	18 033	73	2 003	259 627
	%	63,4%	1,7%	0,2%	6,6%	20,4%	6,9%	0,0%	0,8%	100,0%
Soutpansberg	ha	148 726	628	2 076	16 003	29 202	36 968	38	1 041	234 682
	%	63,4%	0,3%	0,9%	6,8%	12,4%	15,8%	0,0%	0,4%	100,0%
Waterberg	ha	95 648	7 214	0	1	62	38	10	228	103 201
	%	92,7%	7,0%	0,0%	0,0%	0,1%	0,0%	0,0%	0,2%	100,0%
All SWSAs combined	ha	6 888 660	633 212	248 893	146 726	1 391 601	460 329	5 233	246 066	10 020 720
	%	68,7%	6,3%	2,5%	1,5%	13,9%	4,6%	0,1%	2,5%	100,0%

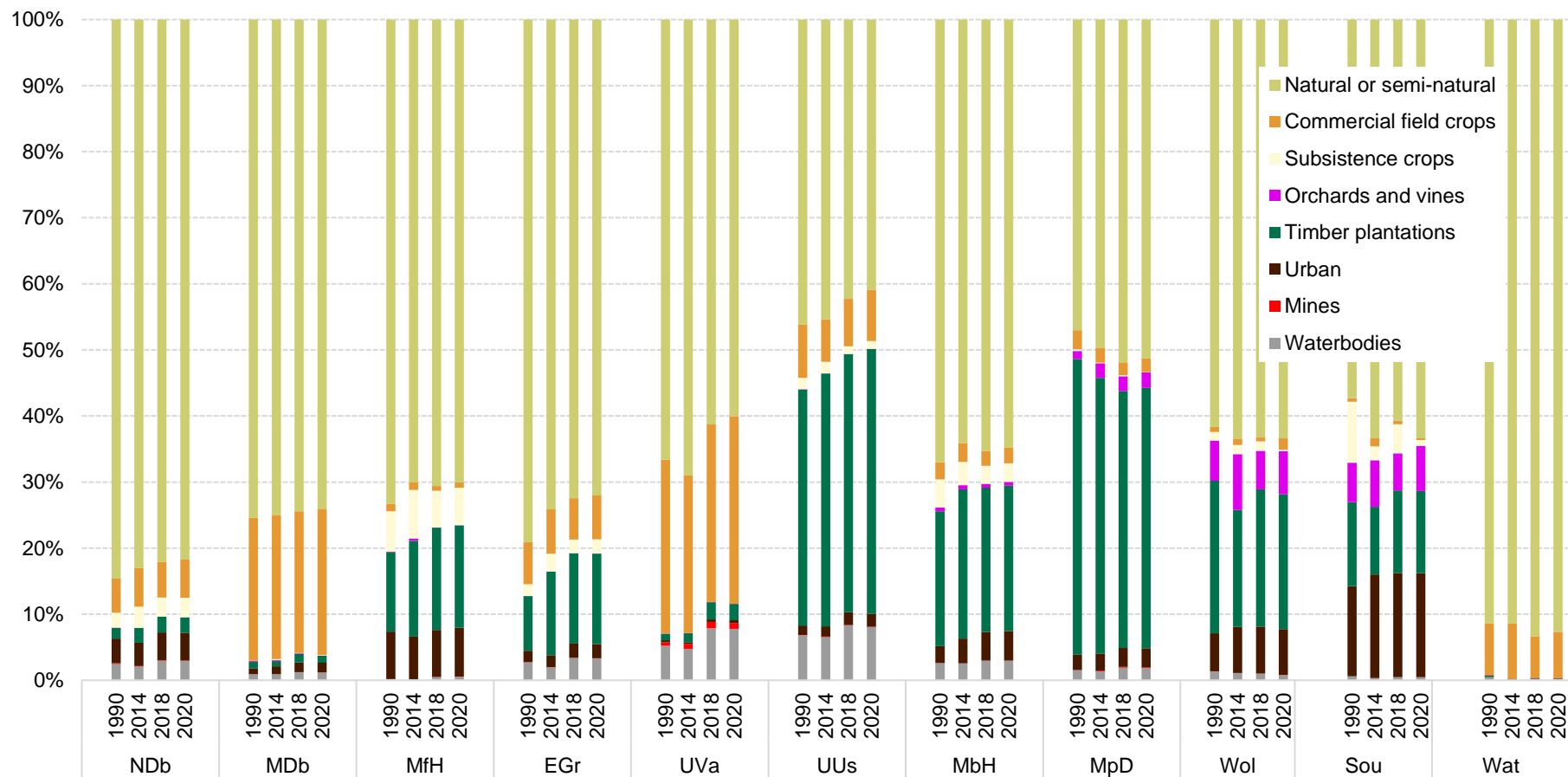
* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 11. Spatial distribution of main land cover classes (tier 2) in SWSAs, 2020**National land cover (tier 2) in 2020**

Note: Refer to Table 4 for full names of SWSAs.

Figure 12. Composition of main land cover classes (tier 2) per SWSA (group 1), 1990, 2014, 2018, 2020

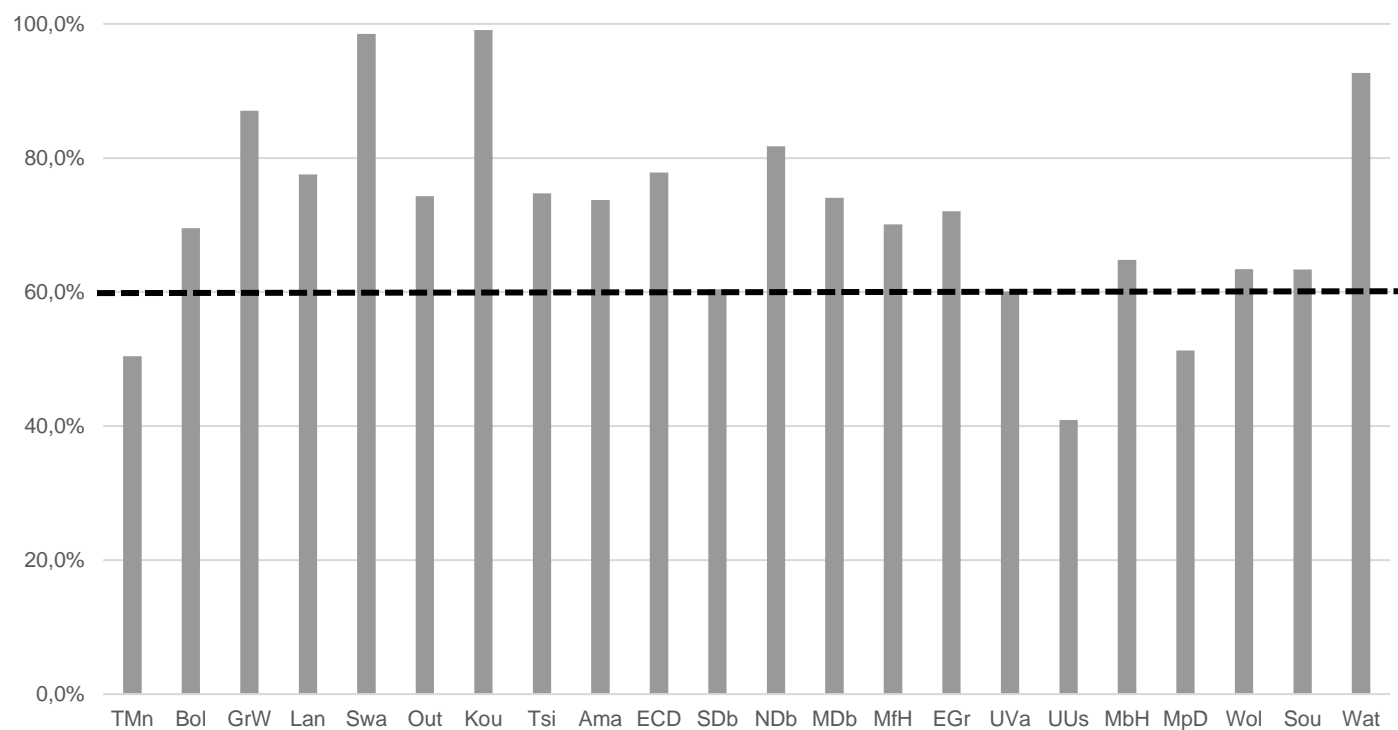
Note: Refer to Table 4 for full names of SWSAs.

Figure 13. Composition of main land cover classes (tier 2) per SWSA (group 2), 1990, 2014, 2018, 2020

Note: Refer to Table 4 for full names of SWSAs.

Table 12. Proportion of natural or semi-natural land cover and intensively modified land cover per SWSA in 2020, and changes in natural or semi-natural and intensively modified land cover per SWSA 1990 to 2020

SWSA Name	Natural or semi-natural				Intensively modified land cover classes			
	Total in 2020 (ha)	Proportion of the SWSA (%)	Net change 1990 to 2020 (ha)	Net change 1990 to 2020 as % of opening	Total in 2020 (ha)	Proportion of the SWSA (%)	Net change 1990 to 2020 (ha)	Net change 1990 to 2020 as % of opening
Table Mountain	23 818	50,4%	-1 111	-4,5%	21 973	46,5%	1 159	5,6%
Boland	422 580	69,5%	-3 062	-0,7%	166 225	27,3%	3 743	2,3%
Groot Winterhoek	451 303	87,1%	-4 323	-0,9%	58 422	11,3%	2 974	5,4%
Langeberg	132 974	77,5%	-161	-0,1%	35 864	20,9%	2 342	7,0%
Swartberg	76 820	98,5%	34	0,0%	1 057	1,4%	18	1,7%
Outeniqua	226 079	74,3%	11 022	5,1%	75 301	24,8%	-10 098	-11,8%
Kouga	62 521	99,1%	-30	0,0%	47	0,1%	26	123,8%
Tsitsikamma	240 780	74,7%	2 837	1,2%	79 365	24,6%	-1 785	-2,2%
Amathole	147 535	73,7%	-2 336	-1,6%	51 309	25,6%	2 178	4,4%
Eastern Cape Drakensberg	1 130 490	77,8%	-39 885	-3,4%	303 409	20,9%	42 042	16,1%
Southern Drakensberg	1 112 315	60,4%	-66 718	-5,7%	677 356	36,8%	56 011	9,0%
Northern Drakensberg	710 186	81,7%	-25 118	-3,4%	133 545	15,4%	21 384	19,1%
Maloti Drakensberg	114 551	74,0%	-2 139	-1,8%	38 381	24,8%	1 814	5,0%
Mfolozi Headwaters	134 583	70,1%	-6 182	-4,4%	56 444	29,4%	5 429	10,6%
Enkangala Grassland	567 706	72,0%	-55 714	-8,9%	194 556	24,7%	51 186	35,7%
Upper Vaal	83 736	60,1%	-9 131	-9,8%	44 826	32,2%	5 557	14,2%
Upper Usutu	220 723	40,9%	-28 153	-11,3%	275 177	51,0%	21 544	8,5%
Mbabane Hills	191 667	64,8%	-6 544	-3,3%	95 265	32,2%	5 342	5,9%
Mpumalanga Drakensberg	429 295	51,3%	35 512	9,0%	392 232	46,8%	-38 273	-8,9%
Wolkberg	164 624	63,4%	4 512	2,8%	93 000	35,8%	-3 061	-3,2%
Soutpansberg	148 726	63,4%	14 256	10,6%	84 915	36,2%	-13 886	-14,1%
Waterberg	95 648	92,7%	1 293	1,4%	7 325	7,1%	-1 030	-12,3%
All SWSAs combined	6 888 660	68,7%	-181 141	-2,6%	2 885 994	28,8%	154 616	5,7%

Figure 14. Proportion of natural or semi-natural land cover per SWSA, 2020, in relation to an ecological function threshold of 60,0%

Note: Refer to Table 4 for full names of SWSAs.

3.3 Accounts for protected areas across all SWSAs

Accounts for protected areas in SWSAs track the size and composition of the protected area estate within SWSAs. Table 13 shows the extent account for protected areas in all SWSAs combined for the period 1990 to 2020, divided into three accounting periods with seven types of protected area, based on the declaration dates recorded in SAPAD. For each accounting period and each protected area type, the account table presents the opening stock, additions to stock, reductions in stock, net change in stock and closing stock. The final two columns in the table show the total extent of the protected area estate in SWSAs in absolute terms and as a proportion of the total extent of SWSAs.

Building on Table 13, Table 14 aggregates changes in protection over the three accounting periods to show only the 1990 and 2020 values. This is useful for highlighting overall net change in each protected area type in SWSAs, and for all protected area types combined in SWSAs, across all the accounting periods combined.

Table 15 summarises information from the protected area account tables for individual SWSAs (Appendix 4) to show the extent of each protected area type in each SWSA in 2020, in hectares and as a proportion of total SWSA extent, highlighting which SWSAs have the largest extent of each protected area type. It also shows the extent of all protected area types combined for each SWSA in 2020 and the net change in protection between 1990 and 2020 in absolute and percentage terms. This is useful for highlighting which SWSAs had the highest overall level of protection in 2020 and which had the largest increases in protection between 1990 and 2020.

Figure 15, Figure 16, Figure 17 and Figure 18 provide graphic representations of protection in SWSAs for all protected area types combined, in other words distinguishing only between the extent or proportion protected (aggregated across all protected area types) and the extent or proportion not protected. They include a map of protection in SWSAs (Figure 15), pie charts comparing the proportion protected in SWSAs in 1990 and 2020 with the proportion of South Africa's mainland protected in 1990 and 2020 (Figure 16), a bar graph showing hectares protected per SWSA (Figure 17) and a bar graph showing the proportion protected in each SWSA in 1990, 2014, 2018 and 2020 (Figure 18).

Figure 19, Figure 20, Figure 21 and Figure 22 provide graphic representations of the different protected area types in SWSAs. They include a map of protected area types in SWSAs (Figure 19), pie charts comparing the composition of the protected area estate in SWSAs in 1990 and 2020 with the composition of the protected area estate in South Africa's mainland in 1990 and 2020 (Figure 20) and bar graphs showing the cumulative extent of the protected area estate by protected area type for each SWSA in 1990, 2014, 2018 and 2020 (Figure 21).

Key findings from the accounts for protected areas in SWSAs, drawn from across the tables and figures described above, include:

- The size of the protected area estate in all SWSAs in 2020 was 1 896 732 ha or 18,9% of the total extent of SWSAs, compared with 1 393 914 ha or 13,9% in 1990 (Table 13). This represents an increase of 502 818 ha (36,1%) (Table 14).
- In comparison, the proportion of South Africa's mainland protected was 6,3% in 1990 and 9,2% in 2020 (Figure 16). This means that the proportion protected in SWSAs was more than double the proportion protected for South Africa as a whole in both 1990 and 2020.
- The protected area types that contributed most to the protected area estate in SWSAs in 2020 were Nature Reserves (39,6%), Mountain Catchment Areas (19,2%) and Forest Wilderness Areas (12,8%). In contrast, the protected area types that contributed most to the protected area estate in South Africa's mainland as a whole in 2020 were Nature Reserves (44,5%), National Parks (37,4%) and Protected Environments (7,1%) (Figure 20). Mountain Catchment Areas, Forest Wilderness Areas and Forest Nature Reserves play a notably larger role in protection of SWSAs than they do in protection of South Africa's mainland as a whole. National Parks play

a notably smaller role in protection of SWSAs than they do in protection of South Africa's mainland as a whole.

- Protected area types with the greatest increases in extent in both absolute and percentage terms in all SWSAs combined between 1990 and 2020 were Nature Reserves with an increase of 233 268 ha (45,1%) and Protected Environments with an increase of 154 582 ha (1 332,3%) (Table 14). There were no increases in the extent of Forest Wilderness Areas and Mountain Catchment Areas in SWSAs over the period 1990 to 2020.
- SWSAs with the largest extent protected in absolute terms in 2020 were Groot Winterhoek (329 335 ha), Boland (263 604 ha) and Southern Drakensberg (256 338 ha) (Table 15). SWSAs with the highest proportion protected in 2020 were Swartberg (76,5%), Kouga (72,3%) and Groot Winterhoek (63,5%) (Figure 18). These three SWSAs were also among the five SWSAs with the highest proportion of natural or semi-natural land cover in 2020 (see Section 3.2; Table 12). An overall spatial pattern was that SWSAs in the west of the country tended to have a greater proportion protected than those in the east (with some exceptions).
- SWSAs with the smallest extent protected in absolute terms in 2020 were Amathole (6 304 ha), Upper Vaal (10 465 ha) and Mfolozi Headwaters (13 143 ha). SWSAs with the lowest proportion protected in 2020 were Eastern Cape Drakensberg (1,1%), Amathole (3,2%) and Mfolozi Headwaters (6,8%).
- SWSAs that had the greatest absolute increase in extent protected (all protected area types combined) between 1990 and 2020 were Southern Drakensberg (63 835 ha), Mpumalanga Drakensberg (55 557 ha) and Enkangala Grassland (53 686 ha). SWSAs that had the greatest percentage increase in protection between 1990 and 2020 were Soutpansberg (2 369,7%), Waterberg (1 322,2%) and Upper Usutu (1 265,5%).
- National Parks made up 10,3% (195 181 ha) (Figure 20 and Table 13) of the protected area estate in SWSAs in 2020, which was 1,9% of the total extent of all SWSAs. SWSAs with the largest extent of National Parks in absolute terms in 2020 were Tsitsikamma (67 221 ha), Outeniqua (60 290 ha) and Waterberg (23 939 ha). SWSAs with the highest proportion of National Parks in 2020 were Table Mountain (40,7% of SWSA extent), Waterberg (23,2%) and Tsitsikamma (20,9%) (Table 15).
- Nature Reserves made up 39,6% (Figure 20) (751 008 ha) (Table 13) of the protected area estate in SWSAs in 2020, which was 7,5% of the total extent of all SWSAs (Table 15). SWSAs with the largest extent of Nature Reserves in absolute terms in 2020 were Boland (142 950 ha), Southern Drakensberg (98 353 ha) and Mpumalanga Drakensberg (75 487 ha) (Table 15). SWSAs with the highest proportion of Nature Reserves in 2020 were Kouga (72,3% of SWSA extent), Swartberg (59,9%) and Mbabane Hills (25,2%).
- Protected Environments made up 8,8% (166 185 ha) of the protected area estate in SWSAs in 2020, which was 1,7% of the total extent of all SWSAs. SWSAs with the largest extent of Protected Environments in absolute terms in 2020 were Enkangala Grassland (41 678 ha), Soutpansberg (38 906 ha) and Upper Usutu (37 226 ha). SWSAs with the highest proportion of Protected Environments in 2020 were Soutpansberg (16,6% of SWSA extent), Upper Usutu (6,9%) and Enkangala Grassland (5,3%).
- Forest Nature Reserves made up 6,6% (125 200 ha) of the protected area estate in SWSAs in 2020, which was 1,2% of the total extent of all SWSAs (Table 15). SWSAs with the largest extent of Forest Nature Reserves in absolute terms in 2020 were Southern Drakensberg (48 654 ha), Boland (26 804 ha) and Mpumalanga Drakensberg (15 090 ha) (Table 15). SWSAs with the highest proportion of Forest Nature Reserves in 2020 were Langeberg (6,7% of SWSA extent), Boland (4,4%) and Southern Drakensberg (2,6%).
- Forest Wilderness Areas made up 12,8% (243 523 ha) of the protected area estate in SWSAs in 2020, which was 2,4% of the total extent of all SWSAs. SWSAs with the largest extent of

Forest Wilderness Areas in absolute terms in 2020 were Southern Drakensberg (84 866 ha), Groot Winterhoek (81 418 ha) and Northern Drakensberg (32 704 ha). SWSAs with the highest proportion of Forest Wilderness Areas in 2020 were Groot Winterhoek (15,7% of SWSA extent), Langeberg (7,6%) and Wolkberg (5,8%).

- Mountain Catchment Areas made up 19,2% (363 253 ha) of the protected area estate in SWSAs in 2020, which was 3,6% of the total extent of all SWSAs. SWSAs with the largest extent of Mountain Catchment Areas in absolute terms in 2020 were Groot Winterhoek (209 692 ha), Boland (81 259 ha) and Langeberg (43 926 ha). SWSAs with the highest proportion of Mountain Catchment Areas in 2020 were Groot Winterhoek (40,5% of SWSA extent), Langeberg (25,6%) and Swartberg (16,6%).
- Four SWSAs include portions of World Heritage Sites. Southern Drakensberg SWSA and Northern Drakensberg SWSA include portions of the uKhahlamba Drakensberg World Heritage Site, mostly overlapping with other protected area types in these SWSAs. Mpumalanga Drakensberg SWSA and Mbabane Hills SWSA include portions of the Barberton Makhonjwa Mountains World Heritage Site.

Table 13. Extent account for protected areas in all SWSAs combined, 1990–2014, 2014–2018 and 2018–2020, in hectares, based on declaration dates in the South African Protected Areas Database

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	151 622	517 740	11 603	106 173	243 523	363 253	0	8 626 806	10 020 720	1 393 914	13,9%
Total additions to stock	43 559	170 427	101 483	17 481			14 657		347 607		
Total reductions in stock								347 607	347 607		
Net change in stock	43 559	170 427	101 483	17 481			14 657	-347 607	0	347 607	24,9%
<i>Net change as % of opening</i>	28,7%	32,9%	874,6%	16,5%			-	-4,0%			
Opening stock 2014**	195 181	688 167	113 086	123 654	243 523	363 253	14 657	8 279 199	10 020 720	1 741 521	17,4%
Total additions to stock		55 037	53 099						108 136		
Total reductions in stock								108 136	108 136		
Net change in stock		55 037	53 099					-108 136	0	108 136	6,2%
<i>Net change as % of opening</i>		8,0%	47,0%					-1,3%			
Opening stock 2018**	195 181	743 204	166 185	123 654	243 523	363 253	14 657	8 171 063	10 020 720	1 849 657	18,5%
Total additions to stock		7 804		1 546			37 725		47 075		
Total reductions in stock								47 075	47 075		
Net change in stock		7 804		1 546			37 725	-47 075	0	47 075	2,5%
<i>Net change as % of opening</i>		1,1%		1,3%			257,4%	-0,6%			
Closing stock 2020	195 181	751 008	166 185	125 200	243 523	363 253	52 382	8 123 988	10 020 720	1 896 732	18,9%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Table 14. Extent account for protected area in all SWSAs combined, 1990–2020, in hectares, based on declaration dates in the South African Protected Areas Database

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	151 622	517 740	11 603	106 173	243 523	363 253	0	8 626 806	10 020 720	1 393 914	13,9%
Total additions to stock	43 559	233 268	154 582	19 027			52 382		502 818		
Total reductions in stock								502 818	502 818		
Net change in stock	43 559	233 268	154 582	19 027			52 382	-502 818	0	502 818	36,1%
<i>Net change as % of opening</i>	28,7%	45,1%	1332,3%	17,9%				-5,8%			
Closing stock 2020	195 181	751 008	166 185	125 200	243 523	363 253	52 382	8 123 988	10 020 720	1 896 732	18,9%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

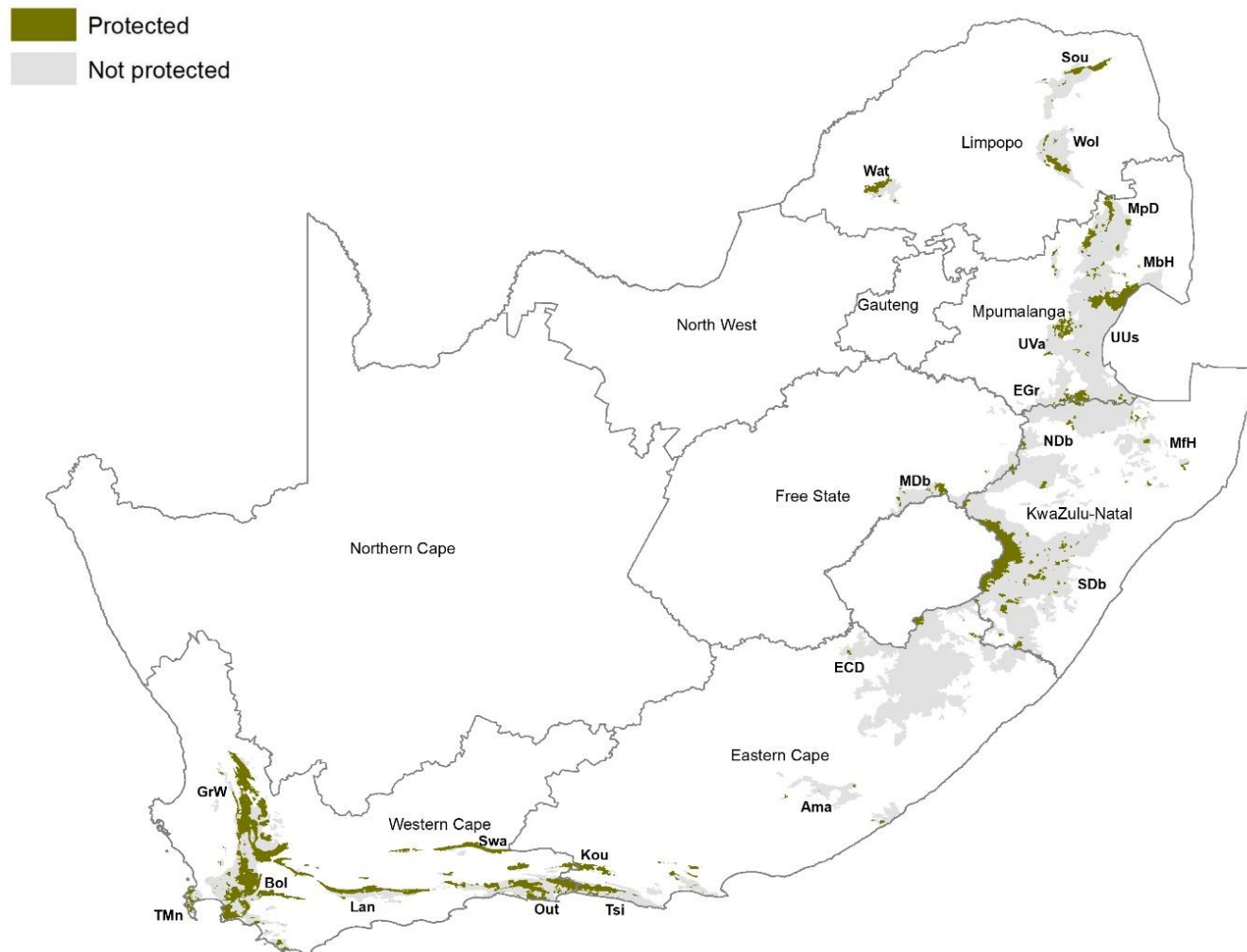
Table 15. Protected area types per SWSA, 2020, also showing change in protection between 1990 and 2020, in hectares and as a percentage

SWSA	Unit	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total extent of SWSA	Total protected by 2020	Net change in protection 1990 to 2020
Table Mountain	ha	19 213	2 014	0	0	0	0	0	26 019	47 246	21 227	15 094
	%	40,7%	4,3%	0,0%	0,0%	0,0%	0,0%	0,0%	55,1%	100,0%	44,9%	246,1%
Boland	ha	6 454	142 950	4 389	26 804	1 748	81 259	0	344 450	608 054	263 604	30 403
	%	1,1%	23,5%	0,7%	4,4%	0,3%	13,4%	0,0%	56,6%	100,0%	43,4%	13,0%
Groot Winterhoek	ha	0	33 873	4 352	0	81 418	209 692	0	188 975	518 310	329 335	13 776
	%	0,0%	6,5%	0,8%	0,0%	15,7%	40,5%	0,0%	36,5%	100,0%	63,5%	4,4%
Langeberg	ha	1 722	12 465	0	11 560	12 978	43 926	0	88 876	171 527	82 651	643
	%	1,0%	7,3%	0,0%	6,7%	7,6%	25,6%	0,0%	51,8%	100,0%	48,2%	0,8%
Swartberg	ha	0	46 737	0	0	0	12 941	0	18 305	77 983	59 678	188
	%	0,0%	59,9%	0,0%	0,0%	0,0%	16,6%	0,0%	23,5%	100,0%	76,5%	0,3%
Outeniqua	ha	60 290	30 472	12 168	6 715	2 256	11 764	0	180 572	304 237	123 665	5 967
	%	19,8%	10,0%	4,0%	2,2%	0,7%	3,9%	0,0%	59,4%	100,0%	40,6%	5,1%
Kouga	ha	0	45 615	0	0	0	0	0	17 484	63 099	45 615	45 615
	%	0,0%	72,3%	0,0%	0,0%	0,0%	0,0%	0,0%	27,7%	100,0%	72,3%	-
Tsitsikamma	ha	67 221	35 831	0	353	7 358	0	0	211 445	322 208	110 763	1 660
	%	20,9%	11,1%	0,0%	0,1%	2,3%	0,0%	0,0%	65,6%	100,0%	34,4%	1,5%
Amathole	ha	0	3 135	81	3 088	0	0	0	193 808	200 112	6 304	1 870
	%	0,0%	1,6%	0,0%	1,5%	0,0%	0,0%	0,0%	96,8%	100,0%	3,2%	42,2%
Eastern Cape Drakensberg	ha	0	16 380	0	0	0	0	0	1 436 434	1 452 814	16 380	2 986
	%	0,0%	1,1%	0,0%	0,0%	0,0%	0,0%	0,0%	98,9%	100,0%	1,1%	22,3%
Southern Drakensberg	ha	0	98 353	16 972	48 654	84 866	0	7 493	1 585 827	1 842 165	256 338	63 835
	%	0,0%	5,3%	0,9%	2,6%	4,6%	0,0%	0,4%	86,1%	100,0%	13,9%	33,2%
Northern Drakensberg	ha	0	37 575	181	6 058	32 704	0	7 164	785 156	868 838	83 682	26 979
	%	0,0%	4,3%	0,0%	0,7%	3,8%	0,0%	0,8%	90,4%	100,0%	9,6%	47,6%
Maloti Drakensberg	ha	16 342	8 151	0	0	0	0	0	130 223	154 716	24 493	7 502
	%	10,6%	5,3%	0,0%	0,0%	0,0%	0,0%	0,0%	84,2%	100,0%	15,8%	44,2%
Mfolozi Headwaters	ha	0	7 882	0	0	5 261	0	0	178 906	192 049	13 143	3 454
	%	0,0%	4,1%	0,0%	0,0%	2,7%	0,0%	0,0%	93,2%	100,0%	6,8%	35,6%
Enkangala Grassland	ha	0	28 264	41 678	0	0	0	0	718 150	788 092	69 942	53 686
	%	0,0%	3,6%	5,3%	0,0%	0,0%	0,0%	0,0%	91,1%	100,0%	8,9%	330,3%
Upper Vaal	ha	0	3 810	6 655	0	0	0	0	128 950	139 415	10 465	6 655
	%	0,0%	2,7%	4,8%	0,0%	0,0%	0,0%	0,0%	92,5%	100,0%	7,5%	174,7%
Upper Usutu	ha	0	5 009	37 226	0	0	0	0	497 087	539 322	42 235	39 142
	%	0,0%	0,9%	6,9%	0,0%	0,0%	0,0%	0,0%	92,2%	100,0%	7,8%	1 265,5%

Table 15. Protected area types per SWSA, 2020, also showing change in protection between 1990 and 2020, in hectares and as a percentage (concluded)

SWSA	Unit	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total extent of SWSA	Total protected by 2020	Net change in protection 1990 to 2020
Mbabane Hills	ha	0	74 448	0	34	0	0	29 926	191 367	295 775	104 408	47 260
	%	0,0%	25,2%	0,0%	0,0%	0,0%	0,0%	10,1%	64,7%	100,0%	35,3%	82,7%
Mpumalanga Drakensberg	ha	0	75 487	3 577	15 090	0	3 671	7 799	731 624	837 248	105 624	55 557
	%	0,0%	9,0%	0,4%	1,8%	0,0%	0,4%	0,9%	87,4%	100,0%	12,6%	111,0%
Wolkberg	ha	0	25 826	0	4 858	14 934	0	0	214 009	259 627	45 618	3 416
	%	0,0%	9,9%	0,0%	1,9%	5,8%	0,0%	0,0%	82,4%	100,0%	17,6%	8,1%
Soutpansberg	ha	0	2 797	38 906	1 986	0	0	0	190 993	234 682	43 689	41 920
	%	0,0%	1,2%	16,6%	0,8%	0,0%	0,0%	0,0%	81,4%	100,0%	18,6%	2 369,7%
Waterberg	ha	23 939	13 934	0	0	0	0	0	65 328	103 201	37 873	35 210
	%	23,2%	13,5%	0,0%	0,0%	0,0%	0,0%	0,0%	63,3%	100,0%	36,7%	1 322,2%
All SWSAs combined	ha	195 181	751 008	166 185	125 200	243 523	363 253	52 382	8 123 988	10 020 720	1 896 732	502 818
	%	1,9%	7,5%	1,7%	1,2%	2,4%	3,6%	0,5%	81,1%	100,0%	18,9%	36,1%

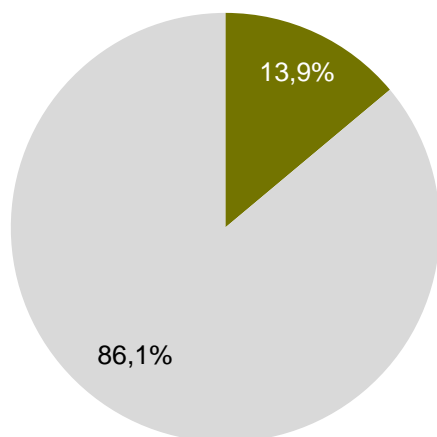
* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

Figure 15. Spatial distribution of protection in SWSAs in 2020 for all protected area types combined

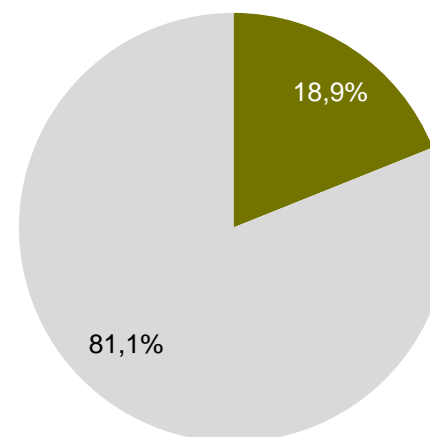
Note: Refer to Table 4 for full names of SWSAs.

Figure 16. Proportion of total SWSA extent protected and not protected in 1990 (a) and 2020 (b) and proportion South Africa's mainland protected and not protected in 1990 (c) and 2020 (d)

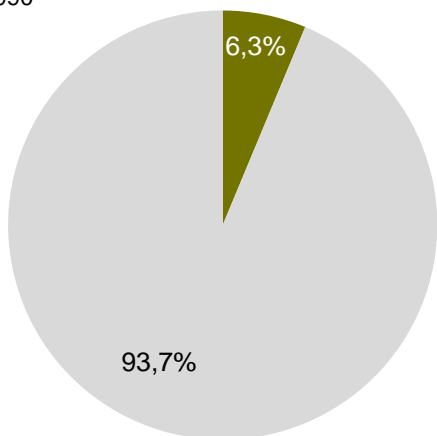
a) All SWSAs combined 1990



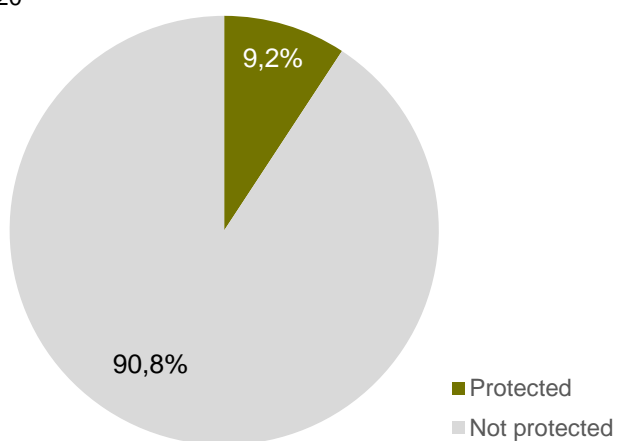
b) All SWSAs combined 2020



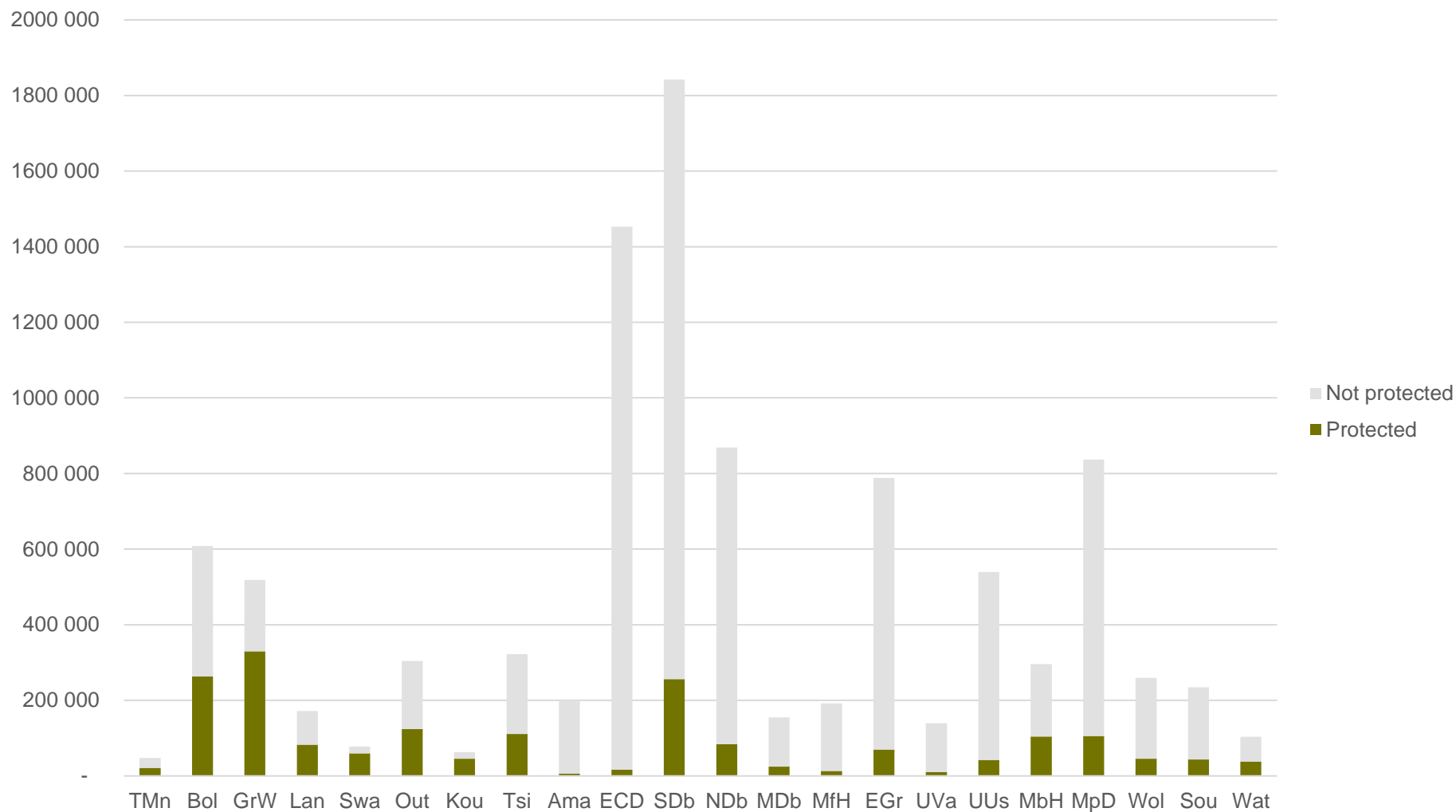
c) South Africa 1990



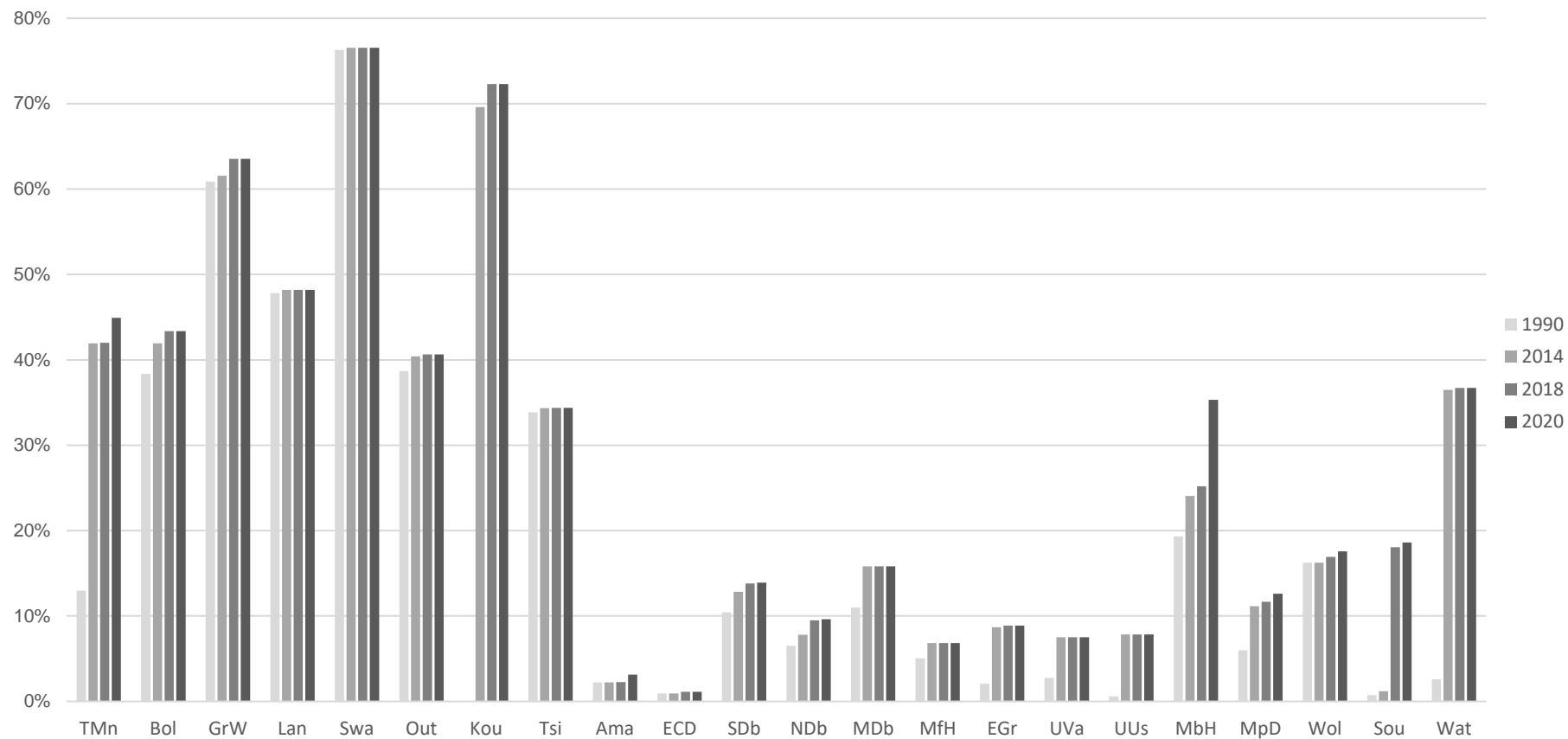
d) South Africa 2020



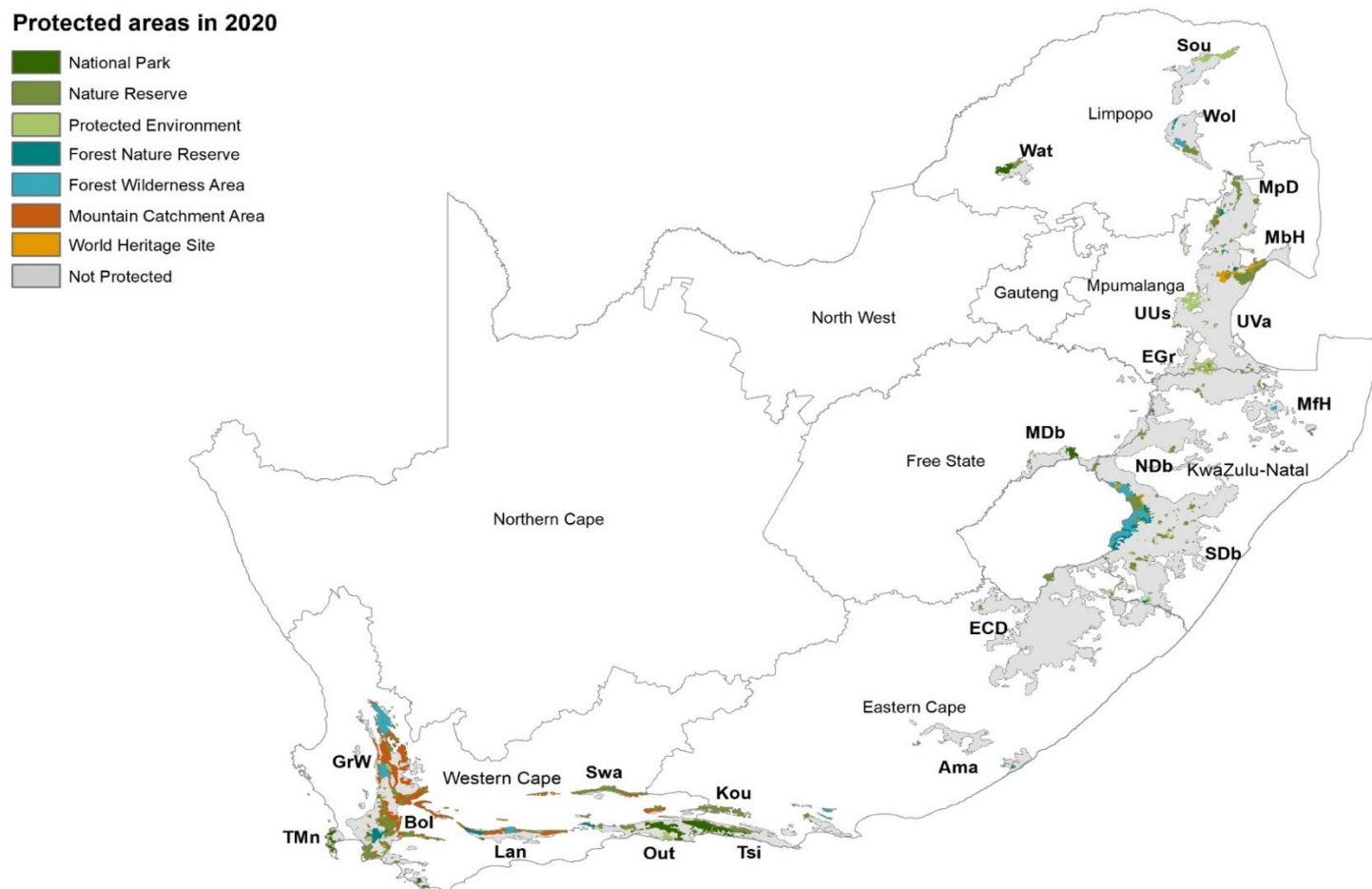
Source for (c) and (d): Stats SA 2021

Figure 17. Total extent protected and not protected per SWSA in 2020, in hectares

Note: Refer to Table 4 for full names of SWSAs.

Figure 18. Proportion protected per SWSA, 1990, 2014, 2018, 2020

Note: Refer to Table 4 for full names of SWSAs.

Figure 19. Spatial distribution of protected areas in SWSAs in 2020 by protected area type

Note: Refer to Table 4 for full names of SWSAs.

Figure 20. Composition of the protected area estate in all SWSAs combined in 1990 (a) and 2020 (b) and for South Africa's mainland in 1990 (c) and 2020 (d)

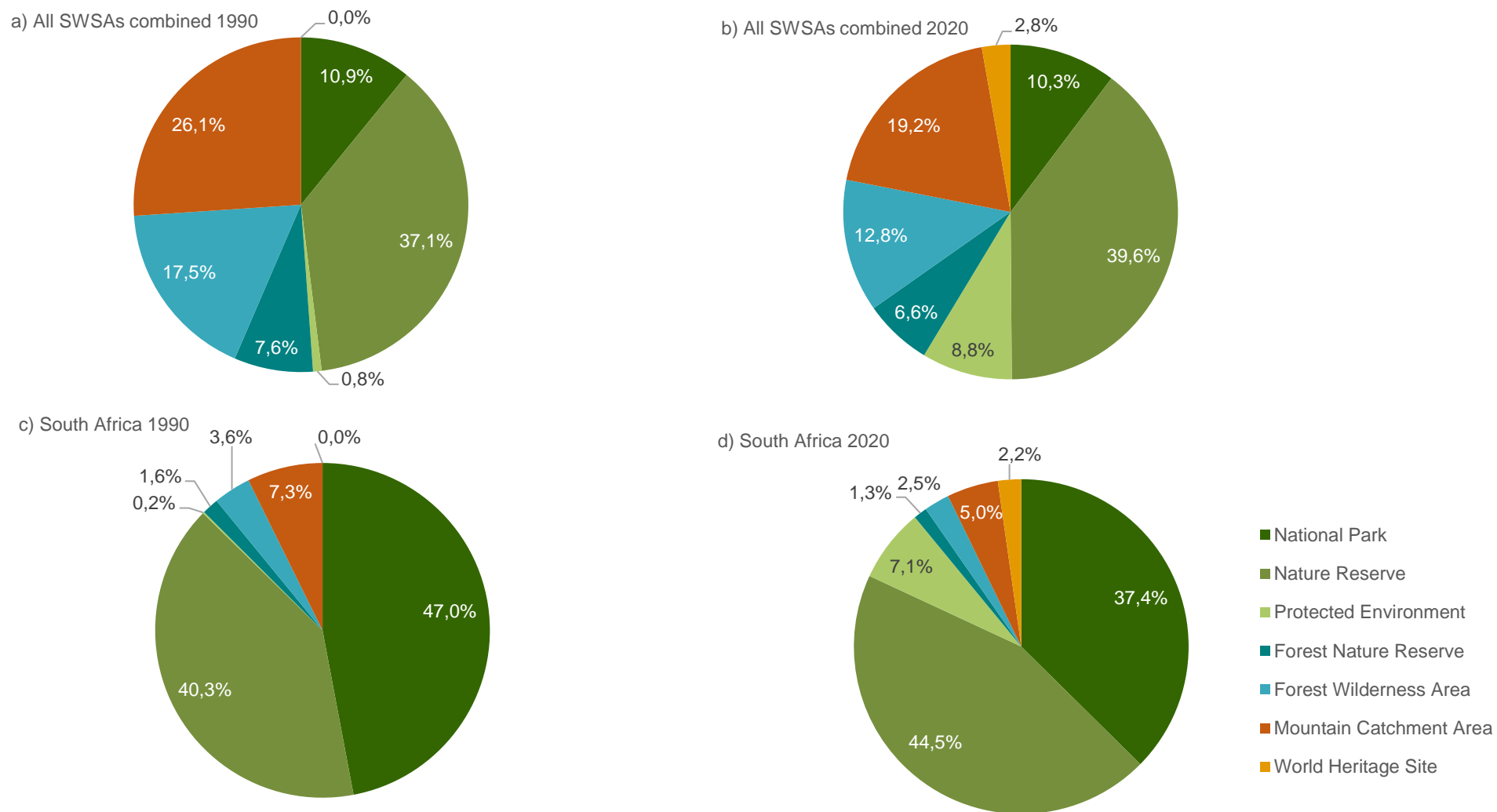
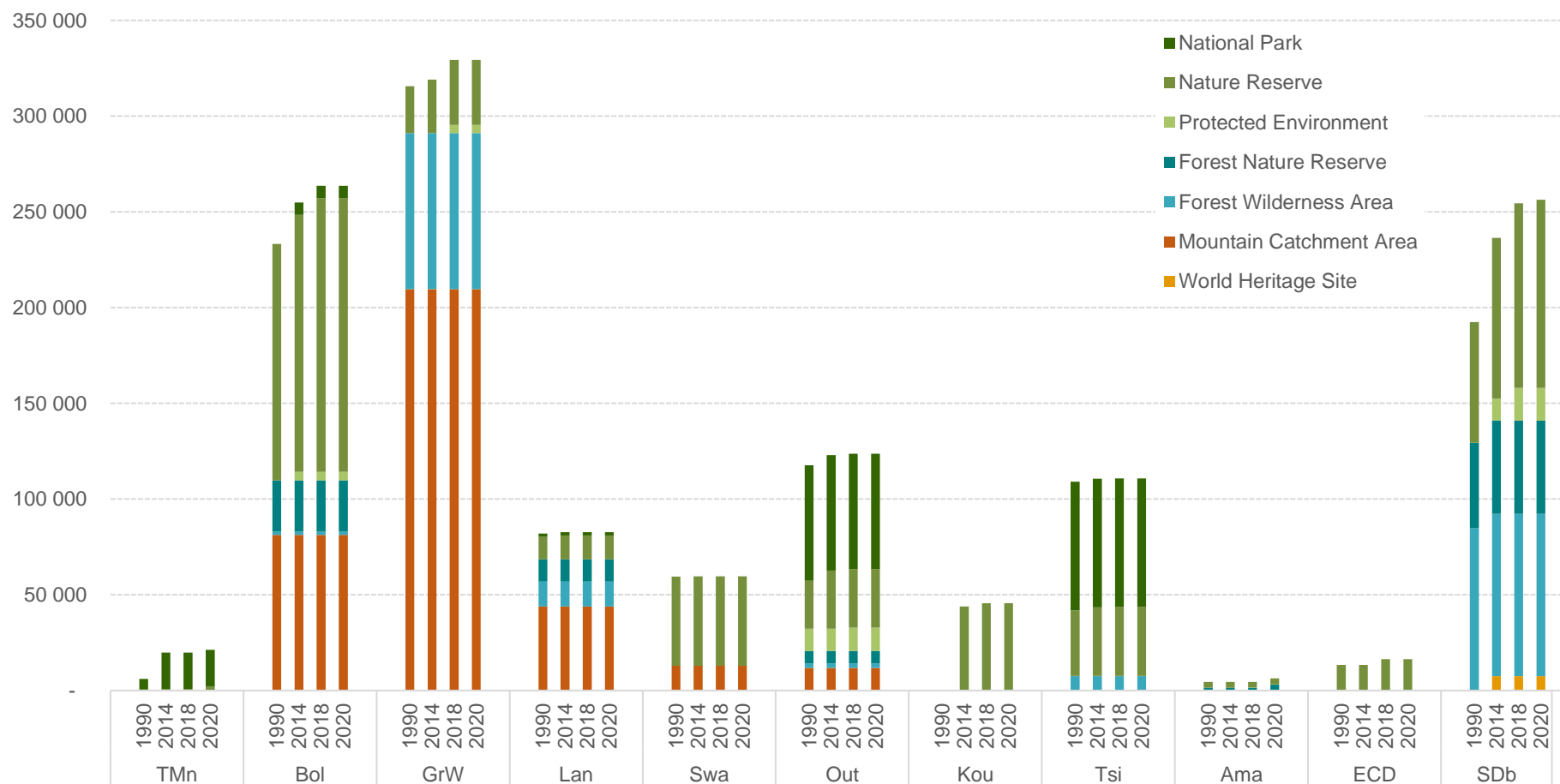
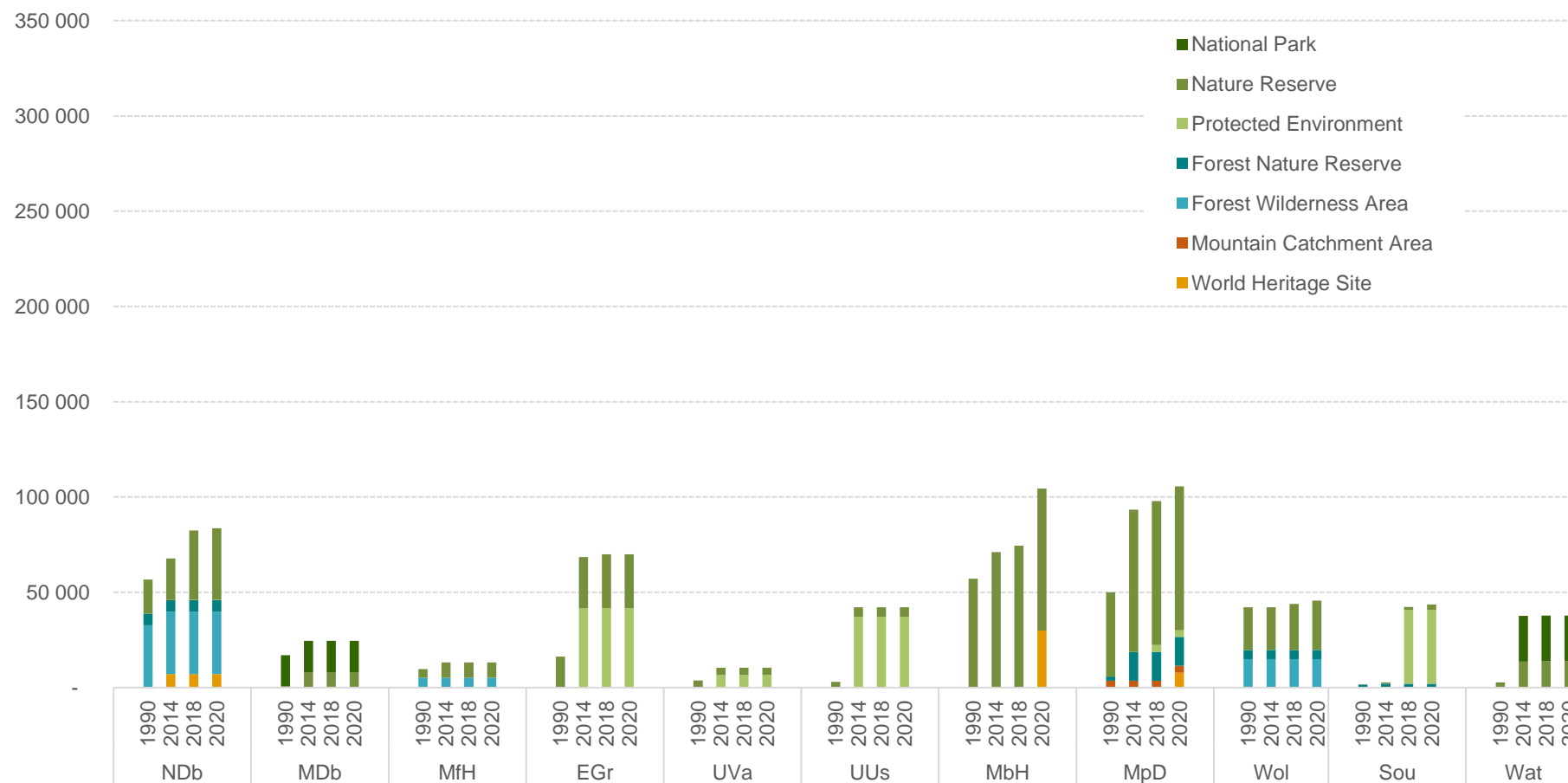


Figure 21. Cumulative extent of the protected area estate per SWSA (group 1) by protected area type, 1990, 2014, 2018 and 2020, in hectares

Note: Refer to Table 4 for full names of SWSAs.

Figure 22. Cumulative extent of the protected area estate per SWSA (group 2) by protected area type, 1990, 2014, 2018 and 2020, in hectares

Note: Refer to Table 4 for full names of SWSAs.

4 KEY FINDINGS PER SWSA

This section presents key findings from the accounts for each SWSA individually. For each SWSA the following information is provided:

- **Contextual geographic information**, including maps showing the location of the SWSA relative to district municipalities and biomes. These maps also show selected rivers and towns for orientation, as well as large dams (see Section 2.4.5).
- **Demographic information** based on the 2011 population census, including estimated total population, population density and the main source of water for domestic use for households living in the SWSA (see Section 2.4.4).
- **Key findings from the land account for the SWSA**. This includes a table summarising some of the indicators that can be drawn from the land account, namely the extent in hectares of main land cover classes (tier 2) in absolute and proportional terms at the end of each accounting period, net change in land cover classes per accounting period, and the overall net change in land cover classes across all accounting periods combined (1990 to 2020). A map of land cover classes in the SWSA in 2020 is provided, as well as a bar graph showing change in the composition of land cover over the four accounting periods.
- **Key findings from the account for protected areas for the SWSA**. This includes a table summarising some of the indicators that can be drawn from accounts for protected areas, namely the extent of each protected area type in absolute and proportional terms at the end of each accounting period, net change in protection per accounting period, and the overall net change in protection across all accounting periods combined (1990 to 2020). A map of protected areas in the SWSA in 2020 is provided, showing the different protected area types, as well as bar graphs showing the change in protection of the SWSA over the four accounting periods.

Appendices 5 and 6 contain the full tables for the land accounts and accounts for protected areas for each SWSA.

Note that in the tables a '0' means zero value, a blank cell contains no information, and a dash indicates values that cannot be calculated.

4.1 Table Mountain SWSA

Table Mountain SWSA covers 47 246 ha (0,0%) of South Africa's mainland and is the smallest of the 22 SWSAs (Table 4 in Section 3.1). It is located in the Western Cape province and falls fully within the City of Cape Town Metropolitan Municipality (Figure 23 and Appendix 2). Table Mountain SWSA falls largely in the Fynbos biome (98,2%) with a tiny portion in the Forest biome (0,7%) (Table 5 in Section 3.1 and Figure 24).

The estimated total population of Table Mountain SWSA in 2011 was 732 701, with a population density of approximately 1 550,8 people per km², the highest by a large margin of all the SWSAs (Table 8 in Section 3.1). The main source of water for domestic use for 97,1% of the households living in Table Mountain SWSA was a water service provider, with boreholes as the main source for 0,4% of households, and 0,1% of households sourcing most of their water directly from springs, rivers or streams (Figure 25).

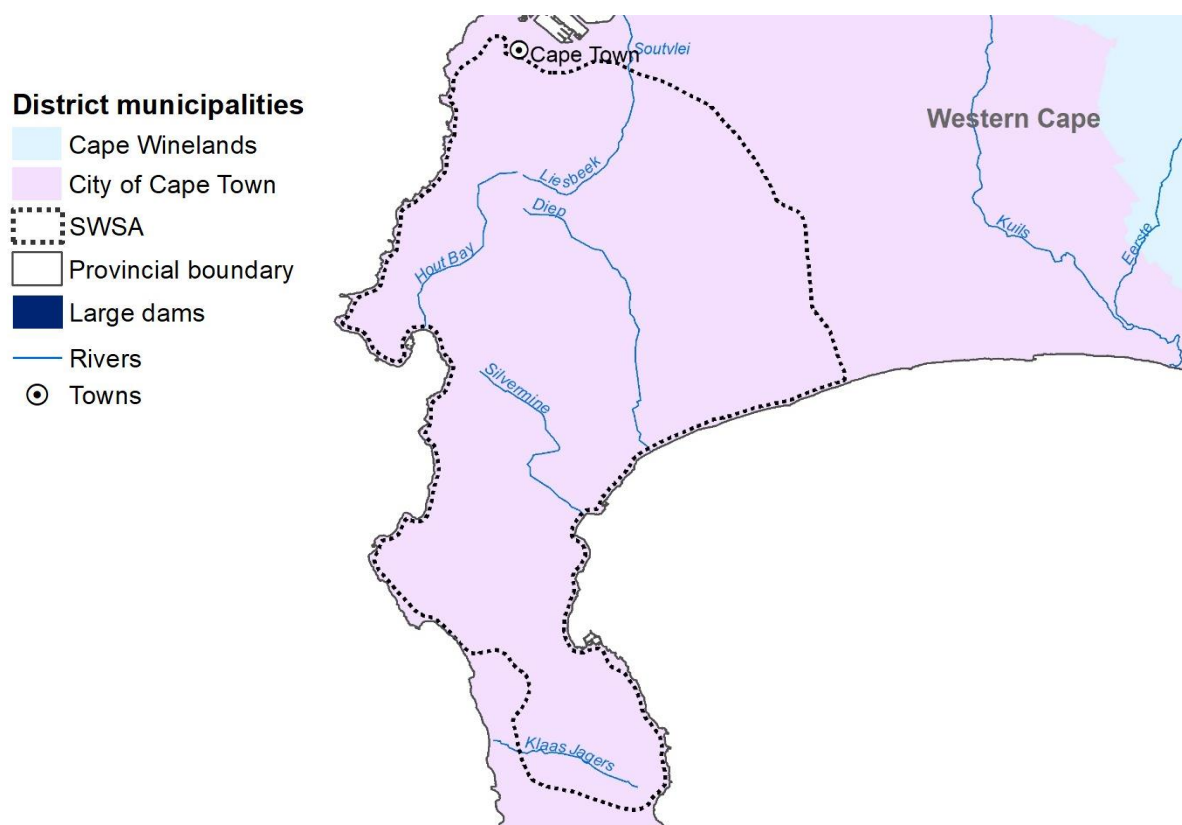
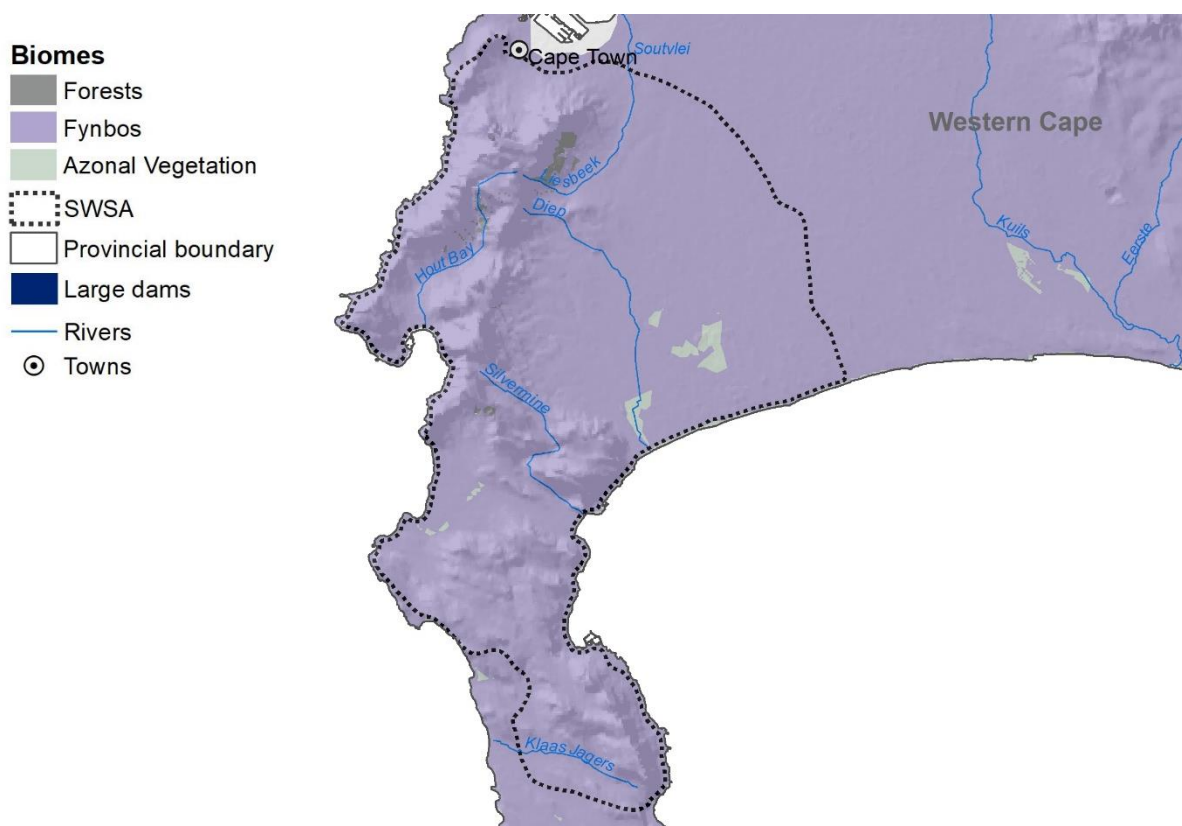
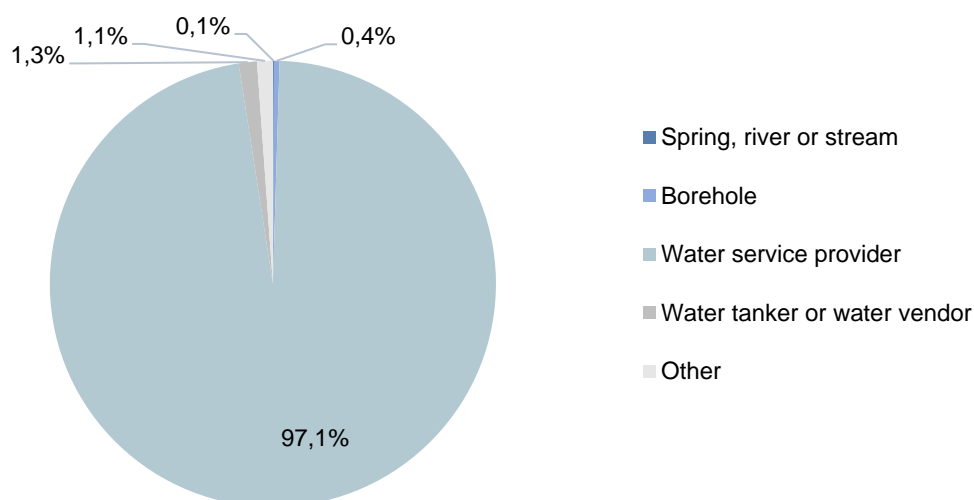
Figure 23. District municipalities in and around Table Mountain SWSA**Figure 24. Terrestrial biomes in and around Table Mountain SWSA**

Figure 25. Main source of water for households living in Table Mountain SWSA based on the 2011 population census



4.1.1 Key findings from the land account for Table Mountain SWSA

Table 16 shows the change in main land cover classes (tier 2) in Table Mountain SWSA between 1990 and 2020. Figure 26 provides a map of land cover classes in 2020, and the changes over time are summarised graphically in Figure 27.

In 2020, 50,4% (23 818 ha) of Table Mountain SWSA remained natural or semi-natural, compared with 52,8% (24 929 ha) in 1990. Table Mountain SWSA had the second lowest proportion of natural or semi-natural land cover in 2020 (Upper Usutu had the lowest proportion) (Table 12). As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included urban (39,8%), commercial field crops (2,7%), timber plantations (2,5%) and orchards and vines (1,1%), with a small proportion of mines (<1,0%). The proportional division between the intensively modified land cover classes remained fairly consistent over the three accounting periods.

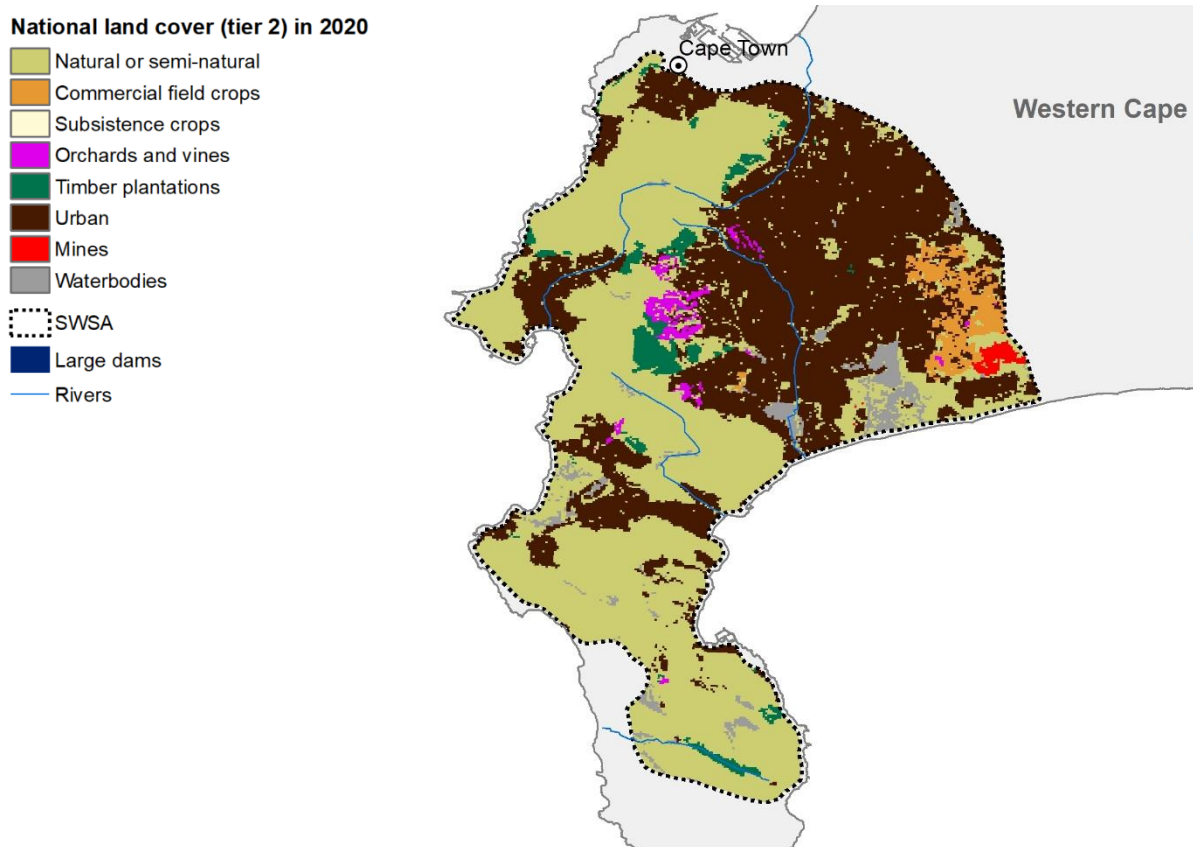
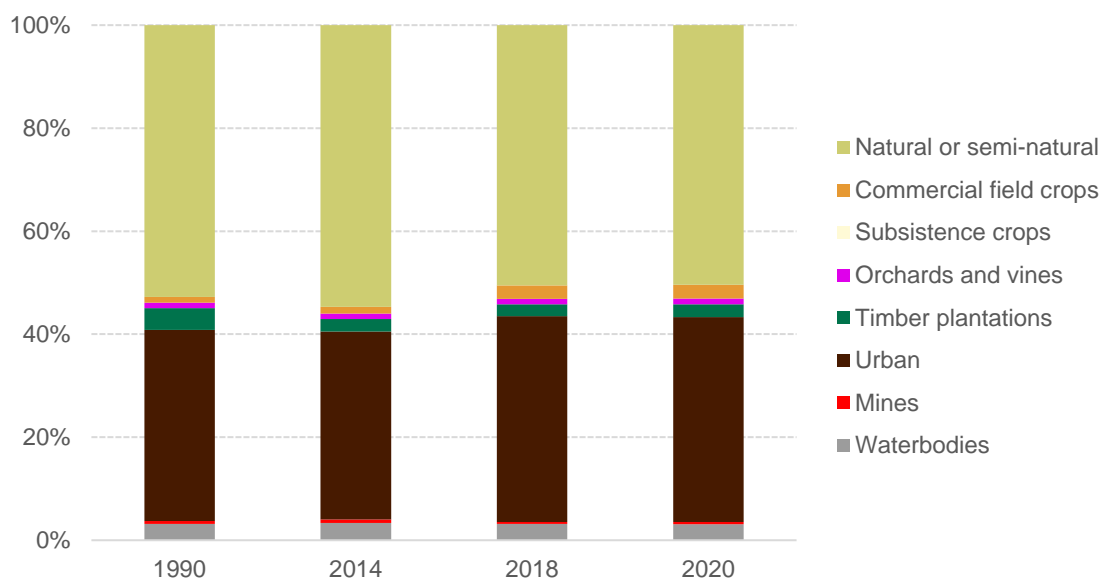
Among the intensively modified land cover classes, the following changes were notable over the period 1990 to 2020:

- An increase of 746 ha (142,9%) in commercial field crops between 1990 and 2020, with the bulk of the increase taking place between 2014 and 2018 (97,6%). Commercial field crops occur mainly in the eastern part of the SWSA (Figure 26). Disaggregation to tier 3 land cover classes would provide more insight into the nature of this change.
- A decrease of 812 ha (-41,2%) in timber plantations, with the bulk of the decrease taking place between 1990 and 2014 (-43,0%).
- An increase of 1 274 ha (7,3%) in urban land cover between 1990 and 2020, with the bulk of the increase taking place between 2014 and 2018 (9,4%). This was the largest change in absolute terms of all the land cover classes in this SWSA.

Table 16. Indicators drawn from the land account for Table Mountain SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	24 929	522	0	519	1 972	17 534	267	1 503
2014	25 835	623	0	511	1 124	17 246	328	1 579
2018	23 868	1 231	0	496	1 108	18 859	179	1 505
2020	23 818	1 268	0	526	1 160	18 808	211	1 455
(b) Proportion of land cover classes (%)								
1990	52,8%	1,1%	0,0%	1,1%	4,2%	37,1%	0,6%	3,2%
2014	54,7%	1,3%	0,0%	1,1%	2,4%	36,5%	0,7%	3,3%
2018	50,5%	2,6%	0,0%	1,0%	2,3%	39,9%	0,4%	3,2%
2020	50,4%	2,7%	0,0%	1,1%	2,5%	39,8%	0,4%	3,1%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	3,6%	19,3%	-	-1,5%	-43,0%	-1,6%	22,8%	5,1%
2014-2018	-7,6%	97,6%	-	-2,9%	-1,4%	9,4%	-45,4%	-4,7%
2018-2020	-0,2%	3,0%	-	6,0%	4,7%	-0,3%	17,9%	-3,3%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-1 111	746	0	7	-812	1 274	-56	-48
1990-2020	-4,5%	142,9%	-	1,3%	-41,2%	7,3%	-21,0%	-3,2%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 26. Land cover classes (tier 2) in Table Mountain SWSA, 2020**Figure 27. Land cover composition (tier 2) in Table Mountain SWSA, 1990, 2014, 2018, 2020**

4.1.2 Key findings from the account for protected areas in Table Mountain SWSA

Table 17 shows the change in extent of protected areas in Table Mountain SWSA between 1990 and 2020, by protected area type. Figure 28 provides a map of protected areas that occur wholly or partially within Table Mountain SWSA in 2020. Changes in protection over time are summarised in Figure 29 and Figure 30.

At the end of 2020, 44,9% (21 227 ha) of Table Mountain SWSA was protected, compared with 13,0% (6 133 ha) in 1990, giving an overall increase in protection of 246,1% (15 094 ha). The bulk of this increase took place between 1990 and 2014 (223,1%).

Protected area types in Table Mountain SWSA in 2020 included National Park (40,7% of SWSA area) and Nature Reserve (4,3%). The National Park is Table Mountain National Park, which more than tripled in size between 1990 and 2020, from 5 595 ha to 19 213 ha.

Table 17. Indicators drawn from the protected area account for Table Mountain SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	5 595	538	0	0	0	0	0	41 113	6 133
2014	19 213	601	0	0	0	0	0	27 432	19 814
2018	19 213	628	0	0	0	0	0	27 405	19 841
2020	19 213	2 014	0	0	0	0	0	26 019	21 227
(b) Proportion protected (%)									
1990	11,8%	1,1%	0,0%	0,0%	0,0%	0,0%	0,0%	87,0%	13,0%
2014	40,7%	1,3%	0,0%	0,0%	0,0%	0,0%	0,0%	58,1%	41,9%
2018	40,7%	1,3%	0,0%	0,0%	0,0%	0,0%	0,0%	58,0%	42,0%
2020	40,7%	4,3%	0,0%	0,0%	0,0%	0,0%	0,0%	55,1%	44,9%
(c) Net change in protection per accounting period (%)									
1990-2014	243,4%	11,7%	-	-	-	-	-	-33,3%	223,1%
2014-2018	0,0%	4,5%	-	-	-	-	-	-0,1%	0,1%
2018-2020	0,0%	220,7%	-	-	-	-	-	-5,1%	7,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	13 618	1 476	0	0	0	0	0	-15 094	15 094
1990-2020	243,4%	274,3%	-	-	-	-	-	-36,7%	246,1%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

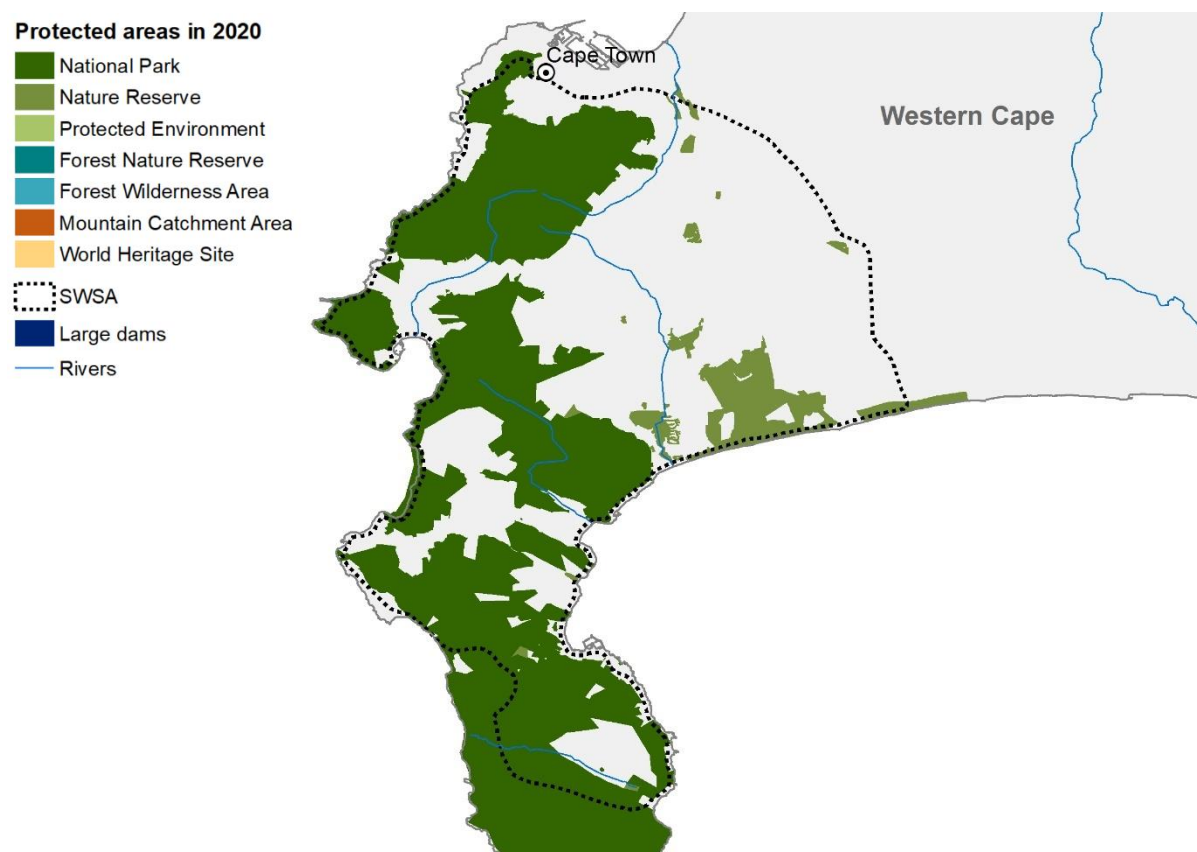
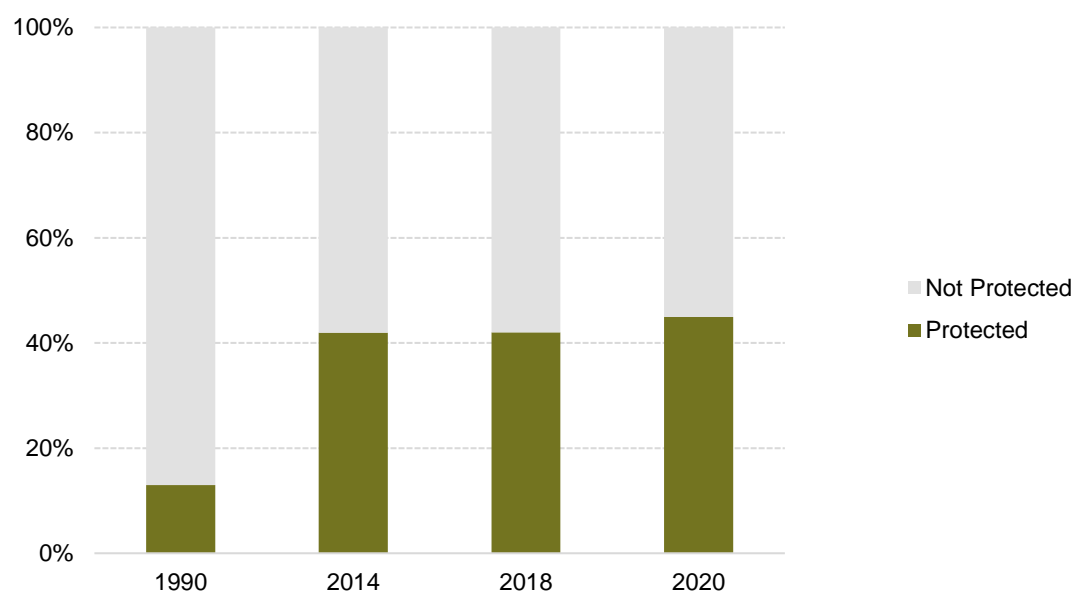
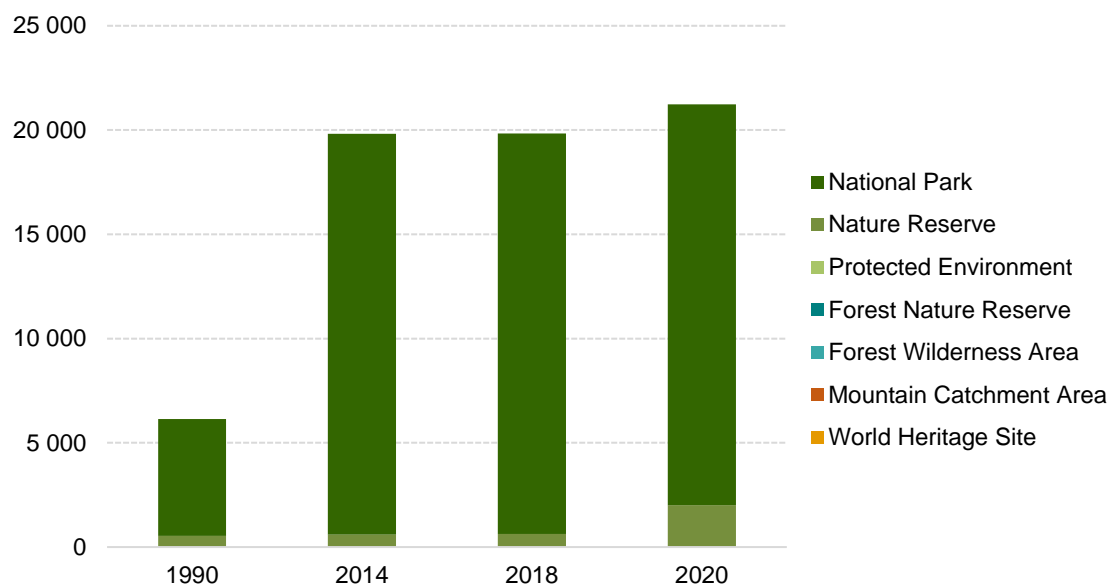
Figure 28. Protected areas occurring wholly or partially within Table Mountain SWSA, 2020**Figure 29. Proportion of Table Mountain SWSA protected, 1990, 2014, 2018, 2020**

Figure 30. Extent of protected areas in Table Mountain SWSA by protected area type, 1990, 2014, 2018, 2020, in hectares



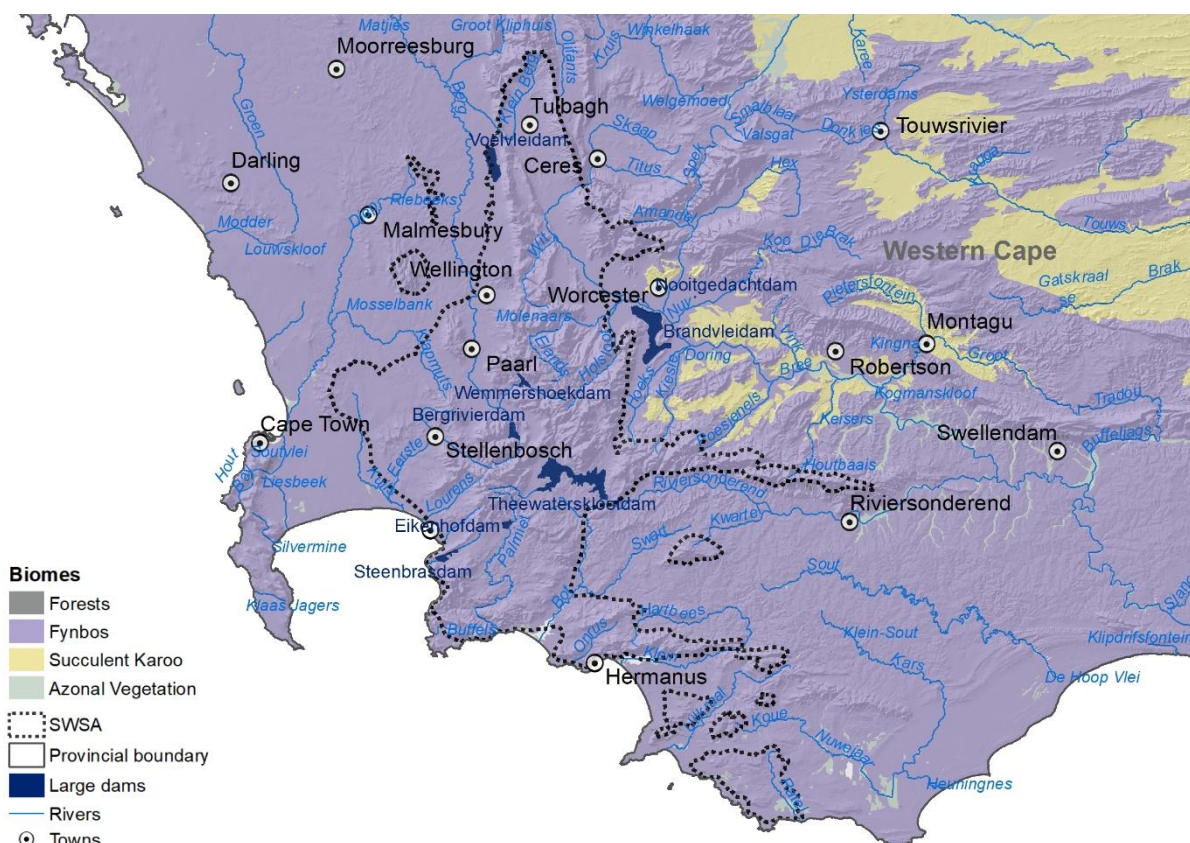
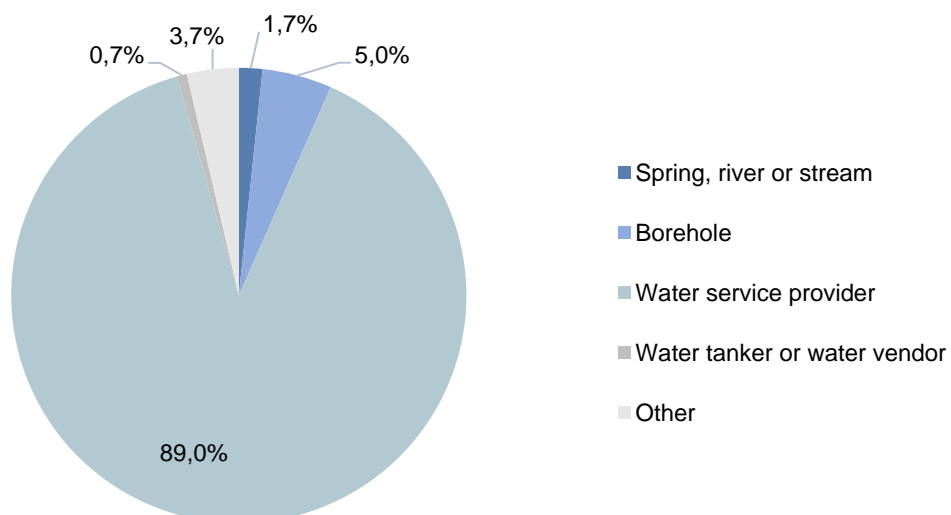
4.2 Boland SWSA

Boland SWSA covers 608 054 ha (0,5%) of South Africa's mainland (Table 4 in Section 3.1). It is located within the Western Cape province and spans one metropolitan municipality, City of Cape Town (8,4%) and three district municipalities: Cape Winelands (53,8%), Overberg (36,6%) and West Coast (1,1%) (Figure 31 and Appendix 2). Boland SWSA falls almost fully within the Fynbos biome (99,5%) (Table 5 in Section 3.1 and Figure 32).

The estimated total population of Boland SWSA in 2011 was 1 149 001 with a population density of approximately 189,0 people per km², which is about four times the average population density for South Africa (Table 8 in Section 3.1). The main source of water for domestic use for 89,0% of households living in Boland SWSA was a water service provider, with boreholes as the main source of water for 5,0% of households, and 1,7% of households sourcing most of their water directly from springs, rivers or streams (Figure 33).

Figure 31. District municipalities in and around Boland SWSA



Figure 32. Terrestrial biomes in and around Boland SWSA**Figure 33. Main source of water for domestic use for households living in Boland SWSA, based on the 2011 population census**

4.2.1 Key findings from the land account for Boland SWSA

Table 18 shows the change in main land cover classes (tier 2) in Boland SWSA between 1990 and 2020. Figure 34 provides a map of land cover classes in 2020, and the changes over time are summarised graphically in Figure 35.

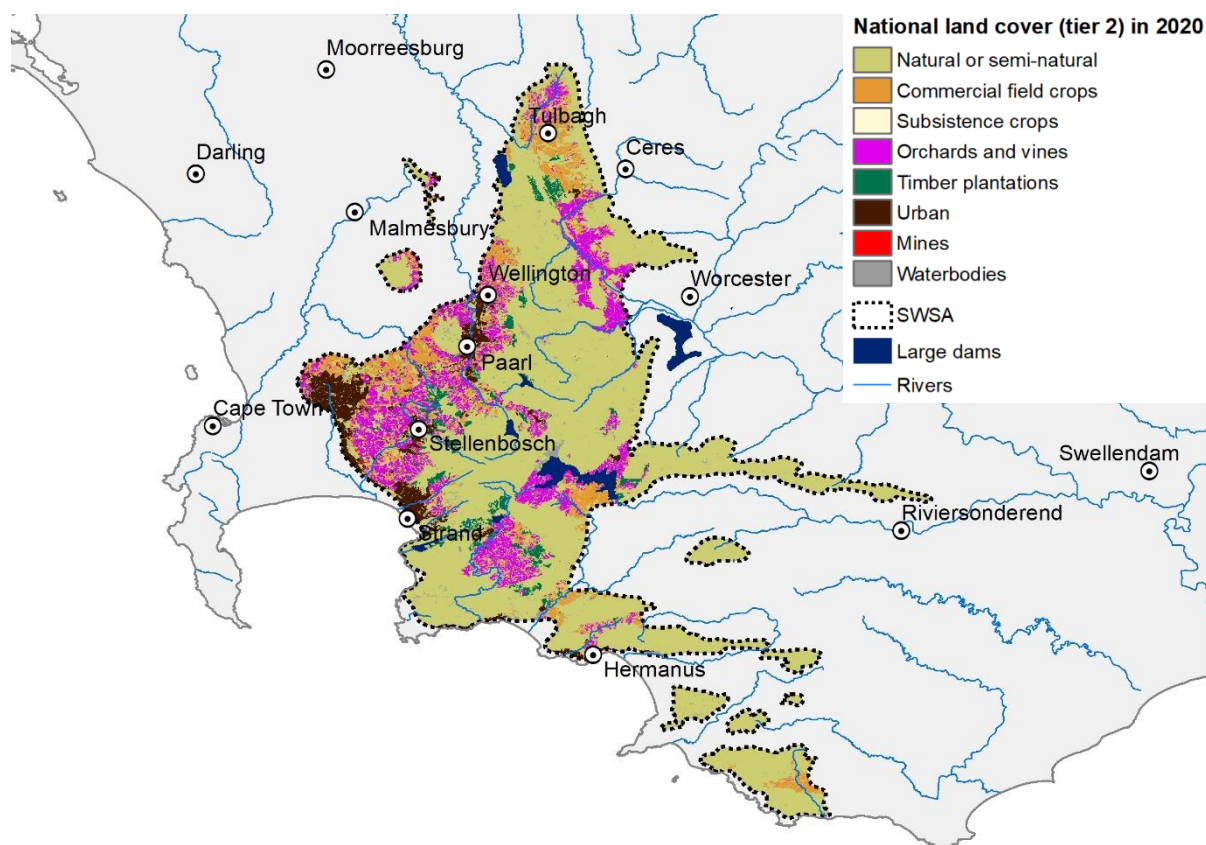
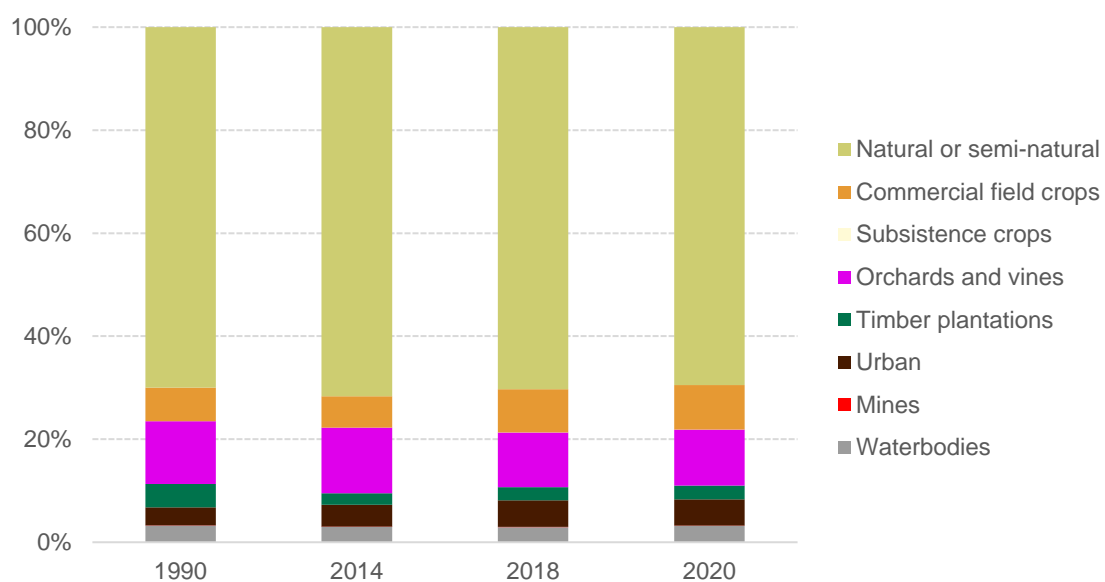
In 2020, 69,5% (422 580 ha) of Boland SWSA remained natural or semi-natural, compared with 70,0% in 1990. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included orchards and vines (10,9%), commercial field crops (8,6%), urban (5,1%) and timber plantations (2,6%), with a small proportion of mines (<1,0%). The proportional division between intensively modified land cover classes shifted somewhat over the period 1990 to 2020, with decreases in orchards and vines and timber plantations and increases in commercial field crops and urban. Boland SWSA has the largest absolute extent and highest proportion of orchards and vines of all SWSAs (Table 11).

Table 18. Indicators drawn from the land account for Boland SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	425 642	39 648	0	74 136	27 440	20 958	300	19 930
2014	435 772	36 878	0	77 679	13 370	25 641	307	18 407
2018	427 417	50 935	5	64 774	15 501	31 330	421	17 671
2020	422 580	52 328	6	66 302	16 017	31 151	421	19 249
(b) Proportion of land cover classes (%)								
1990	70,0%	6,5%	0,0%	12,2%	4,5%	3,4%	0,0%	3,3%
2014	71,7%	6,1%	0,0%	12,8%	2,2%	4,2%	0,1%	3,0%
2018	70,3%	8,4%	0,0%	10,7%	2,5%	5,2%	0,1%	2,9%
2020	69,5%	8,6%	0,0%	10,9%	2,6%	5,1%	0,1%	3,2%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	2,4%	-7,0%	-	4,8%	-51,3%	22,3%	2,3%	-7,6%
2014-2018	-1,9%	38,1%	-	-16,6%	15,9%	22,2%	37,1%	-4,0%
2018-2020	-1,1%	2,7%	20,0%	2,4%	3,3%	-0,6%	0,0%	8,9%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-3 062	12 680	6	-7 834	-11 423	10 193	121	-681
1990-2020	-0,7%	32,0%	-	-10,6%	-41,6%	48,6%	40,3%	-3,4%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 34. Land cover classes (tier 2) in Boland SWSA, 2020**Figure 35. Land cover composition (tier 2) in Boland SWSA, 1990, 2014, 2018, 2020**

4.2.2 Key findings from the account for protected areas in Boland SWSA

Table 19 shows the change in the extent of protected areas in Boland SWSA between 1990 and 2020, by protected area type. Figure 36 provides a map of protected areas that occurred wholly or partially within Boland SWSA in 2020. Changes in protection over time are summarised in Figure 37 and Figure 38.

At the end of 2020, 43,4% (263 604 ha) of Boland SWSA was protected, compared with 38,4% (233 201 ha) in 1990, giving an overall increase in protection of 13,0%. The bulk of this increase took place between 1990 and 2014.

Protected area types in Boland SWSA in 2020 included Nature Reserve (23,5% of SWSA area), Mountain Catchment Area (13,4%), Forest Nature Reserve (4,4%) and National Park (1,1%), with tiny proportions of Protected Environment and Forest Wilderness Area (<1,0% each).

Table 19. Indicators drawn from the protected area account for Boland SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	123 390	0	26 804	1 748	81 259	0	374 853	233 201
2014	6 454	134 308	4 389	26 804	1 748	81 259	0	353 092	254 962
2018	6 454	142 950	4 389	26 804	1 748	81 259	0	344 450	263 604
2020	6 454	142 950	4 389	26 804	1 748	81 259	0	344 450	263 604
(b) Proportion protected (%)									
1990	0,0%	20,3%	0,0%	4,4%	0,3%	13,4%	0,0%	61,6%	38,4%
2014	1,1%	22,1%	0,7%	4,4%	0,3%	13,4%	0,0%	58,1%	41,9%
2018	1,1%	23,5%	0,7%	4,4%	0,3%	13,4%	0,0%	56,6%	43,4%
2020	1,1%	23,5%	0,7%	4,4%	0,3%	13,4%	0,0%	56,6%	43,4%
(c) Net change in protection per accounting period (%)									
1990-2014	-	8,8%	-	0,0%	0,0%	0,0%	-	-5,8%	9,3%
2014-2018	0,0%	6,4%	0,0%	0,0%	0,0%	0,0%	-	-2,4%	3,4%
2018-2020	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	6 454	19 560	4 389	0	0	0	0	-30 403	30 403
1990-2020	-	15,9%	-	0,0%	0,0%	0,0%	-	-8,1%	13,0%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

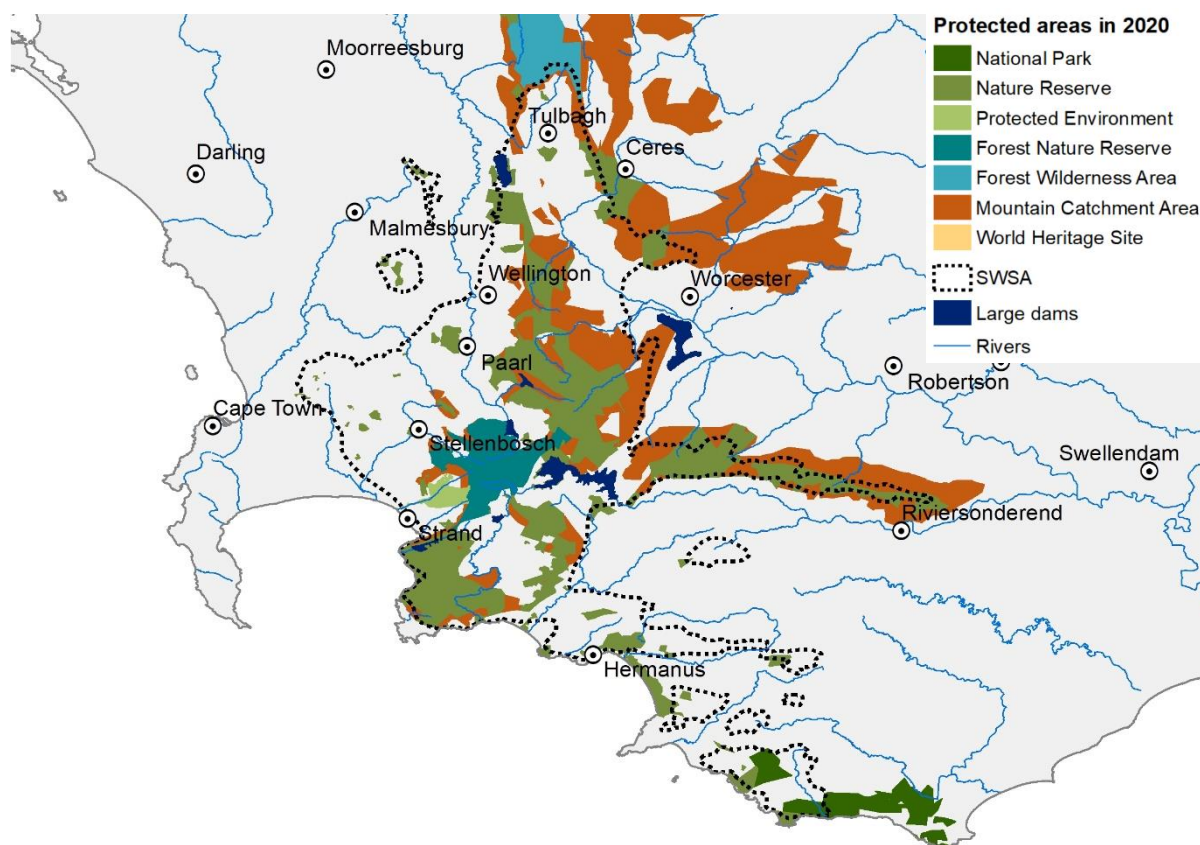
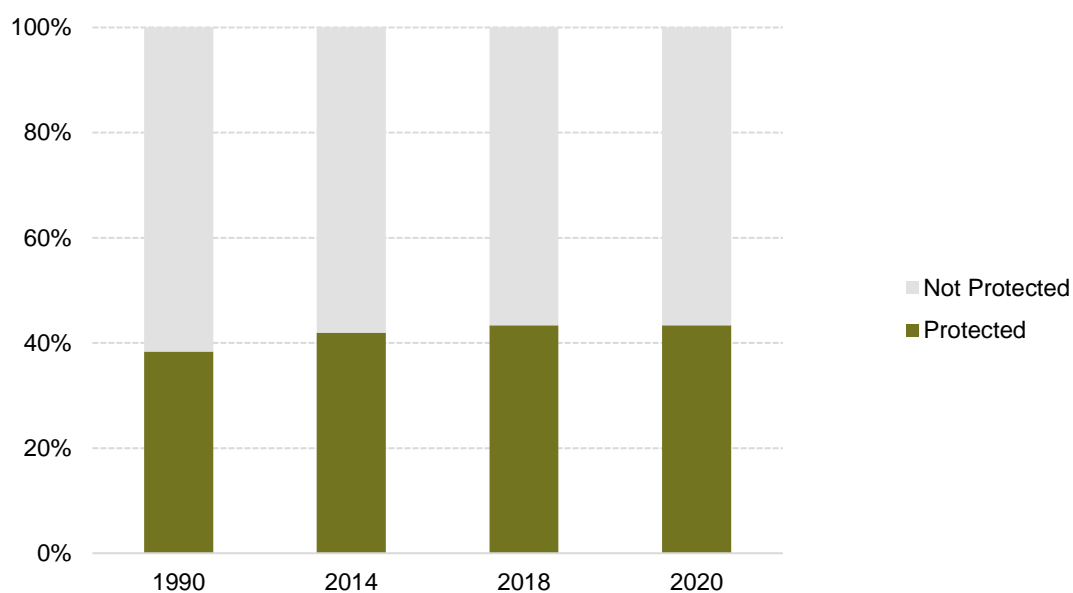
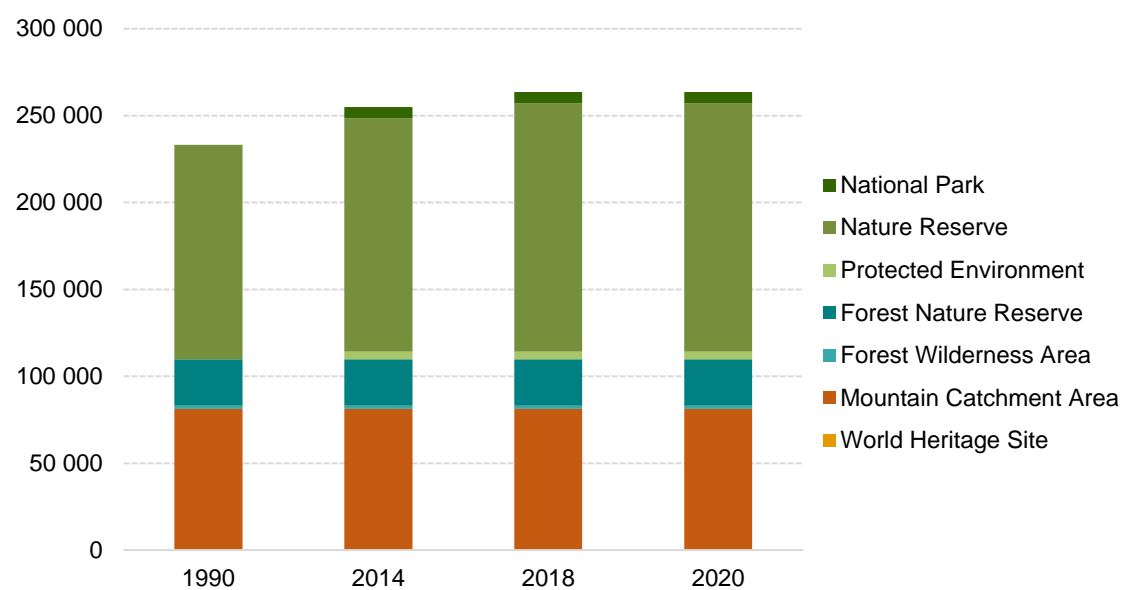
Figure 36. Protected areas occurring wholly or partially within Boland SWSA, 2020**Figure 37. Proportion of Boland SWSA protected, 1990, 2014, 2018, 2020**

Figure 38. Extent of protected areas in Boland SWSA by protected area type, 1990, 2014, 2018, 2020

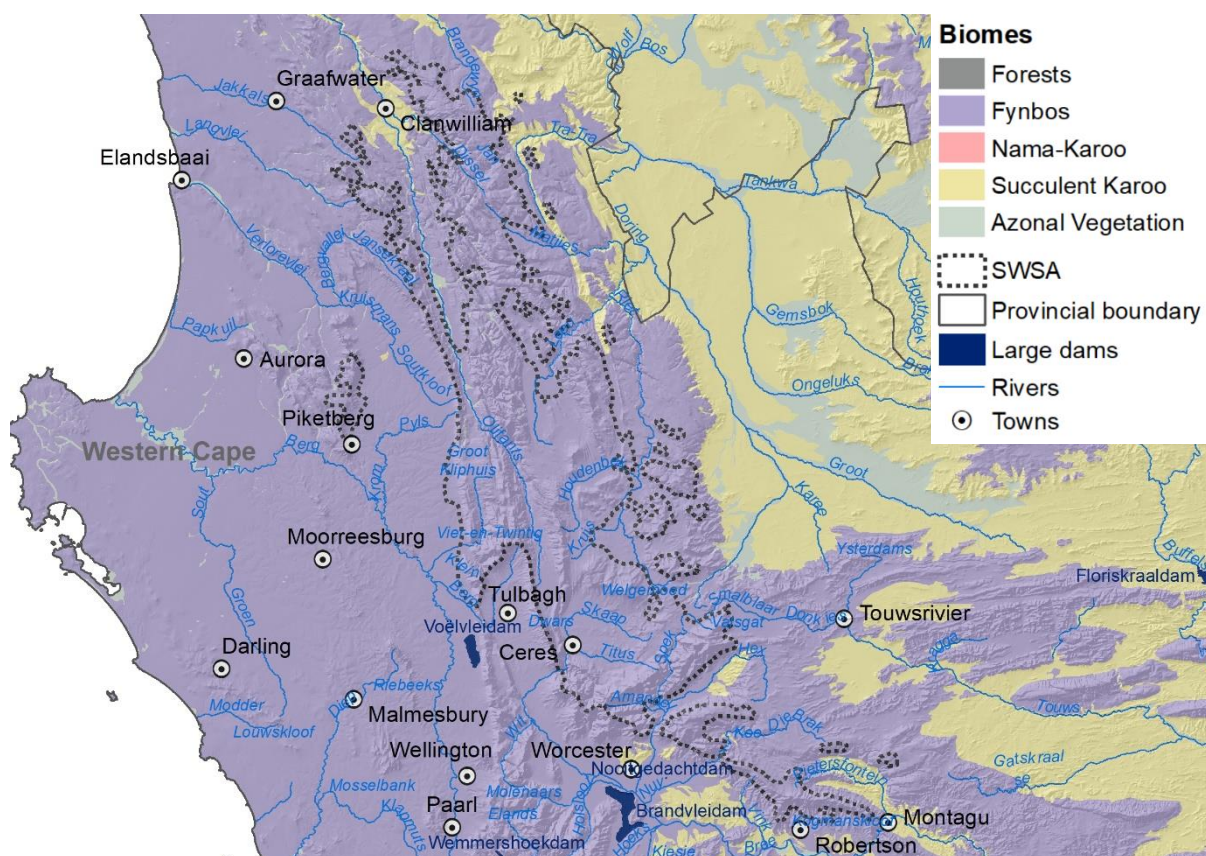
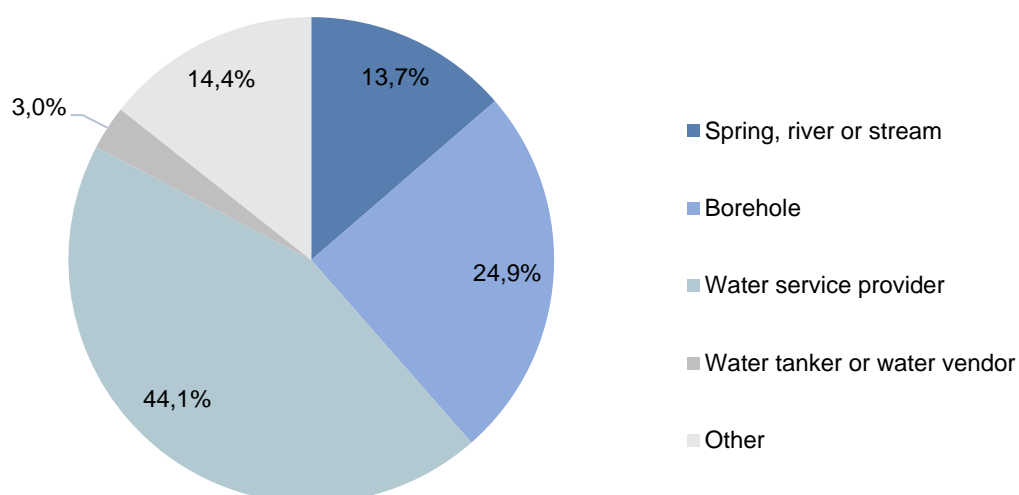


4.3 Groot Winterhoek SWSA

Groot Winterhoek SWSA covers 518 310 ha (0,4%) of South Africa's mainland (Table 4 in Section 3.1). It is in the Western Cape province and spans two district municipalities: Cape Winelands (62,5%) and West Coast (37,5%) (Figure 39 and Appendix 2). Groot Winterhoek SWSA falls largely in the Fynbos biome (99,0%) (Table 5 in Section 3.1 and Figure 40).

The estimated total population of Groot Winterhoek SWSA in 2011 was 163 876 with a population density of approximately 31,6 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 44,1% of households living in Groot Winterhoek SWSA was a water service provider, with boreholes as the main source of water for 24,9% of households, and 13,7% of households sourcing most of their water directly from springs, rivers or streams (Figure 41).

Figure 39. District municipalities in and around Groot Winterhoek SWSA

Figure 40. Terrestrial biomes in and around Groot Winterhoek SWSA**Figure 41. Main sources of water for domestic use for households living in Groot Winterhoek SWSA, based on the 2011 population census**

4.3.1 Key findings from the land account for Groot Winterhoek SWSA

Table 20 shows the change in main land cover classes (tier 2) in Groot Winterhoek SWSA between 1990 and 2020. Figure 42 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 43.

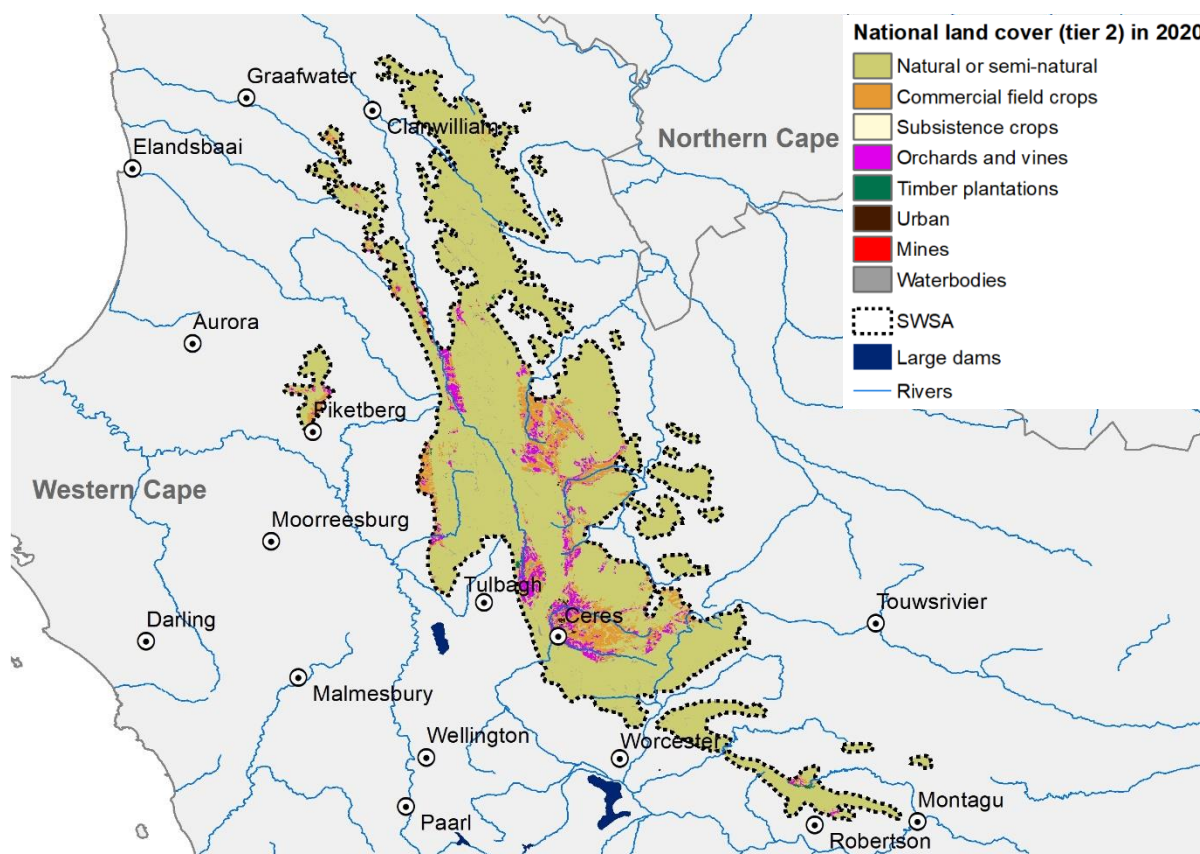
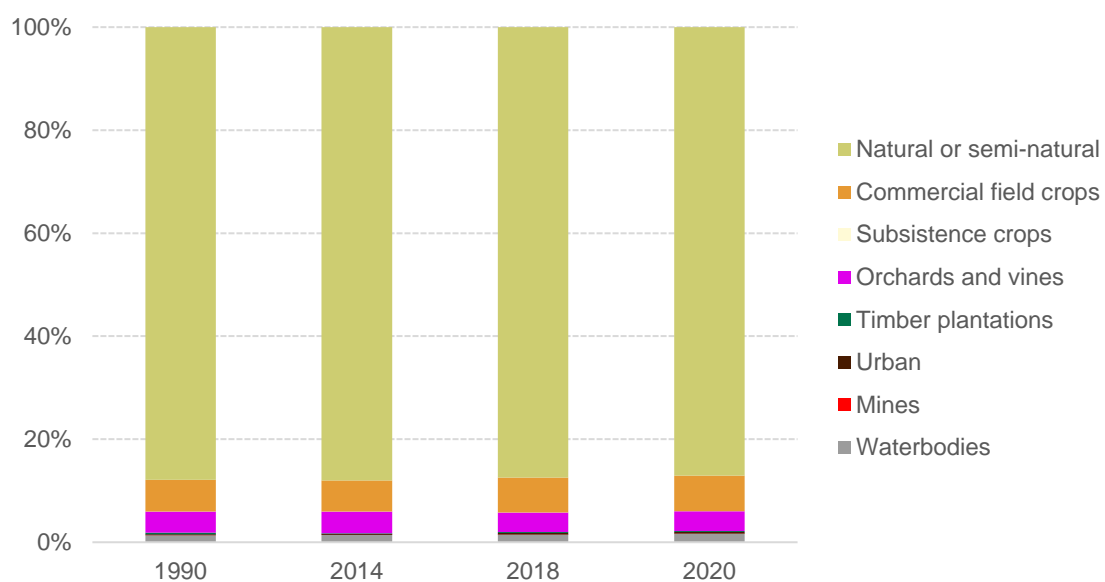
In 2020, 87,1% (451 303 ha) of Groot Winterhoek SWSA remained natural or semi-natural, compared with 87,9% in 1990. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included commercial field crops (6,9%) and orchards and vines (3,9%), with small proportions of timber plantations, urban areas, mines and subsistence crops (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020. In 2020, Groot Winterhoek SWSA had the second largest extent of orchards and vines of all SWSAs (Table 11).

Table 20. Indicators drawn from the land account for Groot Winterhoek SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	455 626	31 740	48	21 252	1 583	819	6	7 236
2014	456 007	31 474	50	21 646	863	867	20	7 383
2018	453 378	34 841	3	19 731	953	1 571	27	7 806
2020	451 303	35 699	4	19 998	1 118	1 560	43	8 585
(b) Proportion of land cover classes (%)								
1990	87,9%	6,1%	0,0%	4,1%	0,3%	0,2%	0,0%	1,4%
2014	88,0%	6,1%	0,0%	4,2%	0,2%	0,2%	0,0%	1,4%
2018	87,5%	6,7%	0,0%	3,8%	0,2%	0,3%	0,0%	1,5%
2020	87,1%	6,9%	0,0%	3,9%	0,2%	0,3%	0,0%	1,7%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	0,1%	-0,8%	4,2%	1,9%	-45,5%	5,9%	233,3%	2,0%
2014-2018	-0,6%	10,7%	-94,0%	-8,8%	10,4%	81,2%	35,0%	5,7%
2018-2020	-0,5%	2,5%	33,3%	1,4%	17,3%	-0,7%	59,3%	10,0%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-4 323	3 959	-44	-1 254	-465	741	37	1 349
1990-2020	-0,9%	12,5%	-91,7%	-5,9%	-29,4%	90,5%	616,7%	18,6%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 42. Land cover classes (tier 2) in Groot Winterhoek SWSA, 2020**Figure 43. Land cover composition (tier 2) in Groot Winterhoek SWSA, 1990, 2014, 2018, 2020**

4.3.2 Key findings from the account for protected areas in Groot Winterhoek SWSA

Table 21 shows the change in the extent of protected areas in Groot Winterhoek SWSA between 1990 and 2020, by protected area type. Figure 44 provides a map of protected areas that occurred wholly or partially within Groot Winterhoek SWSA in 2020. Changes in protection over time are summarised in Figure 45 and Figure 46.

At the end of 2020, 63,5% (329 335 ha) of Groot Winterhoek SWSA was protected, compared with 60,9% (315 559 ha) in 1990, giving an overall increase in protection of 4,4%. The bulk of this increase took place between 2014 and 2018. In 2020, Groot Winterhoek SWSA had the third highest proportion protected of all SWSAs (Table 15).

Protected area types in Groot Winterhoek SWSA in 2020 included Mountain Catchment Area (40,5% of SWSA area), Forest Wilderness Area (15,7%) and Nature Reserve (6,5%), with a small proportion of Protected Environment (<1,0%).

Table 21. Indicators drawn from the protected area account for Groot Winterhoek SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	24 449	0	0	81 418	209 692	0	202 751	315 559
2014	0	27 928	0	0	81 418	209 692	0	199 272	319 038
2018	0	33 873	4 352	0	81 418	209 692	0	188 975	329 335
2020	0	33 873	4 352	0	81 418	209 692	0	188 975	329 335
(b) Proportion protected (%)									
1990	0,0%	4,7%	0,0%	0,0%	15,7%	40,5%	0,0%	39,1%	60,9%
2014	0,0%	5,4%	0,0%	0,0%	15,7%	40,5%	0,0%	38,4%	61,6%
2018	0,0%	6,5%	0,8%	0,0%	15,7%	40,5%	0,0%	36,5%	63,5%
2020	0,0%	6,5%	0,8%	0,0%	15,7%	40,5%	0,0%	36,5%	63,5%
(c) Net change in protection per accounting period (%)									
1990-2014	-	14,2%	-	-	0,0%	0,0%	-	-1,7%	1,1%
2014-2018	-	21,3%	-	-	0,0%	0,0%	-	-5,2%	3,2%
2018-2020	-	0,0%	0,0%	-	0,0%	0,0%	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	9 424	4 352	0	0	0	0	-13 776	13 776
1990-2020	-	38,5%	-	-	0,0%	0,0%	-	-6,8%	4,4%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

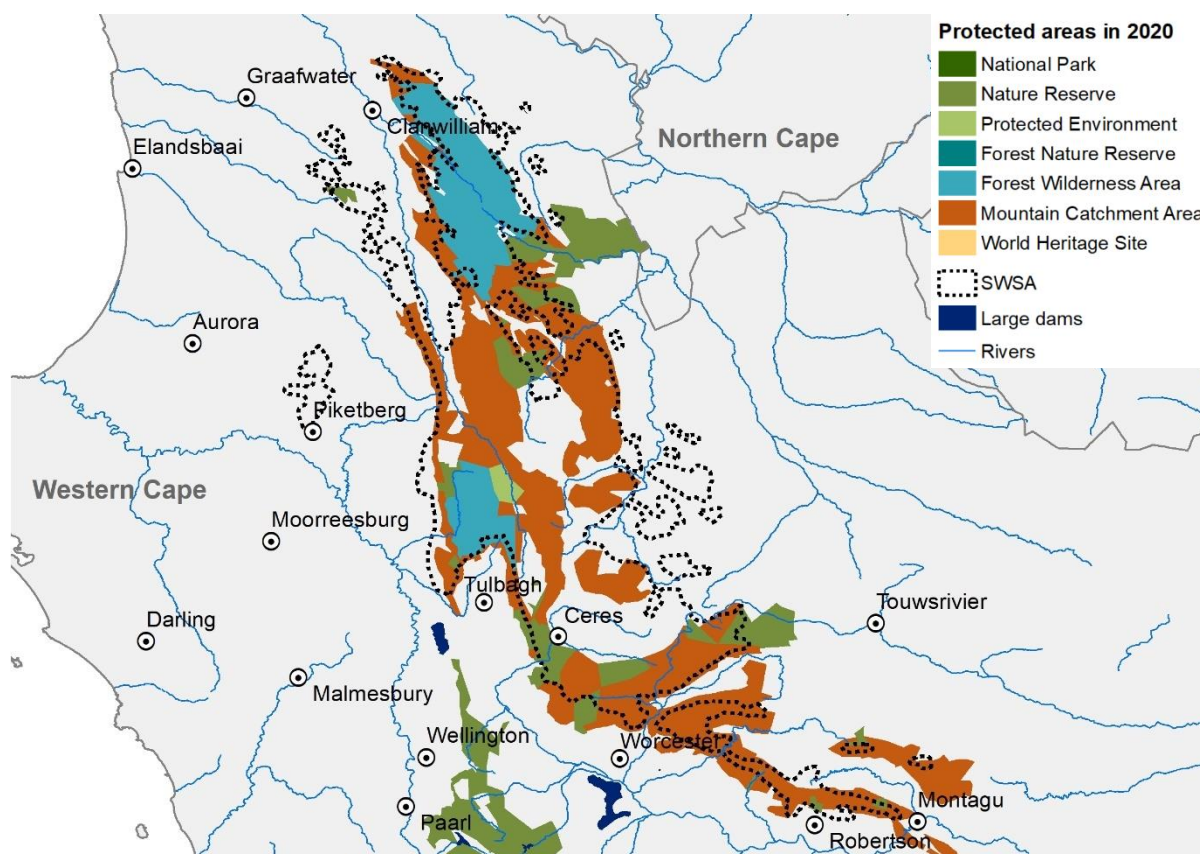
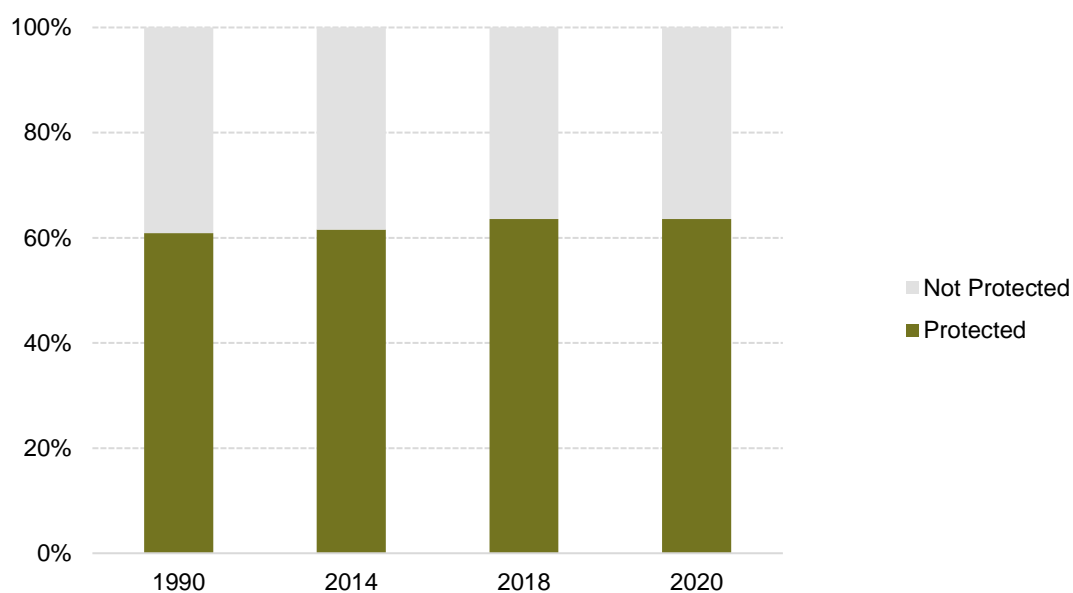
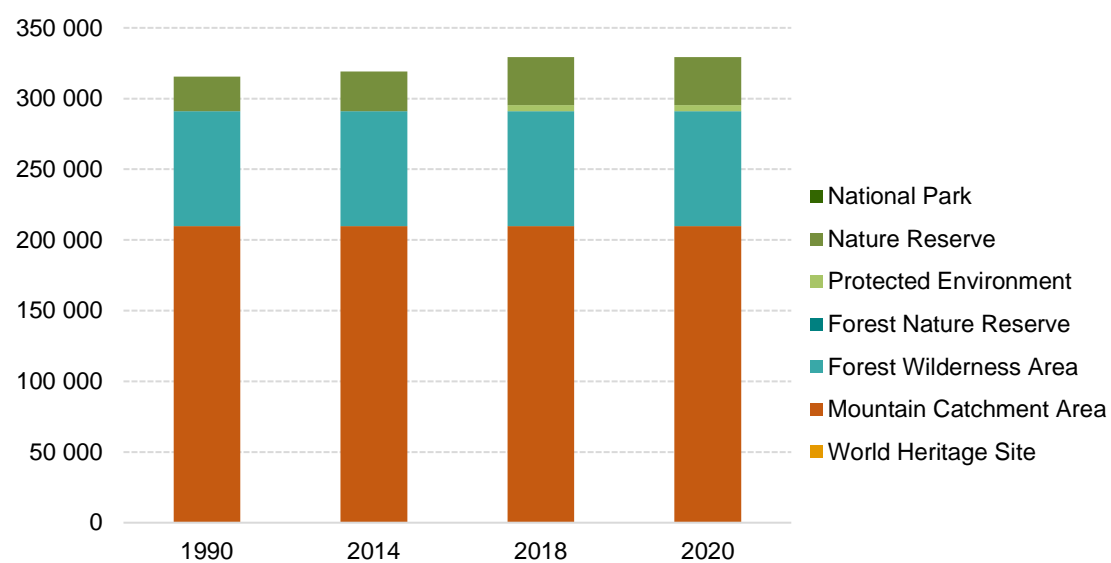
Figure 44. Protected areas occurring wholly or partially within Groot Winterhoek SWSA, 2020**Figure 45. Proportion of Groot Winterhoek SWSA protected, 1990, 2014, 2018, 2020**

Figure 46. Extent of protected areas in Groot Winterhoek SWSA by protected area type, 1990, 2014, 2018, 2020



4.4 Langeberg SWSA

Langeberg SWSA covers 171 527 ha (0,1%) of South Africa's mainland (Table 4 in Section 3.1). It is in the Western Cape province and spans three district municipalities: Garden Route (56,6%), Overberg (37,6%) and Cape Winelands (5,8%) (Figure 47 and Appendix 2). Langeberg SWSA falls mostly in the Fynbos biome (97,2%) with a tiny portion in the Forest biome (0,7%) (Table 5 in Section 3.1 and Figure 48).

The estimated total population of Langeberg SWSA in 2011 was 52 124 with a population density of approximately 30,4 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 67,0% of households living in Langeberg SWSA was a water service provider, with boreholes as the main source of water for 4,0% of households, and 11,0% of households sourcing most of their water directly from springs, rivers or streams (Figure 49).

Figure 47. District municipalities in and around Langeberg SWSA

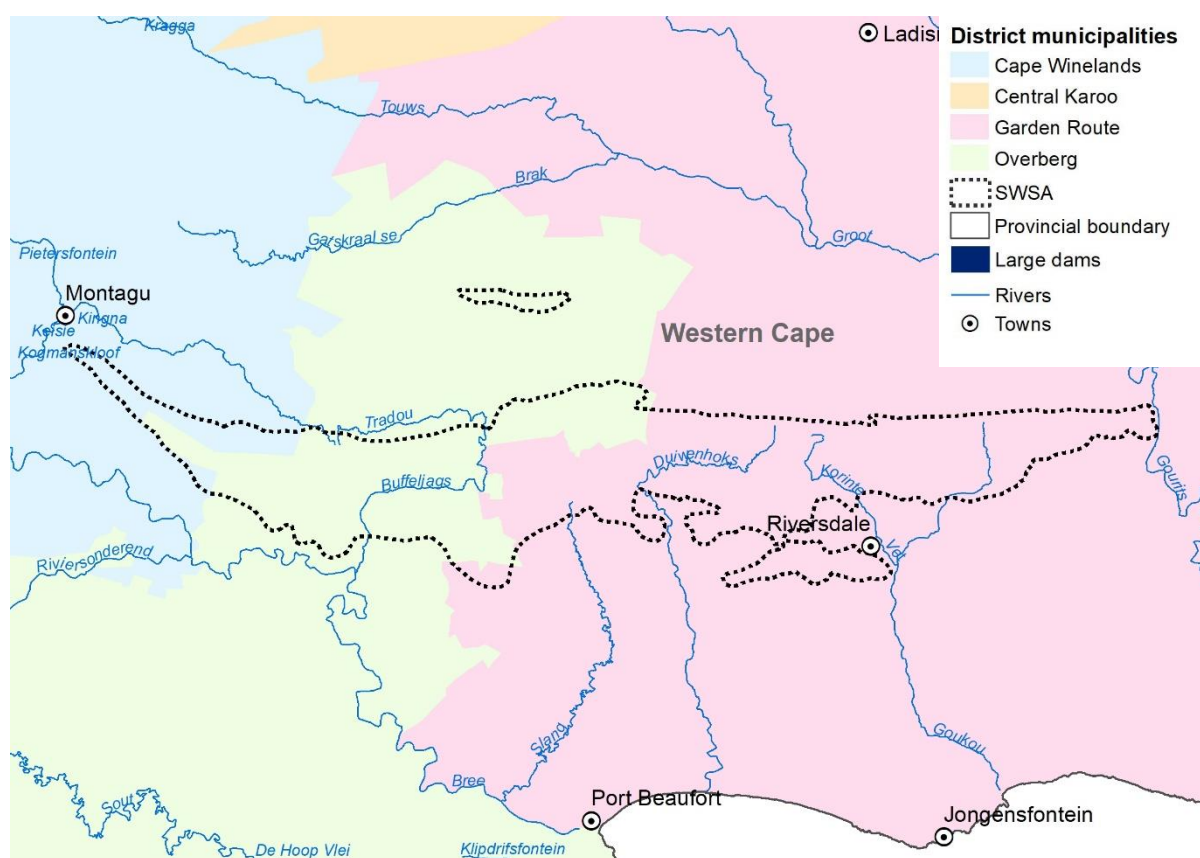
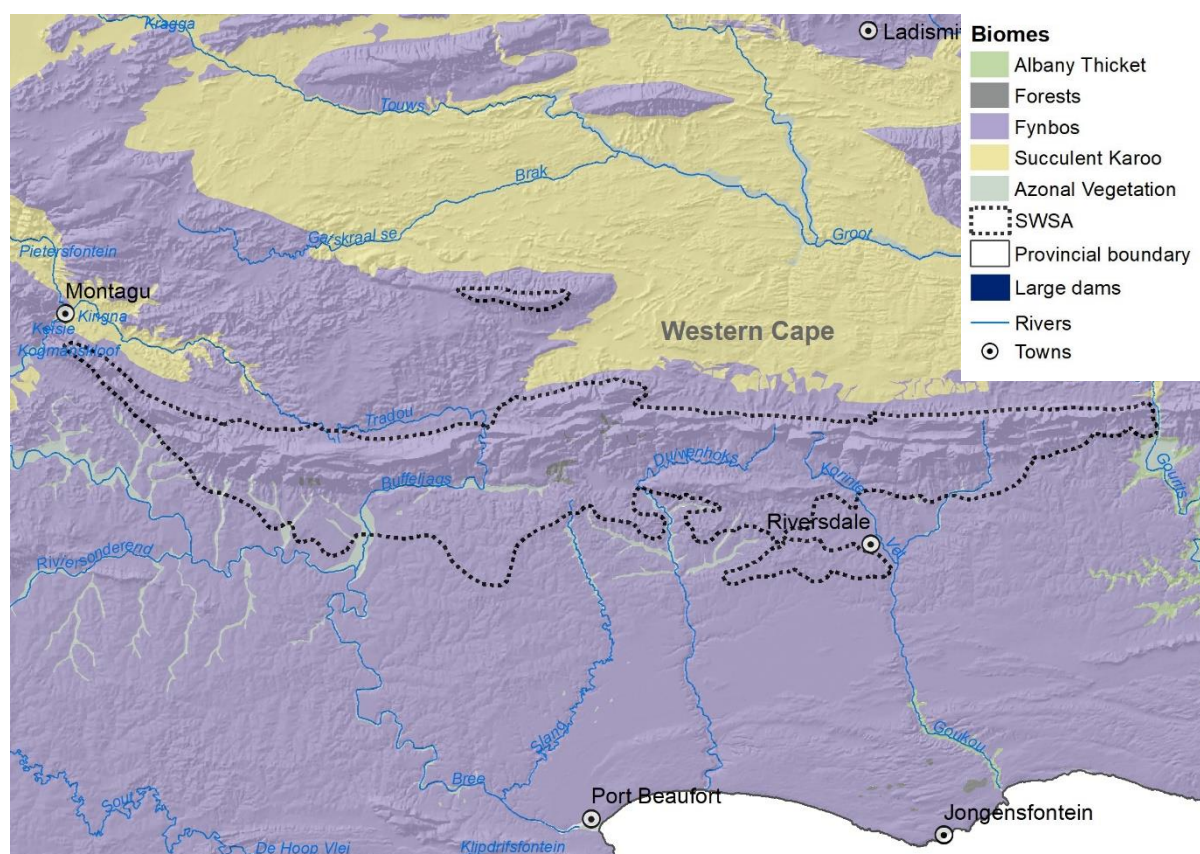
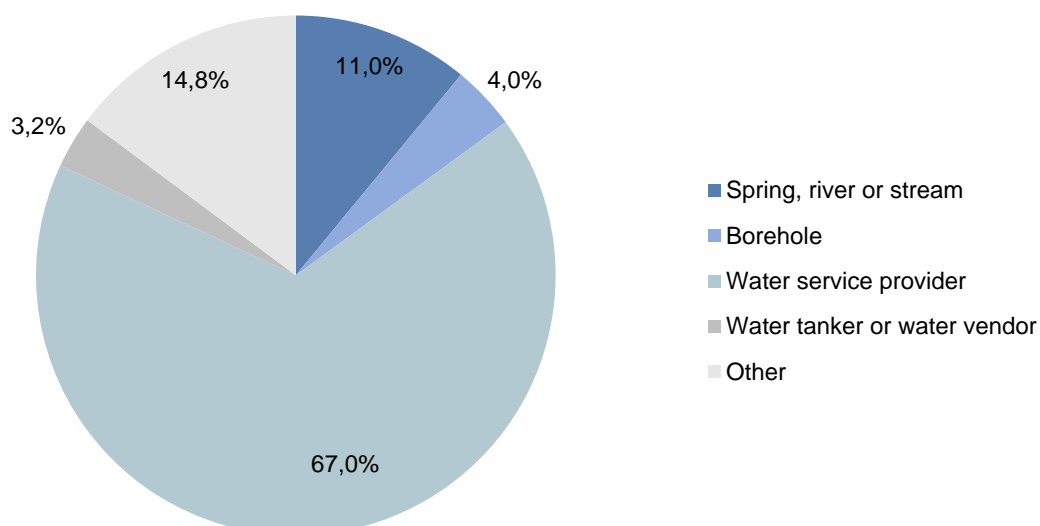


Figure 48. Terrestrial biomes in and around Langeberg SWSA**Figure 49. Main source of water for domestic use for households living in Langeberg SWSA, based on the 2011 population census**

4.4.1 Key findings from the land account for Langeberg SWSA

Table 22 shows the change in main land cover classes (tier 2) in Langeberg SWSA between 1990 and 2020. Figure 50 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 51.

In 2020, 77,5% (132 974 ha) of Langeberg SWSA remained natural or semi-natural, compared with 77,6% in 1990. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included commercial field crops (16,6%) and timber plantations (3,3%), with tiny proportions of orchards and vines, urban areas and mines (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020. In 2020, Langeberg SWSA had the third highest proportion of commercial field crops of all SWSAs (Upper Vaal and Maloti Drakensberg SWSAs had the first and second highest proportions) (Table 11).

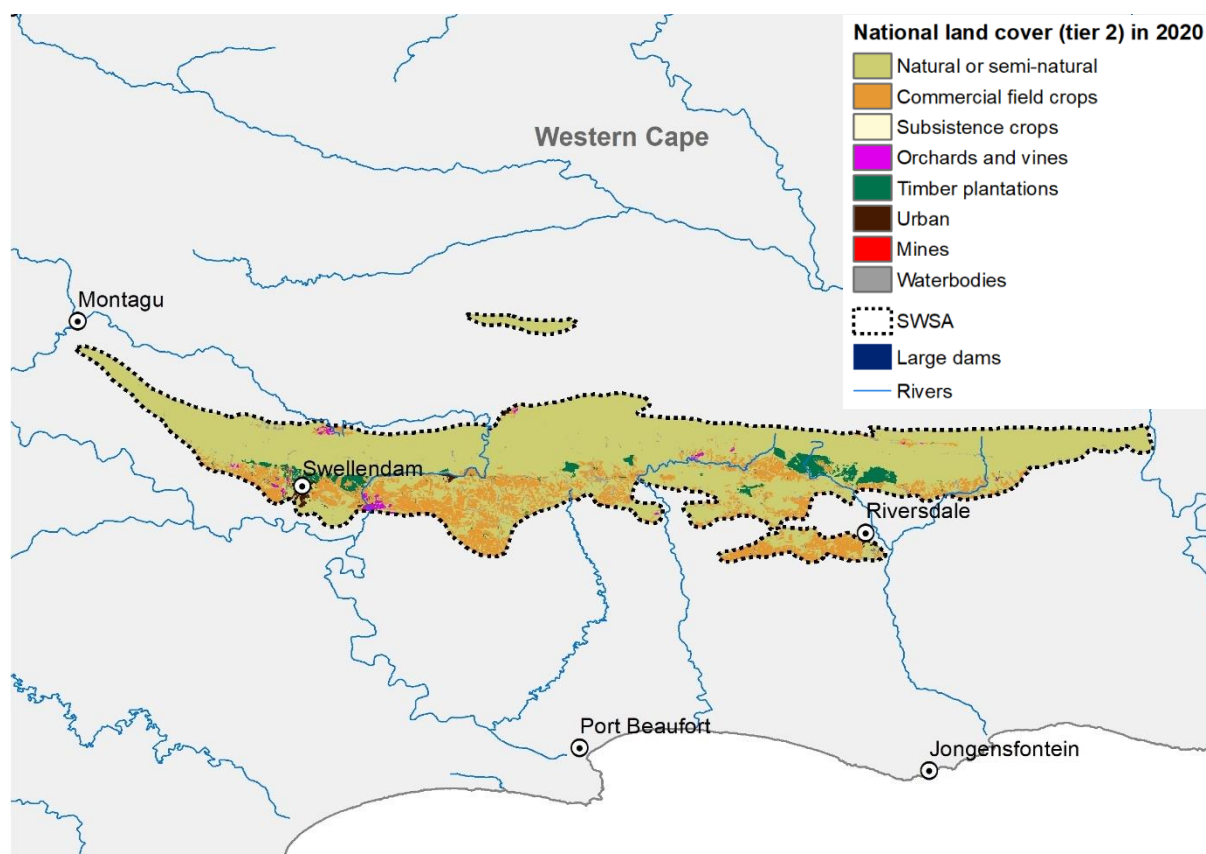
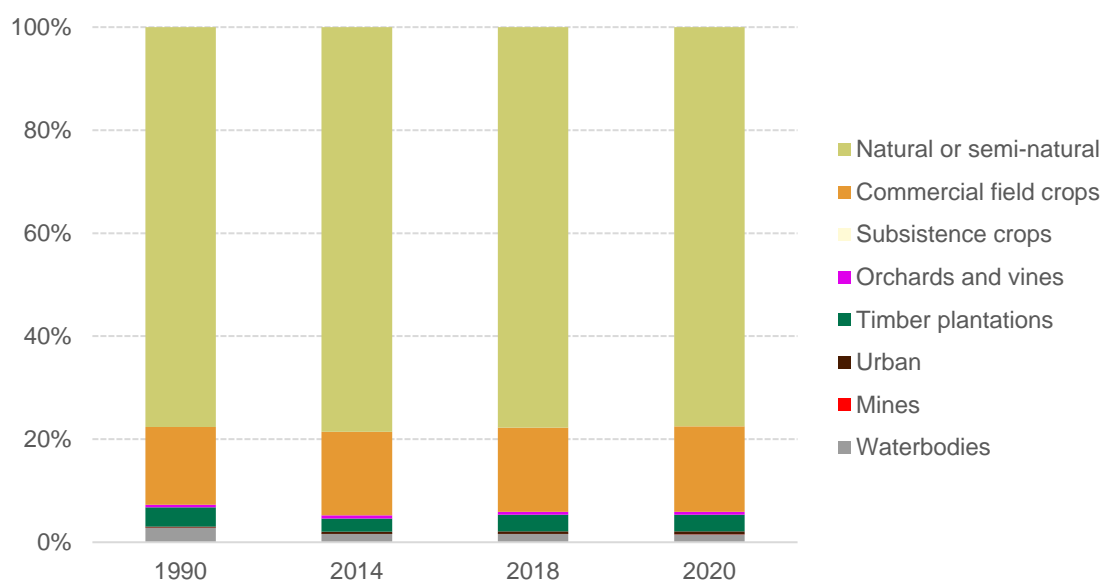
Among the intensively modified land cover classes, the following changes were notable in Langeberg SWSA over the period 1990 to 2020:

- An increase of 2 522 ha (9,7%) in commercial field crops. This was the largest change in absolute terms in this SWSA.
- An increase of 159,1% in urban areas, from 345 ha in 1990 to 894 ha in 2020. This was a change of more than double the area of urban land cover.
- An increase of 271,4% in mine areas, from 7 ha in 1990 to 26 ha in 2020. This was the largest change in percentage terms in this SWSA.

Table 22. Indicators drawn from the land account for Langeberg SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	133 135	25 935	0	788	6 447	345	7	4 870
2014	134 777	27 812	0	1 003	4 454	668	2	2 811
2018	133 389	28 056	0	857	5 558	917	21	2 729
2020	132 974	28 457	0	873	5 614	894	26	2 689
(b) Proportion of land cover classes (%)								
1990	77,6%	15,1%	0,0%	0,5%	3,8%	0,2%	0,0%	2,8%
2014	78,6%	16,2%	0,0%	0,6%	2,6%	0,4%	0,0%	1,6%
2018	77,8%	16,4%	0,0%	0,5%	3,2%	0,5%	0,0%	1,6%
2020	77,5%	16,6%	0,0%	0,5%	3,3%	0,5%	0,0%	1,6%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	1,2%	7,2%	-	27,3%	-30,9%	93,6%	-71,4%	-42,3%
2014-2018	-1,0%	0,9%	-	-14,6%	24,8%	37,3%	950,0%	-2,9%
2018-2020	-0,3%	1,4%	-	1,9%	1,0%	-2,5%	23,8%	-1,5%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-161	2 522	0	85	-833	549	19	-2 181
1990-2020	-0,1%	9,7%	-	10,8%	-12,9%	159,1%	271,4%	-44,8%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 50. Land cover classes (tier 2) in Langeberg SWSA, 2020**Figure 51. Land cover composition (tier 2) in Langeberg SWSA, 1990, 2014, 2018, 2020**

4.4.2 Key findings from the account for protected areas in Langeberg SWSA

Table 23 shows the change in the extent of protected areas in Langeberg SWSA between 1990 and 2020, by protected area type. Figure 52 provides a map of protected areas that occurred wholly or partially within Langeberg SWSA in 2020. Changes in protection over time are summarised in Figure 53 and Figure 54.

At the end of 2020, 48,2% (82 651 ha) of Langeberg SWSA was protected, compared with 47,8% (82 008 ha) in 1990, giving an overall increase in protection of 0,8%. This increase took place between 1990 and 2014.

Protected area types in Langeberg SWSA in 2020 included Mountain Catchment Area (25,6% of SWSA area), Forest Wilderness Area (7,6%), Nature Reserve (7,3%), Forest Nature Reserve (6,7%) and National Park (1,0%).

Table 23. Indicators drawn from the protected area account for Langeberg SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	1 722	11 822	0	11 560	12 978	43 926	0	89 519	82 008
2014	1 722	12 465	0	11 560	12 978	43 926	0	88 876	82 651
2018	1 722	12 465	0	11 560	12 978	43 926	0	88 876	82 651
2020	1 722	12 465	0	11 560	12 978	43 926	0	88 876	82 651
(b) Proportion protected (%)									
1990	1,0%	6,9%	0,0%	6,7%	7,6%	25,6%	0,0%	52,2%	47,8%
2014	1,0%	7,3%	0,0%	6,7%	7,6%	25,6%	0,0%	51,8%	48,2%
2018	1,0%	7,3%	0,0%	6,7%	7,6%	25,6%	0,0%	51,8%	48,2%
2020	1,0%	7,3%	0,0%	6,7%	7,6%	25,6%	0,0%	51,8%	48,2%
(c) Net change in protection per accounting period (%)									
1990-2014	0,0%	5,4%	-	0,0%	0,0%	0,0%	-	-0,7%	0,8%
2014-2018	0,0%	0,0%	-	0,0%	0,0%	0,0%	-	0,0%	0,0%
2018-2020	0,0%	0,0%	-	0,0%	0,0%	0,0%	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	643	0	0	0	0	0	-643	643
1990-2020	0,0%	5,4%	-	0,0%	0,0%	0,0%	-	-0,7%	0,8%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

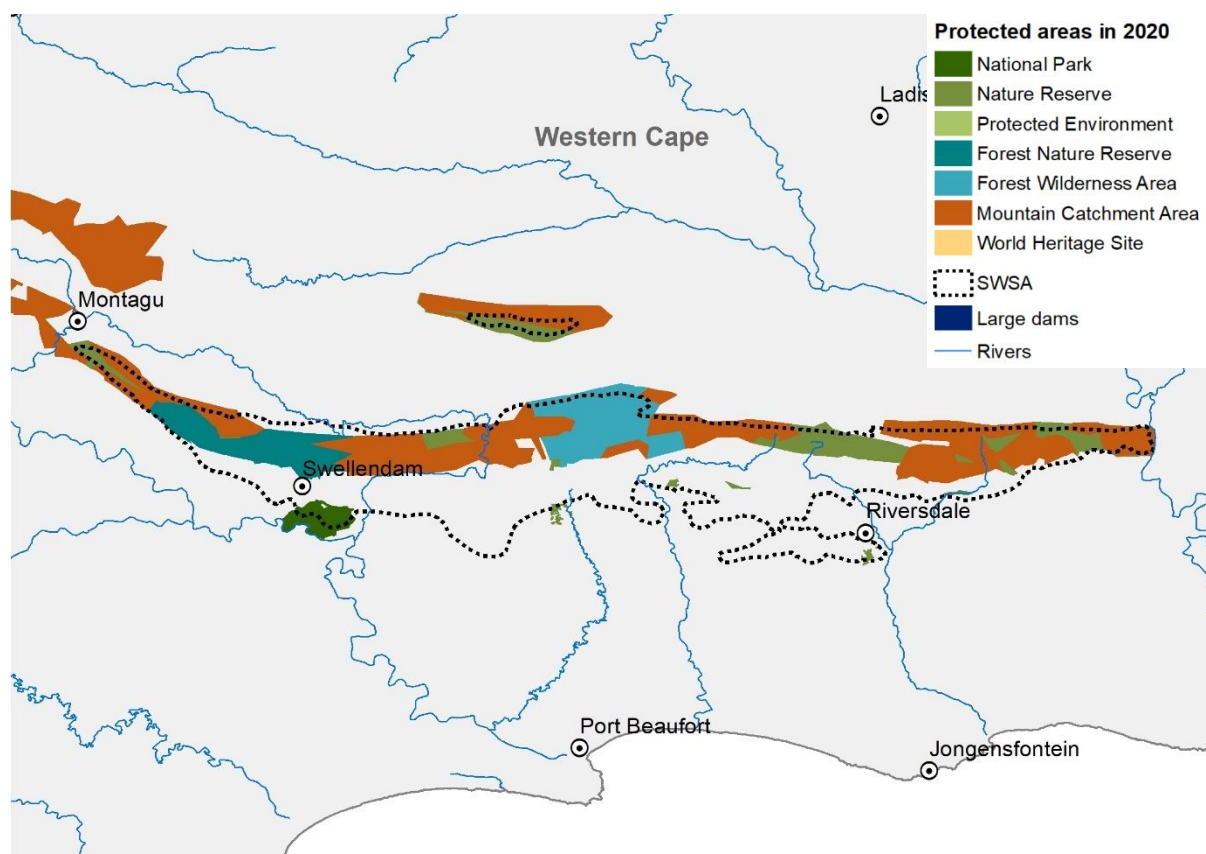
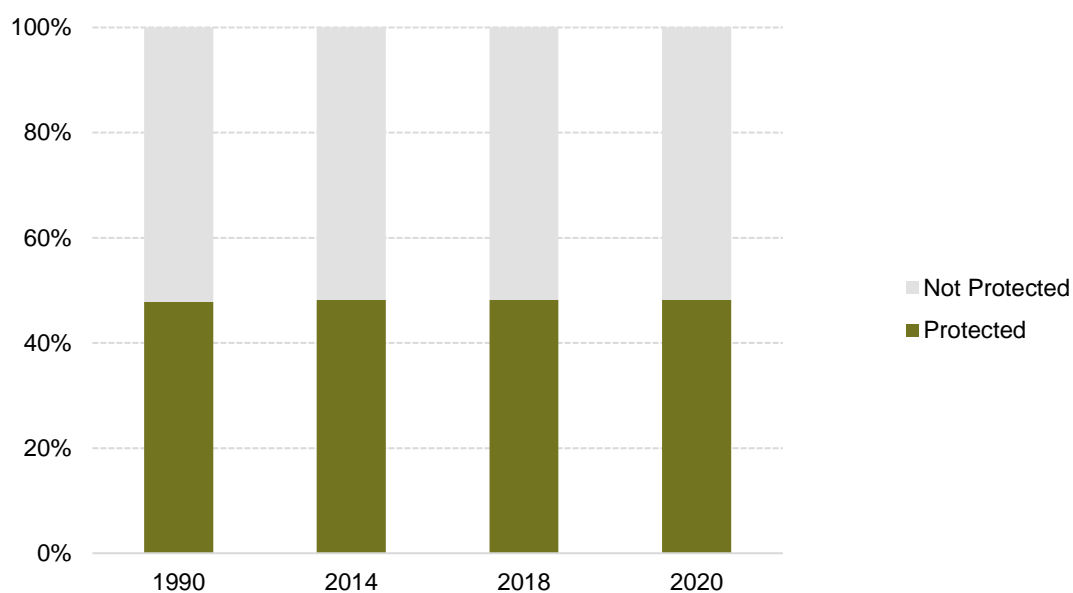
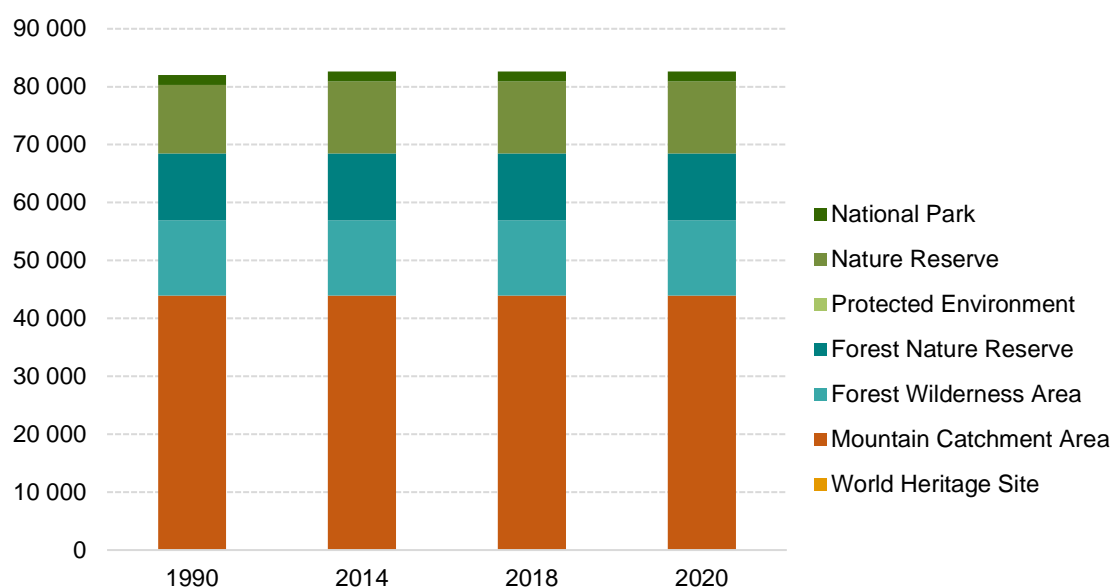
Figure 52. Protected area types occurring wholly or partially within Langeberg SWSA, 2020**Figure 53. Proportion of Langeberg SWSA protected, 1990, 2014, 2018, 2020**

Figure 54. Extent of protected areas in Langeberg SWSA by protected area type, 1990, 2014, 2018, 2020



4.5 Swartberg SWSA

Swartberg SWSA covers 77 983 ha (0,1%) of South Africa's mainland (Table 4 in Section 3.1). It is in the Western Cape province and spans two district municipalities: Garden Route (76,1%) and Central Karoo (23,9%) (Figure 55 and Appendix 2). Swartberg SWSA falls fully within the Fynbos biome (Table 5 in Section 3.1 and Figure 56).

The estimated total population of Swartberg SWSA in 2011 was 13 876 with a population density of approximately 17,8 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 20,4% of households living in Swartberg SWSA was a water service provider, with boreholes as the main source of water for 20,2% of households, and 26,9% of households sourcing most of their water directly from springs, rivers or streams (Figure 57).

Figure 55. District municipalities in and around Swartberg SWSA

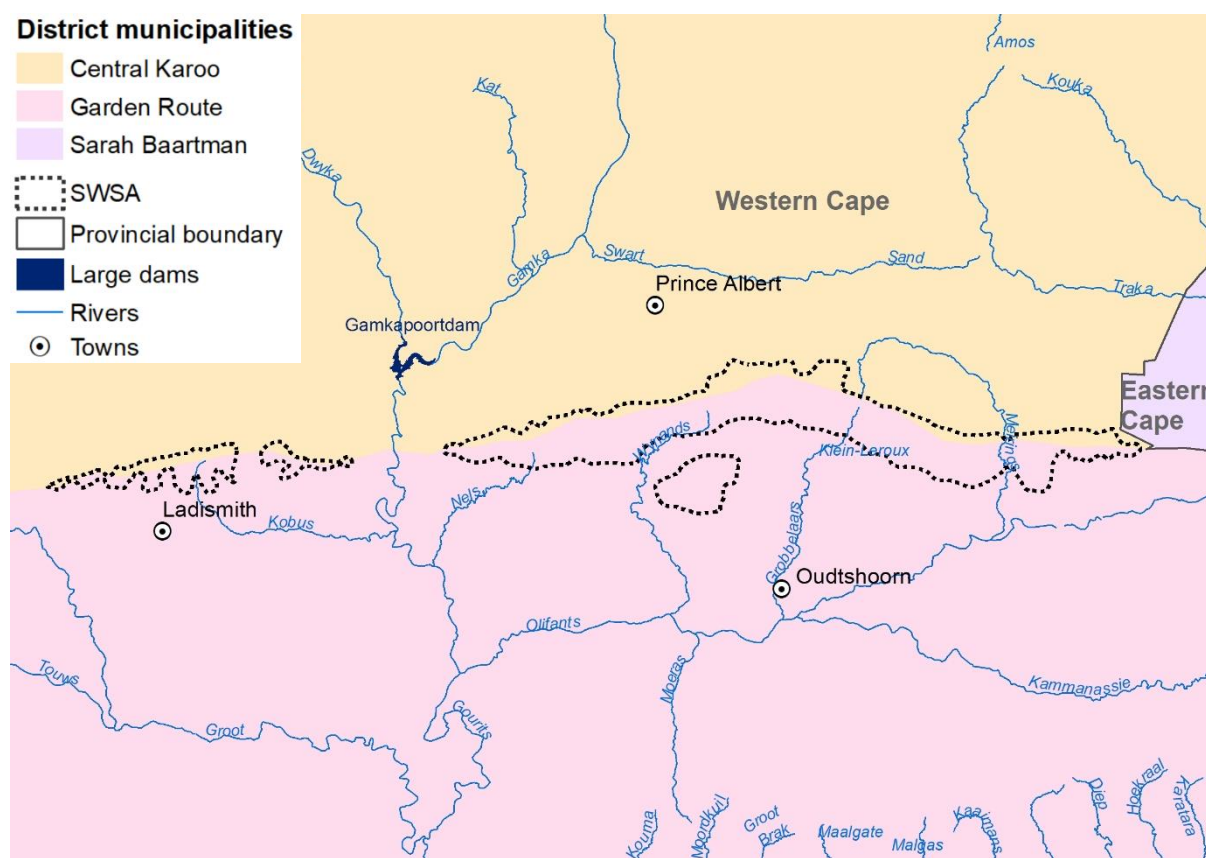
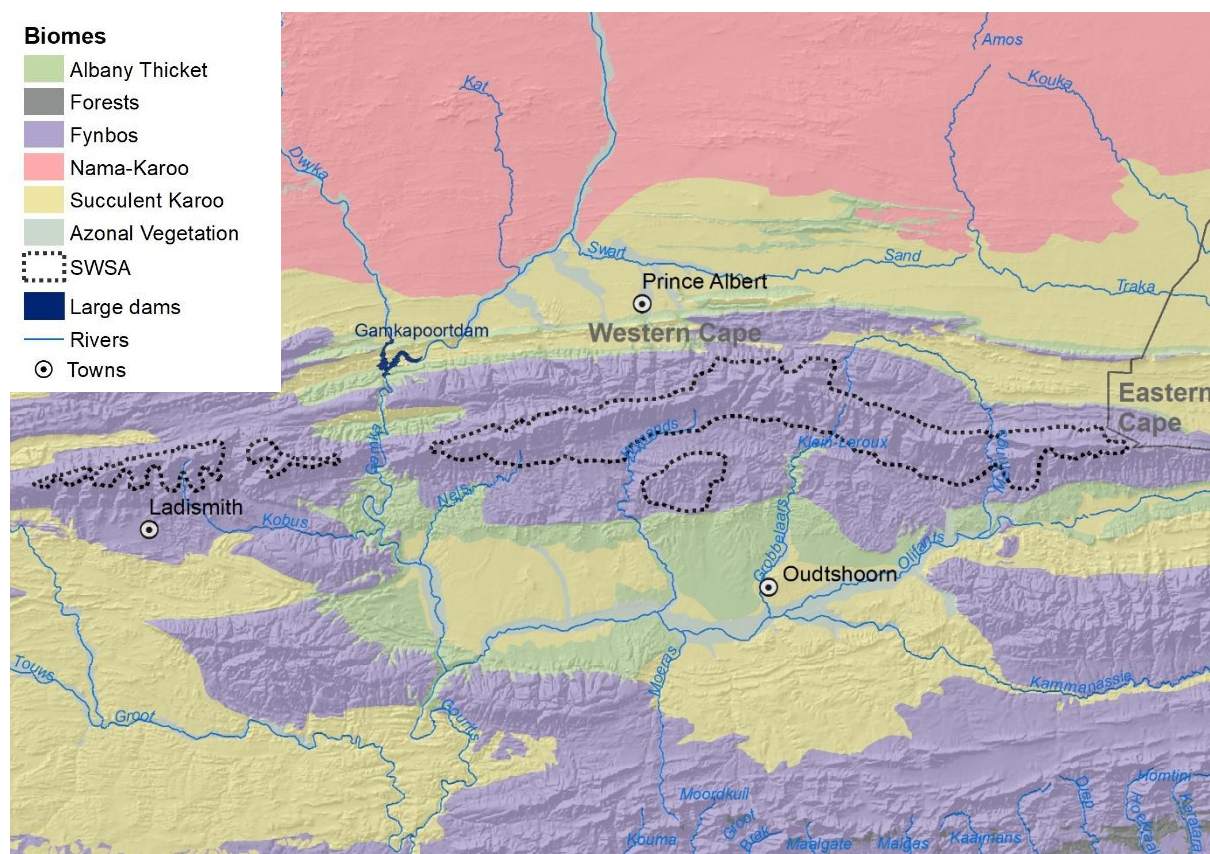
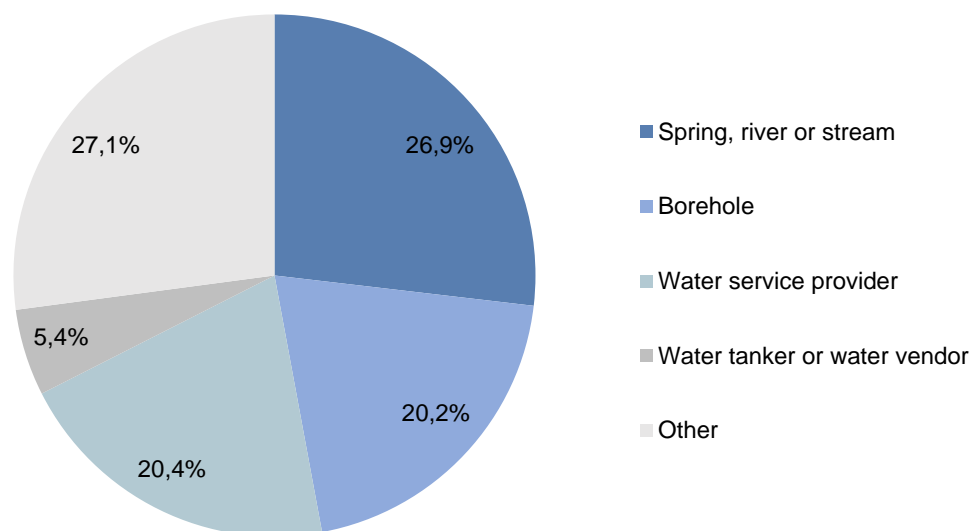


Figure 56. Terrestrial biomes in and around Swartberg SWSA**Figure 57. Main source of water for domestic use for households living in Swartberg SWSA based on the 2011 population census**

4.5.1 Key findings from the land account for Swartberg SWSA

Table 24 shows the change in main land cover classes (tier 2) in Swartberg SWSA between 1990 and 2020. Figure 58 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 59.

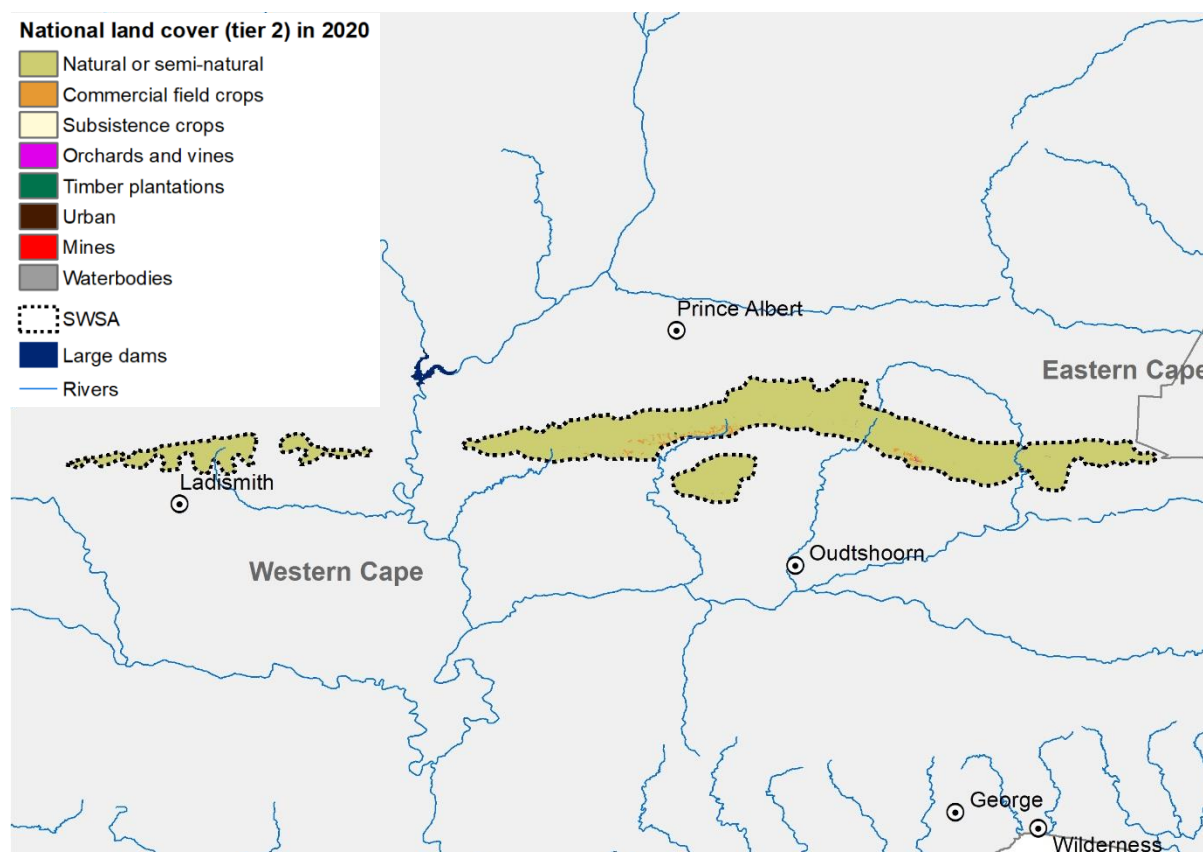
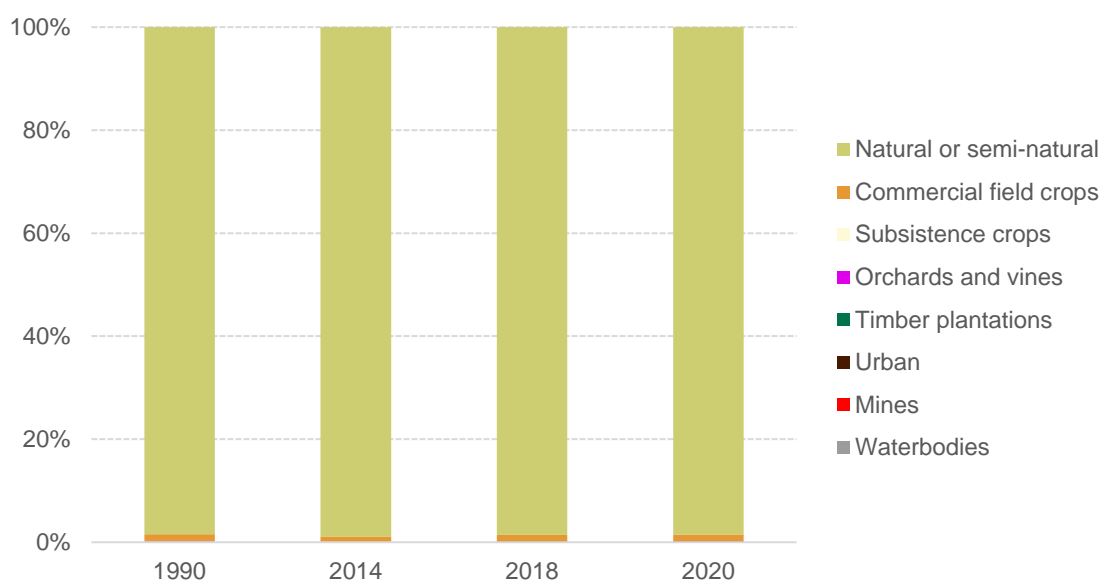
In 2020, 98,5% (76 820 ha) of Swartberg SWSA remained natural or semi-natural. In 2020, Swartberg SWSA had the second highest proportion of natural or semi-natural land cover of all SWSAs (Kouga SWSA had the highest proportion) (Table 12). As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 were commercial field crops (1,3%), with tiny proportions of orchards and vines, timber plantations and urban areas (<1,0% each). The proportional division between land cover classes was consistent over the period 1990 to 2020.

Table 24. Indicators drawn from the land account for Swartberg SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	76 786	1 024	0	15	0	0	0	158
2014	77 102	842	0	15	0	0	0	24
2018	76 847	1 026	0	14	7	11	0	78
2020	76 820	1 032	0	12	8	5	0	106
(b) Proportion of land cover classes (%)								
1990	98,5%	1,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,2%
2014	98,9%	1,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
2018	98,5%	1,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,1%
2020	98,5%	1,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,1%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	0,4%	-17,8%	-	0,0%	-	-	-	-84,8%
2014-2018	-0,3%	21,9%	-	-6,7%	-	-	-	225,0%
2018-2020	0,0%	0,6%	-	-14,3%	14,3%	-54,5%	-	35,9%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	34	8	0	-3	8	5	0	-52
1990-2020	0,0%	0,8%	-	-20,0%	-	-	-	-32,9%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 58. Land cover classes (tier 2) in Swartberg SWSA, 2020**Figure 59. Land cover composition (tier 2) in Swartberg SWSA, 1990, 2014, 2018, 2020**

4.5.2 Key findings from the account for protected areas in Swartberg SWSA

Table 25 shows the change in the extent of protected areas in Swartberg SWSA between 1990 and 2020, by protected area type. Figure 60 provides a map of protected areas that occurred wholly or partially within Swartberg SWSA in 2020. Changes in protection over time are summarised in Figure 61 and Figure 62.

At the end of 2020, 76,5% (59 678 ha) of Swartberg SWSA was protected, compared with 76,3% (59 490 ha) in 1990, giving an overall increase in protection of 0,3%. In 2020, this was the highest proportion protected of all SWSAs (Table 15).

Protected area types in Swartberg SWSA in 2020 included Nature Reserve (59,9% of SWSA area) and Mountain Catchment Area (16,6%).

Table 25. Indicators drawn from the protected area account for Swartberg SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	46 549	0	0	0	12 941	0	18 493	59 490
2014	0	46 737	0	0	0	12 941	0	18 305	59 678
2018	0	46 737	0	0	0	12 941	0	18 305	59 678
2020	0	46 737	0	0	0	12 941	0	18 305	59 678
(b) Proportion protected (%)									
1990	0,0%	59,7%	0,0%	0,0%	0,0%	16,6%	0,0%	23,7%	76,3%
2014	0,0%	59,9%	0,0%	0,0%	0,0%	16,6%	0,0%	23,5%	76,5%
2018	0,0%	59,9%	0,0%	0,0%	0,0%	16,6%	0,0%	23,5%	76,5%
2020	0,0%	59,9%	0,0%	0,0%	0,0%	16,6%	0,0%	23,5%	76,5%
(c) Net change in protection per accounting period (%)									
1990-2014	-	0,4%	-	-	-	0,0%	-	-1,0%	0,3%
2014-2018	-	0,0%	-	-	-	0,0%	-	0,0%	0,0%
2018-2020	-	0,0%	-	-	-	0,0%	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	188	0	0	0	0	0	-188	188
1990-2020	-	0,4%	-	-	-	0,0%	-	-1,0%	0,3%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

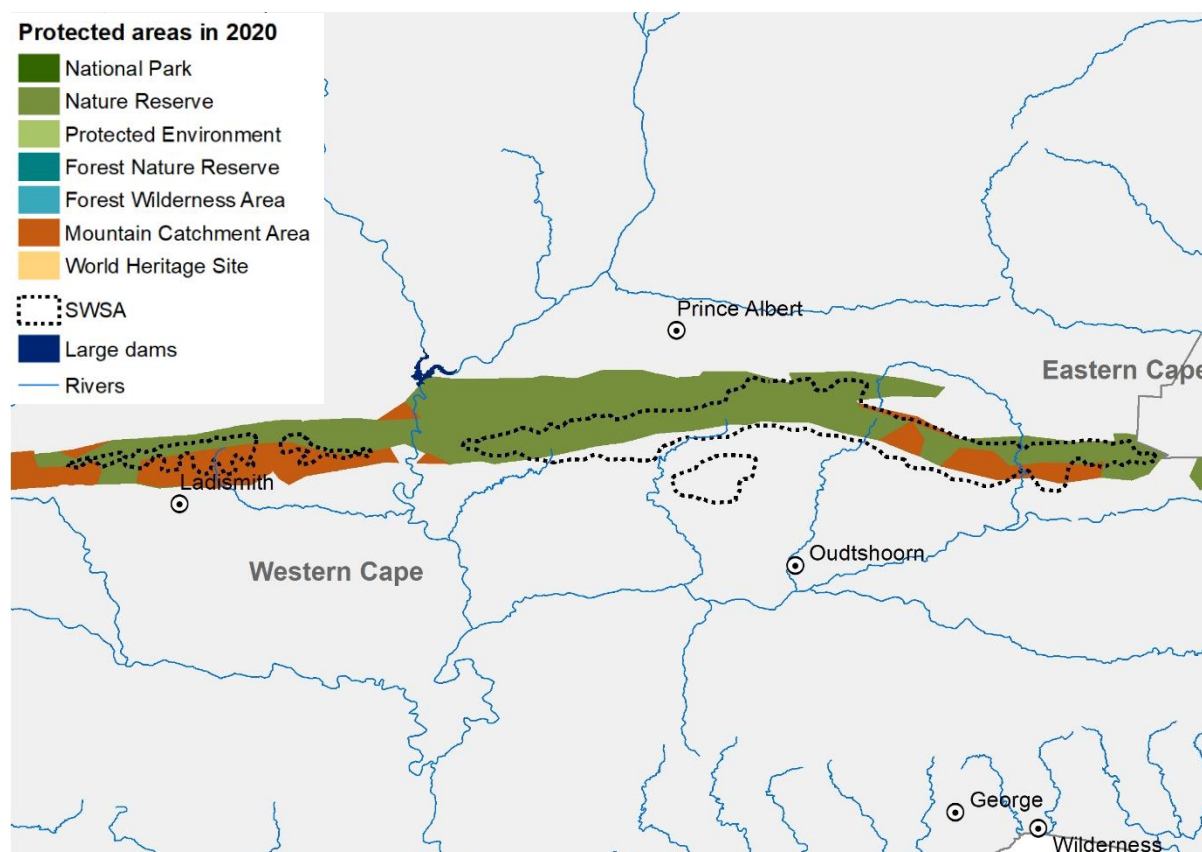
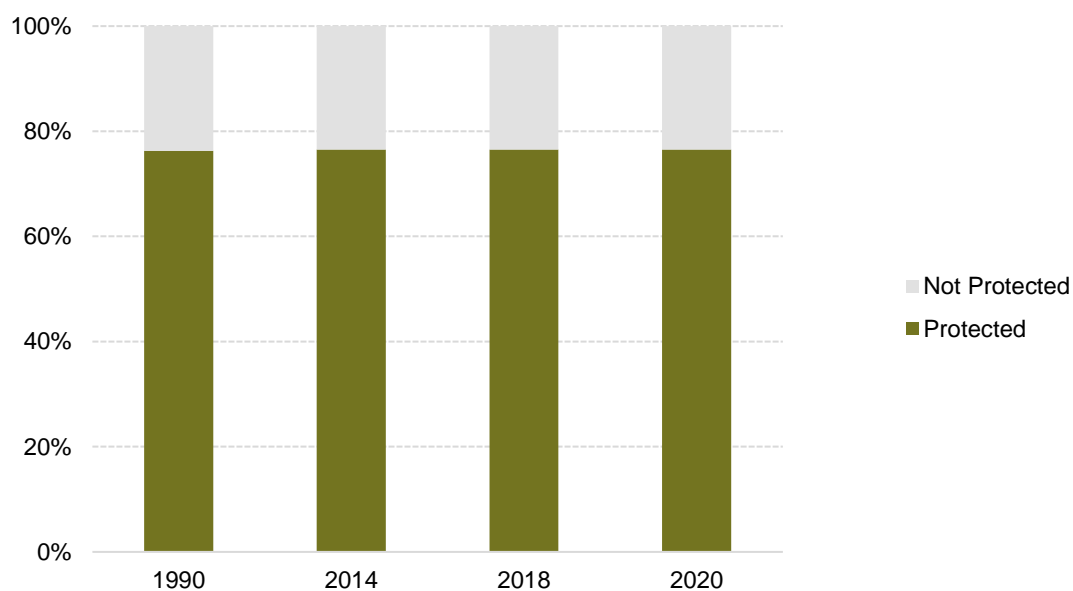
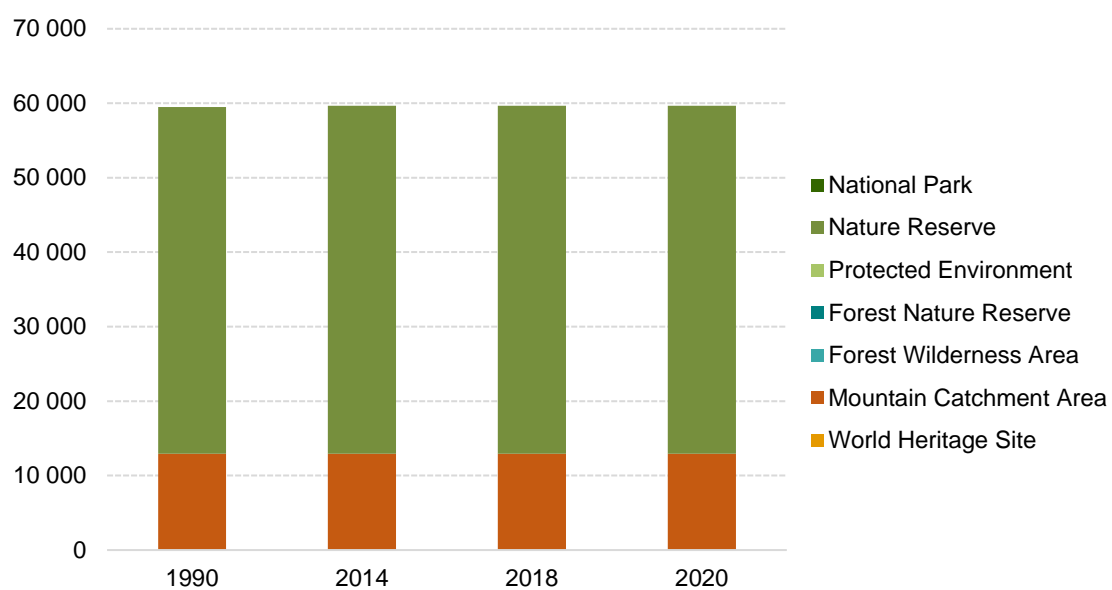
Figure 60. Protected area types occurring wholly or partially within Swartberg SWSA, 2020**Figure 61. Proportion of Swartberg SWSA protected, 1990, 2014, 2018, 2020**

Figure 62. Extent of protected areas in Swartberg SWSA by protected area type, 1990, 2014, 2018, 2020



4.6 Outeniqua SWSA

Outeniqua SWSA covers 304 237 ha (0,2%) of South Africa's mainland (Table 4 in Section 3.1). It is in the Western Cape province and falls fully within the Garden Route District Municipality (Figure 63 and Appendix 2). Outeniqua SWSA falls mostly in the Fynbos biome (82,0%) with a portion in the Forest biome (17,1%) (Table 5 in Section 3.1 and Figure 64). Outeniqua has the highest proportion of Forest biome of all SWSAs (Table 5).

The estimated total population of Outeniqua SWSA in 2011 was 296 890 with a population density of approximately 97,6 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 87,8% of households living in Outeniqua SWSA was a water service provider, with boreholes as the main source of water for 2,5% of households, and 1,7% of households sourcing most of their water directly from springs, rivers or streams (Figure 65).

Figure 63. District municipalities in and around Outeniqua SWSA

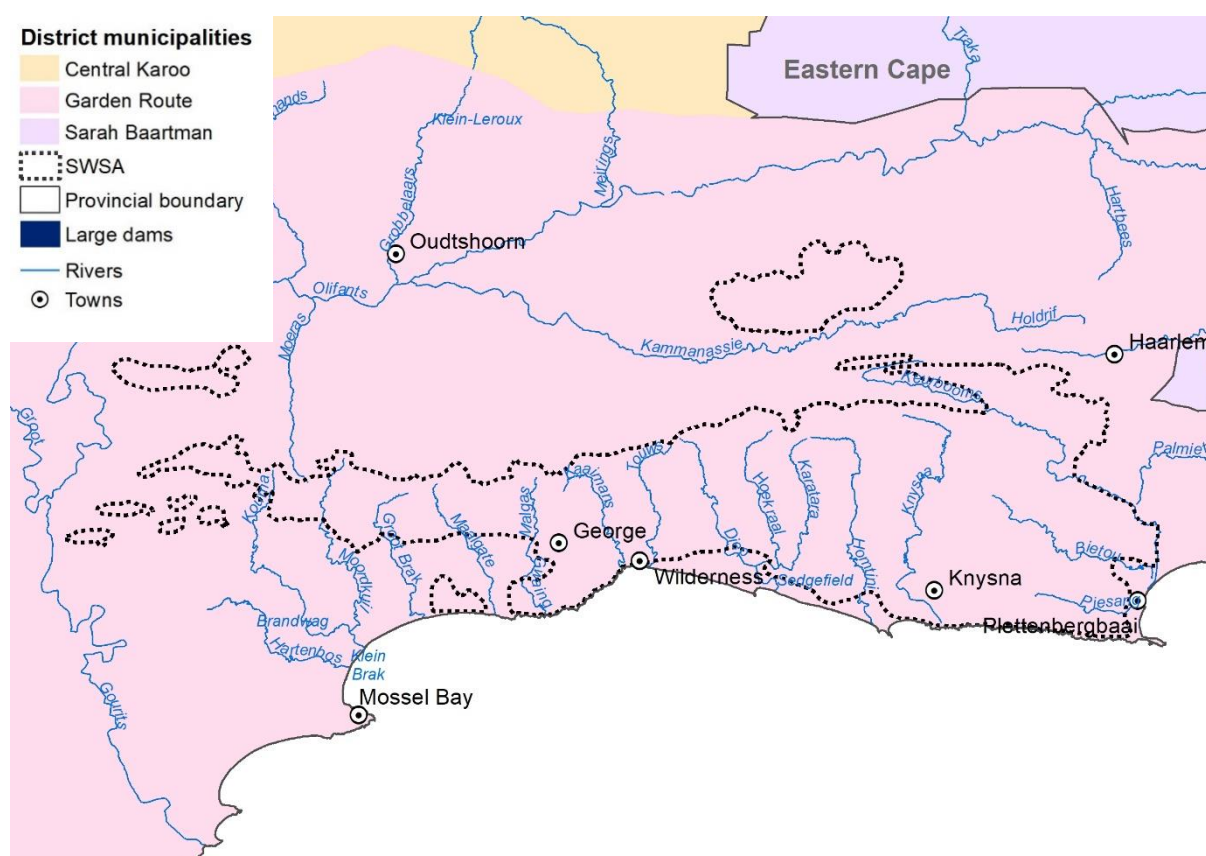
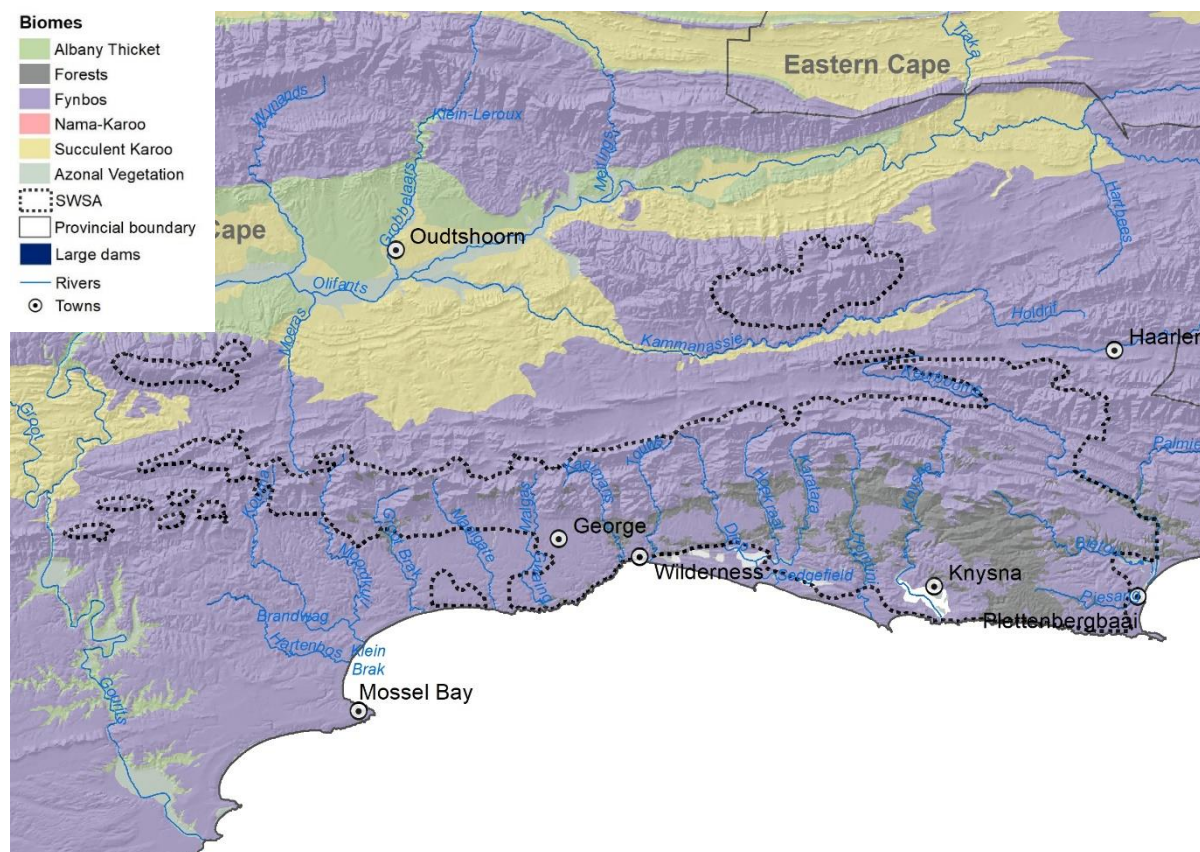
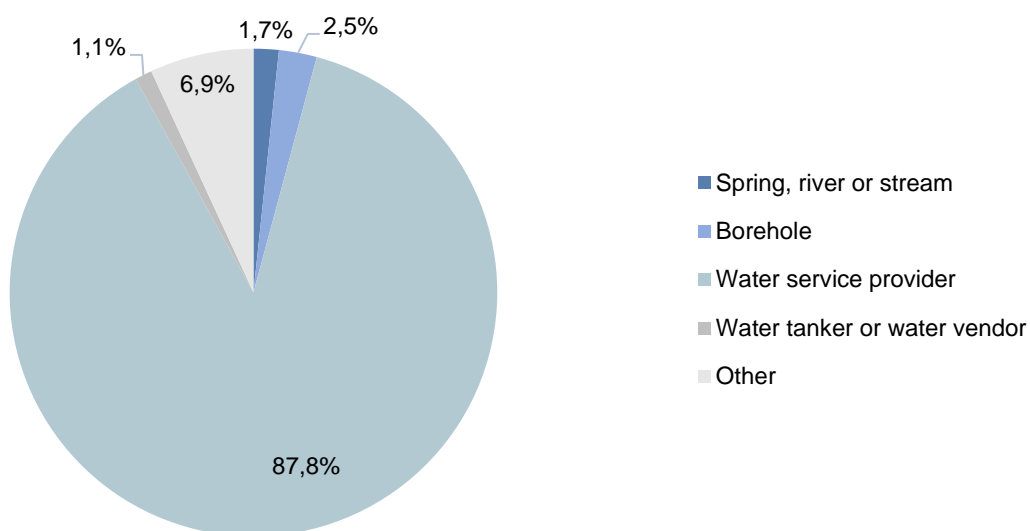


Figure 64. Terrestrial biomes in and around Outeniqua SWSA**Figure 65. Main source of water for domestic use for households living in Outeniqua SWSA, based on the 2011 population census**

4.6.1 Key findings from the land account for Outeniqua SWSA

Table 26 shows the change in main land cover classes (tier 2) in Outeniqua SWSA between 1990 and 2020. Figure 66 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 67.

In 2020, 74,3% (226 079 ha) of Outeniqua SWSA was natural or semi-natural, compared with 70,7% in 1990. This increase in natural or semi-natural land cover suggests that some intensively modified areas may have reverted to semi-natural over this period. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

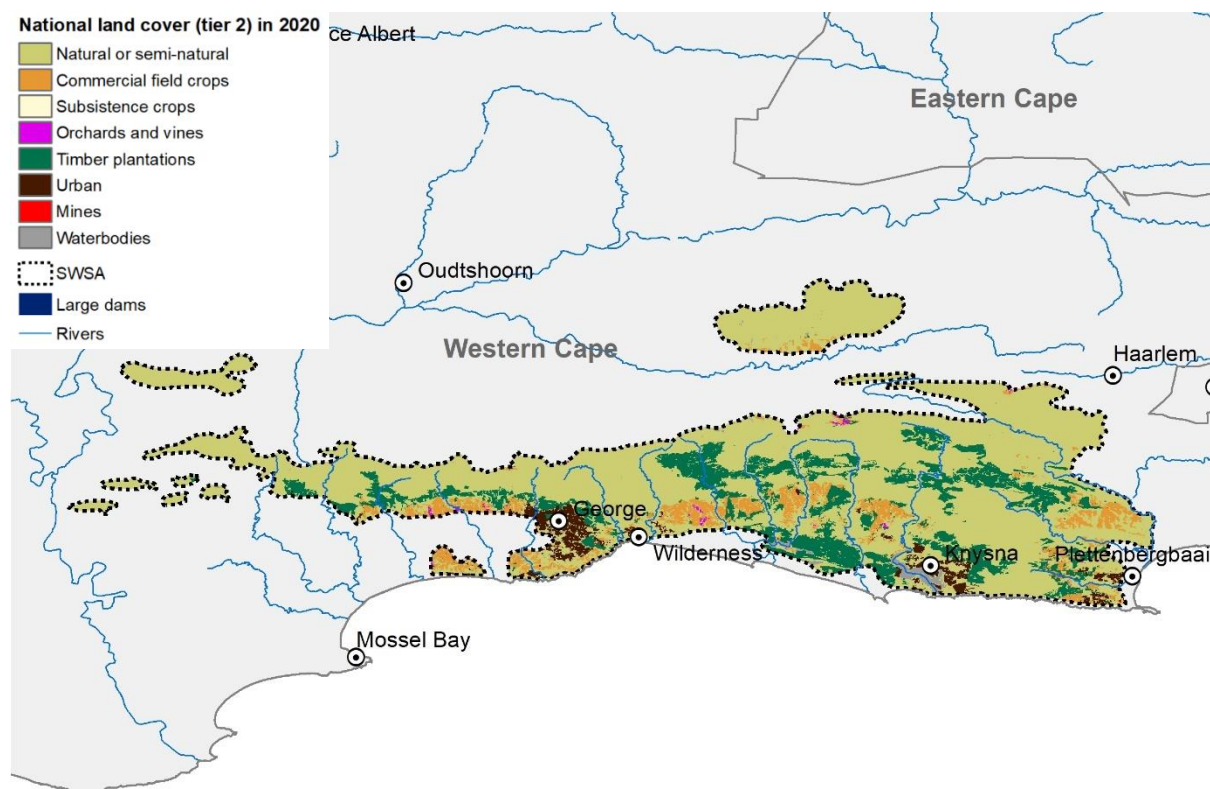
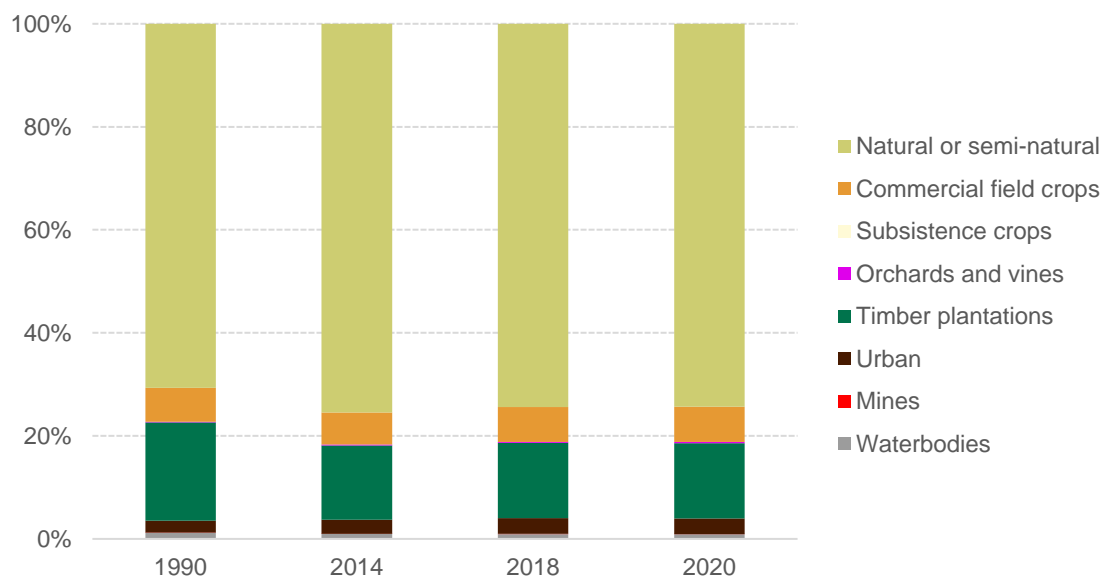
Intensively modified land cover classes in the rest of the SWSA in 2020 included timber plantations (14,6%), commercial field crops (6,9%) and urban areas (3,0%), with tiny proportions of orchards and vines and mines (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020.

Among the intensively modified land cover classes, the decrease of 13 569 ha (-23,4%) in timber plantations over the period 1990 to 2020 was notable. This was the largest change in absolute terms in this SWSA.

Table 26. Indicators drawn from the land account for Outeniqua SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	215 057	19 911	0	466	58 108	6 892	22	3 781
2014	229 489	19 032	0	484	43 863	8 344	20	3 005
2018	226 408	20 484	0	631	44 507	9 260	42	2 905
2020	226 079	20 905	0	649	44 539	9 163	45	2 857
(b) Proportion of land cover classes (%)								
1990	70,7%	6,5%	0,0%	0,2%	19,1%	2,3%	0,0%	1,2%
2014	75,4%	6,3%	0,0%	0,2%	14,4%	2,7%	0,0%	1,0%
2018	74,4%	6,7%	0,0%	0,2%	14,6%	3,0%	0,0%	1,0%
2020	74,3%	6,9%	0,0%	0,2%	14,6%	3,0%	0,0%	0,9%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	6,7%	-4,4%	-	3,9%	-24,5%	21,1%	-9,1%	-20,5%
2014-2018	-1,3%	7,6%	-	30,4%	1,5%	11,0%	110,0%	-3,3%
2018-2020	-0,1%	2,1%	-	2,9%	0,1%	-1,0%	7,1%	-1,7%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	11 022	994	0	183	-13 569	2 271	23	-924
1990-2020	5,1%	5,0%	-	39,3%	-23,4%	33,0%	104,5%	-24,4%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 66. Land cover classes (tier 2) in Outeniqua SWSA, 2020**Figure 67. Land cover composition (tier 2) of Outeniqua SWSA, 1990, 2014, 2018, 2020**

4.6.2 Key findings from the account for protected areas in Outeniqua SWSA

Table 27 shows the change in the extent of protected areas in Outeniqua SWSA between 1990 and 2020, by protected area type. Figure 68 provides a map of protected areas that occurred wholly or partially within Outeniqua SWSA in 2020. Changes in protection over time are summarised in Figure 69 and Figure 70.

At the end of 2020, 40,6% (123 665 ha) of Outeniqua SWSA was protected, compared with 38,7% (117 698 ha) in 1990, giving an overall increase in protection of 5,1%. Most of this increase took place between 1990 and 2014.

Protected area types in Outeniqua SWSA in 2020 included National Park (19,8% of SWSA area), Nature Reserve (10,0%), Protected Environment (4,0%), Mountain Catchment Area (3,9%) and Forest Nature Reserve (2,2%), with a tiny proportion of Forest Wilderness Area (<1,0%).

Table 27. Indicators drawn from the protected area account for Outeniqua SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	60 290	25 070	11 603	6 715	2 256	11 764	0	186 539	117 698
2014	60 290	30 265	11 603	6 715	2 256	11 764	0	181 344	122 893
2018	60 290	30 472	12 168	6 715	2 256	11 764	0	180 572	123 665
2020	60 290	30 472	12 168	6 715	2 256	11 764	0	180 572	123 665
(b) Proportion protected (%)									
1990	19,8%	8,2%	3,8%	2,2%	0,7%	3,9%	0,0%	61,3%	38,7%
2014	19,8%	9,9%	3,8%	2,2%	0,7%	3,9%	0,0%	59,6%	40,4%
2018	19,8%	10,0%	4,0%	2,2%	0,7%	3,9%	0,0%	59,4%	40,6%
2020	19,8%	10,0%	4,0%	2,2%	0,7%	3,9%	0,0%	59,4%	40,6%
(c) Net change in protection per accounting period (%)									
1990-2014	0,0%	20,7%	0,0%	0,0%	0,0%	0,0%	-	-2,8%	4,4%
2014-2018	0,0%	0,7%	4,9%	0,0%	0,0%	0,0%	-	-0,4%	0,6%
2018-2020	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	5 402	565	0	0	0	0	-5 967	5 967
1990-2020	0,0%	21,5%	4,9%	0,0%	0,0%	0,0%	-	-3,2%	5,1%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

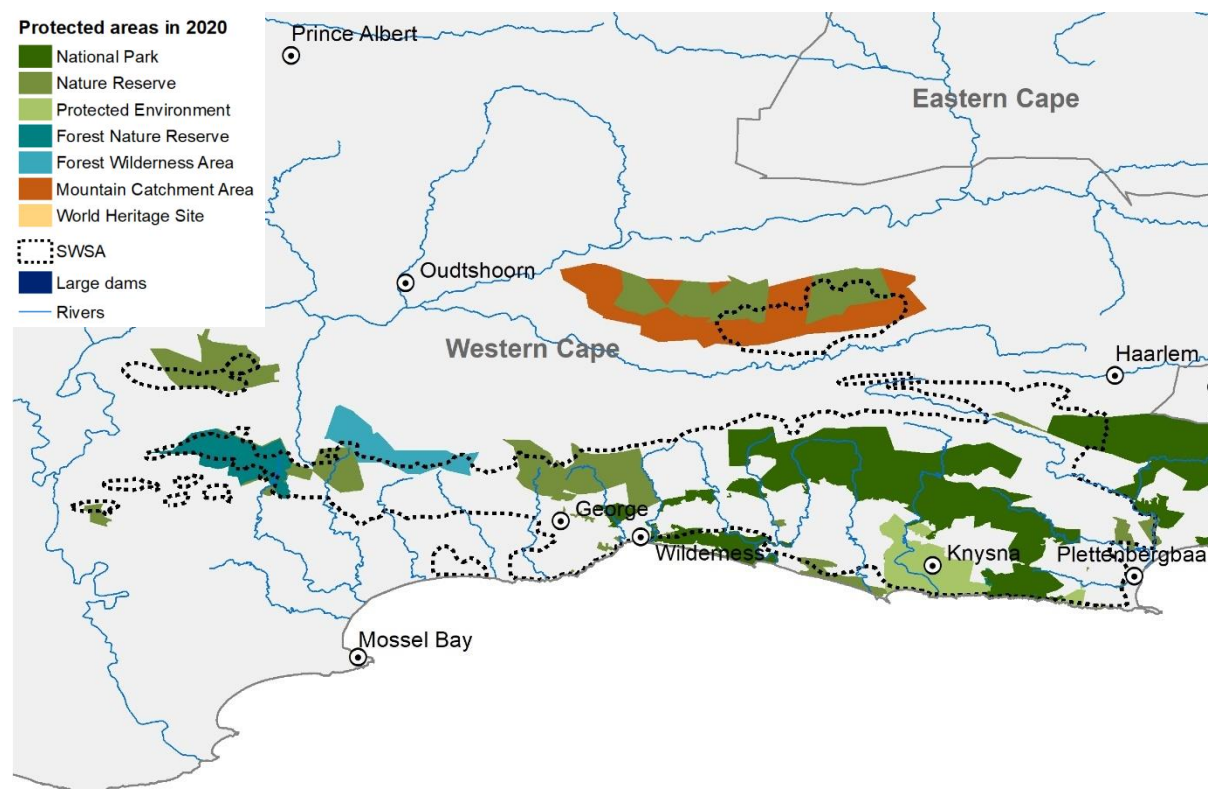
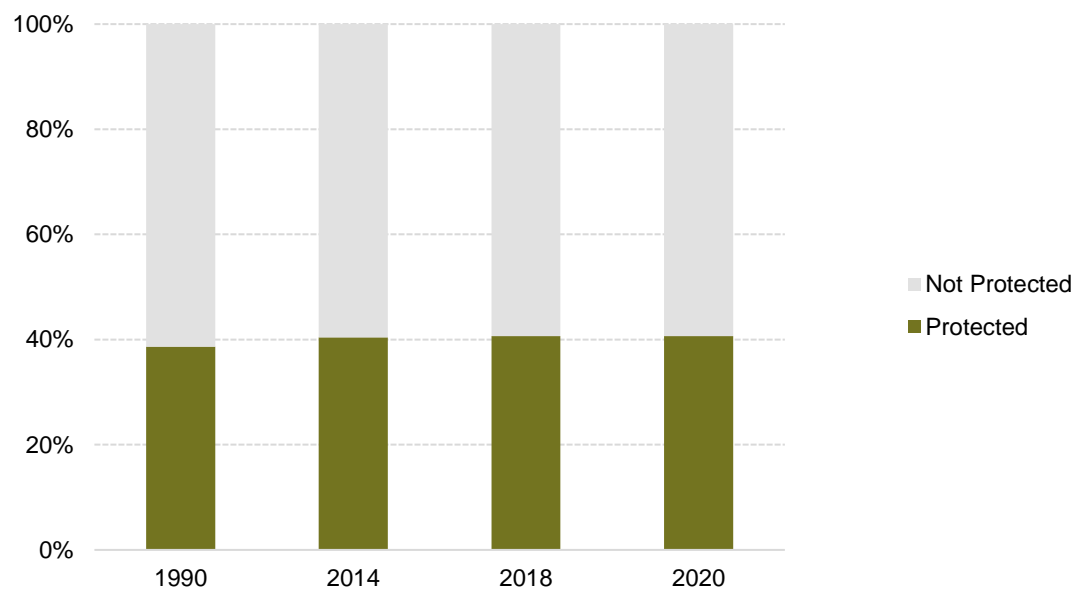
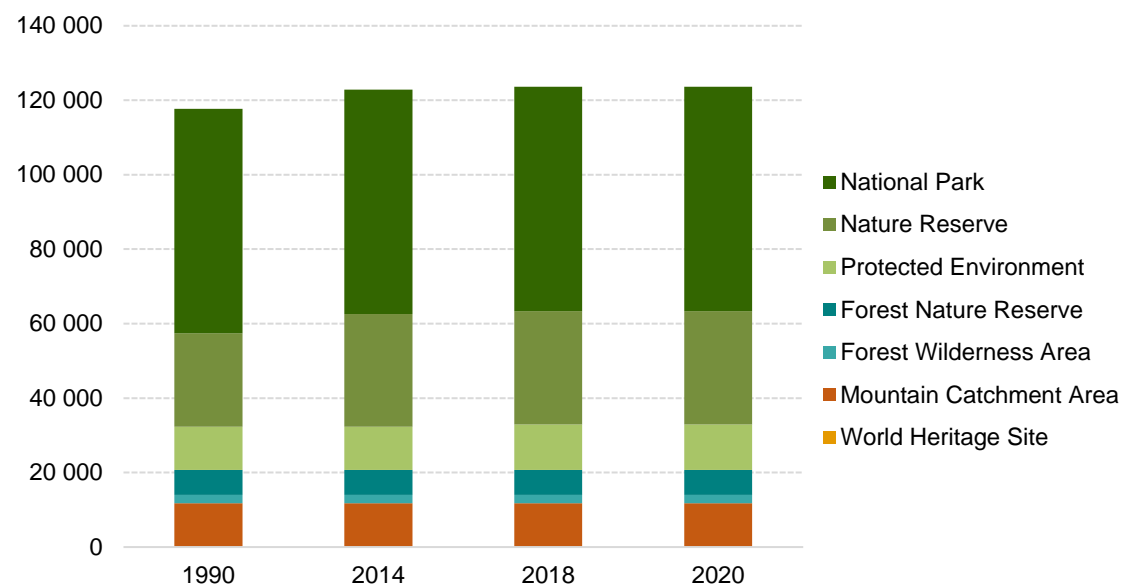
Figure 68. Protected areas occurring wholly or partially within Outeniqua SWSA, 2020**Figure 69. Proportion of Outeniqua SWSA protected, 1990, 2014, 2018, 2020**

Figure 70. Extent of protected areas in Outeniqua SWSA by protected area type, 1990, 2014, 2018, 2020



4.7 Kouga SWSA

Kouga SWSA covers 63 099 ha (0,1%) of South Africa's mainland, making it the second smallest SWSA (Table 4 in Section 3.1). It spans the Western Cape and Eastern Cape provinces and two district municipalities: Garden Route in Western Cape (37,7%) and Sarah Baartman in Eastern Cape (62,3%) (Figure 71 and Appendix 2). Kouga SWSA falls fully within the Fynbos biome (Table 5 in Section 3.1 and Figure 72).

The estimated total population of Kouga SWSA in 2011 was 8 902 with a population density of approximately 14,1 people per km² (Table 8 in Section 3.1), the third least densely populated SWSA. The main source of water for domestic use for 14,4% of households living in Kouga SWSA was a water service provider, with boreholes as the main source of water for 24,8% of households, and 18,0% of households sourcing most of their water directly from springs, rivers or streams (Figure 73).

Figure 71. District municipalities in and around Kouga SWSA

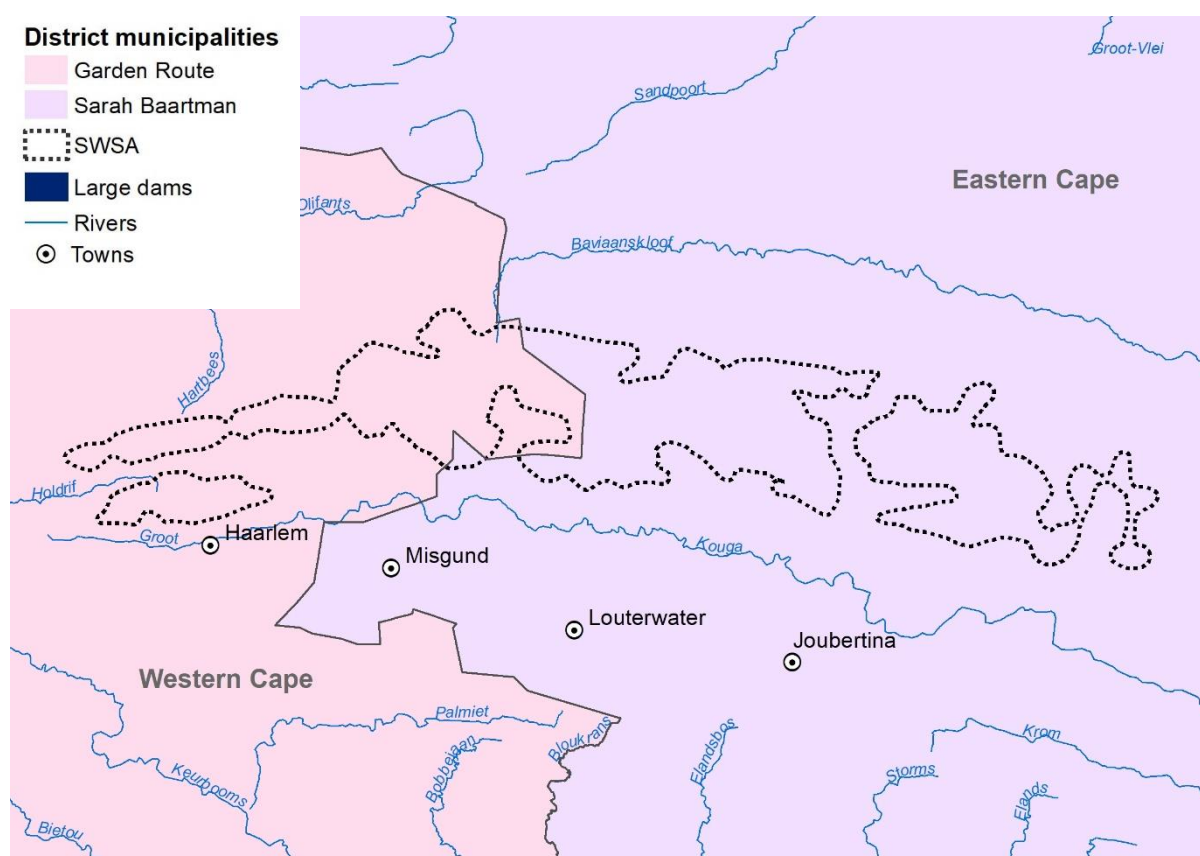
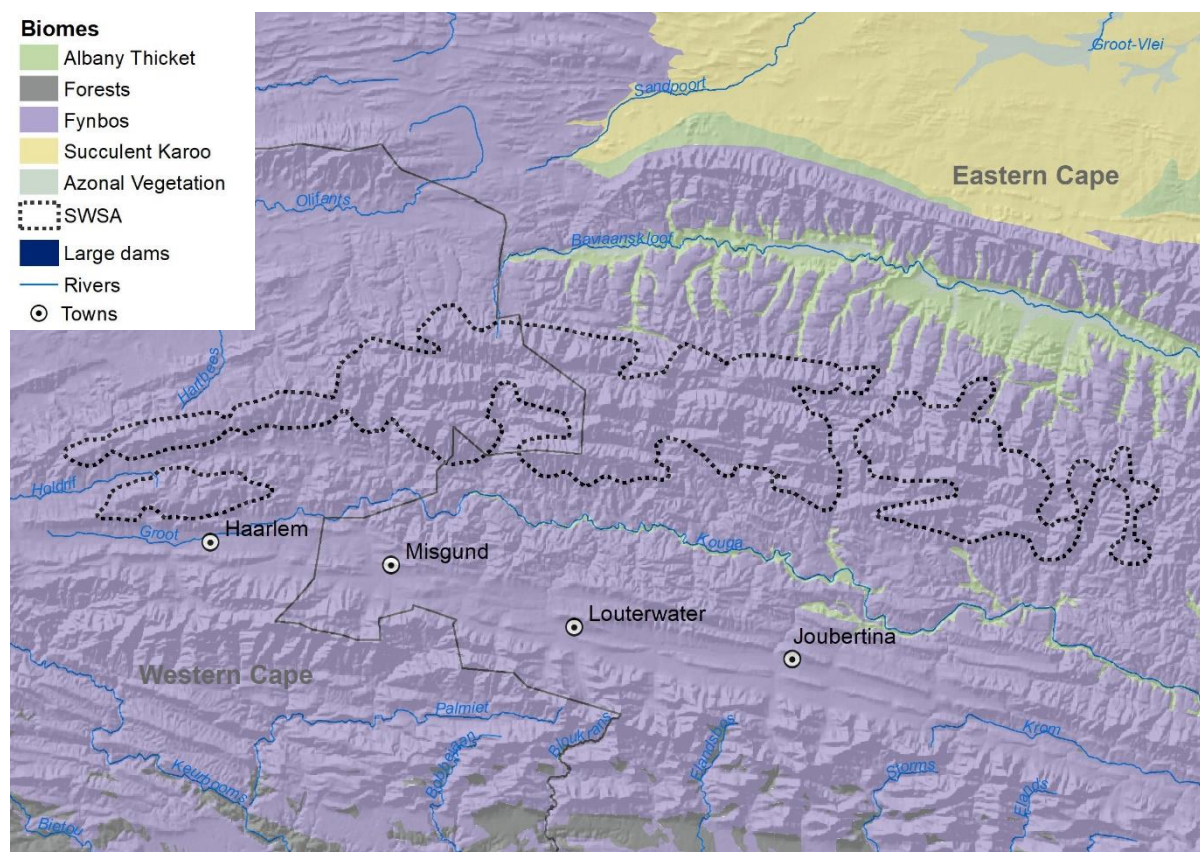
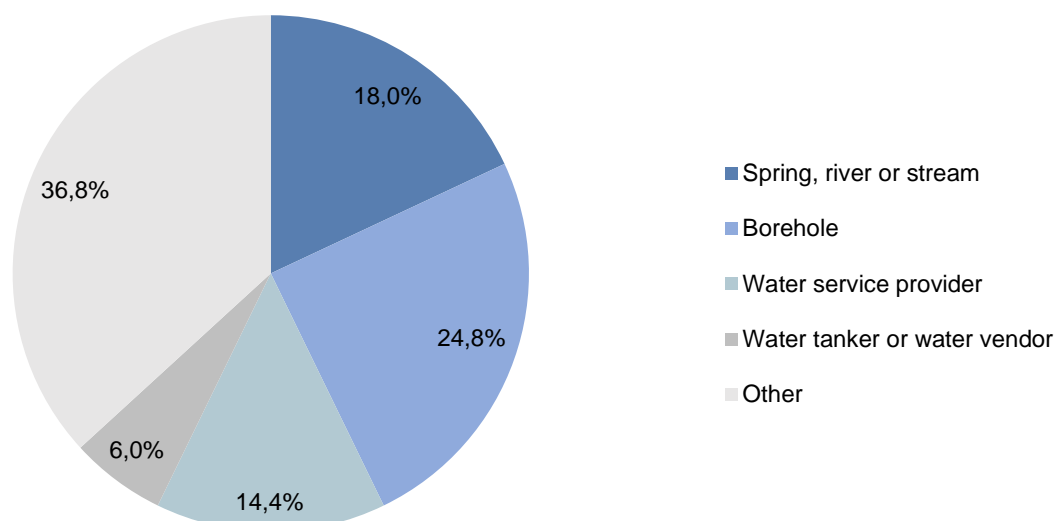


Figure 72. Terrestrial biomes in and around Kouga SWSA**Figure 73. Main source of water for domestic use for households living in Kouga SWSA, based on the 2011 population census**

4.7.1 Key findings from the land account for Kouga SWSA

Table 28 shows the change in main land cover classes (tier 2) in Kouga SWSA between 1990 and 2020. Figure 74 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 75.

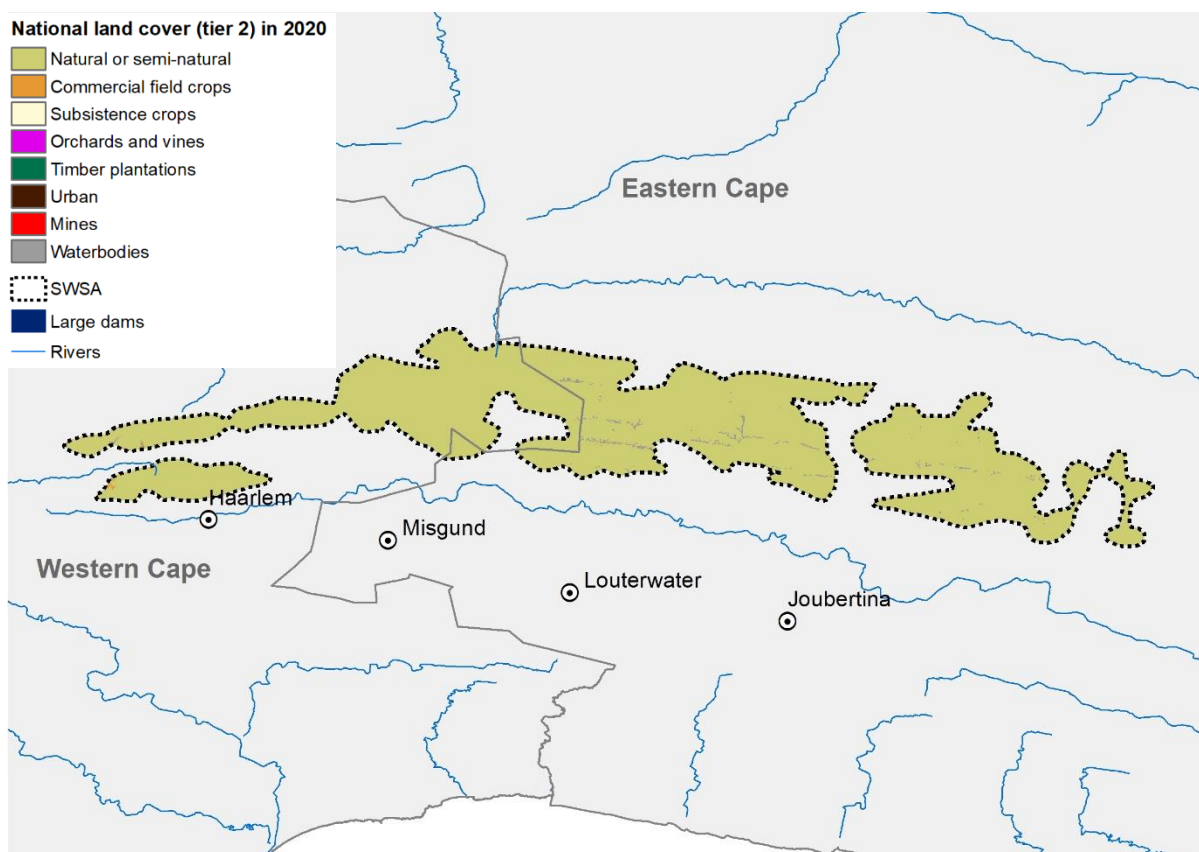
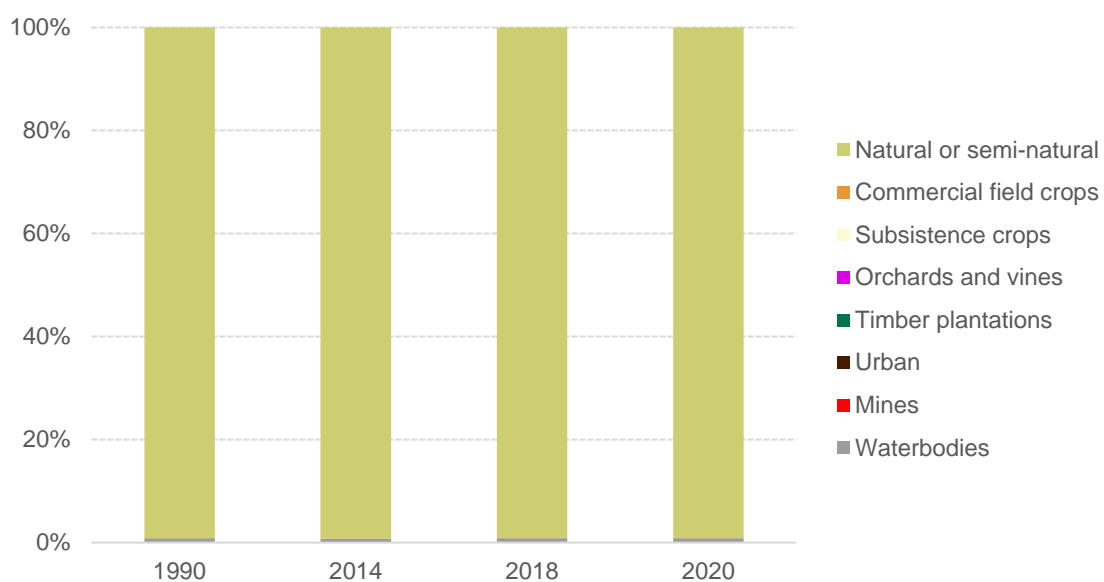
In 2020, 99,1% (62 521 ha) of Kouga SWSA remained natural or semi-natural. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

The only intensively modified land cover class in the rest of the SWSA in 2020 was commercial field crops at 47ha (0,1%), which had increased from 21 ha in 1990. This was the lowest proportion of intensively modified land cover classes of all SWSAs. This SWSA is striking in the extent to which it remains natural or semi-natural.

Table 28. Indicators drawn from the land account for Kouga SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	62 551	21	0	0	0	0	0	527
2014	62 611	23	0	0	0	0	0	465
2018	62 525	46	0	0	0	0	0	528
2020	62 521	47	0	0	0	0	0	531
(b) Proportion of land cover classes (%)								
1990	99,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,8%
2014	99,2%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,7%
2018	99,1%	0,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,8%
2020	99,1%	0,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,8%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	0,1%	9,5%	-	-	-	-	-	-11,8%
2014-2018	-0,1%	100,0%	-	-	-	-	-	13,5%
2018-2020	0,0%	2,2%	-	-	-	-	-	0,6%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-30	26	0	0	0	0	0	4
1990-2020	0,0%	123,8%	-	-	-	-	-	0,8%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 74. Land cover classes (tier 2) in Kouga SWSA, 2020**Figure 75. Land cover composition (tier 2) in Kouga SWSA, 1990, 2014, 2018, 2020**

4.7.2 Key findings from the account for protected areas in Kouga SWSA

Table 29 shows the change in the extent of protected areas in Kouga SWSA between 1990 and 2020, by protected area type. Figure 76 provides a map of protected areas that occurred wholly or partially within Kouga SWSA in 2020. Changes in protection over time are summarised in Figure 77 and Figure 78.

At the end of 2020, 72,3% (45 615 ha) of Kouga SWSA was protected, compared with 0,0% (0 ha) in 1990, giving an overall increase in protection of 45 615 ha. Most of this increase took place between 2014 and 2018. Kouga SWSA has the second highest proportion protected of all SWSAs (Swartberg SWSA has the highest) (Table 15).

The only protected area type in Kouga SWSA in 2020 was Nature Reserve (72,3% of SWSA area) in the area known as the Baviaanskloof.

Table 29. Indicators drawn from the protected area account for Kouga SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	0	0	0	0	0	0	63 099	0
2014	0	43 910	0	0	0	0	0	19 189	43 910
2018	0	45 615	0	0	0	0	0	17 484	45 615
2020	0	45 615	0	0	0	0	0	17 484	45 615
(b) Proportion protected (%)									
1990	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%
2014	0,0%	69,6%	0,0%	0,0%	0,0%	0,0%	0,0%	30,4%	69,6%
2018	0,0%	72,3%	0,0%	0,0%	0,0%	0,0%	0,0%	27,7%	72,3%
2020	0,0%	72,3%	0,0%	0,0%	0,0%	0,0%	0,0%	27,7%	72,3%
(c) Net change in protection per accounting period (%)									
1990-2014	-	-	-	-	-	-	-	-69,6%	-
2014-2018	-	3,9%	-	-	-	-	-	-8,9%	3,9%
2018-2020	-	0,0%	-	-	-	-	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	45 615	0	0	0	0	0	-45 615	45 615
1990-2020	-	-	-	-	-	-	-	-72,3%	-

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

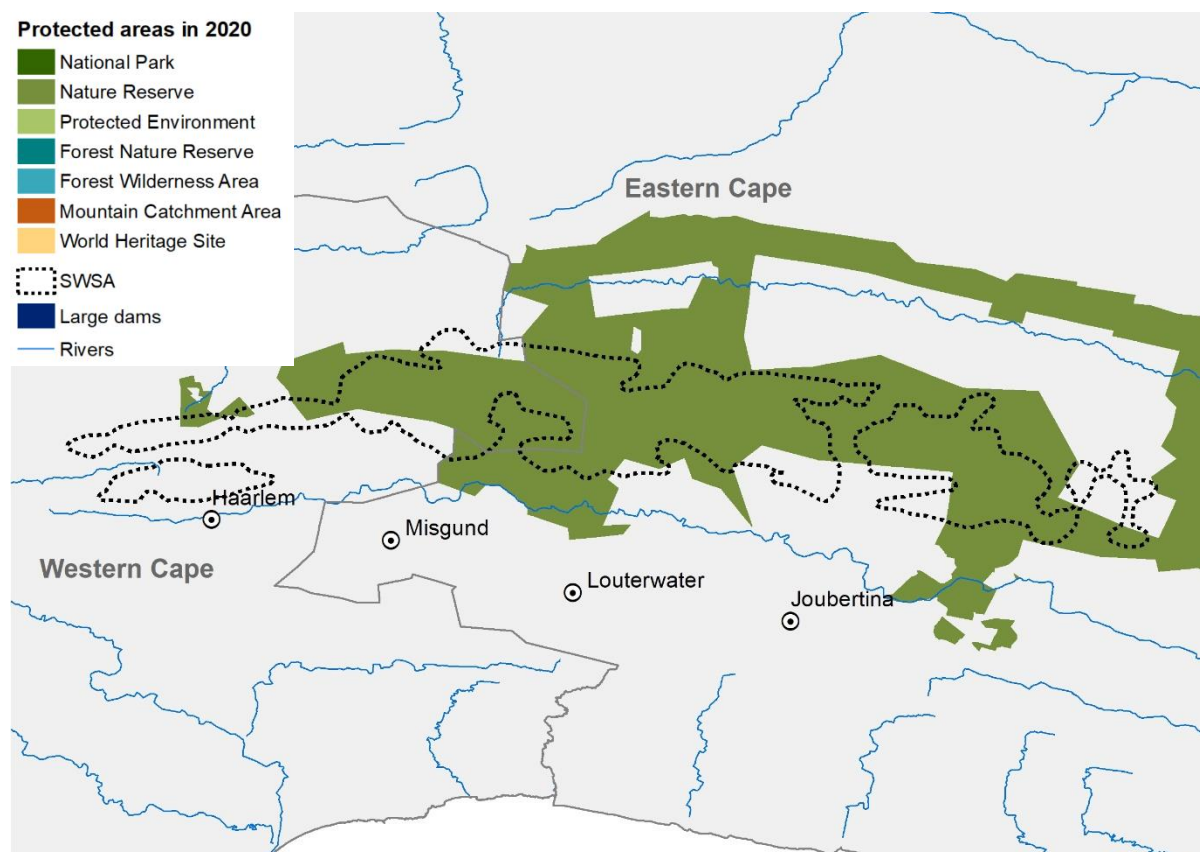
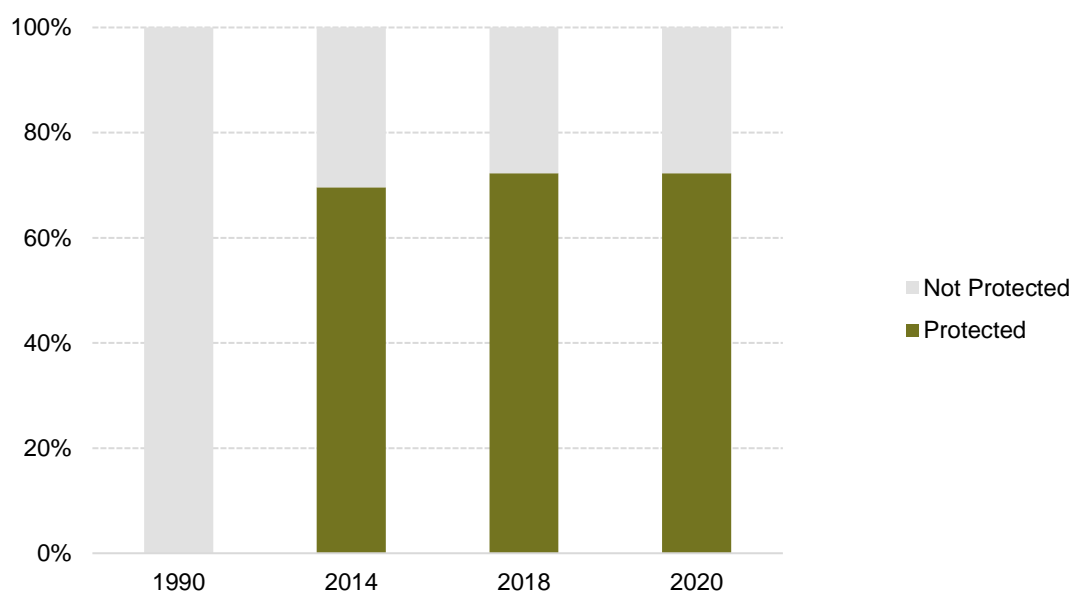
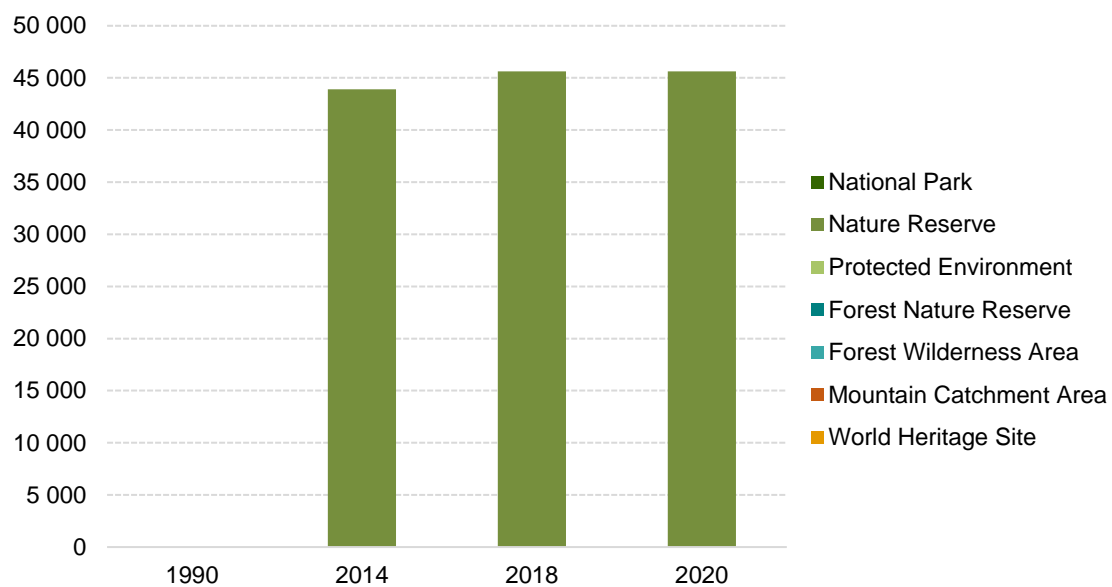
Figure 76. Protected areas occurring wholly or partially within Kouga SWSA, 2020**Figure 77. Proportion of Kouga SWSA protected, 1990, 2014, 2018, 2020**

Figure 78. Extent of protected areas in Kouga SWSA by protected area type, 1990, 2014, 2018, 2020

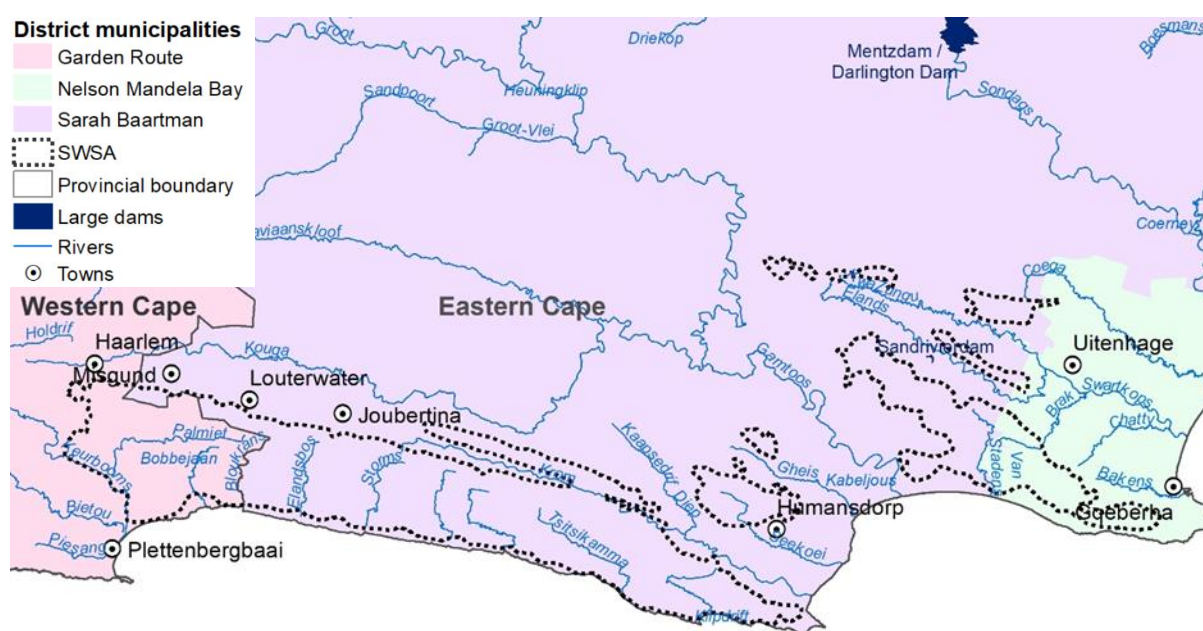


4.8 Tsitsikamma SWSA

Tsitsikamma SWSA covers 322 208 ha (0,3%) of South Africa's mainland (Table 4 in Section 3.1). It spans the Western Cape and Eastern Cape provinces (19,4% and 80,6% respectively), two district municipalities, Garden Route (19,4%) in Western Cape and Sarah Baartman (72,5%) in Eastern Cape, and the metropolitan municipality of Nelson Mandela Bay (8,1%) (Figure 79 and Appendix 2). Tsitsikamma SWSA falls mostly within the Fynbos biome (88,0%) with portions in the Forest (6,9%) and Albany Thicket (3,3%) biomes (Table 5 in Section 3.1 and Figure 80).

The estimated total population of Tsitsikamma SWSA in 2011 was 102 870 with a population density of approximately 31,9 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 68,4% of households living in Tsitsikamma SWSA was a water service provider, with boreholes as the main source of water for 11,5% of households, and 3,5% of households sourcing most of their water directly from springs, rivers or streams (Figure 81).

Figure 79. District municipalities in and around Tsitsikamma SWSA



4.8.1 Key findings from the land account for Tsitsikamma SWSA

Table 30 shows the change in main land cover classes (tier 2) in Tsitsikamma SWSA between 1990 and 2020. Figure 82 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 83.

In 2020, 74,7% (240 780 ha) of Tsitsikamma SWSA remained natural or semi-natural, compared with 73,8% in 1990. This increase in natural or semi-natural land cover suggests that some intensively modified areas may have reverted to semi-natural over this period. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included commercial field crops (12,3%), timber plantations (9,5%) and urban areas (2,4%), with tiny proportions of subsistence crops, orchards and vines and mines (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020.

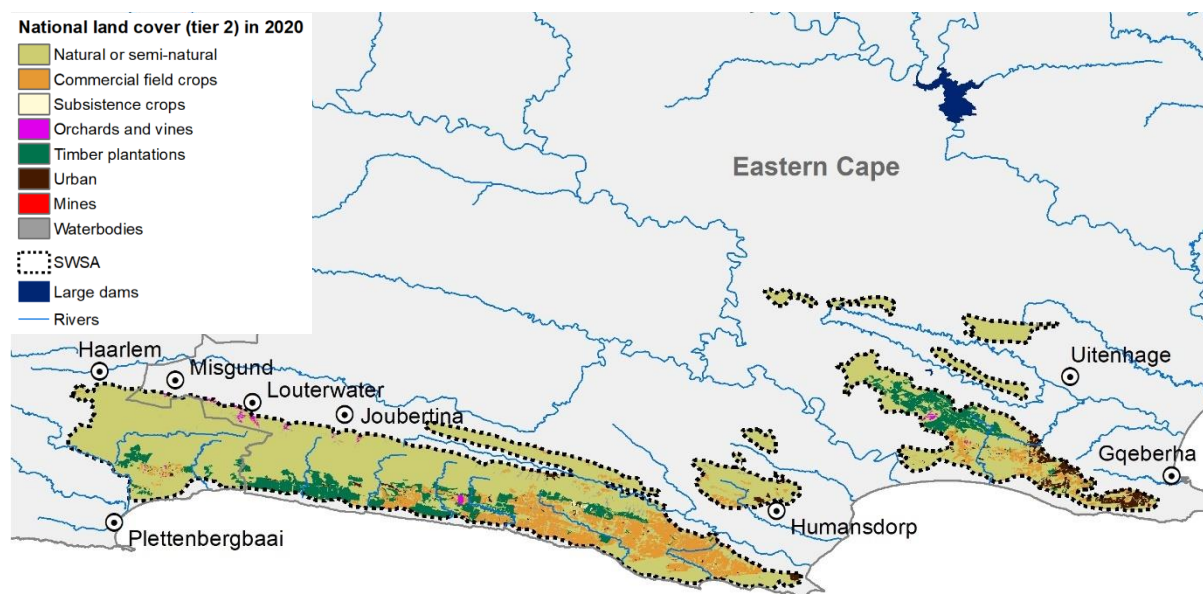
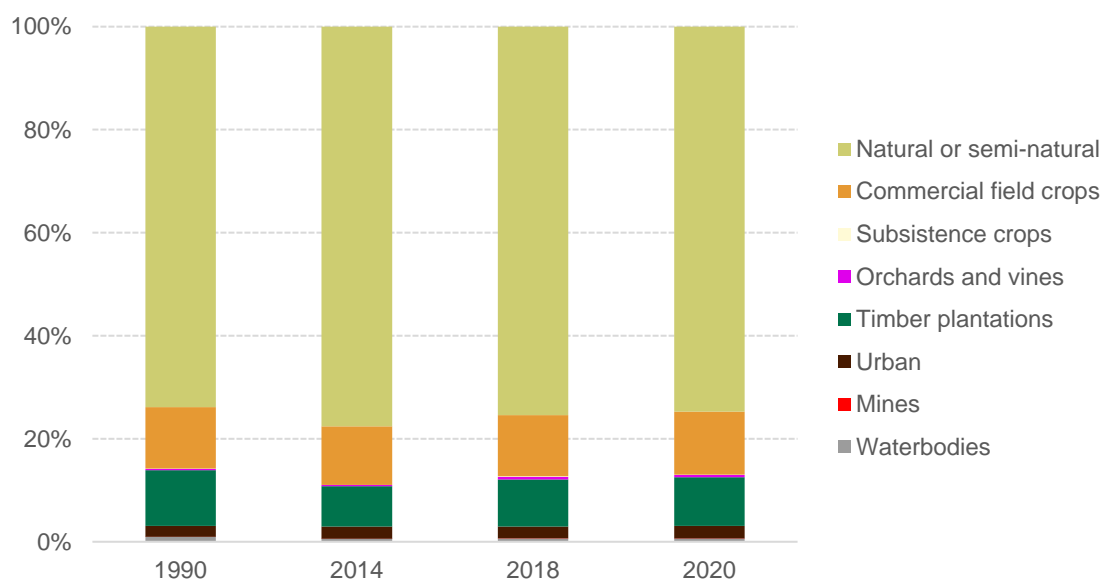
Among the intensively modified land cover classes, the following changes were notable over the period 1990 to 2020:

- An increase of 44,4% in orchards and vines, from 886 ha in 1990 to 1 279 ha in 2020 (with a high of 1 636 ha in 2018).
- A decrease of 4 170 ha (-12,0%) in timber plantations. This was the largest change in absolute terms in this SWSA.

Table 30. Indicators drawn from the land account for Tsitsikamma SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	237 943	38 532	140	886	34 775	6 802	15	3 115
2014	249 969	36 590	106	828	25 291	7 445	10	1 969
2018	243 082	38 249	219	1 636	29 439	7 553	68	1 962
2020	240 780	39 489	231	1 279	30 605	7 714	47	2 063
(b) Proportion of land cover classes (%)								
1990	73,8%	12,0%	0,0%	0,3%	10,8%	2,1%	0,0%	1,0%
2014	77,6%	11,4%	0,0%	0,3%	7,8%	2,3%	0,0%	0,6%
2018	75,4%	11,9%	0,1%	0,5%	9,1%	2,3%	0,0%	0,6%
2020	74,7%	12,3%	0,1%	0,4%	9,5%	2,4%	0,0%	0,6%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	5,1%	-5,0%	-24,3%	-6,5%	-27,3%	9,5%	-33,3%	-36,8%
2014-2018	-2,8%	4,5%	106,6%	97,6%	16,4%	1,5%	580,0%	-0,4%
2018-2020	-0,9%	3,2%	5,5%	-21,8%	4,0%	2,1%	-30,9%	5,1%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	2 837	957	91	393	-4 170	912	32	-1 052
1990-2020	1,2%	2,5%	65,0%	44,4%	-12,0%	13,4%	213,3%	-33,8%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 82. Land cover classes (tier 2) in Tsitsikamma SWSA, 2020**Figure 83. Land cover composition (tier 2) in Tsitsikamma SWSA, 1990, 2014, 2018, 2020**

4.8.2 Key findings from the account for protected areas in Tsitsikamma SWSA

Table 31 shows the change in the extent of protected areas in Tsitsikamma SWSA between 1990 and 2020, by protected area type. Figure 84 provides a map of protected areas that occurred wholly or partially within Tsitsikamma SWSA in 2020. Changes in protection over time are summarised in Figure 85 and Figure 86.

At the end of 2020, 34,4% (110 763 ha) of Tsitsikamma SWSA was protected, compared with 33,9% (109 103 ha) in 1990, giving an overall increase in protection of 1,5%. Most of this increase took place between 1990 and 2014.

Protected area types in Tsitsikamma SWSA in 2020 included National Park (20,9% of SWSA area), Nature Reserve (11,1%) and Forest Wilderness Area (2,3%), with a tiny proportion of Forest Nature Reserve (<1,0%).

Table 31. Indicators drawn from the protected area account for Tsitsikamma SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	67 221	34 171	0	353	7 358	0	0	213 105	109 103
2014	67 221	35 687	0	353	7 358	0	0	211 589	110 619
2018	67 221	35 831	0	353	7 358	0	0	211 445	110 763
2020	67 221	35 831	0	353	7 358	0	0	211 445	110 763
(b) Proportion protected (%)									
1990	20,9%	10,6%	0,0%	0,1%	2,3%	0,0%	0,0%	66,1%	33,9%
2014	20,9%	11,1%	0,0%	0,1%	2,3%	0,0%	0,0%	65,7%	34,3%
2018	20,9%	11,1%	0,0%	0,1%	2,3%	0,0%	0,0%	65,6%	34,4%
2020	20,9%	11,1%	0,0%	0,1%	2,3%	0,0%	0,0%	65,6%	34,4%
(c) Net change in protection per accounting period (%)									
1990-2014	0,0%	4,4%	-	0,0%	0,0%	-	-	-0,7%	1,4%
2014-2018	0,0%	0,4%	-	0,0%	0,0%	-	-	-0,1%	0,1%
2018-2020	0,0%	0,0%	-	0,0%	0,0%	-	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	1 660	0	0	0	0	0	-1 660	1 660
1990-2020	0,0%	4,9%	-	0,0%	0,0%	-	-	-0,8%	1,5%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

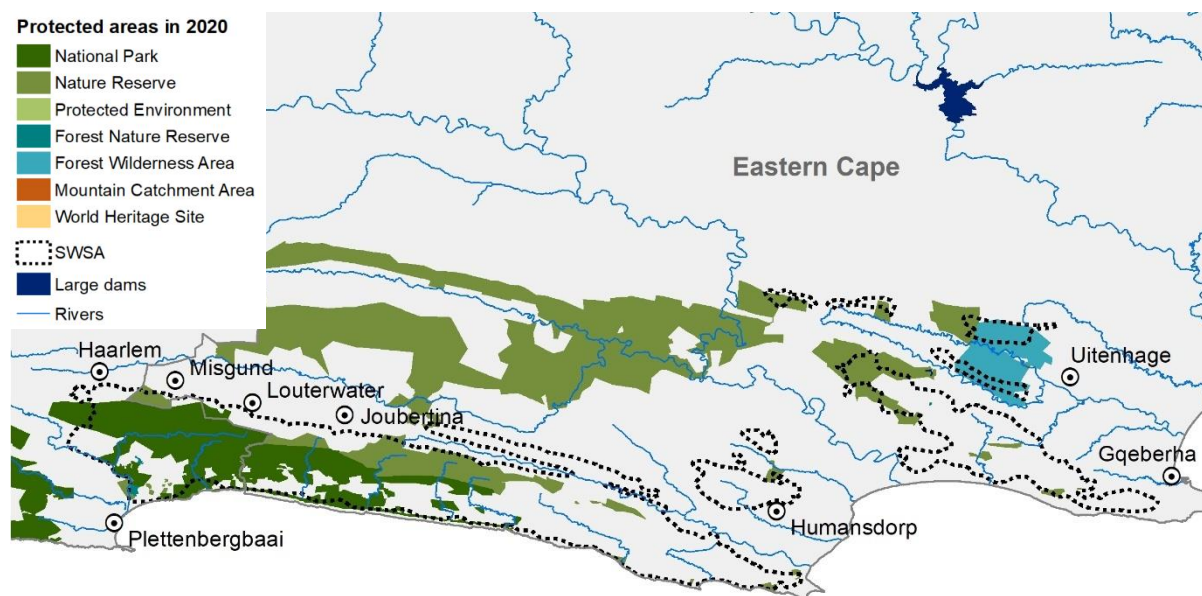
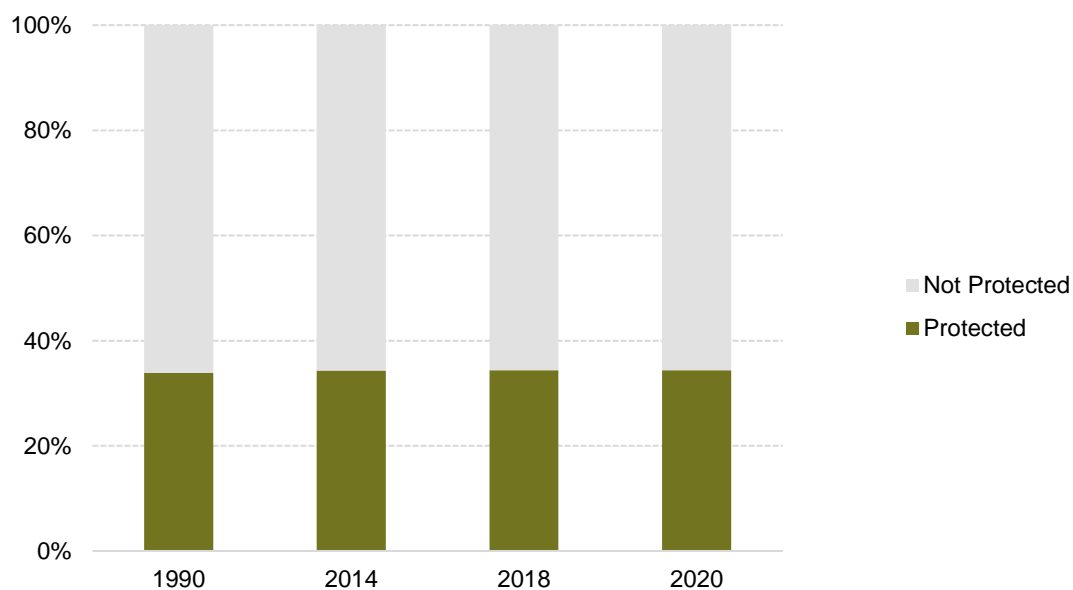
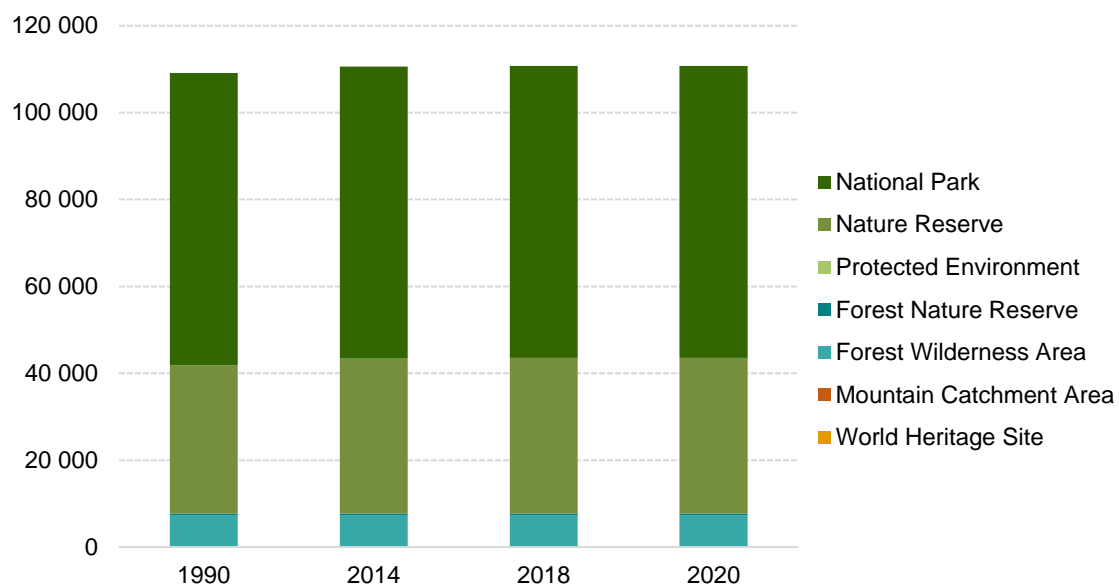
Figure 84. Protected areas occurring wholly or partially within Tsitsikamma SWSA, 2020**Figure 85. Proportion of Tsitsikamma SWSA protected, 1990, 2014, 2018, 2020**

Figure 86. Extent of protected areas in Tsitsikamma SWSA by protected area type, 1990, 2014, 2018, 2020



4.9 Amathole SWSA

Amathole SWSA covers 200 112 ha (0,2%) of South Africa's mainland (Table 4 in Section 3.1). It is located in the Eastern Cape province and spans two district municipalities, Amathole (62,5%) and Chris Hani (0,1%), and the metropolitan municipality of Buffalo City (37,4%) (Figure 87 and Appendix 2). Amathole SWSA falls mainly in the Grassland biome (49,6%) with portions in the Albany Thicket (26,8%), Forest (12,9%) and Savanna (10,4%) biomes (Table 5 in Section 3.1 and Figure 88). Amathole SWSA has the highest diversity of biomes of all SWSAs and the second largest proportion of the Forest biome.

The estimated total population of Amathole SWSA in 2011 was 543 149 with a population density of approximately 271,4 people per km² (Table 8 in Section 3.1), making it the second most densely populated SWSA. The main source of water for domestic use for 90,7% of households living in Amathole SWSA was a water service provider, with boreholes as the main source of water for 1,4% of households, and 1,4% of households sourcing most of their water directly from springs, rivers or streams (Figure 89).

Figure 87. District municipalities in and around Amathole SWSA

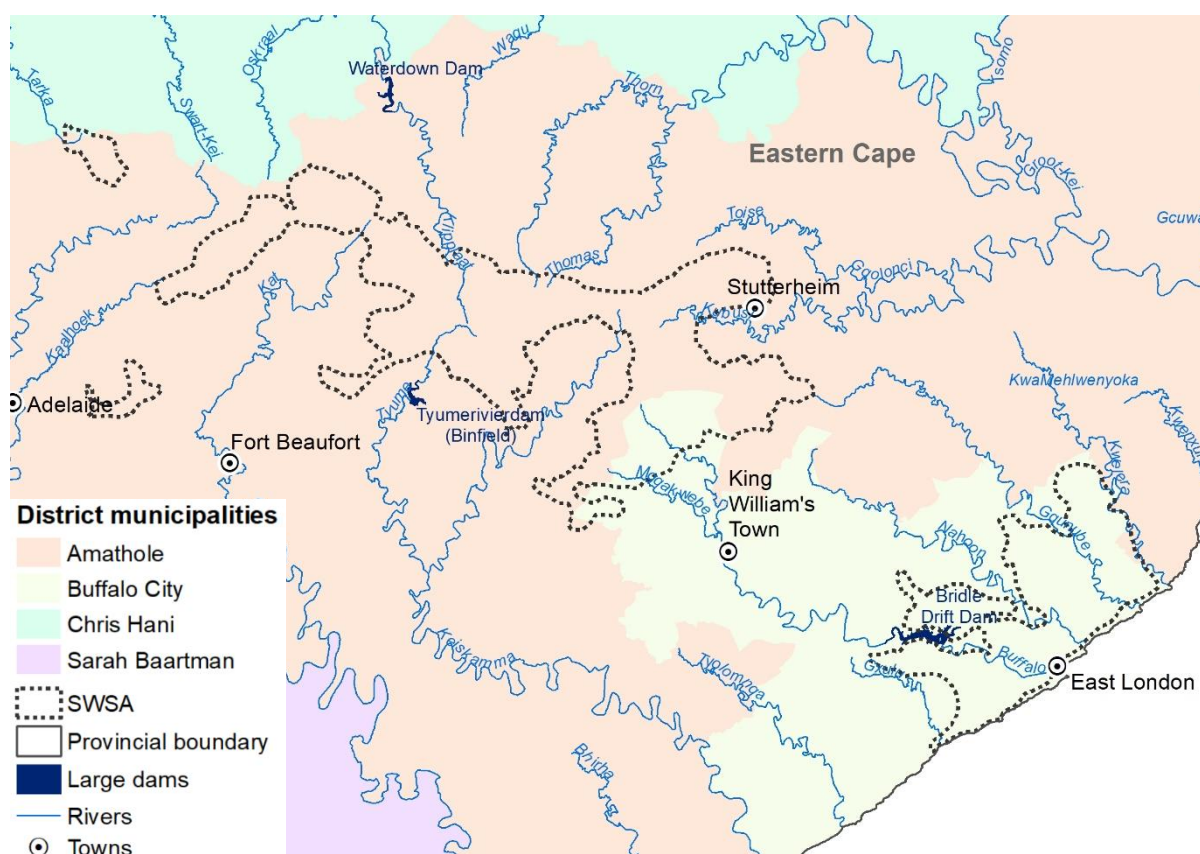
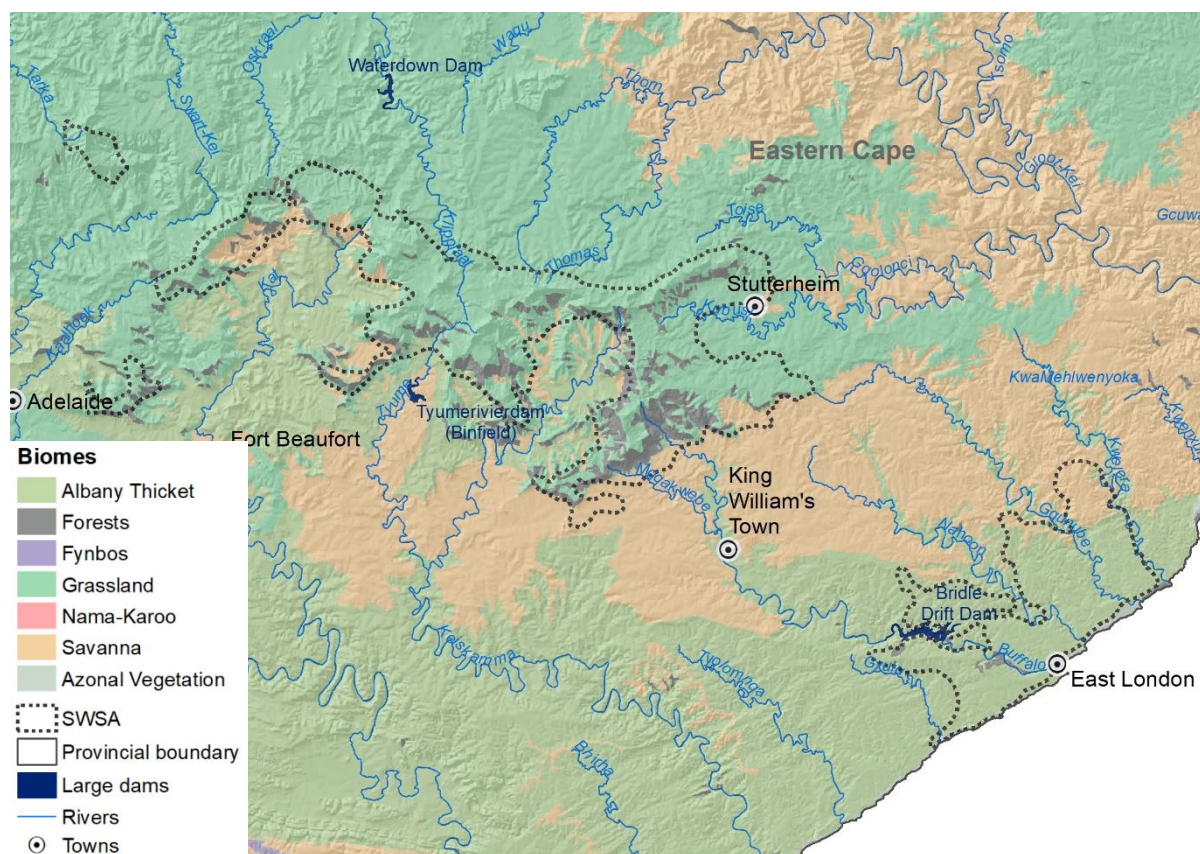
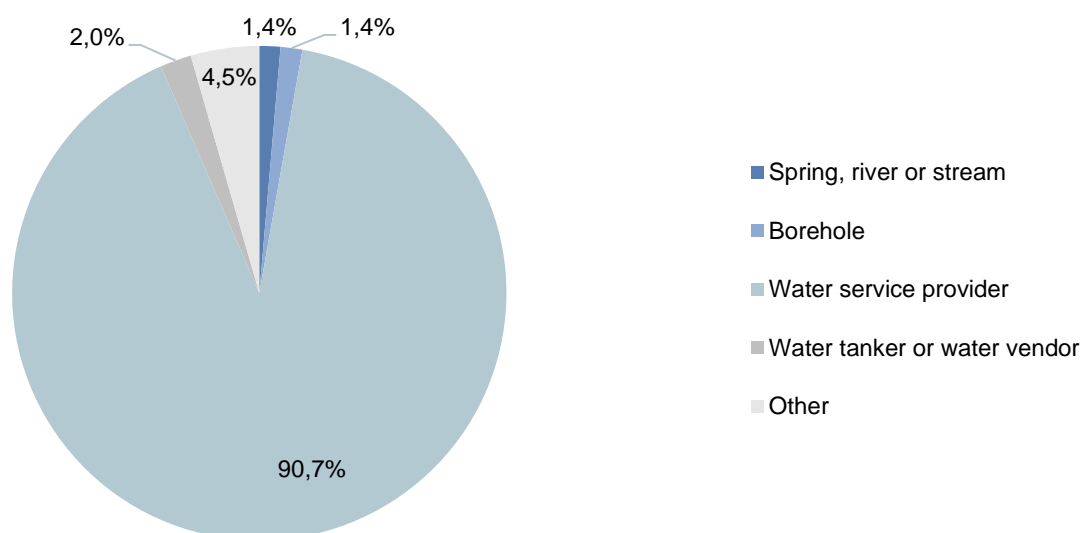


Figure 88. Terrestrial biomes in and around Amathole SWSA**Figure 89. Main source of water for domestic use for households living in Amathole SWSA, based on the 2011 population census**

4.9.1 Key findings from the land account for Amathole SWSA

Table 32 shows the change in main land cover classes (tier 2) in Amathole SWSA between 1990 and 2020. Figure 90 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 91.

In 2020, 73,7% (147 535 ha) of Amathole SWSA remained natural or semi-natural, compared with 74,9% in 1990. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included timber plantations (11,5%), urban areas (7,8%), commercial field crops (4,4%) and subsistence crops (1,8%) with tiny proportions of orchards and vines and mines (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020.

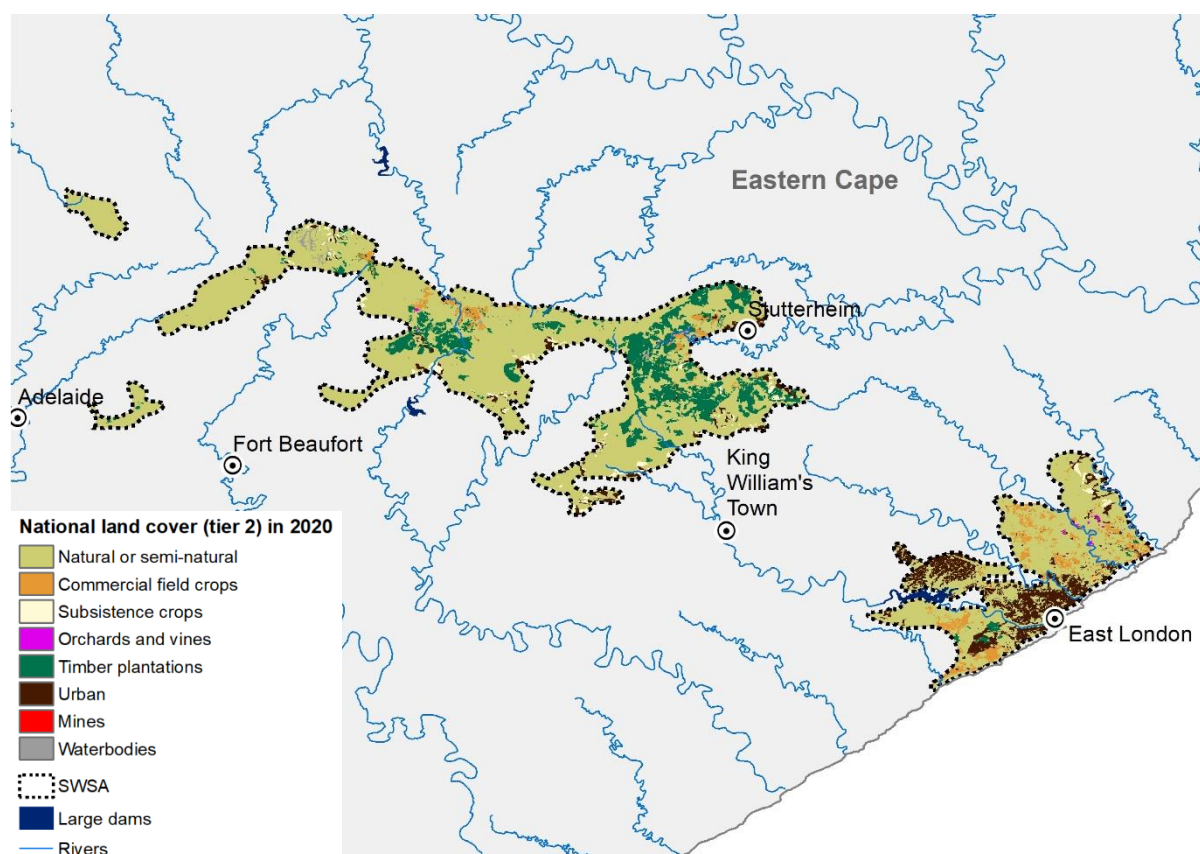
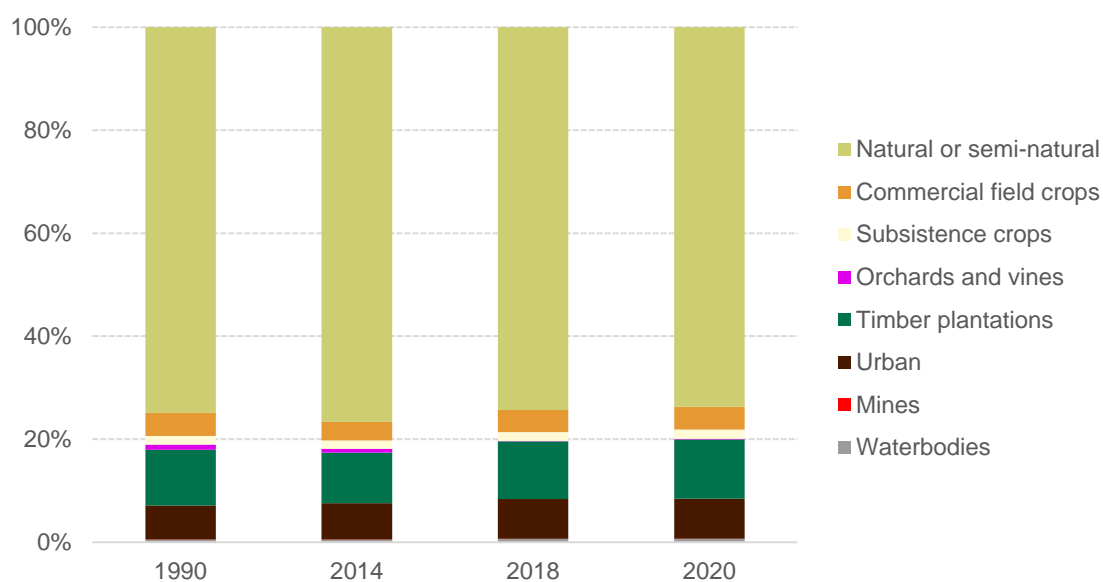
Among the intensively modified land cover classes, the following changes were notable over the period 1990 to 2020:

- An increase of 2 506 ha (19,1%) in urban areas. This was the largest change in absolute terms in this SWSA.
- A decrease of 86,3% in orchards and vines, from 1 938 ha in 1990 to 266 ha in 2020, with the bulk of the decrease taking place between 2014 and 2018. This was the largest change in percentage terms in this SWSA.

Table 32. Indicators drawn from the land account for Amathole SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	149 871	8 887	3 445	1 938	21 711	13 098	52	1 110
2014	153 308	7 273	3 169	1 518	19 629	14 100	13	1 102
2018	148 791	8 490	3 480	226	22 375	15 364	61	1 325
2020	147 535	8 793	3 569	266	22 993	15 604	84	1 268
(b) Proportion of land cover classes (%)								
1990	74,9%	4,4%	1,7%	1,0%	10,8%	6,5%	0,0%	0,6%
2014	76,6%	3,6%	1,6%	0,8%	9,8%	7,0%	0,0%	0,6%
2018	74,4%	4,2%	1,7%	0,1%	11,2%	7,7%	0,0%	0,7%
2020	73,7%	4,4%	1,8%	0,1%	11,5%	7,8%	0,0%	0,6%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	2,3%	-18,2%	-8,0%	-21,7%	-9,6%	7,7%	-75,0%	-0,7%
2014-2018	-2,9%	16,7%	9,8%	-85,1%	14,0%	9,0%	369,2%	20,2%
2018-2020	-0,8%	3,6%	2,6%	17,7%	2,8%	1,6%	37,7%	-4,3%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-2 336	-94	124	-1 672	1 282	2 506	32	158
1990-2020	-1,6%	-1,1%	3,6%	-86,3%	5,9%	19,1%	61,5%	14,2%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 90. Land cover classes (tier 2) in Amathole SWSA, 2020**Figure 91. Land cover composition (tier 2) in Amathole SWSA, 1990, 2014, 2018, 2020**

4.9.2 Key findings from the account for protected areas in Amathole SWSA

Table 33 shows the change in the extent of protected areas in Amathole SWSA between 1990 and 2020, by protected area type. Figure 92 provides a map of protected areas that occurred wholly or partially within Amathole SWSA in 2020. Changes in protection over time are summarised in Figure 93 and Figure 94.

At the end of 2020, 3,2% (6 304 ha) of Amathole SWSA was protected, compared with 2,2% (4 434 ha) in 1990, giving an overall increase in protection of 42,2%. Most of this increase took place between 2018 and 2020. In 2020, Amathole had the second lowest proportion protected of all SWSAs (Eastern Cape Drakensberg had the lowest proportion) (Table 15).

Protected area types in Amathole SWSA in 2020 included Nature Reserve (1,6% of SWSA area) and Forest Nature Reserve (1,5%), with a tiny proportion of Protected Environment (<1,0%).

Table 33. Indicators drawn from the protected area account for Amathole SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	2 892	0	1 542	0	0	0	195 678	4 434
2014	0	2 892	0	1 542	0	0	0	195 678	4 434
2018	0	2 892	81	1 542	0	0	0	195 597	4 515
2020	0	3 135	81	3 088	0	0	0	193 808	6 304
(b) Proportion protected (%)									
1990	0,0%	1,4%	0,0%	0,8%	0,0%	0,0%	0,0%	97,8%	2,2%
2014	0,0%	1,4%	0,0%	0,8%	0,0%	0,0%	0,0%	97,8%	2,2%
2018	0,0%	1,4%	0,0%	0,8%	0,0%	0,0%	0,0%	97,7%	2,3%
2020	0,0%	1,6%	0,0%	1,5%	0,0%	0,0%	0,0%	96,8%	3,2%
(c) Net change in protection per accounting period (%)									
1990-2014	-	0,0%	-	0,0%	-	-	-	0,0%	0,0%
2014-2018	-	0,0%	-	0,0%	-	-	-	0,0%	1,8%
2018-2020	-	8,4%	0,0%	100,3%	-	-	-	-0,9%	39,6%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	243	81	1 546	0	0	0	-1 870	1 870
1990-2020	-	8,4%	-	100,3%	-	-	-	-1,0%	42,2%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

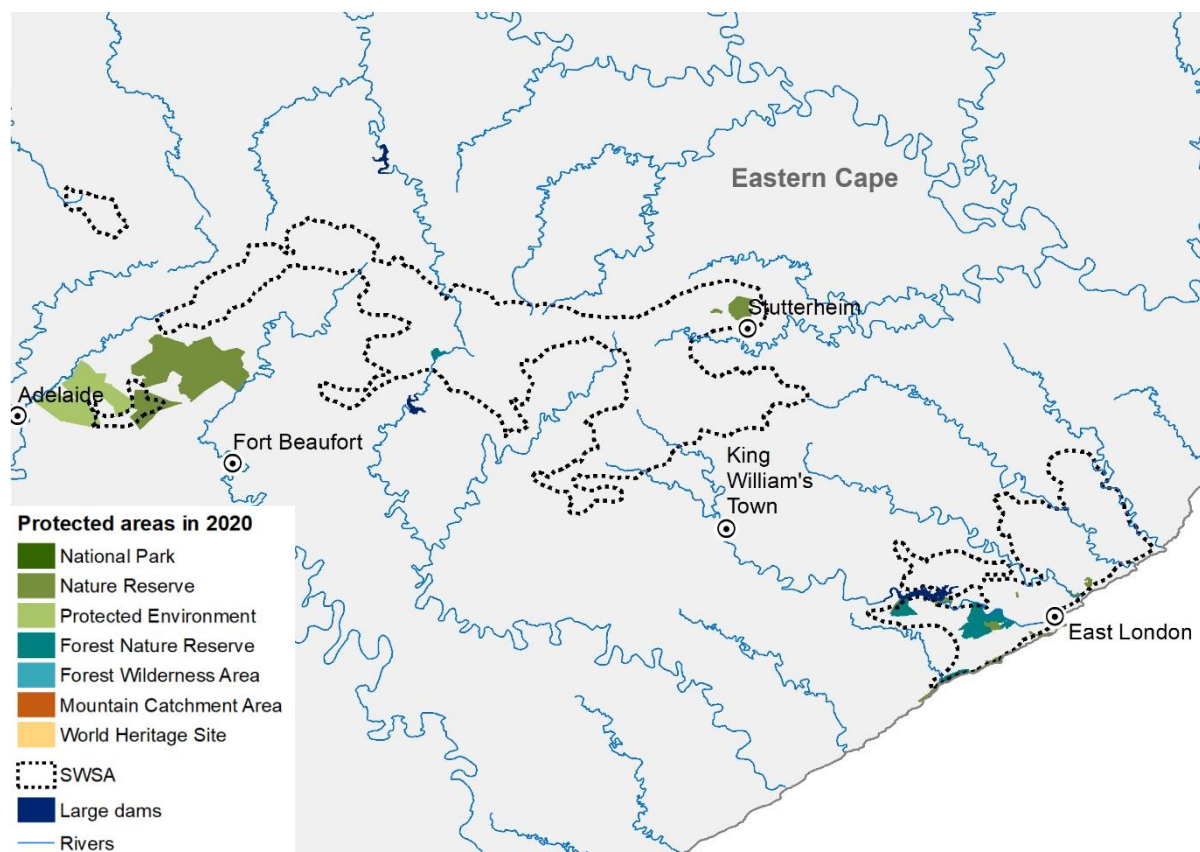
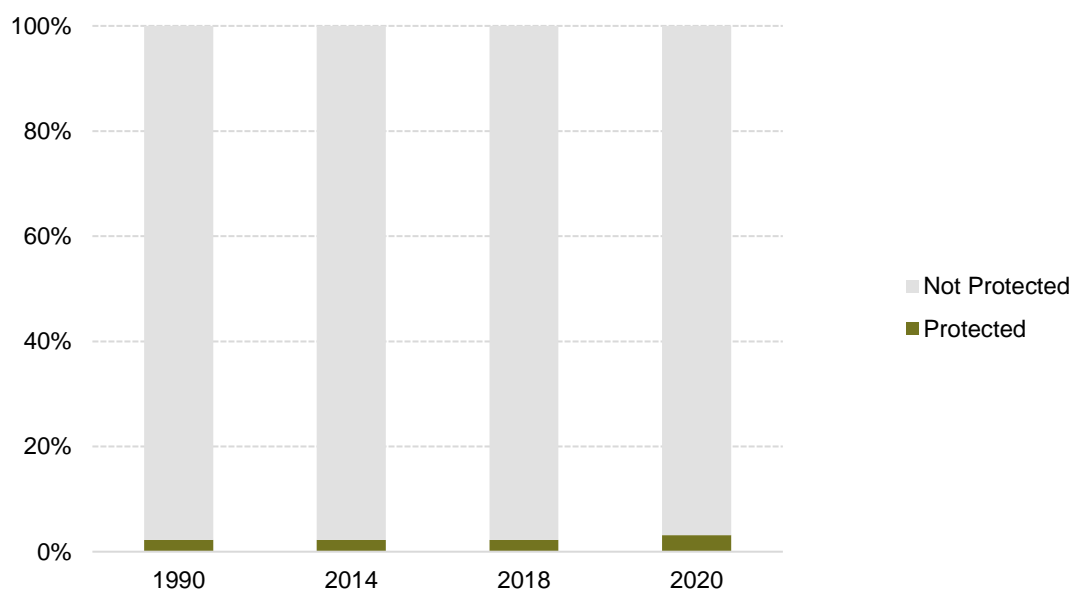
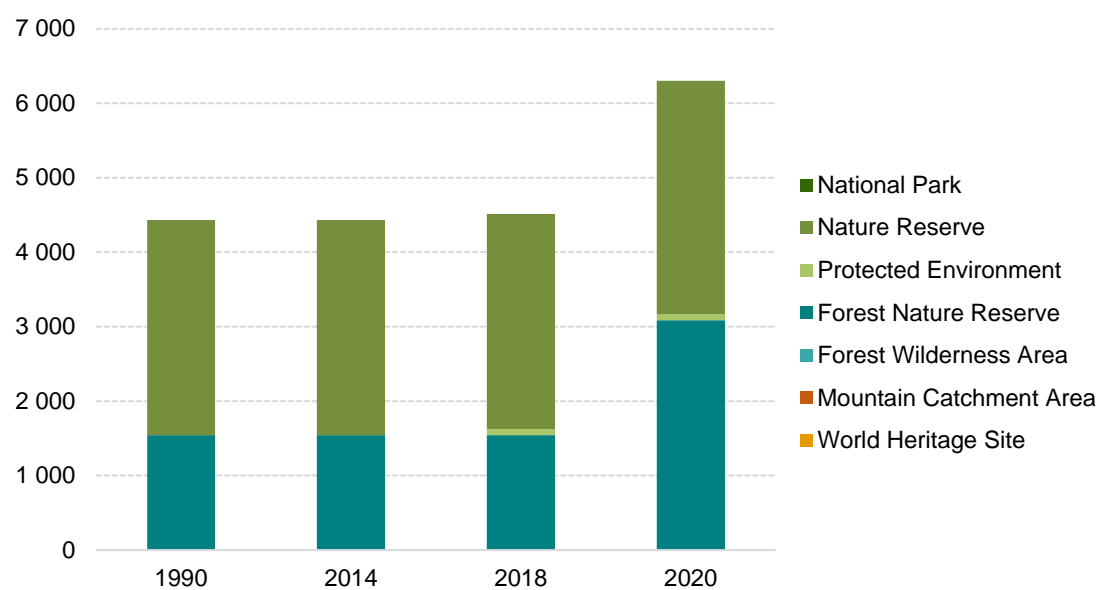
Figure 92. Protected areas occurring wholly or partially within Amathole SWSA, 2020**Figure 93. Proportion of Amathole SWSA protected, 1990, 2014, 2018, 2020**

Figure 94. Extent of protected areas in Amathole SWSA by protected area type, 1990, 2014, 2018, 2020



4.10 Eastern Cape Drakensberg SWSA

Eastern Cape Drakensberg SWSA is one of seven transboundary SWSAs, with 90,6% of its area occurring within South Africa and 9,4% in Lesotho. The SWSA covers 1 452 814 ha (1,2%) of South Africa's mainland (Table 4 in Section 3.1), making it the second largest SWSA in South Africa. It is located in the Eastern Cape province and spans four district municipalities: Joe Gqabi (51,3 %), Chris Hani (20,5%), Alfred Nzo (15,4%) and O.R. Tambo (12,8%) (Figure 95 and Appendix 2). Eastern Cape Drakensberg SWSA falls largely in the Grassland biome (98,4%) with tiny portions in the Forest (0,8%) and Savanna (0,8%) biomes (Table 5 in Section 3.1 and Figure 94).

The estimated total population of the South African portion of Eastern Cape Drakensberg SWSA in 2011 was 537 614, with a population density of approximately 37,0 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 30,7% of households living in Eastern Cape Drakensberg SWSA was a water service provider, with boreholes as the main source of water for 9,6% of households, and 39,6% of households sourcing most of their water directly from springs, rivers or streams (Figure 97).

Figure 95. District municipalities in and around Eastern Cape Drakensberg SWSA

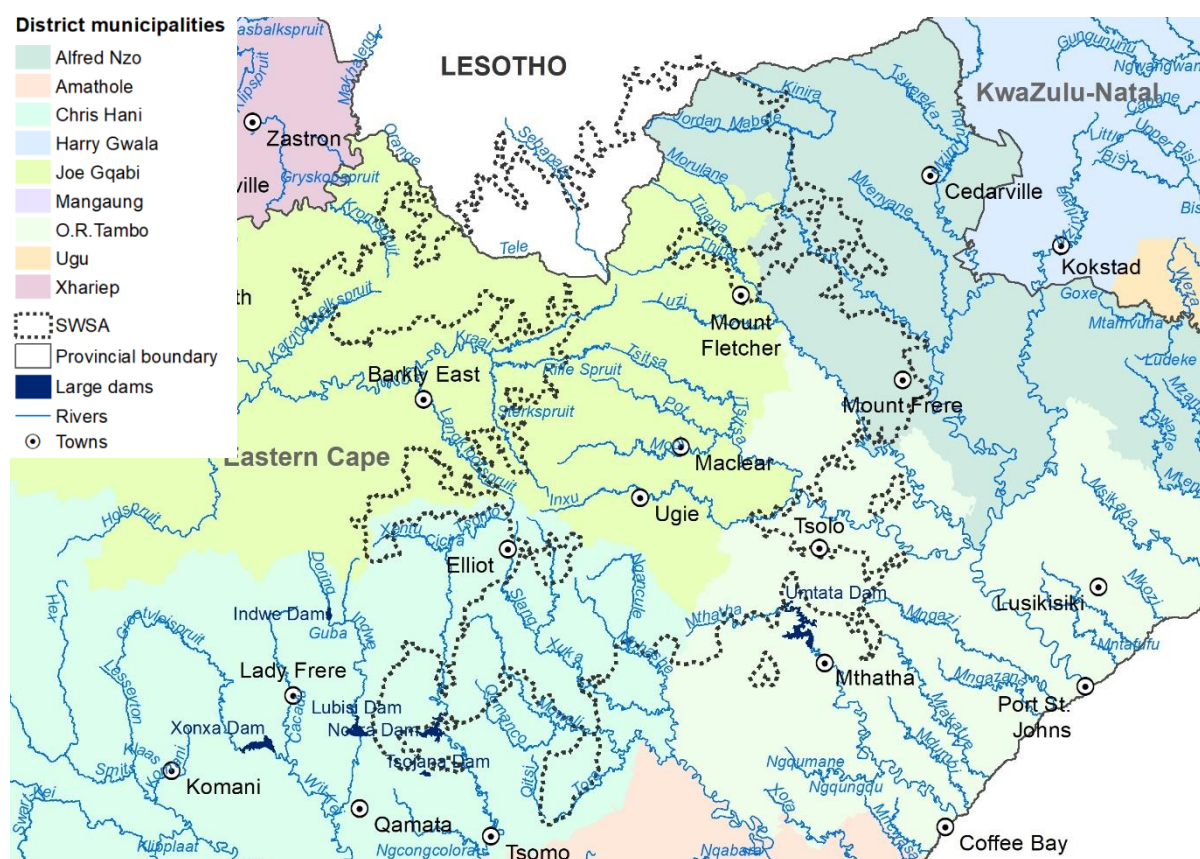
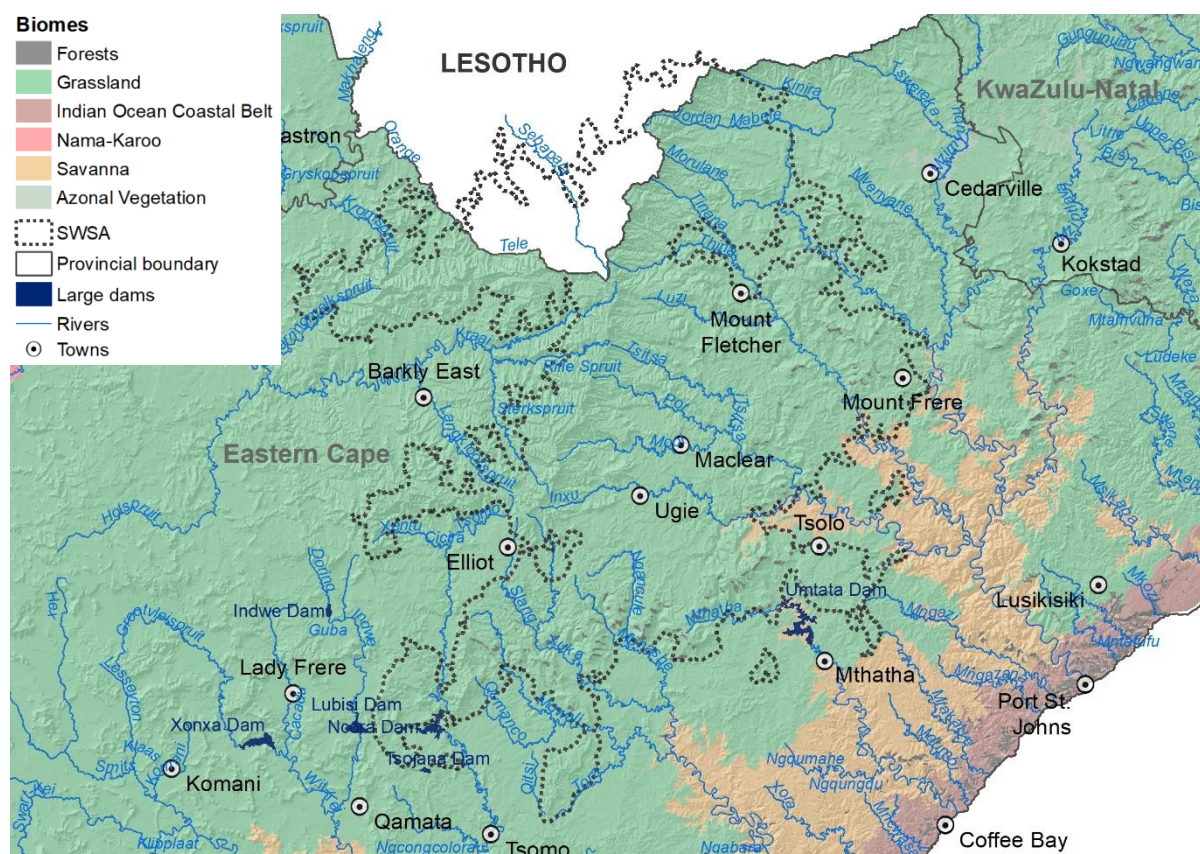
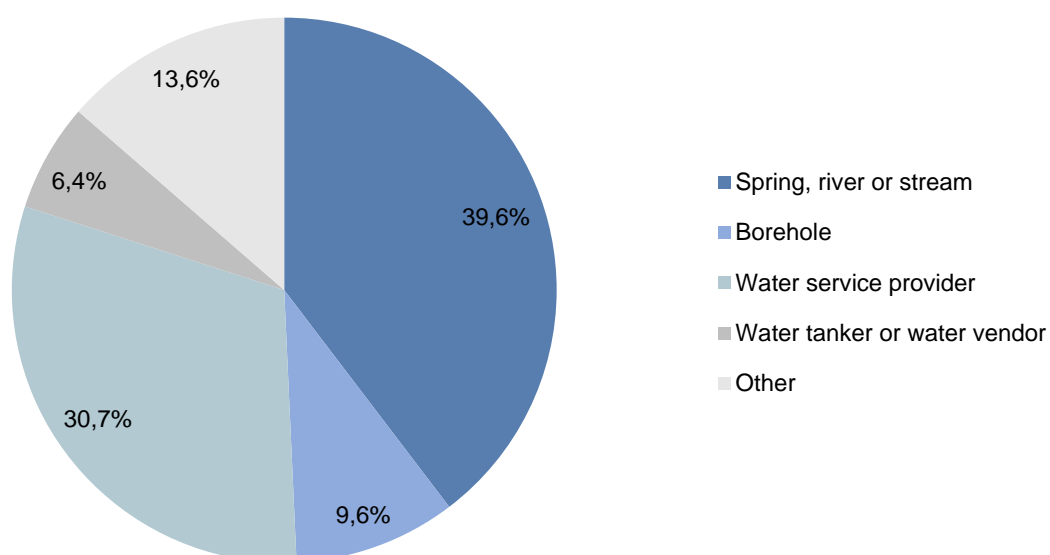


Figure 96. Terrestrial biomes in and around Eastern Cape Drakensberg SWSA**Figure 97. Main source of water for domestic use for households living in Eastern Cape Drakensberg SWSA, based on the 2011 population census**

4.10.1 Key findings from the land account for Eastern Cape Drakensberg SWSA

Table 34 shows the change in main land cover classes (tier 2) in Eastern Cape Drakensberg SWSA between 1990 and 2020. Figure 98 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 99.

In 2020, 77,8% (1 130 490 ha) of Eastern Cape Drakensberg SWSA remained natural or semi-natural, compared with 80,6% in 1990. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

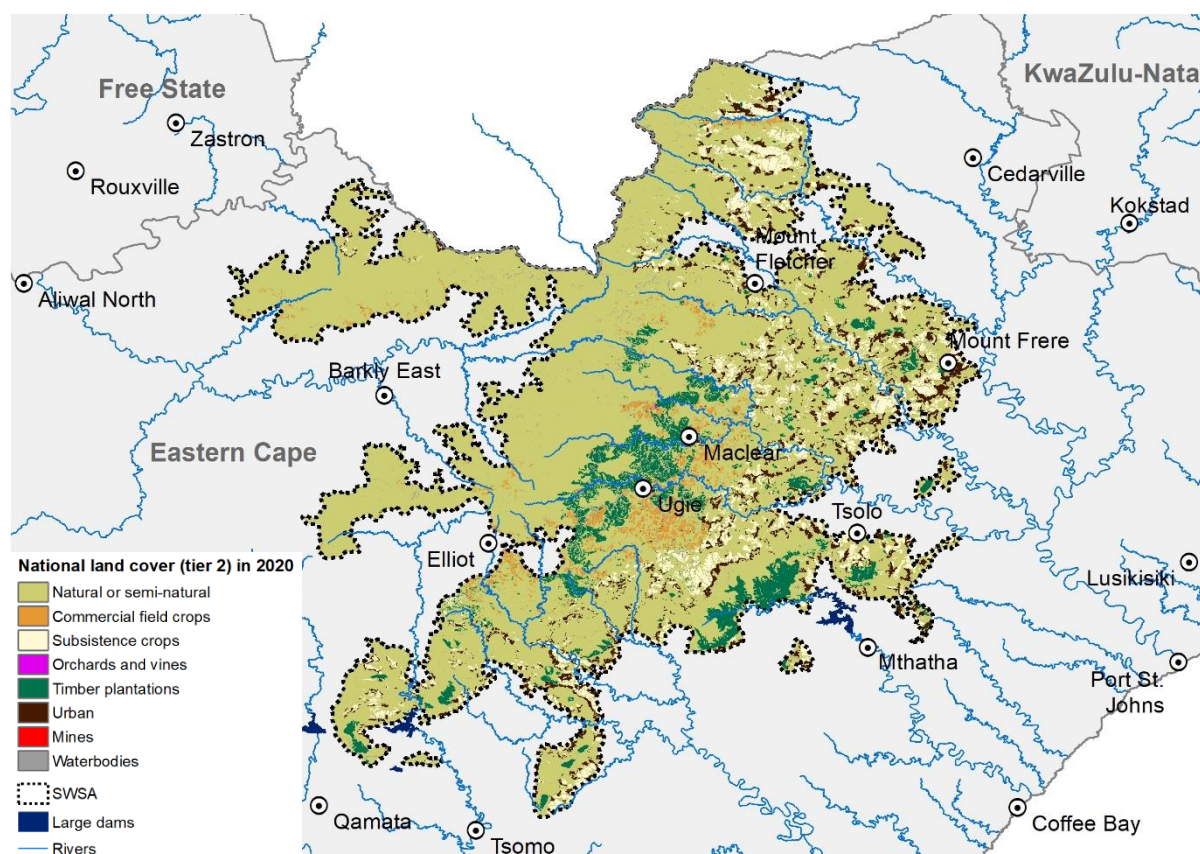
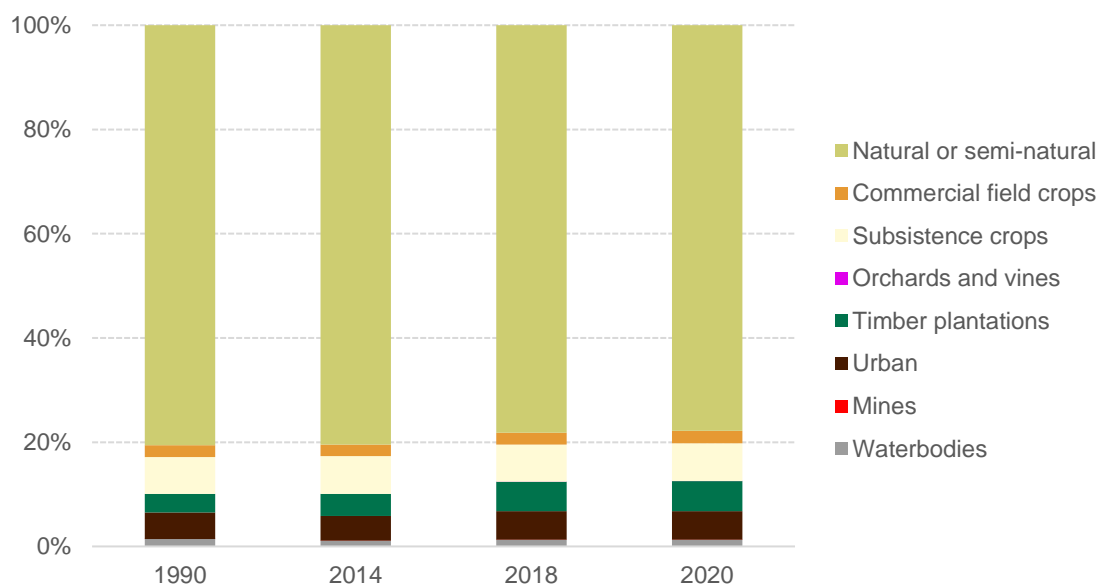
Intensively modified land cover classes in the rest of the SWSA in 2020 included subsistence crops (7,3%), timber plantations (5,8%), urban areas (5,4%) and commercial field crops (2,4%) with tiny proportions of orchards and vines and mines (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020. In 2020, Eastern Cape Drakensberg SWSA has the highest proportion of subsistence crops of all SWSAs (Table 11).

Among the intensively modified land cover classes, the most notable change over the period 1990 to 2020 was an increase of 32 215 ha (61,7%) in timber plantations, from 52 198 ha in 1990 to 84 413 ha in 2020. This was the largest change in both absolute and percentage terms in this SWSA.

Table 34. Indicators drawn from the land account for Eastern Cape Drakensberg SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	1 170 375	33 544	101 977	0	52 198	73 585	63	21 072
2014	1 168 455	32 371	105 661	0	61 370	68 936	28	15 993
2018	1 135 639	33 313	103 844	37	81 985	78 821	118	19 057
2020	1 130 490	34 415	105 368	38	84 413	79 084	91	18 915
(b) Proportion of land cover classes (%)								
1990	80,6%	2,3%	7,0%	0,0%	3,6%	5,1%	0,0%	1,5%
2014	80,4%	2,2%	7,3%	0,0%	4,2%	4,7%	0,0%	1,1%
2018	78,2%	2,3%	7,1%	0,0%	5,6%	5,4%	0,0%	1,3%
2020	77,8%	2,4%	7,3%	0,0%	5,8%	5,4%	0,0%	1,3%
© Net change in land cover classes per accounting period (%)								
1990-2014	-0,2%	-3,5%	3,6%	-	17,6%	-6,3%	-55,6%	-24,1%
2014-2018	-2,8%	2,9%	-1,7%	-	33,6%	14,3%	321,4%	19,2%
2018-2020	-0,5%	3,3%	1,5%	2,7%	3,0%	0,3%	-22,9%	-0,7%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-39 885	871	3 391	38	32 215	5 499	28	-2 157
1990-2020	-3,4%	2,6%	3,3%	-	61,7%	7,5%	44,4%	-10,2%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 98. Land cover classes (tier 2) in Eastern Cape Drakensberg SWSA, 2020**Figure 99. Land cover composition (tier 2) in Eastern Cape Drakensberg SWSA, 1990, 2014, 2018, 2020**

4.10.2 Key findings from the account for protected areas in Eastern Cape Drakensberg SWSA

Table 35 shows the change in the extent of protected areas in Eastern Cape Drakensberg SWSA between 1990 and 2020, by protected area type. Figure 100 provides a map of protected areas that occurred wholly or partially within Eastern Cape Drakensberg SWSA in 2020. Changes in protection over time are summarised in Figure 101 and Figure 102.

At the end of 2020, 1,1% (16 380 ha) of Eastern Cape Drakensberg SWSA was protected, compared with 0,9% (13 394 ha) in 1990, giving an overall increase in protection of 22,3%. This increase took place between 2014 and 2018. In 2020, this was the least proportion protected of all SWSAs (Table 15).

The only protected area type in Eastern Cape Drakensberg SWSA in 2020 was Nature Reserve (1,1% of SWSA area).

Table 35. Indicators drawn from the protected area account for Eastern Cape Drakensberg SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	13 394	0	0	0	0	0	1 439 420	13 394
2014	0	13 394	0	0	0	0	0	1 439 420	13 394
2018	0	16 380	0	0	0	0	0	1 436 434	16 380
2020	0	16 380	0	0	0	0	0	1 436 434	16 380
(b) Proportion protected (%)									
1990	0,0%	0,9%	0,0%	0,0%	0,0%	0,0%	0,0%	99,1%	0,9%
2014	0,0%	0,9%	0,0%	0,0%	0,0%	0,0%	0,0%	99,1%	0,9%
2018	0,0%	1,1%	0,0%	0,0%	0,0%	0,0%	0,0%	98,9%	1,1%
2020	0,0%	1,1%	0,0%	0,0%	0,0%	0,0%	0,0%	98,9%	1,1%
(c) Net change in protection per accounting period (%)									
1990-2014	-	0,0%	-	-	-	-	-	0,0%	0,0%
2014-2018	-	22,3%	-	-	-	-	-	-0,2%	22,3%
2018-2020	-	0,0%	-	-	-	-	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	2 986	0	0	0	0	0	-2 986	2 986
1990-2020	-	22,3%	-	-	-	-	-	-0,2%	22,3%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

Figure 100. Protected areas occurring wholly or partially within Eastern Cape Drakensberg SWSA, 2020

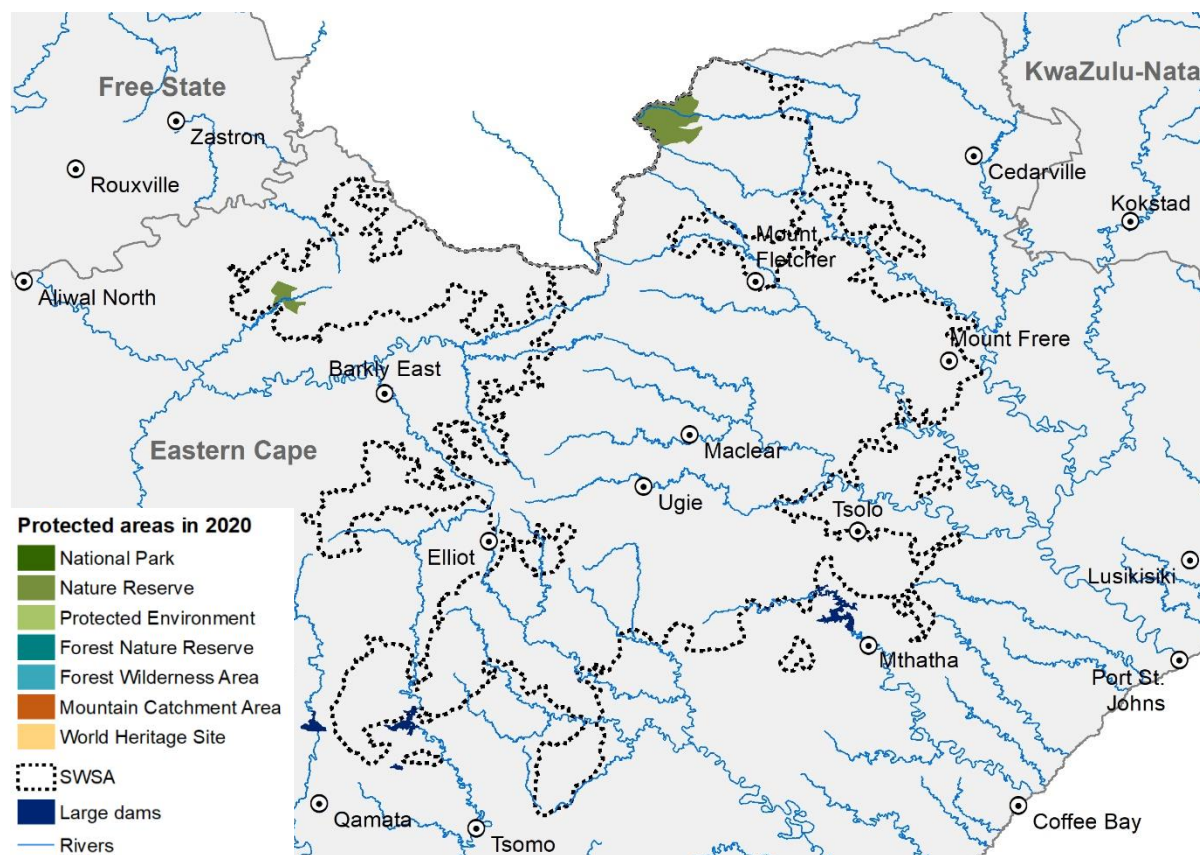


Figure 101. Proportion of Eastern Cape Drakensberg SWSA protected, 1990, 2014, 2018, 2020

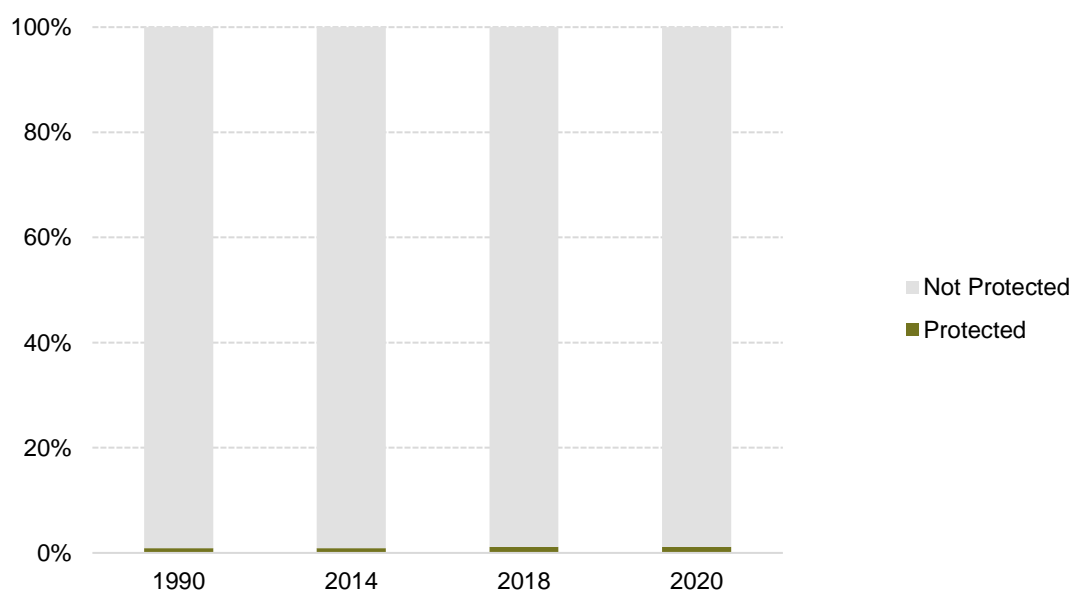
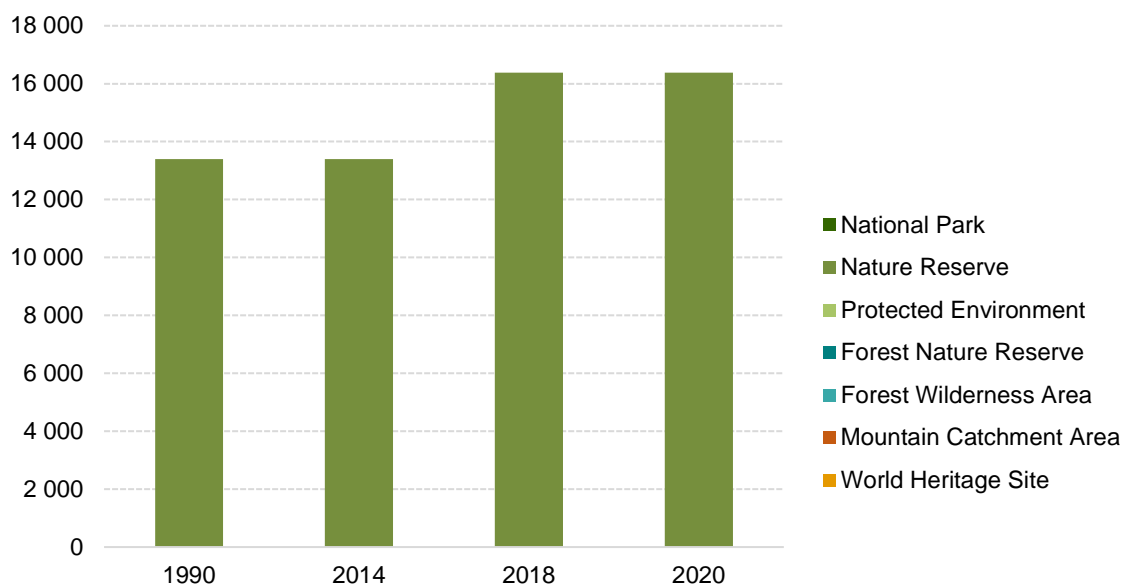


Figure 102. Extent of protected areas in Eastern Cape Drakensberg SWSA by protected area type, 1990, 2014, 2018, 2020



4.11 Southern Drakensberg SWSA

Southern Drakensberg SWSA is one of seven transboundary SWSAs, with 91,5% of its area occurring within South Africa and 8,5% in Lesotho. The SWSA covers 1 842 165 ha (1,5%) of South Africa's mainland (Table 4 in Section 3.1). It is the largest SWSA in South Africa. It spans the Eastern Cape and KwaZulu-Natal provinces (12,4% and 87,6% respectively) and nine municipalities: two district municipalities in Eastern Cape, namely Alfred Nzo (12,1%) and O.R. Tambo (0,3%); and six district municipalities in KwaZulu-Natal, namely Harry Gwala (38,6%), uMgungundlovu (35,3%), Umzinyathi (5,5%), Uthukela (4,9%), Ugu (3,4%), iLembe (<1,0%) and the metropolitan municipality of eThekweni (<1,0%) (Figure 103 and Appendix 2).

Southern Drakensberg SWSA falls largely in the Grassland biome (89,4%) with small portions in the Savanna (6,1%) and Forest (1,9%) biomes (Table 5 in Section 3.1 and Figure 104).

The estimated total population of the South African portion of Southern Drakensberg SWSA in 2011 was 1 324 309, with a population density of approximately 71,9 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 51,3% of households living in Southern Drakensberg SWSA was a water service provider, with boreholes as the main source of water for 9,0% of households, and 24,1% of households sourcing most of their water directly from springs, rivers or streams (Figure 105).

Figure 103. District municipalities in and around Southern Drakensberg SWSA

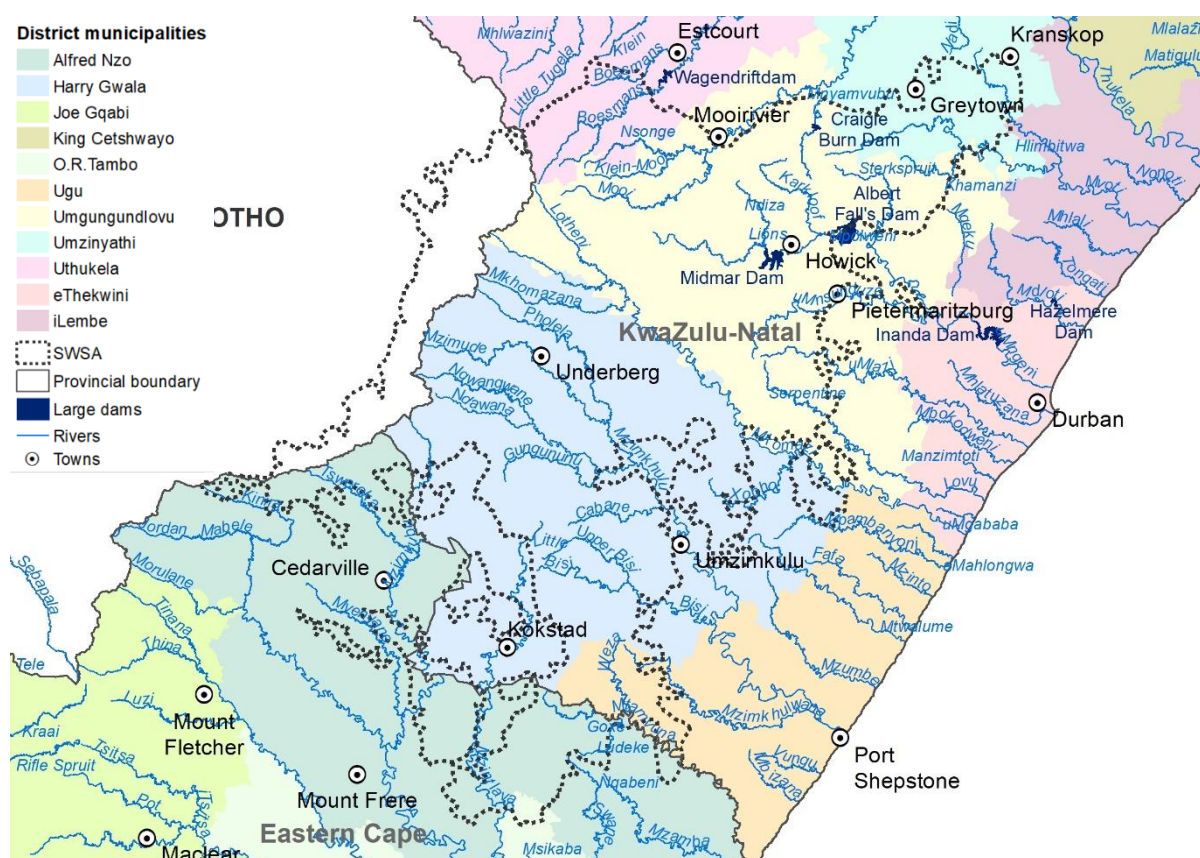
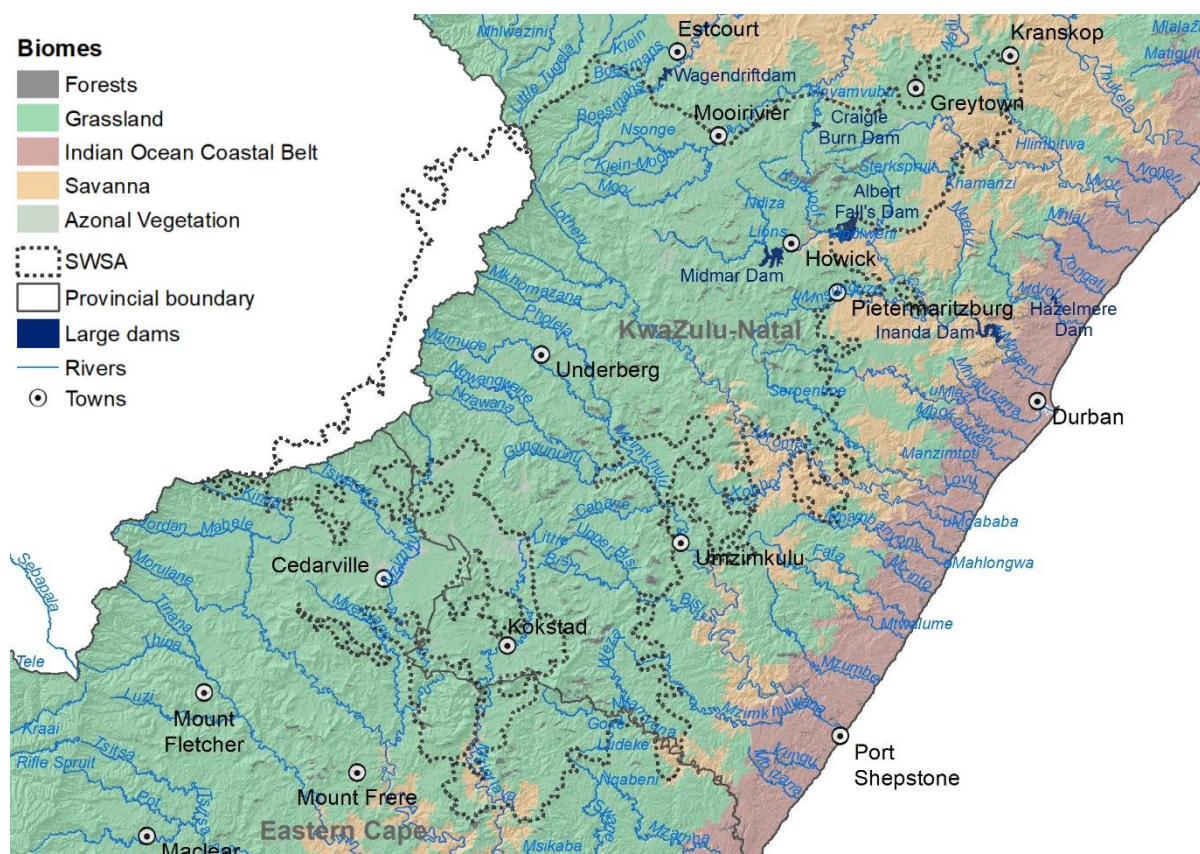
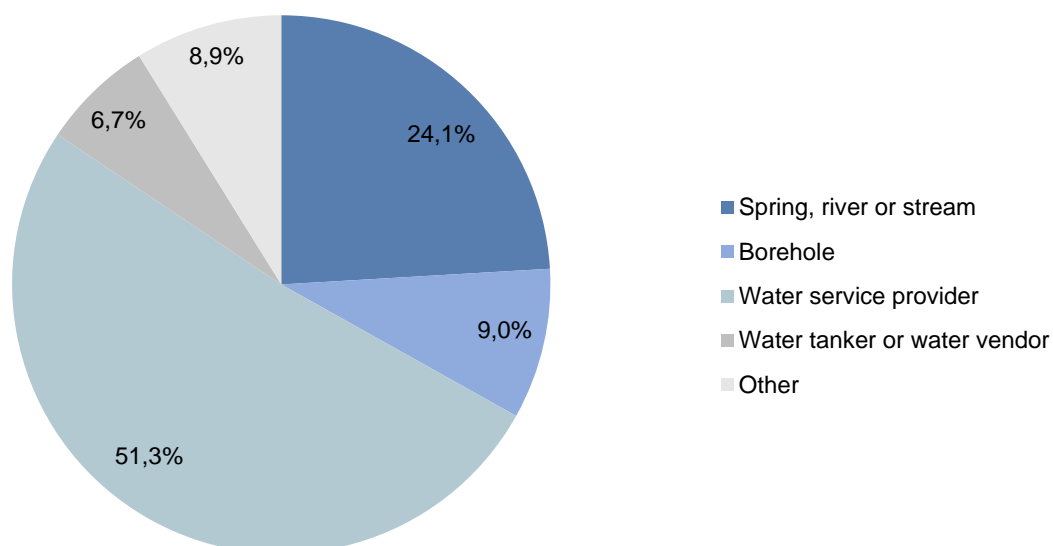


Figure 104. Terrestrial biomes in and around Southern Drakensberg SWSA**Figure 105. Main source of water for domestic use for households living in Southern Drakensberg SWSA, based on the 2011 population census**

4.11.1 Key findings from the land account for Southern Drakensberg SWSA

Table 36 shows the change in main land cover classes (tier 2) in Southern Drakensberg SWSA between 1990 and 2020. Figure 106 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 107.

In 2020, 60,4% (1 112 315 ha) of Southern Drakensberg SWSA remained natural or semi-natural, compared with 64,0% in 1990. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included timber plantations (17,9%), commercial field crops (8,4%), urban areas (6,7%) and subsistence crops (3,7%), with tiny proportions of orchards and vines and mines (<1,0% each). In 2020, Southern Drakensberg SWSA had the largest extent of urban land cover and the second largest extent of timber plantations of all SWSAs (Mpumalanga Drakensberg had the largest extent) (Table 11). The proportional division between these intensively modified land cover classes in Southern Drakensberg SWSA was fairly consistent over the period 1990 to 2020.

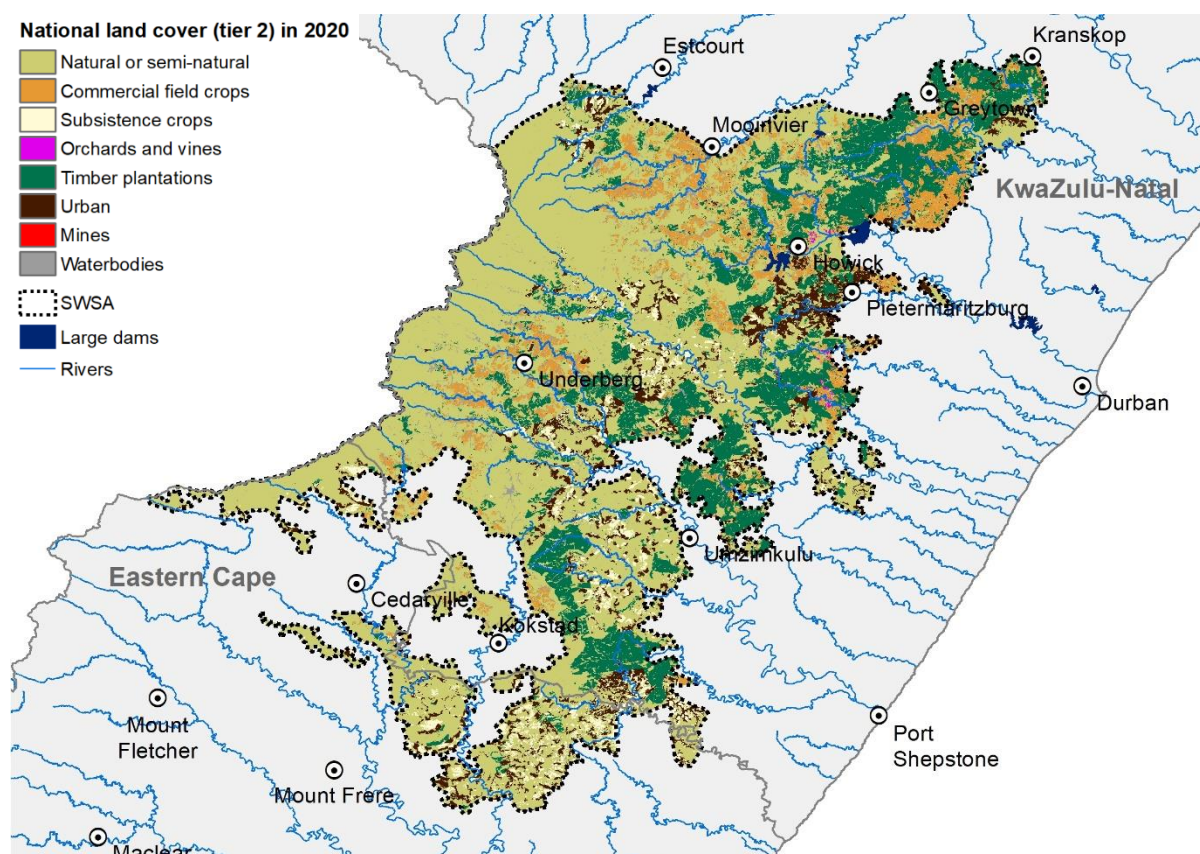
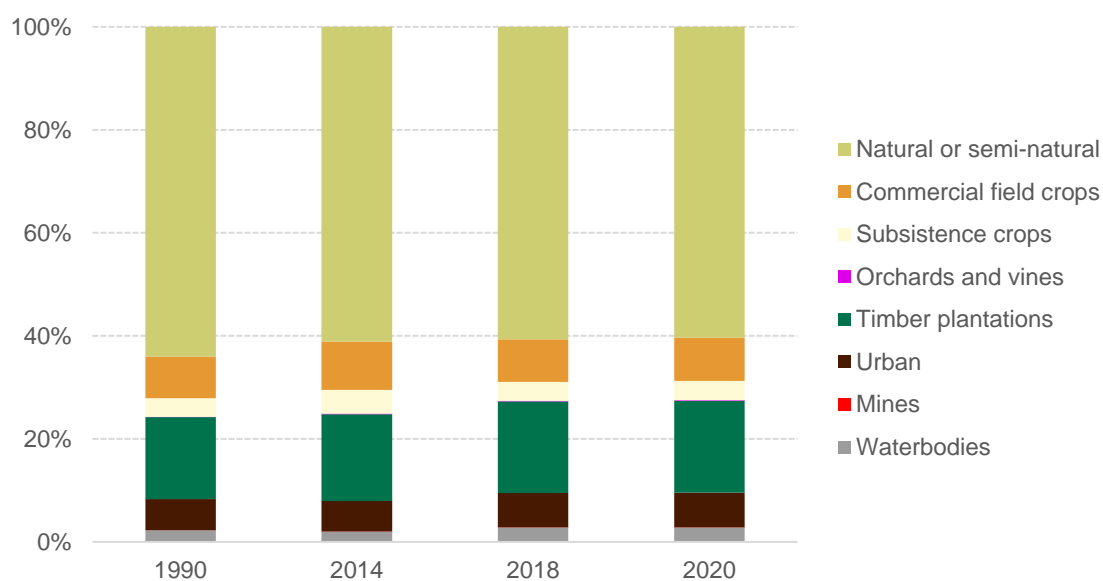
Among the intensively modified land cover classes, the following changes were notable over the period 1990 to 2020:

- An increase of 36 164 ha (12,3%) in timber plantations, from 292 944 ha in 1990 to 329 108 ha in 2020. This was a largest change in absolute terms in this SWSA.
- An increase of 11 903 ha (10,7%) in urban areas, with the bulk of the increase taking place between 2014 and 2018.

Table 36. Indicators drawn from the land account for Southern Drakensberg SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	1 179 033	149 554	65 757	1 594	292 944	111 446	50	41 787
2014	1 125 640	173 206	84 471	2 451	310 188	108 388	40	37 781
2018	1 117 623	151 937	68 328	1 502	327 397	122 437	220	52 721
2020	1 112 315	154 382	68 693	1 588	329 108	123 349	236	52 494
(b) Proportion of land cover classes (%)								
1990	64,0%	8,1%	3,6%	0,1%	15,9%	6,0%	0,0%	2,3%
2014	61,1%	9,4%	4,6%	0,1%	16,8%	5,9%	0,0%	2,1%
2018	60,7%	8,2%	3,7%	0,1%	17,8%	6,6%	0,0%	2,9%
2020	60,4%	8,4%	3,7%	0,1%	17,9%	6,7%	0,0%	2,8%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	-4,5%	15,8%	28,5%	53,8%	5,9%	-2,7%	-20,0%	-9,6%
2014-2018	-0,7%	-12,3%	-19,1%	-38,7%	5,5%	13,0%	450,0%	39,5%
2018-2020	-0,5%	1,6%	0,5%	5,7%	0,5%	0,7%	7,3%	-0,4%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-66 718	4 828	2 936	-6	36 164	11 903	186	10 707
1990-2020	-5,7%	3,2%	4,5%	-0,4%	12,3%	10,7%	372,0%	25,6%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 106. Land cover classes (tier 2) in Southern Drakensberg SWSA, 2020**Figure 107. Land cover composition (tier 2) in Southern Drakensberg SWSA, 1990, 2014, 2018, 2020**

4.11.2 Key findings from the account for protected areas in Southern Drakensberg SWSA

Table 37 shows the change in the extent of protected areas in Southern Drakensberg SWSA between 1990 and 2020, by protected area type. Figure 108 provides a map of protected areas that occurred wholly or partially within Southern Drakensberg SWSA in 2020. Changes in protection over time are summarised in Figure 109 and Figure 110.

At the end of 2020, 13,9% (256 338 ha) of Southern Drakensberg SWSA was protected, compared with 10,4% (192 503 ha) in 1990, giving an overall increase in protection of 33,2%. Most of this increase took place between 1990 and 2014.

Protected area types in Southern Drakensberg SWSA in 2020 included Nature Reserve (5,3% of SWSA area), Forest Wilderness Area (4,6%) and Forest Nature Reserve (2,6%), with a tiny proportion of Protected Environment and World Heritage Site⁹ (<1,0% each).

Table 37. Indicators drawn from the protected area account for Southern Drakensberg SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	63 085	0	44 552	84 866	0	0	1 649 662	192 503
2014	0	83 860	11 513	48 654	84 866	0	7 493	1 605 779	236 386
2018	0	96 413	16 972	48 654	84 866	0	7 493	1 587 767	254 398
2020	0	98 353	16 972	48 654	84 866	0	7 493	1 585 827	256 338
(b) Proportion protected (%)									
1990	0,0%	3,4%	0,0%	2,4%	4,6%	0,0%	0,0%	89,6%	10,4%
2014	0,0%	4,6%	0,6%	2,6%	4,6%	0,0%	0,4%	87,2%	12,8%
2018	0,0%	5,2%	0,9%	2,6%	4,6%	0,0%	0,4%	86,2%	13,8%
2020	0,0%	5,3%	0,9%	2,6%	4,6%	0,0%	0,4%	86,1%	13,9%
(c) Net change in protection per accounting period (%)									
1990-2014	-	32,9%	-	9,2%	0,0%	-	-	-2,7%	22,8%
2014-2018	-	15,0%	47,4%	0,0%	0,0%	-	0,0%	-1,1%	7,6%
2018-2020	-	2,0%	0,0%	0,0%	0,0%	-	0,0%	-0,1%	0,8%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	35 268	16 972	4 102	0	0	7 493	-63 835	63 835
1990-2020	-	55,9%	-	9,2%	0,0%	-	-	-3,9%	33,2%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

⁹ This represents only the portion of the Ukhahlamba Drakensberg World Heritage Site within the SWSA that falls outside of other protected area types.

Figure 108. Protected areas occurring wholly or partially within Southern Drakensberg SWSA, 2020

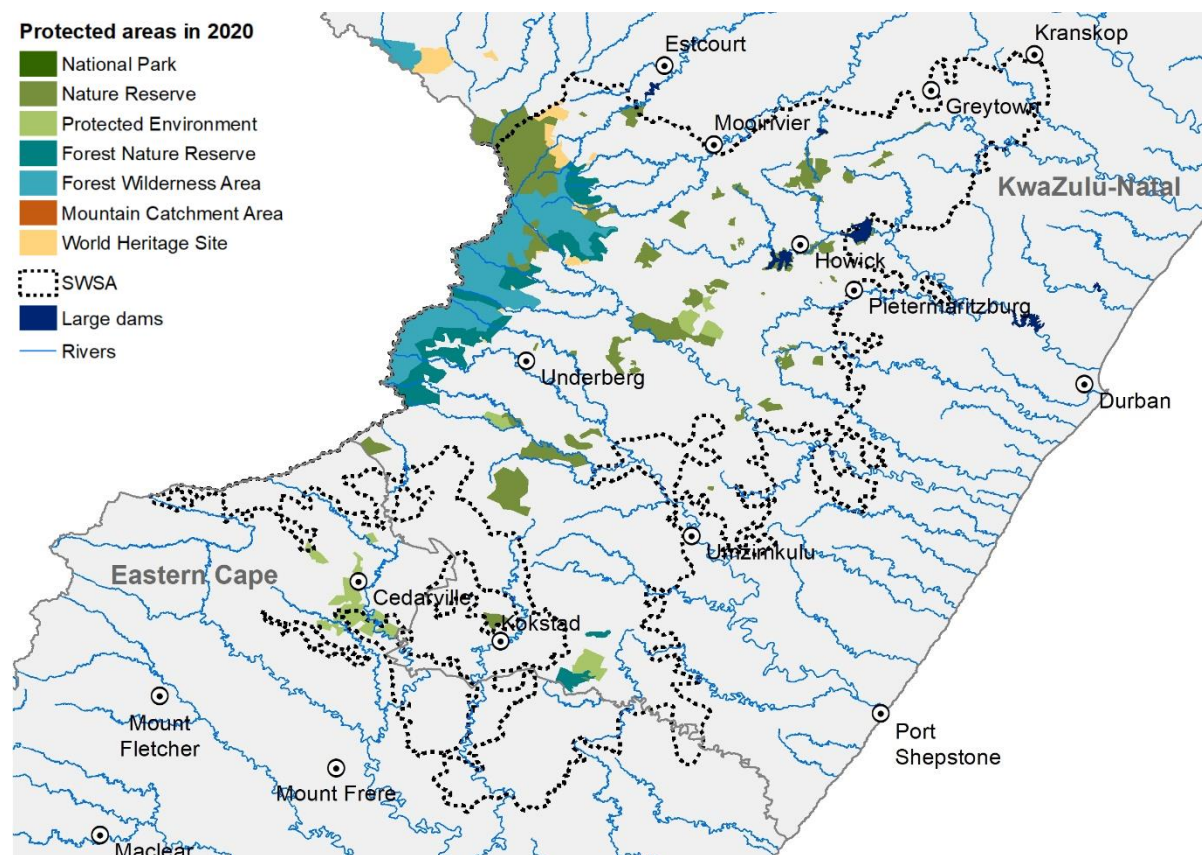
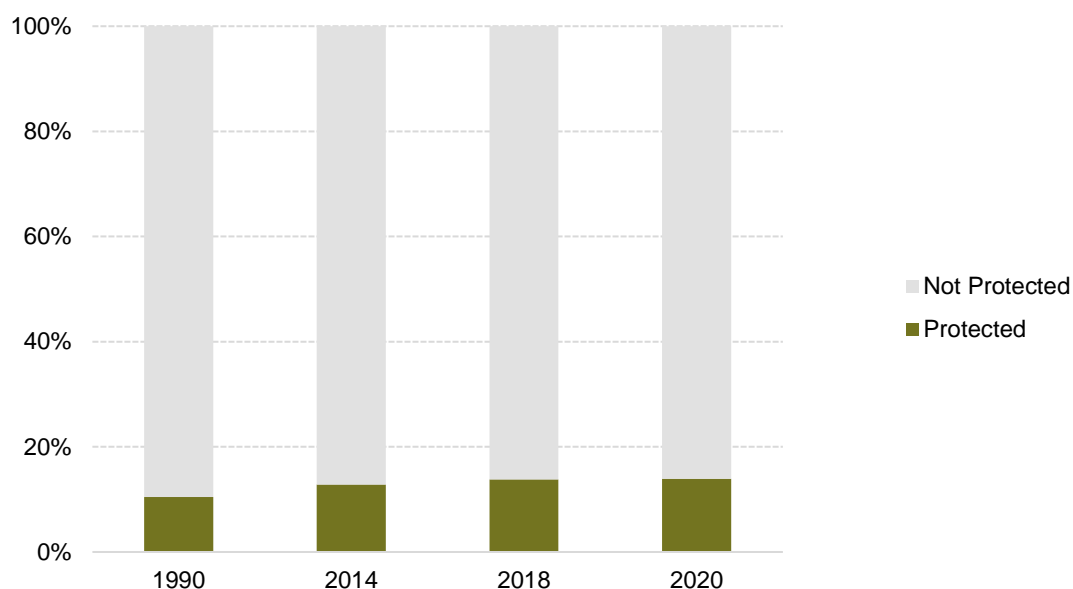
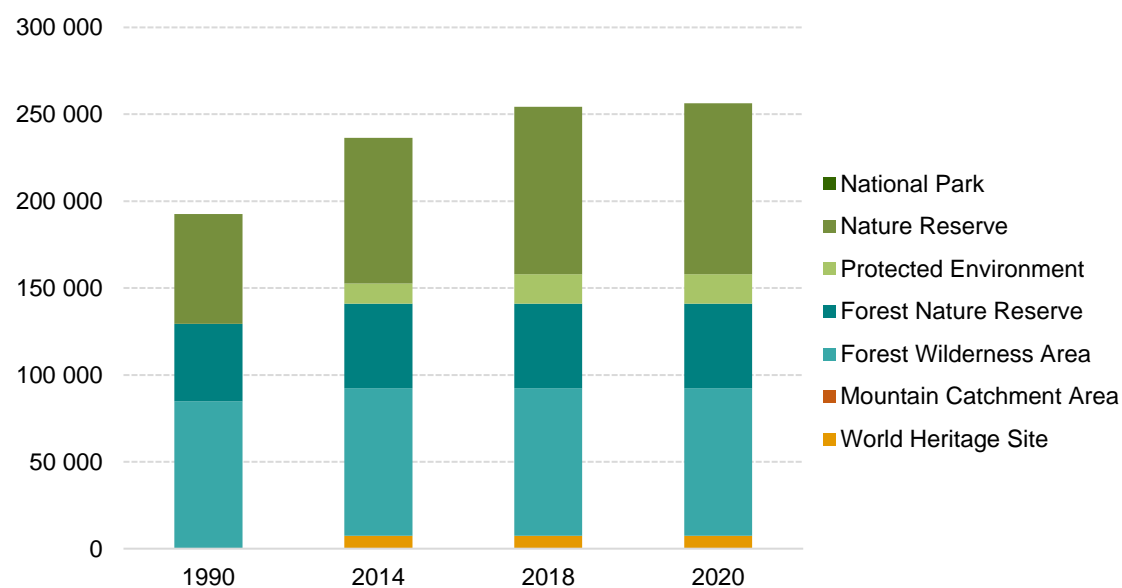


Figure 109. Proportion of Southern Drakensberg SWSA protected, 1990, 2014, 2018, 2020**Figure 110. Extent of protected areas in Southern Drakensberg SWSA by protected area type, 1990, 2014, 2018, 2020**

4.12.1 Key findings from the land account for Northern Drakensberg SWSA

Table 38 shows the change in main land cover classes (tier 2) in Northern Drakensberg SWSA between 1990 and 2020. Figure 114 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 115.

In 2020, 81,7% (710 186 ha) of Northern Drakensberg SWSA remained natural or semi-natural, compared with 84,6% in 1990. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included commercial field crops (5,8%), urban areas (4,2%), subsistence crops (2,9%) and timber plantations (2,3%), with tiny proportions of orchards and vines and mines (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020. In 2020, Northern Drakensberg SWSA had the second largest extent of mines of all SWSAs (Upper Vaal SWSA had the largest extent) (Table 11).

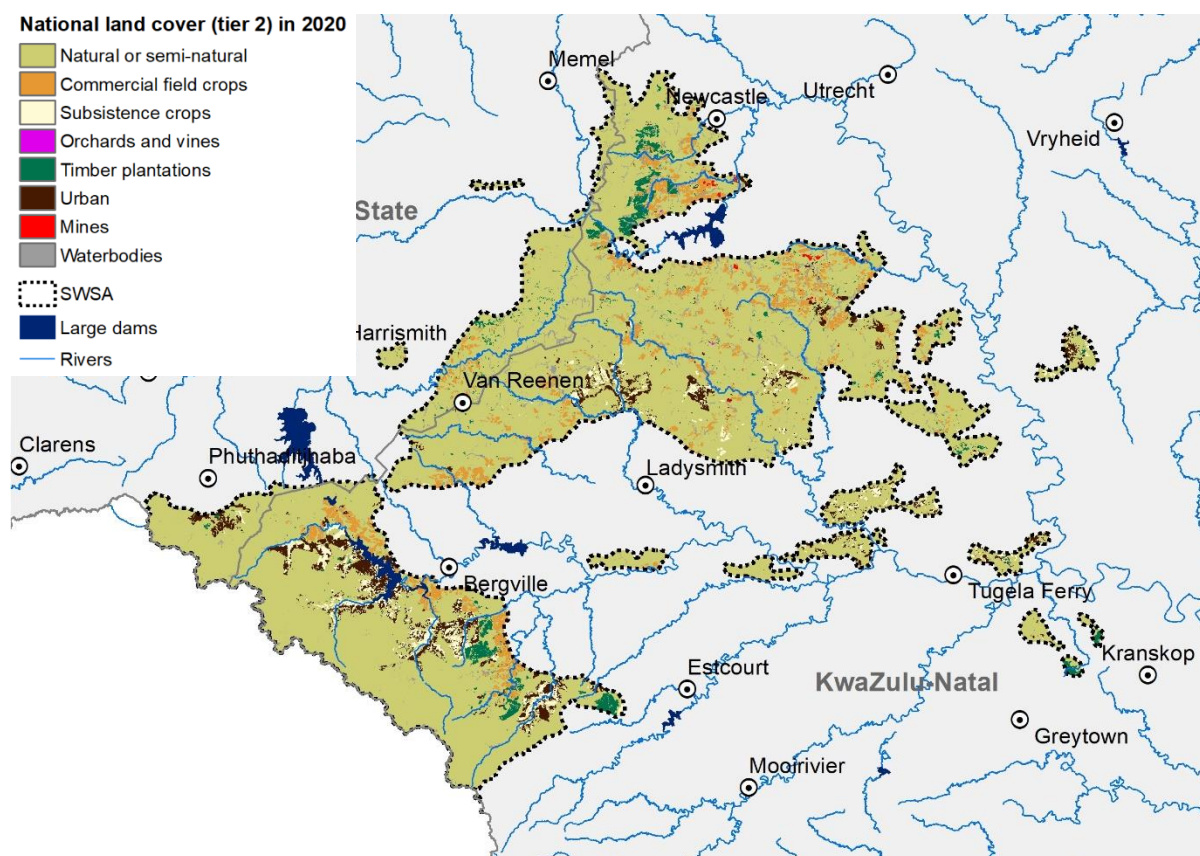
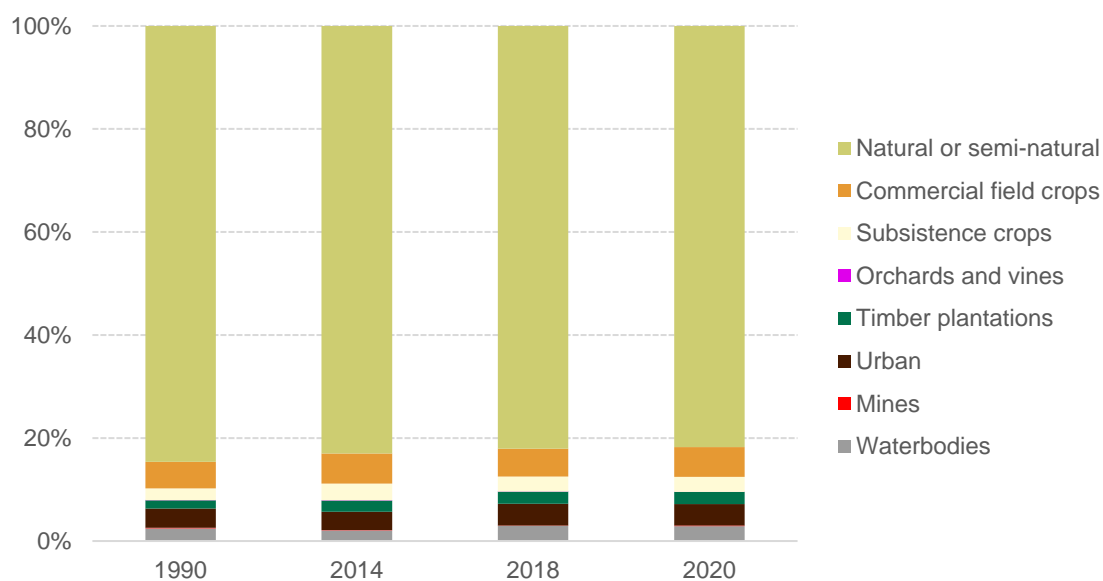
Among the intensively modified land cover classes, the following changes were notable over the period 1990 to 2020:

- An increase of 41,4% (5 875 ha) in timber plantations, with the bulk of the increase taking place between 1990 and 2014. This was the largest change in percentage terms and second largest in absolute terms in this SWSA.
- An increase of 30,7% (5 989 ha) in subsistence crops, with the bulk of the increase taking place between 1990 and 2014. This was the largest change in absolute terms and second largest in percentage terms in this SWSA.
- Northern Drakensberg SWSA had the third largest net increase in mines between 1990 and 2020 in absolute terms (Mpumalanga Drakensberg and Upper Vaal had the first and second largest) (Table 11).
- Northern Drakensberg SWSA had the third largest net percentage increase in all intensively modified land cover classes combined between 1990 and 2020 (Kouga and Enkangala Grassland SWSAs had the first and second largest) (Table 12).

Table 38. Indicators drawn from the land account for Northern Drakensberg SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	735 304	44 953	19 526	124	14 190	32 546	822	21 373
2014	721 328	50 816	27 952	195	19 066	30 652	983	17 846
2018	712 984	47 232	24 962	145	20 761	36 432	827	25 495
2020	710 186	50 336	25 515	98	20 065	36 504	1 027	25 107
(b) Proportion of land cover classes (%)								
1990	84,6%	5,2%	2,2%	0,0%	1,6%	3,7%	0,1%	2,5%
2014	83,0%	5,8%	3,2%	0,0%	2,2%	3,5%	0,1%	2,1%
2018	82,1%	5,4%	2,9%	0,0%	2,4%	4,2%	0,1%	2,9%
2020	81,7%	5,8%	2,9%	0,0%	2,3%	4,2%	0,1%	2,9%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	-1,9%	13,0%	43,2%	57,3%	34,4%	-5,8%	19,6%	-16,5%
2014-2018	-1,2%	-7,1%	-10,7%	-25,6%	8,9%	18,9%	-15,9%	42,9%
2018-2020	-0,4%	6,6%	2,2%	-32,4%	-3,4%	0,2%	24,2%	-1,5%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-25 118	5 383	5 989	-26	5 875	3 958	205	3 734
1990-2020	-3,4%	12,0%	30,7%	-21,0%	41,4%	12,2%	24,9%	17,5%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 114. Land cover classes (tier 2) in Northern Drakensberg SWSA, 2020**Figure 115. Land cover composition (tier 2) in Northern Drakensberg SWSA, 1990, 2014, 2018, 2020**

4.12.2 Key findings from the account for protected areas in Northern Drakensberg SWSA

Table 39 shows the change in the extent of protected areas in Northern Drakensberg SWSA between 1990 and 2020, by protected area type. Figure 116 provides a map of protected areas that occurred wholly or partially within Northern Drakensberg SWSA in 2020. Changes in protection over time are summarised in Figure 117 and Figure 118.

At the end of 2020, 9,6% (83 682 ha) of Northern Drakensberg SWSA was protected, compared with 6,5% (56 703 ha) in 1990, giving an overall increase in protection of 47,6%. This increase took place mainly between 1990 and 2018.

Protected area types in Northern Drakensberg SWSA in 2020 included Nature Reserve (4,3% of SWSA area) and Forest Wilderness Area (3,8%), with tiny proportions of Forest Nature Reserve, World Heritage Site¹⁰ and Protected Environment (<1,0% each).

Table 39. Indicators drawn from the protected area account for Northern Drakensberg SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	17 941	0	6 058	32 704	0	0	812 135	56 703
2014	0	21 869	0	6 058	32 704	0	7 164	801 043	67 795
2018	0	36 339	181	6 058	32 704	0	7 164	786 392	82 446
2020	0	37 575	181	6 058	32 704	0	7 164	785 156	83 682
(b) Proportion protected (%)									
1990	0,0%	2,1%	0,0%	0,7%	3,8%	0,0%	0,0%	93,5%	6,5%
2014	0,0%	2,5%	0,0%	0,7%	3,8%	0,0%	0,8%	92,2%	7,8%
2018	0,0%	4,2%	0,0%	0,7%	3,8%	0,0%	0,8%	90,5%	9,5%
2020	0,0%	4,3%	0,0%	0,7%	3,8%	0,0%	0,8%	90,4%	9,6%
(c) Net change in protection per accounting period (%)									
1990-2014	-	21,9%	-	0,0%	0,0%	-	-	-1,4%	19,6%
2014-2018	-	66,2%	-	0,0%	0,0%	-	0,0%	-1,8%	21,6%
2018-2020	-	3,4%	0,0%	0,0%	0,0%	-	0,0%	-0,2%	1,5%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	19 634	181	0	0	0	7 164	-26 979	26 979
1990-2020	-	109,4%	-	0,0%	0,0%	-	-	-3,3%	47,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

¹⁰ This represents only the portion of the Ukhahlamba Drakensberg World Heritage Site within the SWSA that falls outside of other protected area types.

Figure 116. Protected areas occurring wholly or partially within Northern Drakensberg SWSA, 2020

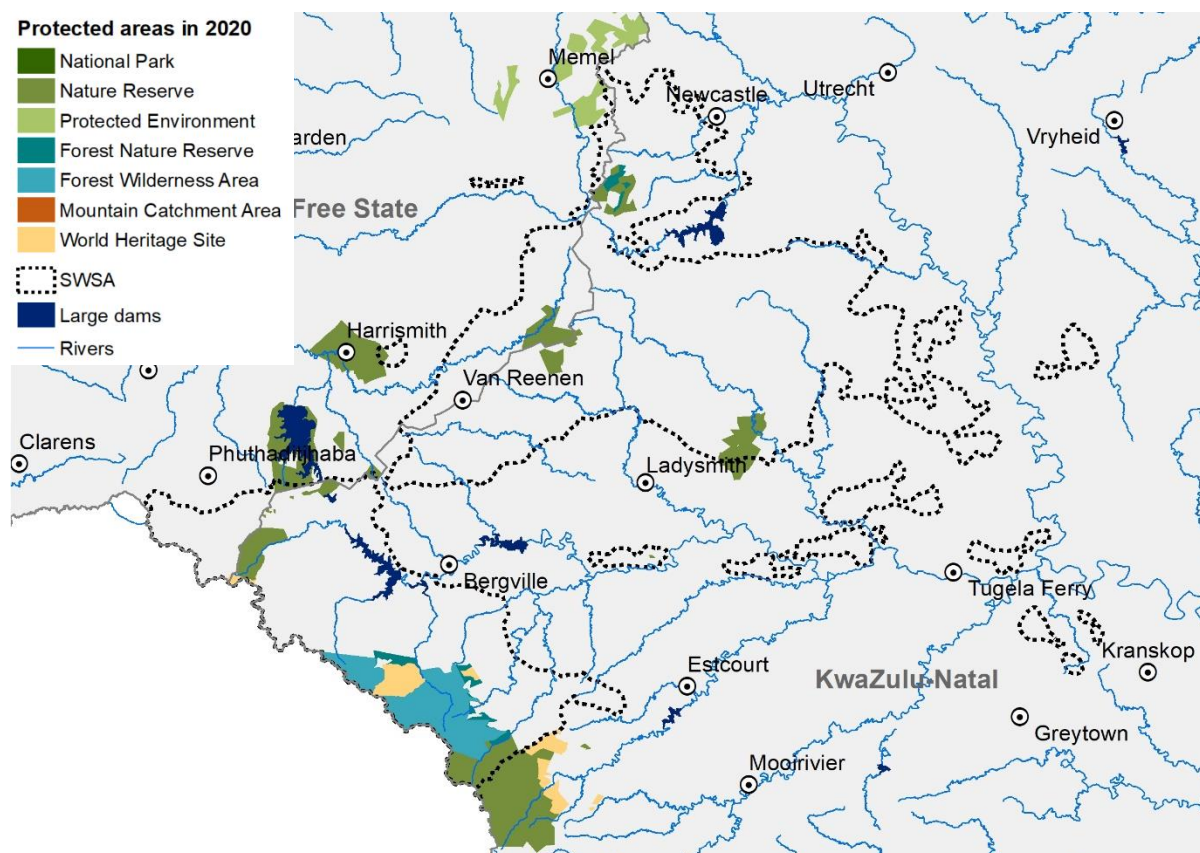


Figure 117. Proportion of Northern Drakensberg SWSA protected, 1990, 2014, 2018, 2020

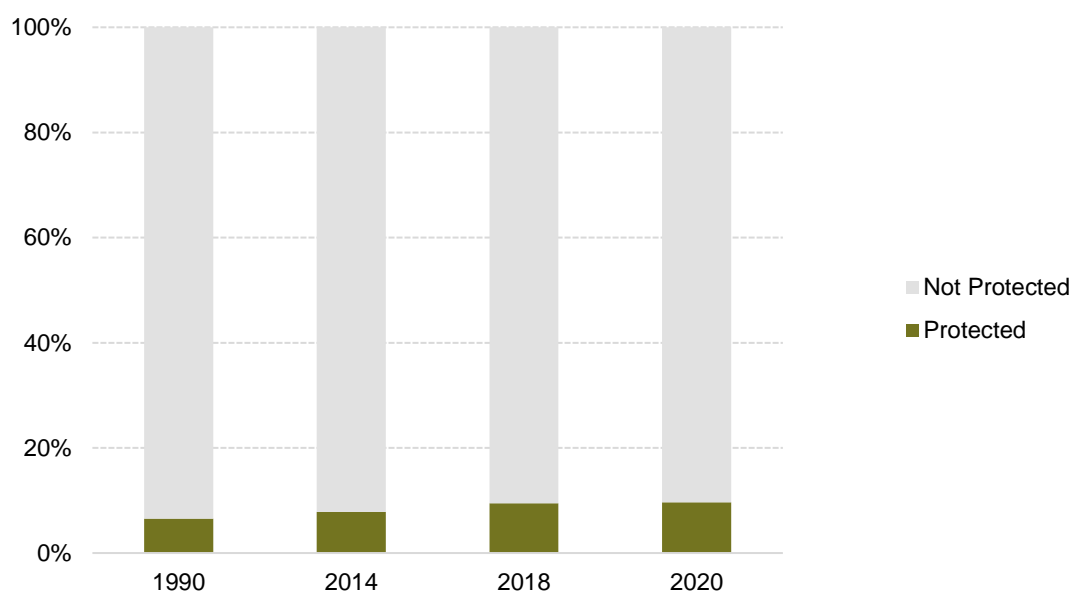
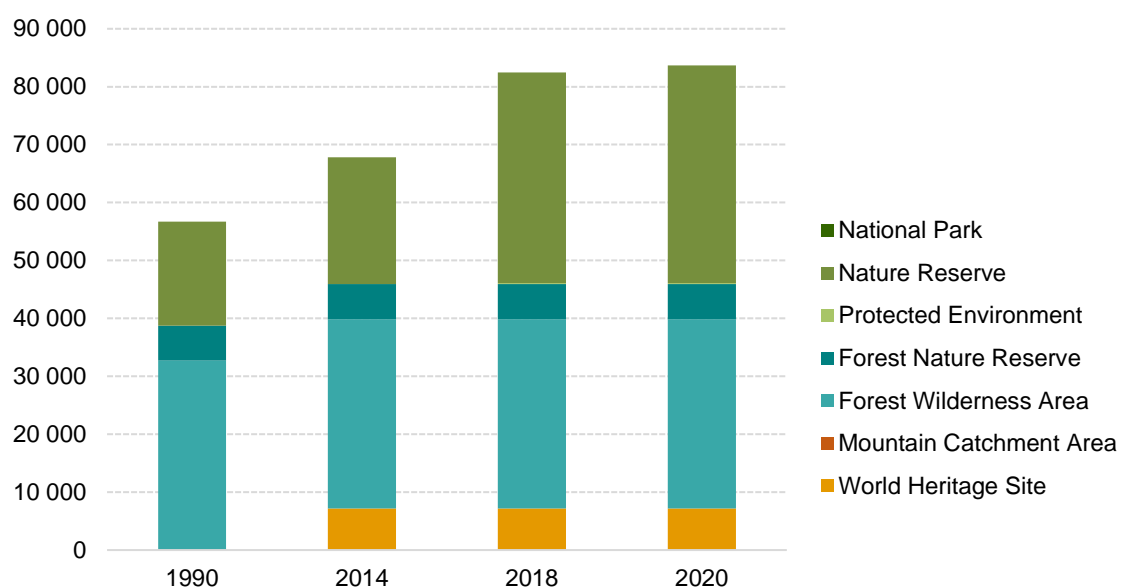


Figure 118. Extent of protected areas in Northern Drakensberg SWSA by protected area type, 1990, 2014, 2018, 2020



4.13 Maloti Drakensberg SWSA

Maloti Drakensberg SWSA is one of seven transboundary SWSAs, with only 12,8% of its area occurring within South Africa and 87,2% in Lesotho. The SWSA covers 154 716 ha (0,1%) of South Africa's mainland (Table 4 in Section 3.1). It is located in the Free State province and falls fully within the Thabo Mofutsanyane District Municipality (Figure 119 and Appendix 2). Maloti Drakensberg SWSA falls fully within the Grassland biome (Table 5 in Section 3.1 and Figure 120).

The estimated total population of the South African portion of Maloti Drakensberg SWSA in 2011 was 70 438, with a population density of approximately 45,5 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 86,3% of households living in Maloti Drakensberg SWSA was a water service provider, with boreholes as the main source of water for 5,7% of households, and 1,8% of households sourcing most of their water directly from springs, rivers or streams (Figure 121).

Figure 119. District municipalities in and around Maloti Drakensberg SWSA

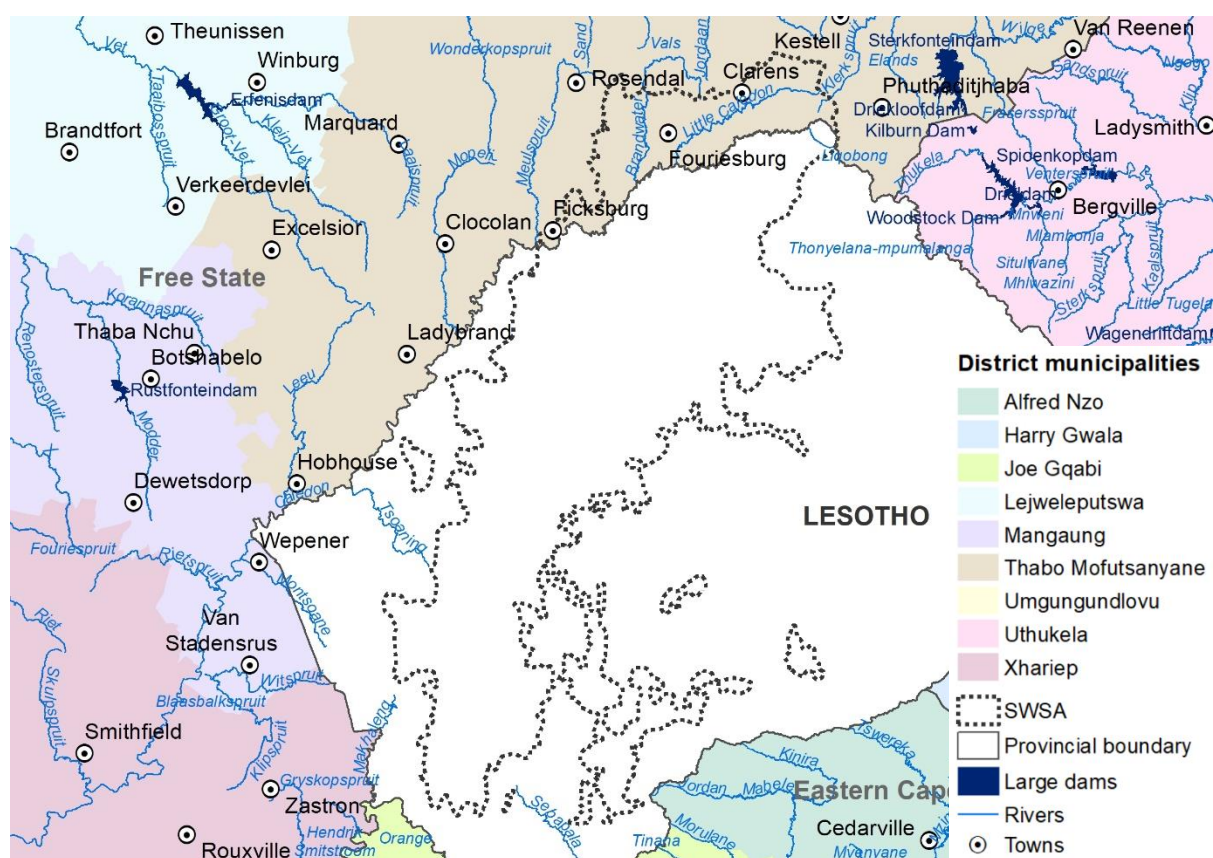
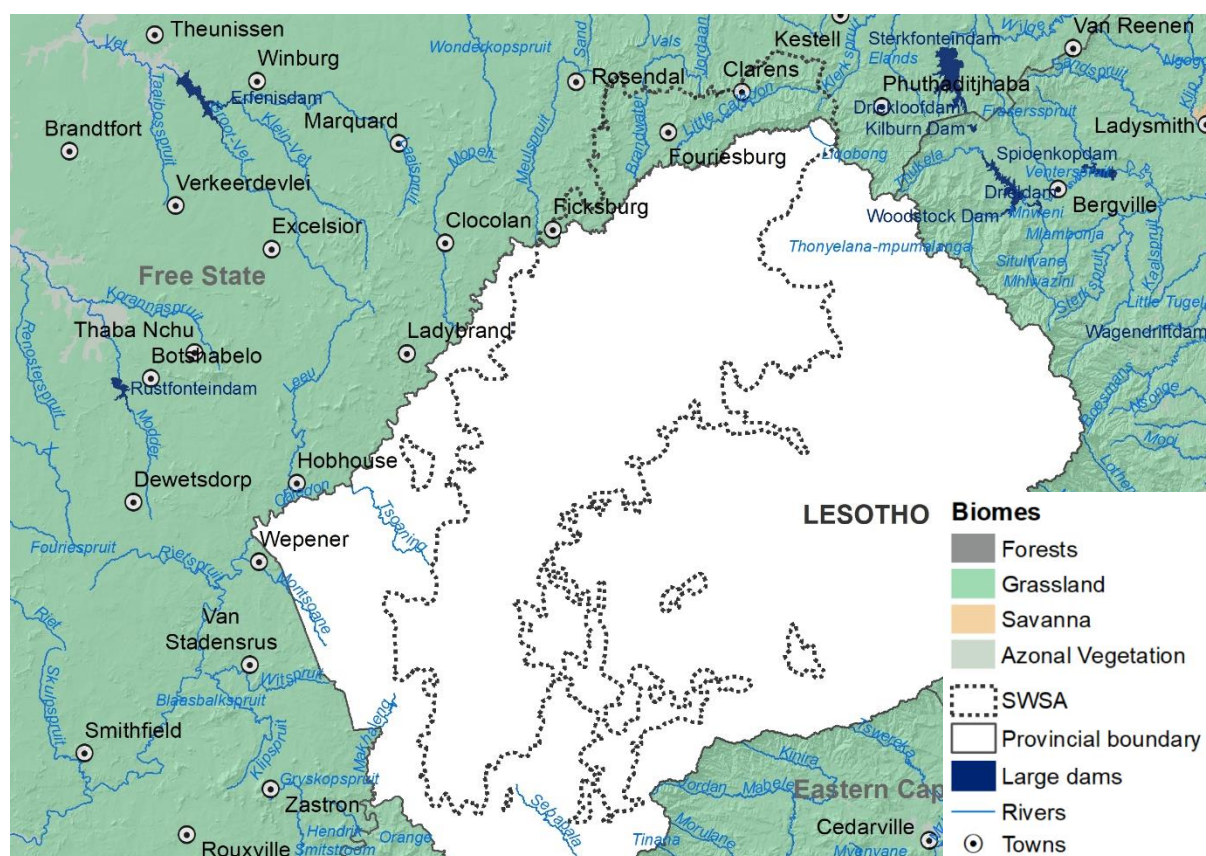
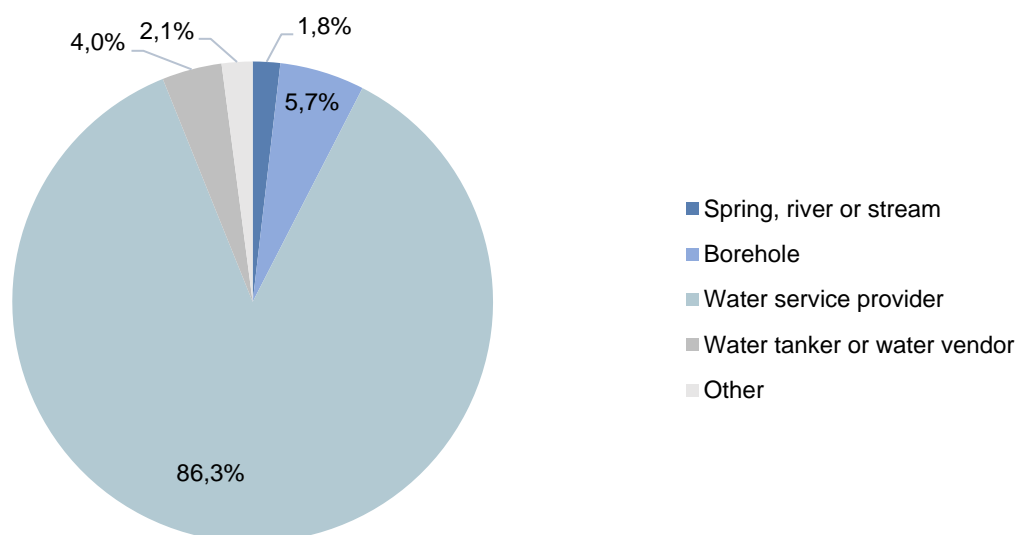


Figure 120. Terrestrial biomes in and around Maloti Drakensberg SWSA**Figure 121. Main source of water for domestic use for households living in Maloti Drakensberg SWSA, based on the 2011 population census**

4.13.1 Key findings from the land account for Maloti Drakensberg SWSA

Table 40 shows the change in main land cover classes (tier 2) in Maloti Drakensberg SWSA between 1990 and 2020. Figure 122 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 123.

In 2020, 74,0% (114 551 ha) of Maloti Drakensberg SWSA remained natural or semi-natural, compared with 75,4% in 1990. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

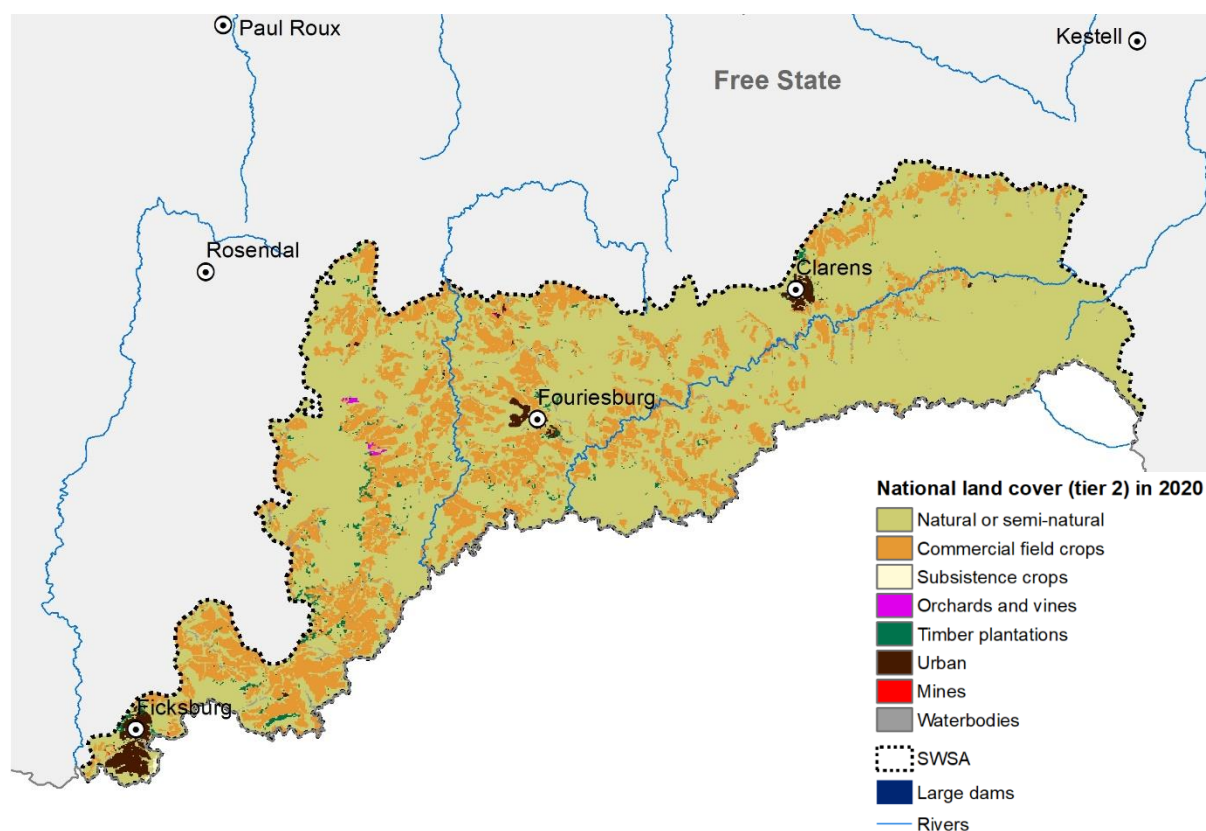
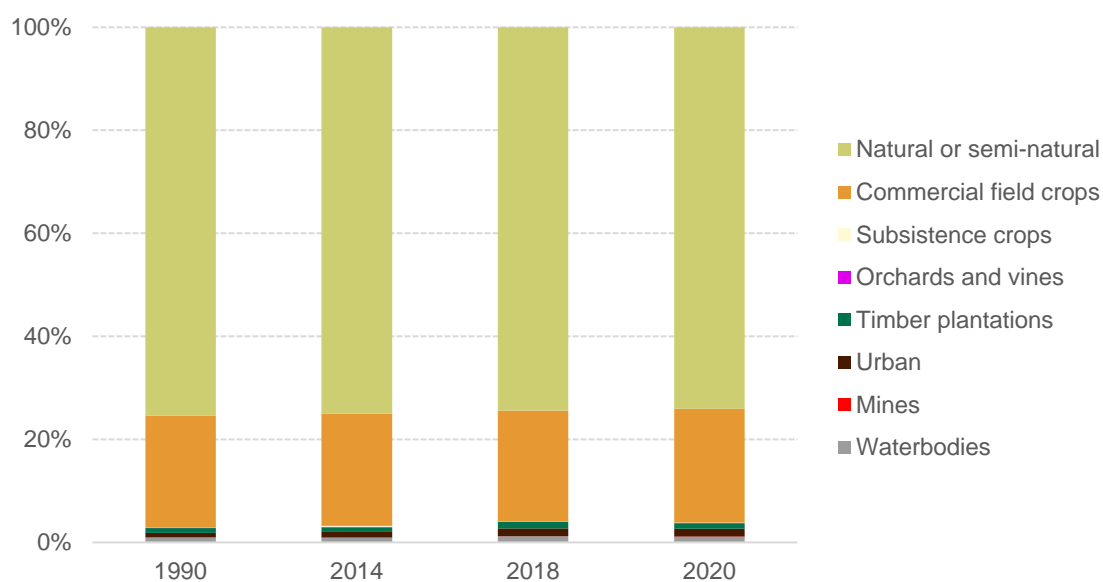
Intensively modified land cover classes in the rest of the SWSA in 2020 included commercial field crops (22,1%), urban areas (1,5%) and timber plantations (1,0%), with tiny proportions of orchards and vines, subsistence crops and mines (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020. In 2020, Maloti Drakensberg SWSA had the second highest proportion of commercial field crops of all SWSAs (Upper Vaal SWSA had the highest proportion) (Table 11).

Among the intensively modified land cover classes, the most notable change was an increase of 70,2% (946 ha) in urban areas, from 1 347 ha in 1990 to 2 293 ha in 2020. This was the largest change in absolute terms in this SWSA.

Table 40. Indicators drawn from the land account for Maloti Drakensberg SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	116 690	33 448	85	168	1 504	1 347	15	1 459
2014	116 133	33 640	240	179	1 223	1 827	8	1 466
2018	115 121	33 198	88	95	2 027	2 252	30	1 905
2020	114 551	34 264	93	102	1 600	2 293	29	1 784
(b) Proportion of land cover classes (%)								
1990	75,4%	21,6%	0,1%	0,1%	1,0%	0,9%	0,0%	0,9%
2014	75,1%	21,7%	0,2%	0,1%	0,8%	1,2%	0,0%	0,9%
2018	74,4%	21,5%	0,1%	0,1%	1,3%	1,5%	0,0%	1,2%
2020	74,0%	22,1%	0,1%	0,1%	1,0%	1,5%	0,0%	1,2%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	-0,5%	0,6%	182,4%	6,5%	-18,7%	35,6%	-46,7%	0,5%
2014-2018	-0,9%	-1,3%	-63,3%	-46,9%	65,7%	23,3%	275,0%	29,9%
2018-2020	-0,5%	3,2%	5,7%	7,4%	-21,1%	1,8%	-3,3%	-6,4%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-2 139	816	8	-66	96	946	14	325
1990-2020	-1,8%	2,4%	9,4%	-39,3%	6,4%	70,2%	93,3%	22,3%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 122. Land cover classes (tier 2) in Maloti Drakensberg SWSA, 2020**Figure 123. Land cover composition (tier 2) in Maloti Drakensberg SWSA, 1990, 2014, 2018, 2020**

4.13.2 Key findings from the account for protected areas in Maloti Drakensberg SWSA

Table 41 shows the change in the extent of protected areas in Maloti Drakensberg SWSA between 1990 and 2020, by protected area type. Figure 124 provides a map of protected areas that occurred wholly or partially within Maloti Drakensberg SWSA in 2020. Changes in protection over time are summarised in Figure 125 and Figure 126.

At the end of 2020, 15,8% (24 493 ha) of Maloti Drakensberg SWSA was protected, compared with 11,0% (16 991 ha) in 1990, giving an overall increase in protection of 44,2%. This increase took place between 1990 and 2014.

Protected area types in Maloti Drakensberg SWSA in 2020 included National Park (10,6% of SWSA area) and Nature Reserve (5,3%).

Table 41. Indicators drawn from the protected area account for Maloti Drakensberg SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	16 342	649	0	0	0	0	0	137 725	16 991
2014	16 342	8 151	0	0	0	0	0	130 223	24 493
2018	16 342	8 151	0	0	0	0	0	130 223	24 493
2020	16 342	8 151	0	0	0	0	0	130 223	24 493
(b) Proportion protected (%)									
1990	10,6%	0,4%	0,0%	0,0%	0,0%	0,0%	0,0%	89,0%	11,0%
2014	10,6%	5,3%	0,0%	0,0%	0,0%	0,0%	0,0%	84,2%	15,8%
2018	10,6%	5,3%	0,0%	0,0%	0,0%	0,0%	0,0%	84,2%	15,8%
2020	10,6%	5,3%	0,0%	0,0%	0,0%	0,0%	0,0%	84,2%	15,8%
(c) Net change in protection per accounting period (%)									
1990-2014	0,0%	1 155,9%	-	-	-	-	-	-5,4%	44,2%
2014-2018	0,0%	0,0%	-	-	-	-	-	0,0%	0,0%
2018-2020	0,0%	0,0%	-	-	-	-	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	7 502	0	0	0	0	0	-7 502	7 502
1990-2020	0,0%	1 155,9%	-	-	-	-	-	-5,4%	44,2%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

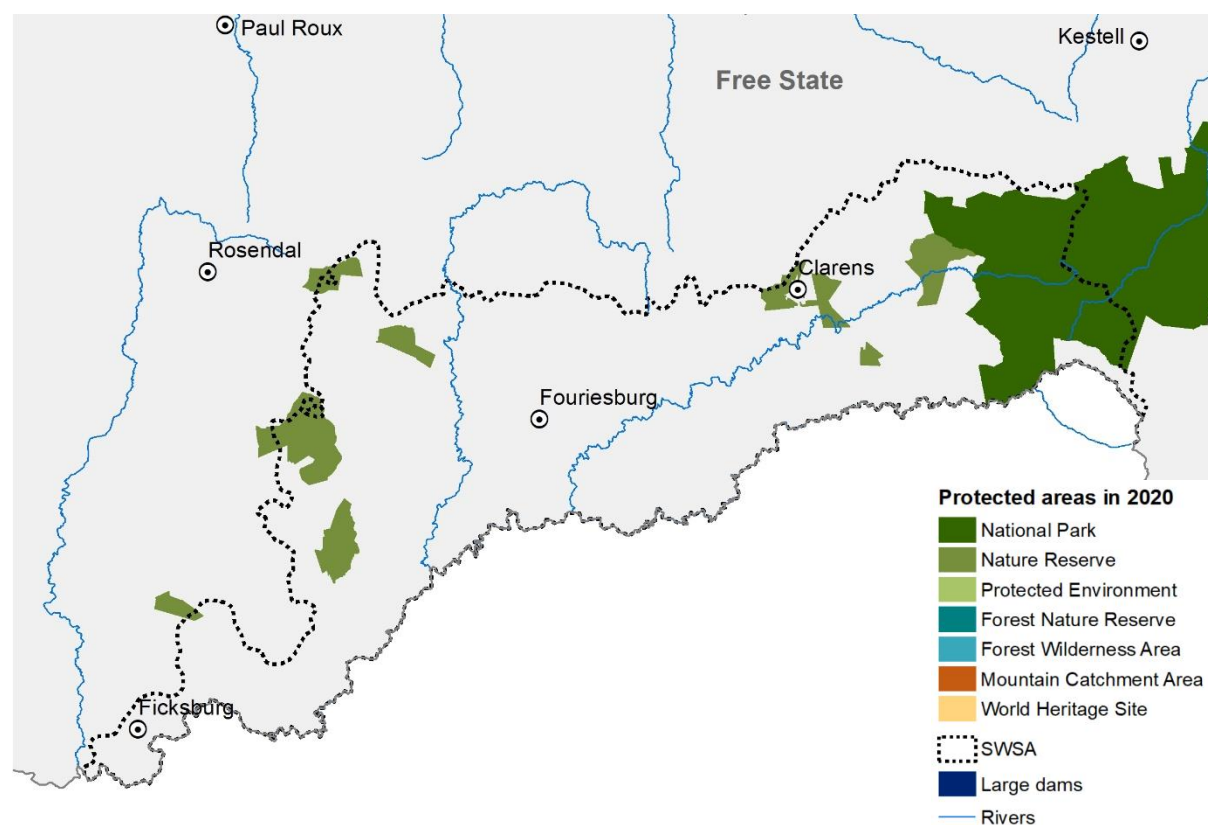
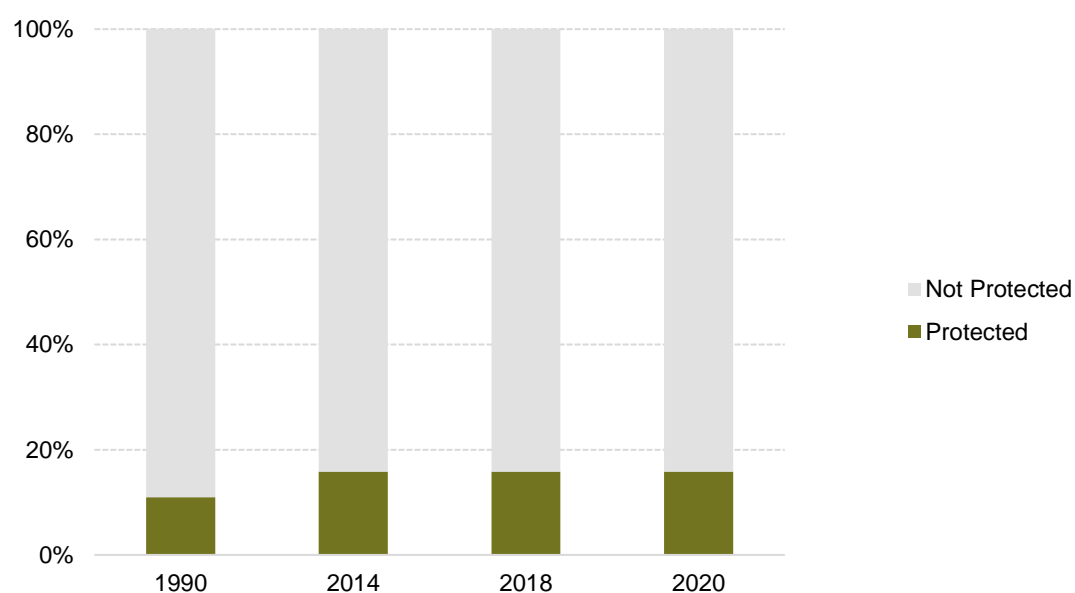
Figure 124. Protected areas occurring wholly or partially within Maloti Drakensberg SWSA, 2020**Figure 125. Proportion of Maloti Drakensberg SWSA protected, 1990, 2014, 2018, 2020**

Figure 126. Extent of protected areas in Maloti Drakensberg SWSA by protected area type, 1990, 2014, 2018, 2020

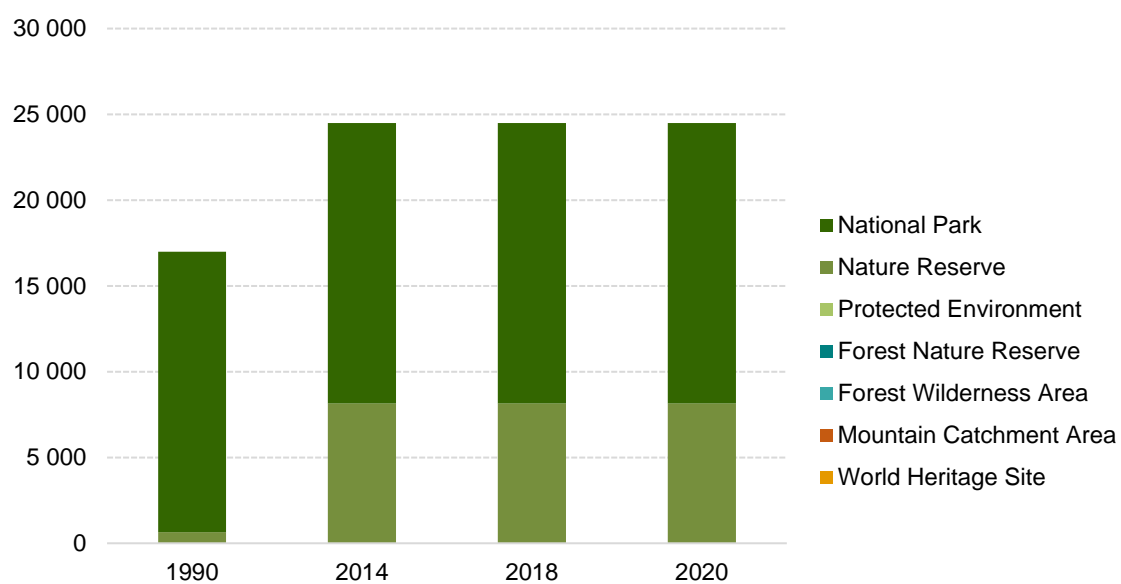
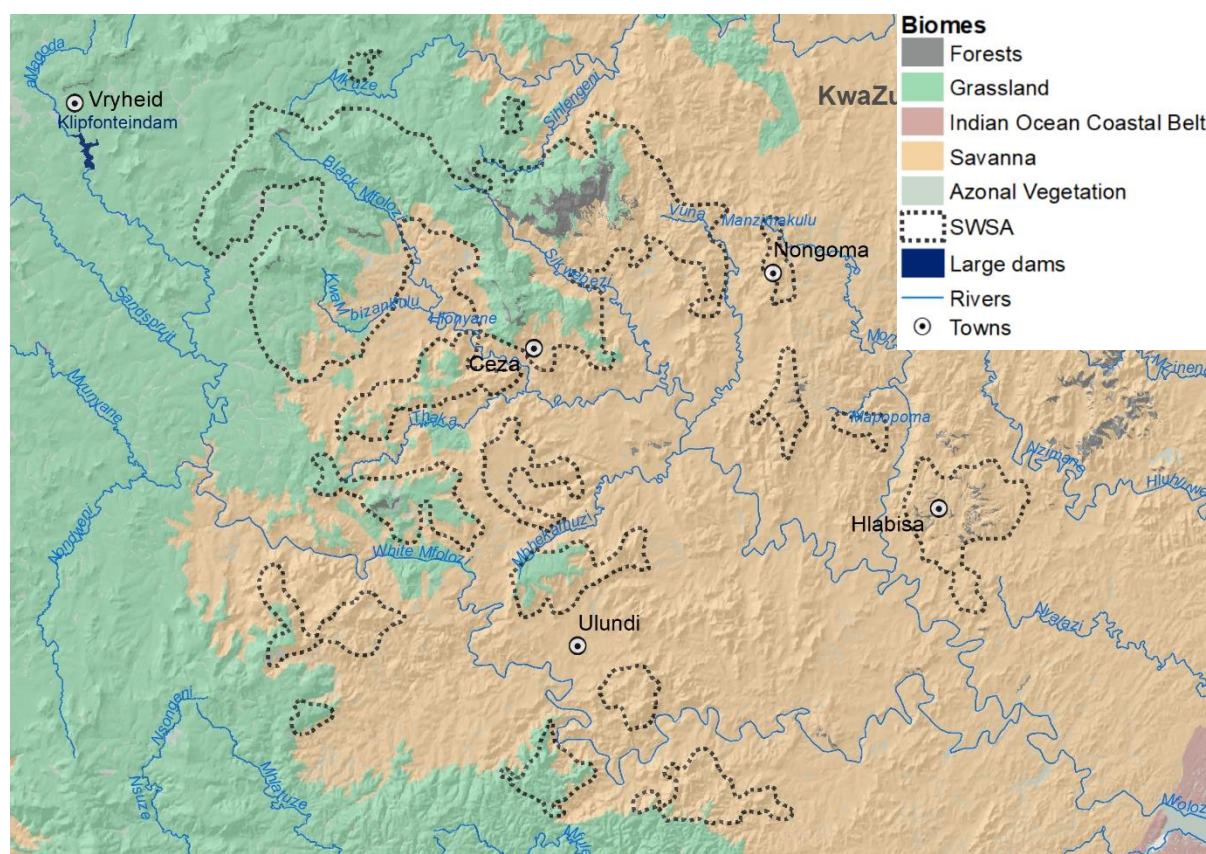
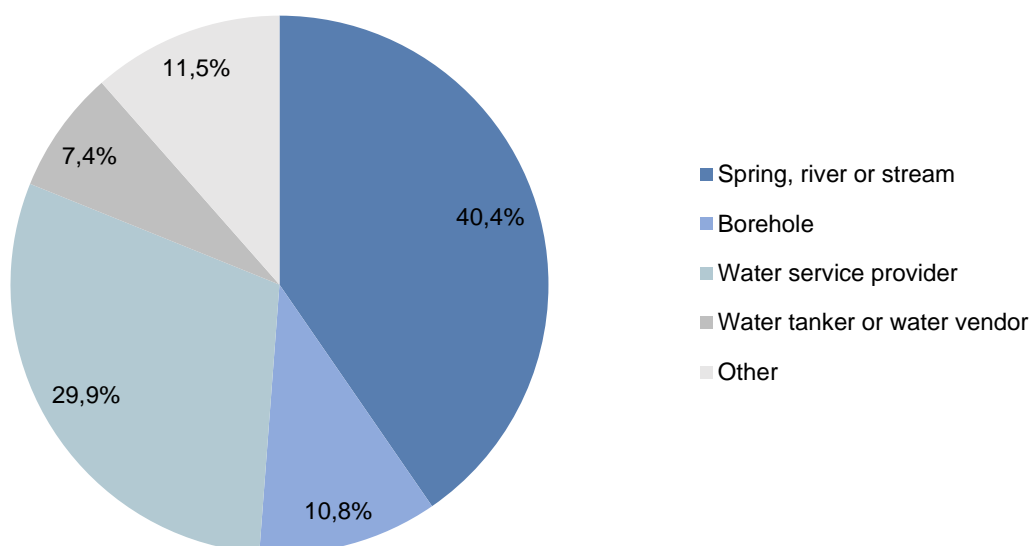


Figure 128. Terrestrial biomes in and around Mfolozi Headwaters SWSA**Figure 129. Main source of water for domestic use for households living in Mfolozi Headwaters SWSA, based on the 2011 population census**

4.14.1 Key findings from the land account for Mfolozi Headwaters SWSA

Table 42 shows the change in main land cover classes (tier 2) in Mfolozi Headwaters SWSA between 1990 and 2020. Figure 130 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 131.

In 2020, 70,1% (134 583 ha) of Mfolozi Headwaters SWSA remained natural or semi-natural, compared with 73,3% in 1990. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

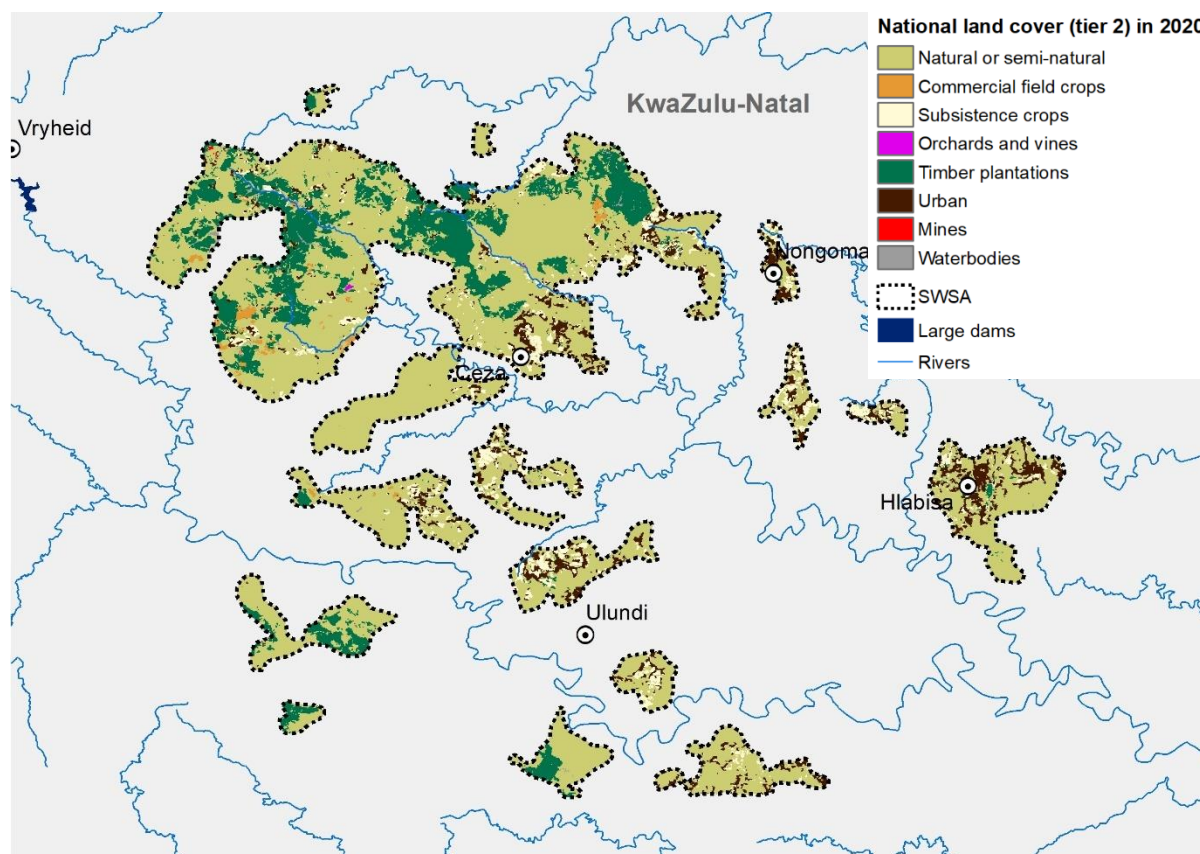
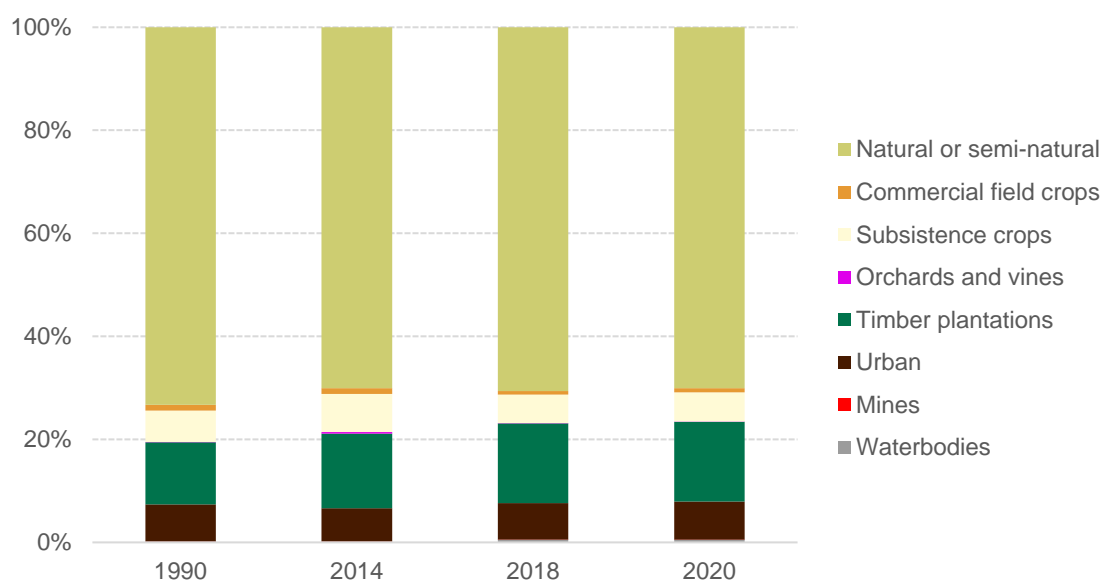
Intensively modified land cover classes in the rest of the SWSA in 2020 included timber plantations (15,5%), urban areas (7,4%) and subsistence crops (5,7%), with tiny proportions of commercial field crops, orchards and vines and mines (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020.

Among the intensively modified land cover classes, a notable change over the period 1990 to 2020 was an increase of 6 571 ha (28,3%) in timber plantations, from 23 182 ha in 1990 to 29 753 ha in 2020. This was the largest change in absolute terms in this SWSA.

Table 42. Indicators drawn from the land account for Mfolozi Headwaters SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	140 765	2 199	11 677	101	23 182	13 762	94	269
2014	134 565	2 183	14 111	699	27 807	12 376	46	262
2018	135 574	1 362	10 670	60	29 774	13 600	47	962
2020	134 583	1 473	10 920	54	29 753	14 192	52	1 022
(b) Proportion of land cover classes (%)								
1990	73,3%	1,1%	6,1%	0,1%	12,1%	7,2%	0,0%	0,1%
2014	70,1%	1,1%	7,3%	0,4%	14,5%	6,4%	0,0%	0,1%
2018	70,6%	0,7%	5,6%	0,0%	15,5%	7,1%	0,0%	0,5%
2020	70,1%	0,8%	5,7%	0,0%	15,5%	7,4%	0,0%	0,5%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	-4,4%	-0,7%	20,8%	592,1%	20,0%	-10,1%	-51,1%	-2,6%
2014-2018	0,7%	-37,6%	-24,4%	-91,4%	7,1%	9,9%	2,2%	267,2%
2018-2020	-0,7%	8,1%	2,3%	-10,0%	-0,1%	4,4%	10,6%	6,2%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-6 182	-726	-757	-47	6 571	430	-42	753
1990-2020	-4,4%	-33,0%	-6,5%	-46,5%	28,3%	3,1%	-44,7%	279,9%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 130. Land cover classes (tier 2) in Mfolozi Headwaters SWSA, 2020**Figure 131. Land cover composition (tier 2) in Mfolozi Headwaters SWSA, 1990, 2014, 2018, 2020**

4.14.2 Key findings from the account for protected areas in Mfolozi Headwaters SWSA

Table 43 shows the change in the extent of protected areas in Mfolozi Headwaters SWSA between 1990 and 2020, by protected area type. Figure 132 provides a map of protected areas that occurred wholly or partially within Mfolozi Headwaters SWSA in 2020. Changes in protection over time are summarised in Figure 133 and Figure 134.

At the end of 2020, 6,8% (13 143 ha) of Mfolozi Headwaters SWSA was protected, compared with 5,0% (9 689 ha) in 1990, giving an overall increase in protection of 35,6%. This increase took place between 1990 and 2014. In 2020, Mfolozi Headwaters SWSA had the third lowest proportion protected of all SWSAs (Eastern Cape Drakensberg and Amathole SWSAs had the lowest and second lowest proportion protected) (Table 15).

Protected area types in Mfolozi Headwaters SWSA in 2020 included Nature Reserve (4,1% of SWSA area) and Forest Wilderness Area (2,7%).

Table 43. Indicators drawn from the protected area account for Mfolozi Headwaters SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	4 428	0	0	5 261	0	0	182 360	9 689
2014	0	7 882	0	0	5 261	0	0	178 906	13 143
2018	0	7 882	0	0	5 261	0	0	178 906	13 143
2020	0	7 882	0	0	5 261	0	0	178 906	13 143
(b) Proportion protected (%)									
1990	0,0%	2,3%	0,0%	0,0%	2,7%	0,0%	0,0%	95,0%	5,0%
2014	0,0%	4,1%	0,0%	0,0%	2,7%	0,0%	0,0%	93,2%	6,8%
2018	0,0%	4,1%	0,0%	0,0%	2,7%	0,0%	0,0%	93,2%	6,8%
2020	0,0%	4,1%	0,0%	0,0%	2,7%	0,0%	0,0%	93,2%	6,8%
(c) Net change in protection per accounting period (%)									
1990-2014	-	78,0%	-	-	0,0%	-	-	-1,9%	35,6%
2014-2018	-	0,0%	-	-	0,0%	-	-	0,0%	0,0%
2018-2020	-	0,0%	-	-	0,0%	-	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	3 454	0	0	0	0	0	-3 454	3 454
1990-2020	-	78,0%	-	-	0,0%	-	-	-1,9%	35,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

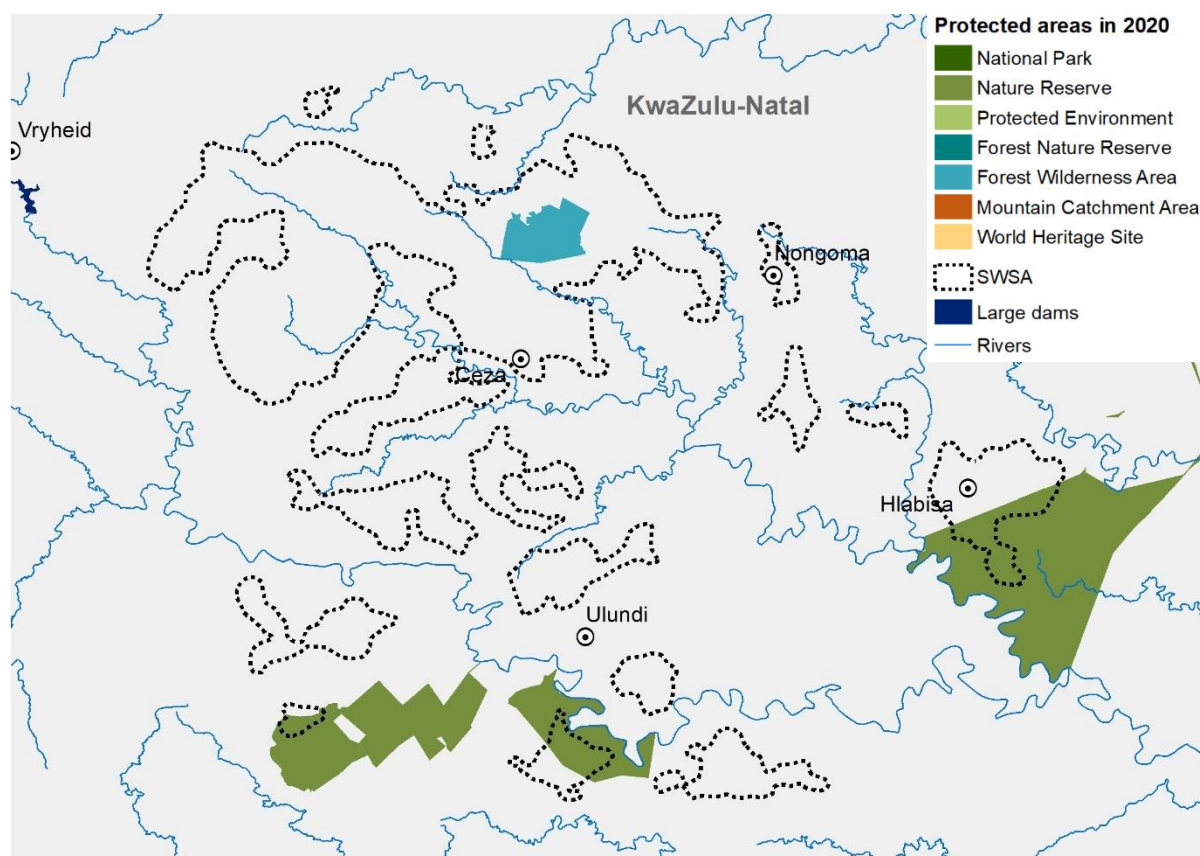
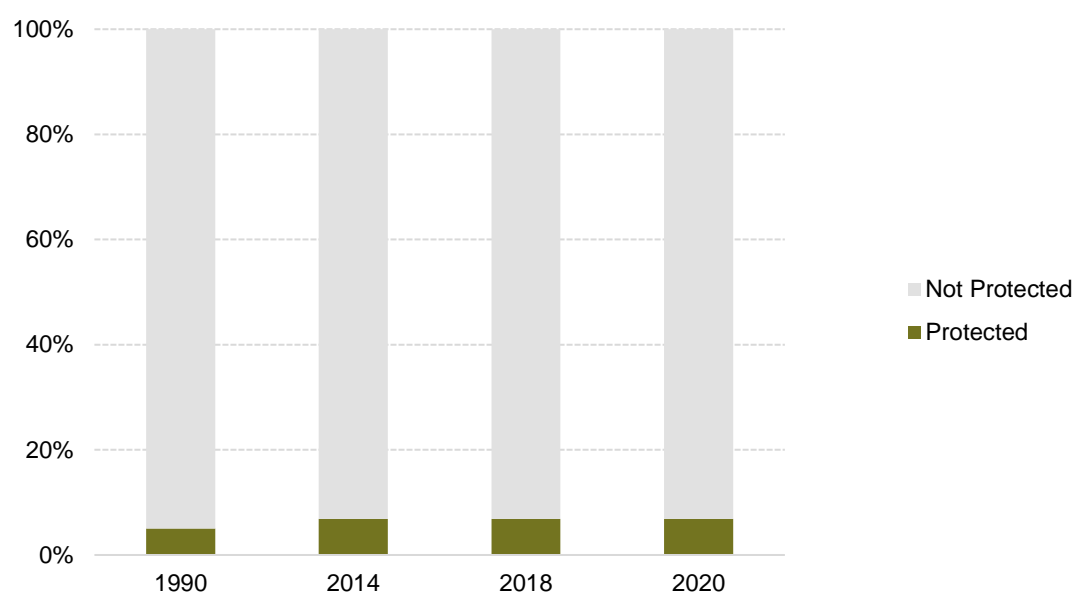
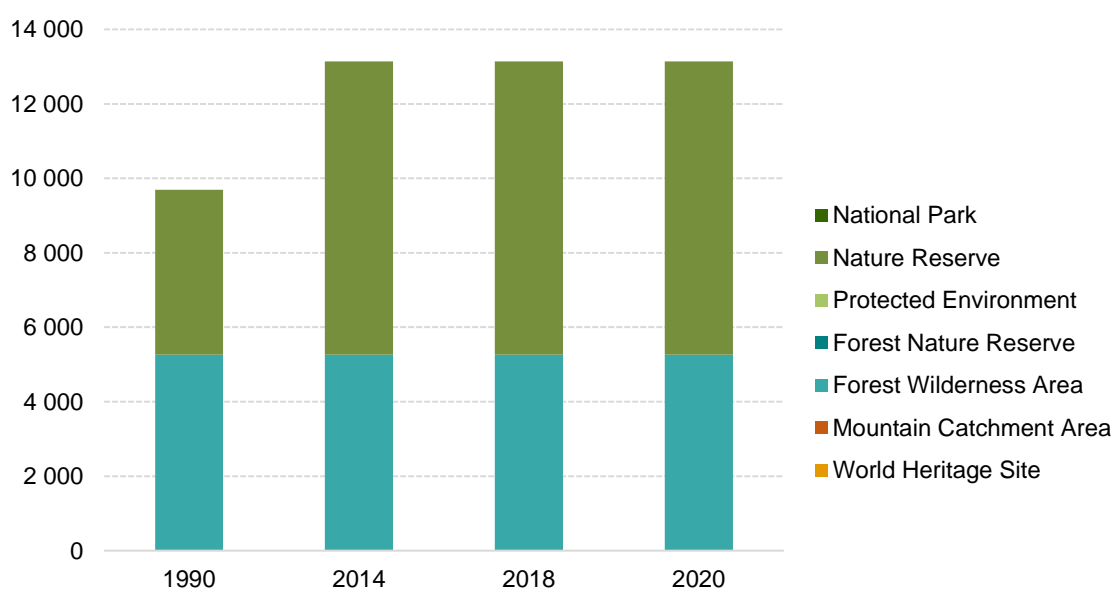
Figure 132. Protected areas occurring wholly or partially within Mfolozi Headwaters SWSA, 2020

Figure 133. Proportion of Mfolozi Headwaters SWSA protected, 1990, 2014, 2018, 2020**Figure 134. Extent of protected areas in Mfolozi Headwaters SWSA by protected area type, 1990, 2014, 2018, 2020**

4.15.1 Key findings from the land account for Enkangala Grassland SWSA

Table 44 shows the change in main land cover classes (tier 2) in Enkangala Grassland SWSA between 1990 and 2020. Figure 138 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 139.

In 2020, 72,0% (567 706 ha) of Enkangala Grassland SWSA remained natural or semi-natural, compared with 79,1% in 1990. The net percentage decrease in natural or semi-natural land cover between 1990 and 2020 was the third largest of all SWSAs (Upper Usutu and Upper Vaal SWSAs were the first and second largest) (Table 12). As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included timber plantations (13,7%), commercial field crops (6,6%), urban areas (2,2%) and subsistence crops (2,1%), with tiny proportions of orchards and vines and mines (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020.

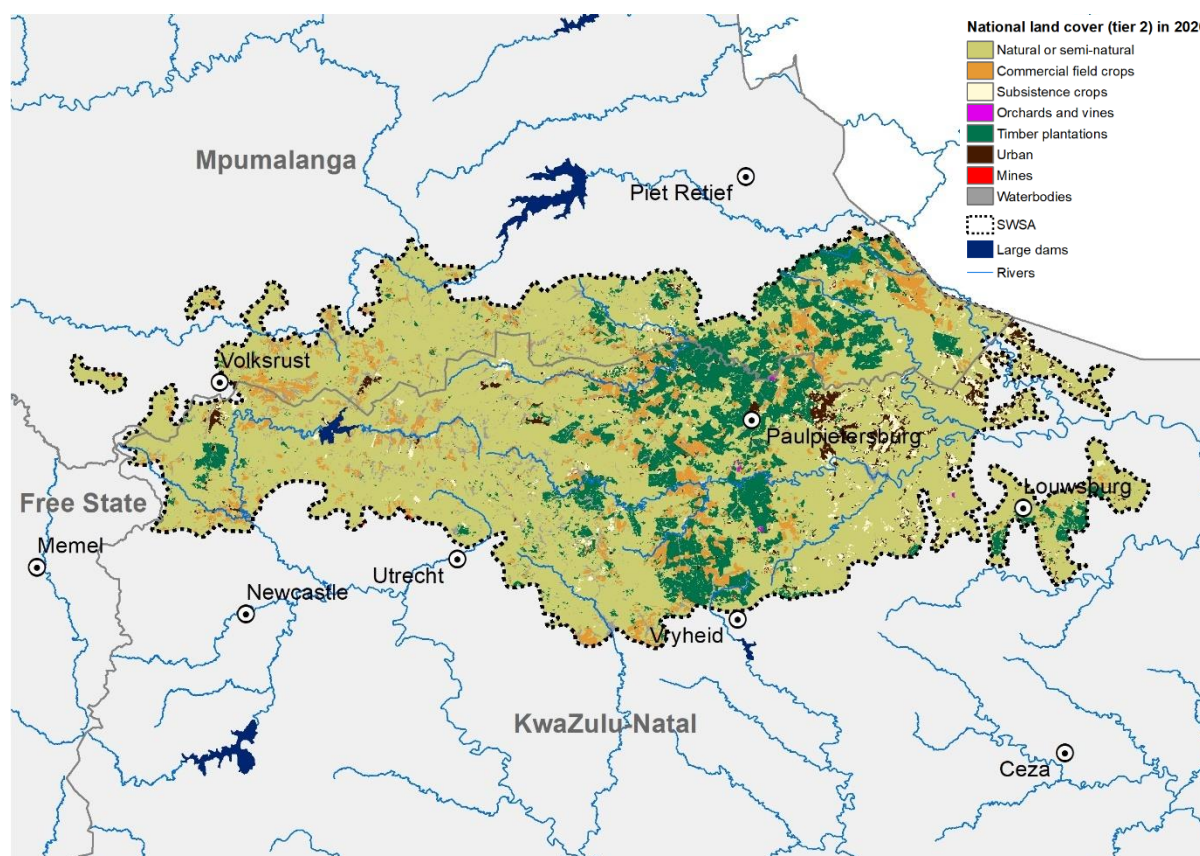
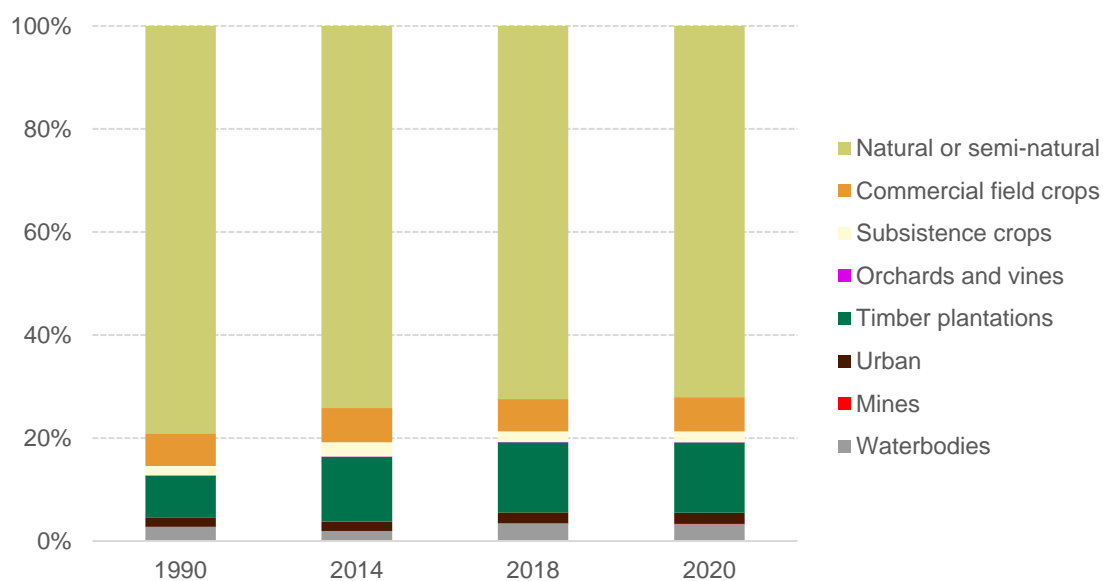
Among the intensively modified land cover classes, the following changes were notable over the period 1990 to 2020:

- An increase of 42 759 ha (65,8%) in timber plantations, from 65 016 ha in 1990 to 107 775 ha in 2020. This was the largest change in both absolute and percentage terms in this SWSA.
- An increase of 3 363 ha (24,6%) in urban areas, from 13 692 ha in 1990 to 17 055 ha in 2020. This was the second largest change in absolute terms in this SWSA.
- The net increase in all intensively modified land cover classes combined in this SWSA between 1990 and 2020 was the second largest in absolute and percentage terms across all SWSAs (Table 12).

Table 44. Indicators drawn from the land account for Enkangala Grassland SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	623 420	49 988	14 097	264	65 016	13 692	313	21 302
2014	584 348	52 678	21 416	344	99 482	14 190	161	15 473
2018	571 031	49 339	16 157	321	107 545	16 679	228	26 792
2020	567 706	52 394	16 718	352	107 775	17 055	262	25 830
(b) Proportion of land cover classes (%)								
1990	79,1%	6,3%	1,8%	0,0%	8,2%	1,7%	0,0%	2,7%
2014	74,1%	6,7%	2,7%	0,0%	12,6%	1,8%	0,0%	2,0%
2018	72,5%	6,3%	2,1%	0,0%	13,6%	2,1%	0,0%	3,4%
2020	72,0%	6,6%	2,1%	0,0%	13,7%	2,2%	0,0%	3,3%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	-6,3%	5,4%	51,9%	30,3%	53,0%	3,6%	-48,6%	-27,4%
2014-2018	-2,3%	-6,3%	-24,6%	-6,7%	8,1%	17,5%	41,6%	73,2%
2018-2020	-0,6%	6,2%	3,5%	9,7%	0,2%	2,3%	14,9%	-3,6%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-55 714	2 406	2 621	88	42 759	3 363	-51	4 528
1990-2020	-8,9%	4,8%	18,6%	33,3%	65,8%	24,6%	-16,3%	21,3%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 138. Land cover classes (tier 2) in Enkangala Grassland SWSA, 2020**Figure 139. Land cover composition (tier 2) in Enkangala Grassland SWSA, 1990, 2014, 2018, 2020**

4.15.2 Key findings from the account for protected areas in Enkangala Grassland SWSA

Table 45 shows the change in the extent of protected areas in Enkangala Grassland SWSA between 1990 and 2020, by protected area type. Figure 140 provides a map of protected areas that occurred wholly or partially within Enkangala Grassland SWSA in 2020. Changes in protection over time are summarised in Figure 141 and Figure 142.

At the end of 2020, 8,9% (69 942 ha) of Enkangala Grassland SWSA was protected, compared with 2,1% (16 256 ha) in 1990, giving an overall increase in protection of 330,3%. Most of this increase took place between 1990 and 2014.

Protected area types in Enkangala Grassland SWSA in 2020 included Protected Environment (5,3% of SWSA area) and Nature Reserve (3,6%).

Table 45. Indicators drawn from the protected area account for Enkangala Grassland SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	16 256	0	0	0	0	0	771 836	16 256
2014	0	26 831	41 678	0	0	0	0	719 583	68 509
2018	0	28 264	41 678	0	0	0	0	718 150	69 942
2020	0	28 264	41 678	0	0	0	0	718 150	69 942
(b) Proportion protected (%)									
1990	0,0%	2,1%	0,0%	0,0%	0,0%	0,0%	0,0%	97,9%	2,1%
2014	0,0%	3,4%	5,3%	0,0%	0,0%	0,0%	0,0%	91,3%	8,7%
2018	0,0%	3,6%	5,3%	0,0%	0,0%	0,0%	0,0%	91,1%	8,9%
2020	0,0%	3,6%	5,3%	0,0%	0,0%	0,0%	0,0%	91,1%	8,9%
(c) Net change in protection per accounting period (%)									
1990-2014	-	65,1%	-	-	-	-	-	-6,8%	321,4%
2014-2018	-	5,3%	0,0%	-	-	-	-	-0,2%	2,1%
2018-2020	-	0,0%	0,0%	-	-	-	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	12 008	41 678	0	0	0	0	-53 686	53 686
1990-2020	-	73,9%	-	-	-	-	-	-7,0%	330,3%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

Figure 140. Protected areas occurring wholly or partially within Enkangala Grassland SWSA, 2020

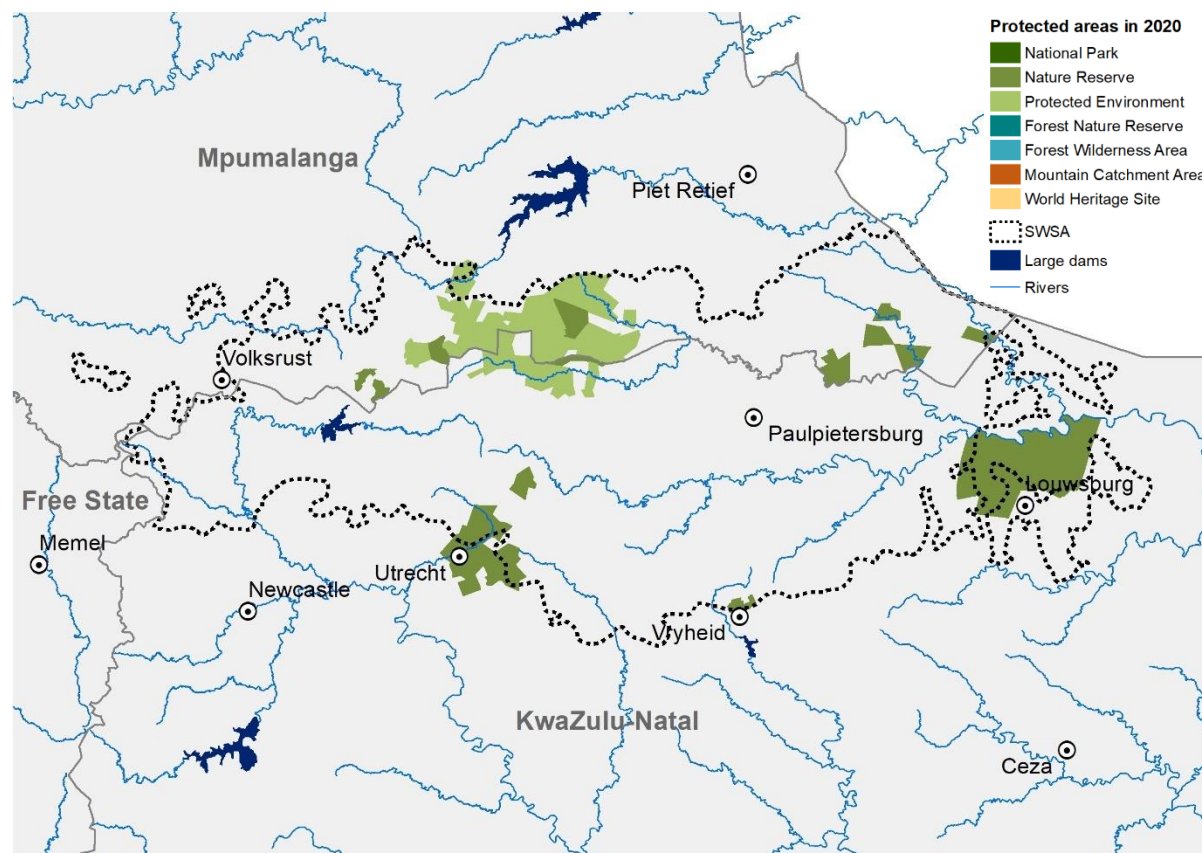
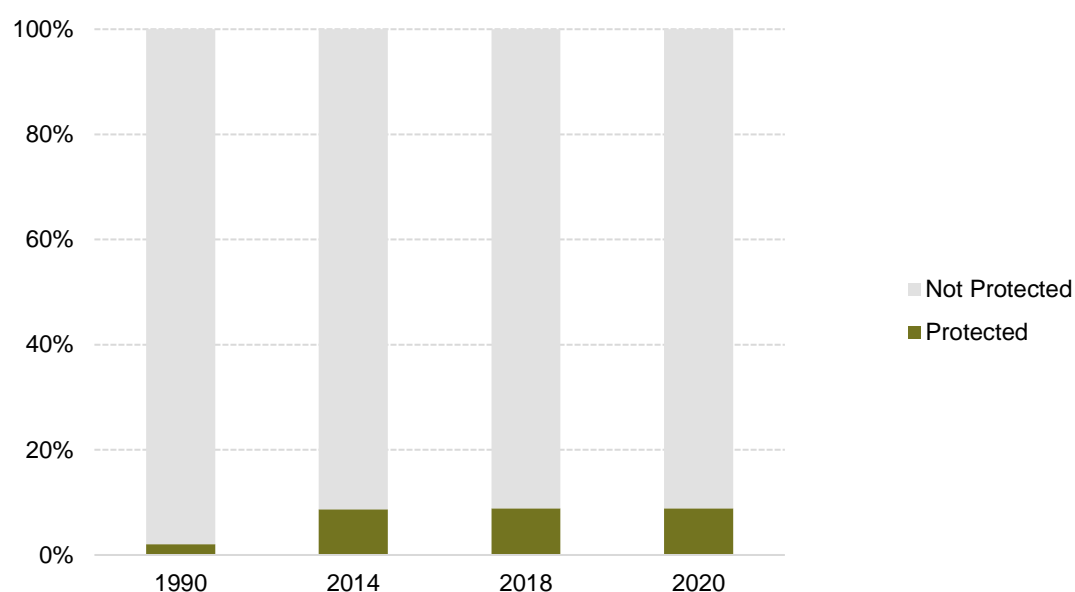
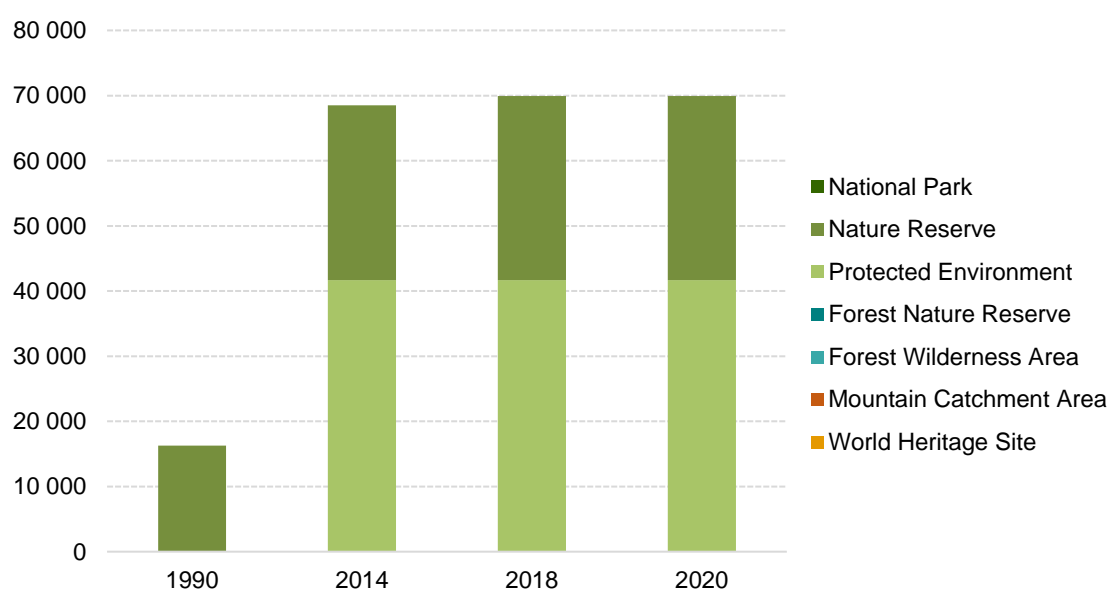


Figure 141. Proportion of Enkangala Grassland SWSA protected, 1990, 2014, 2018, 2020**Figure 142. Extent of protected areas in Enkangala Grassland SWSA by protected area type, 1990, 2014, 2018, 2020**

4.16 Upper Vaal SWSA

Upper Vaal SWSA covers 139 415 ha (0,1%) of South Africa's mainland (Table 4 in Section 3.1). It spans the Free State and Mpumalanga provinces, and two district municipalities: Thabo Mofutsanyane (7,3%) in the Free State and Gert Sibande in Mpumalanga (92,7%) (Figure 143 and Appendix 2). Upper Vaal SWSA falls largely within the Grassland biome (99,4%) (Table 5 in Section 3.1 and Figure 144).

The estimated total population of Upper Vaal SWSA in 2011 was 19 008, with a population density of approximately 13,6 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 23,5% of households living in Upper Vaal SWSA was a water service provider, with boreholes as the main source of water for 29,0% of households, and 20,4% of households sourcing most of their water directly from springs, rivers or streams (Figure 145).

Figure 143. District municipalities in and around Upper Vaal SWSA

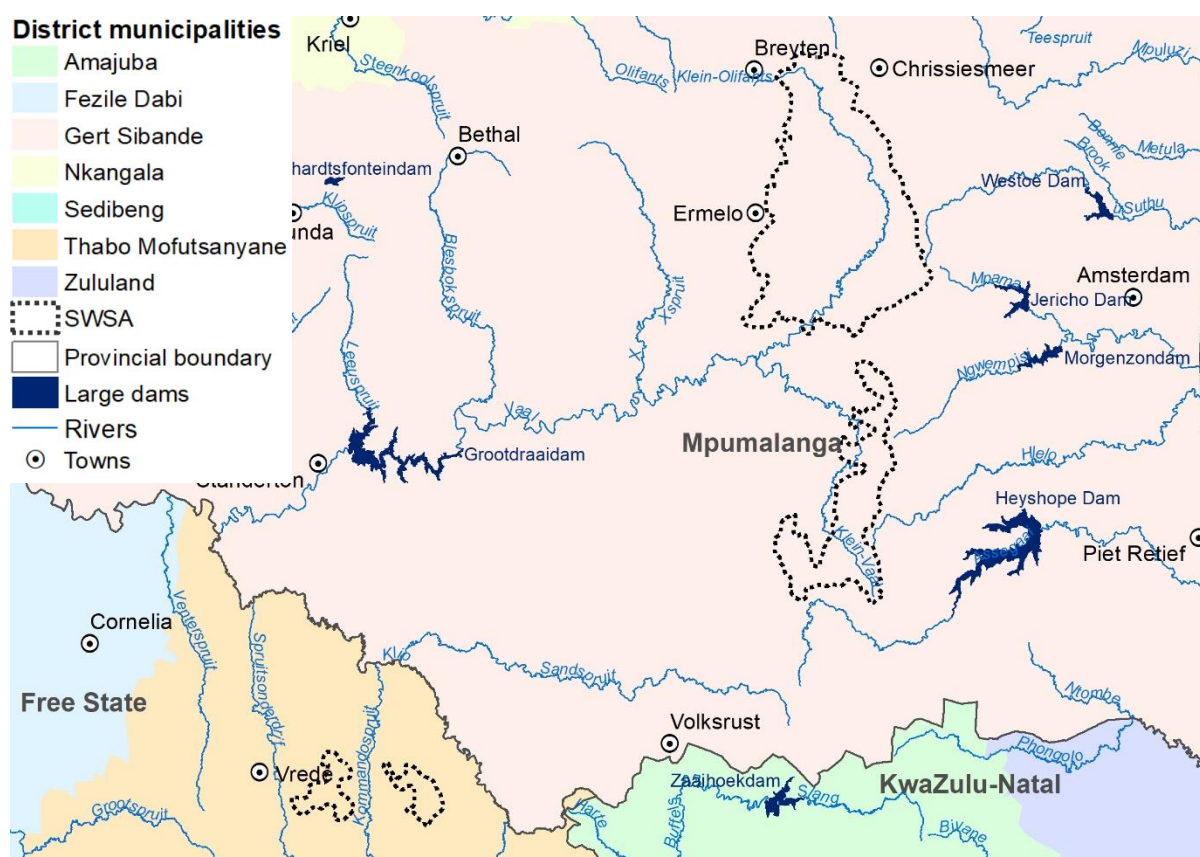
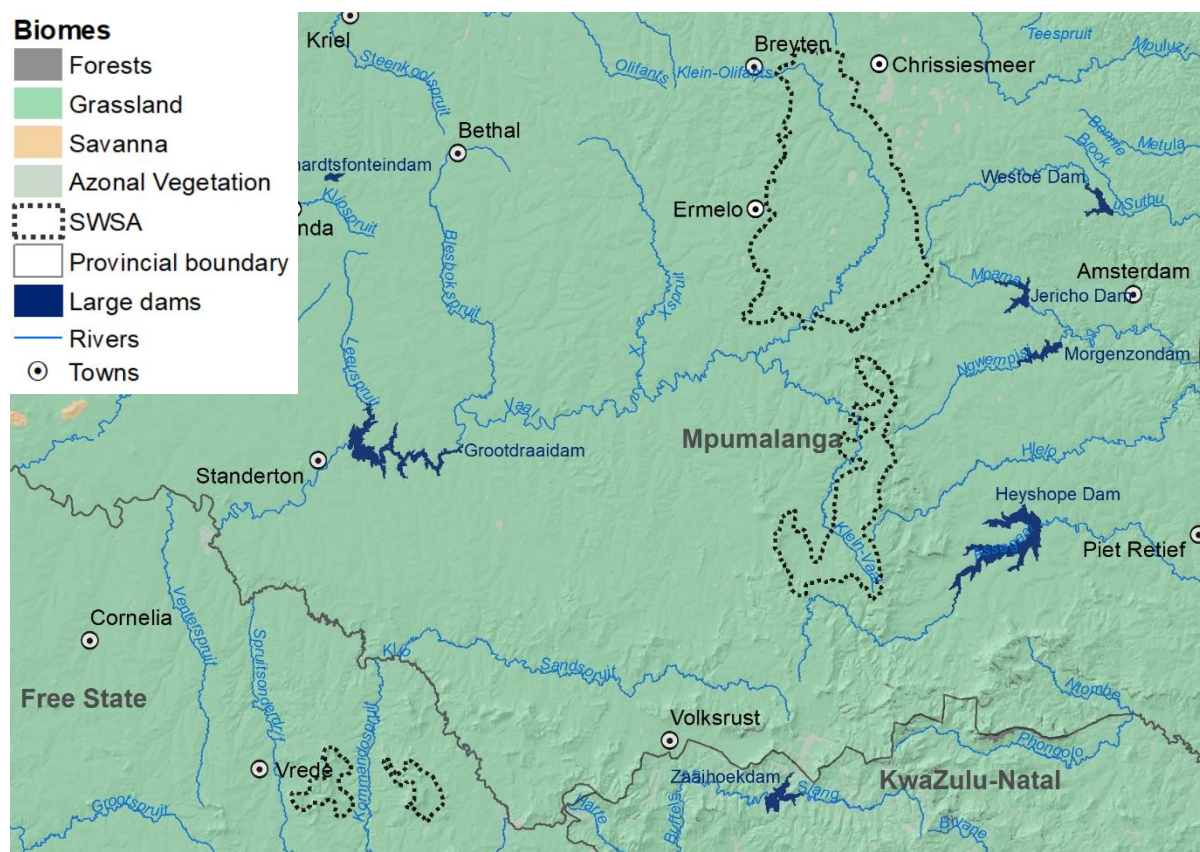
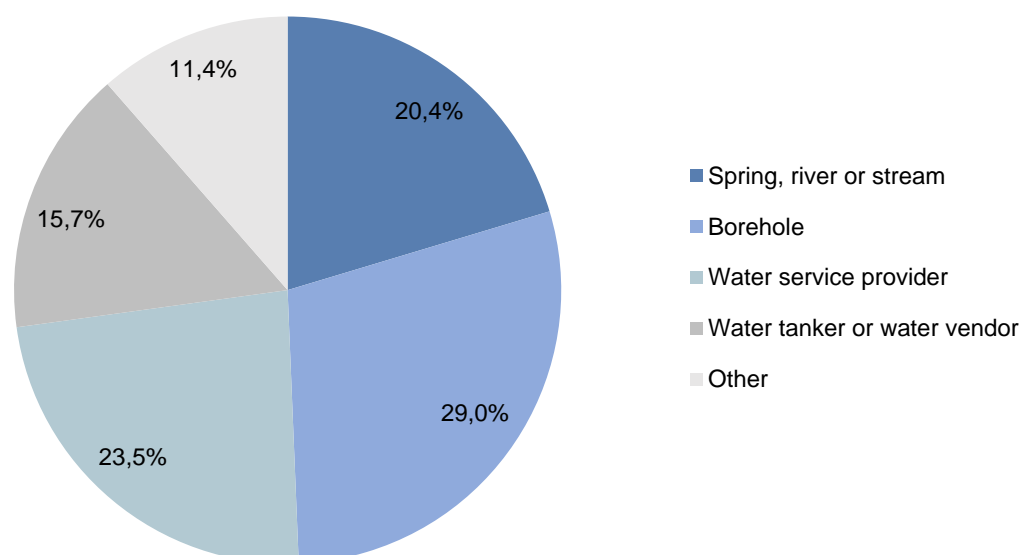


Figure 144. Terrestrial biomes in and around Upper Vaal SWSA**Figure 145. Main source of water for domestic use for households living in Upper Vaal SWSA, based on the 2011 population census**

4.16.1 Key findings from the land account for Upper Vaal SWSA

Table 46 shows the change in main land cover classes (tier 2) in Upper Vaal SWSA between 1990 and 2020. Figure 146 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 147.

In 2020, 60,1% (83 736 ha) of Upper Vaal SWSA remained natural or semi-natural, compared with 66,6% in 1990. The net percentage decrease in natural or semi-natural land cover between 1990 and 2020 was the second largest of all SWSAs (Upper Usutu SWSA was the largest) (Table 12). As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included commercial field crops (28,4%) and timber plantations (2,5%), with small proportions of mines, urban areas and orchards and vines (<1,0% each). Upper Vaal has the largest absolute extent and proportion of mines of all SWSAs (Table 11). Upper Vaal has the largest proportion of commercial field crops of all SWSAs (Table 11). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020.

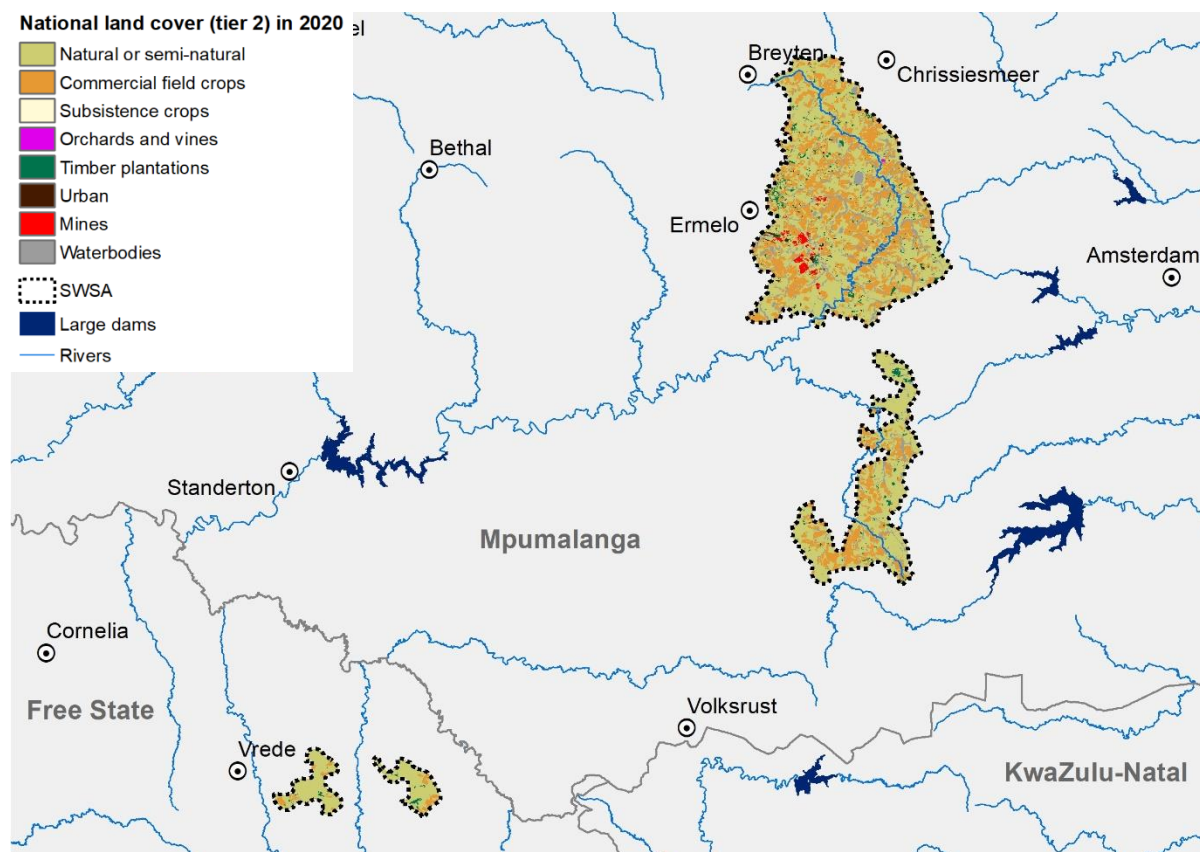
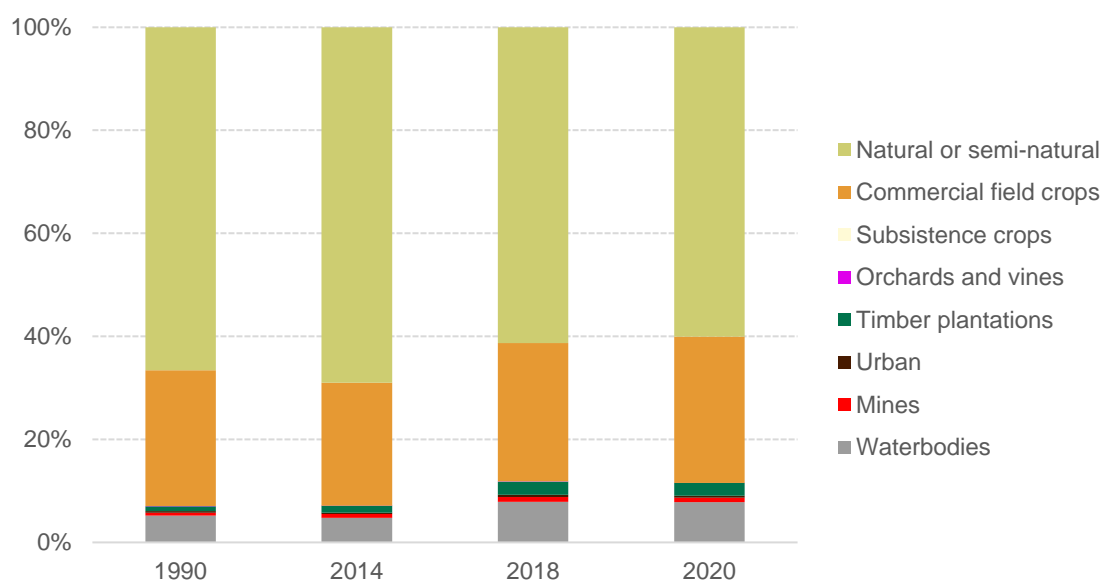
Among the intensively modified land cover classes, notable changes over the period 1990 to 2020 were:

- An increase of 2 105 ha (155,6%) in timber plantations, from 1 353 ha in 1990 to 3 458 ha in 2020. This was the largest change in percentage terms in this SWSA.
- An increase of 2 862 ha in commercial field crops, which was the largest increase between 1990 and 2020 in absolute terms in this SWSA.

Table 46. Indicators drawn from the land account for Upper Vaal SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	92 867	36 697	0	44	1 353	407	768	7 279
2014	96 224	33 210	0	46	1 880	394	1 049	6 612
2018	85 425	37 488	0	46	3 593	542	1 351	10 970
2020	83 736	39 559	0	31	3 458	562	1 216	10 853
(b) Proportion of land cover classes (%)								
1990	66,6%	26,3%	0,0%	0,0%	1,0%	0,3%	0,6%	5,2%
2014	69,0%	23,8%	0,0%	0,0%	1,3%	0,3%	0,8%	4,7%
2018	61,3%	26,9%	0,0%	0,0%	2,6%	0,4%	1,0%	7,9%
2020	60,1%	28,4%	0,0%	0,0%	2,5%	0,4%	0,9%	7,8%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	3,6%	-9,5%	-	4,5%	39,0%	-3,2%	36,6%	-9,2%
2014-2018	-11,2%	12,9%	-	0,0%	91,1%	37,6%	28,8%	65,9%
2018-2020	-2,0%	5,5%	-	-32,6%	-3,8%	3,7%	-10,0%	-1,1%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-9 131	2 862	0	-13	2 105	155	448	3 574
1990-2020	-9,8%	7,8%	-	-29,5%	155,6%	38,1%	58,3%	49,1%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 146. Land cover classes (tier 2) in Upper Vaal SWSA, 2020**Figure 147. Land cover composition (tier 2) in Upper Vaal SWSA, 1990, 2014, 2018, 2020**

4.16.2 Key findings from the account for protected areas in Upper Vaal SWSA

Table 47 shows the change in the extent of protected areas in Upper Vaal SWSA between 1990 and 2020, by protected area type. Figure 148 provides a map of protected areas that occurred wholly or partially within Upper Vaal SWSA in 2020. Changes in protection over time are summarised in Figure 149 and Figure 150.

At the end of 2020, 7,5% (10 465 ha) of Upper Vaal SWSA was protected, compared with 2,7% (3 810 ha) in 1990, giving an overall increase in protection of 174,7%. This increase took place between 1990 and 2014.

Protected area types in Upper Vaal SWSA in 2020 included Protected Environment (4,8% of SWSA area) and Nature Reserve (2,7%).

Table 47. Indicators drawn from the protected area account for Upper Vaal SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	3 810	0	0	0	0	0	135 605	3 810
2014	0	3 810	6 655	0	0	0	0	128 950	10 465
2018	0	3 810	6 655	0	0	0	0	128 950	10 465
2020	0	3 810	6 655	0	0	0	0	128 950	10 465
(b) Proportion protected (%)									
1990	0,0%	2,7%	0,0%	0,0%	0,0%	0,0%	0,0%	97,3%	2,7%
2014	0,0%	2,7%	4,8%	0,0%	0,0%	0,0%	0,0%	92,5%	7,5%
2018	0,0%	2,7%	4,8%	0,0%	0,0%	0,0%	0,0%	92,5%	7,5%
2020	0,0%	2,7%	4,8%	0,0%	0,0%	0,0%	0,0%	92,5%	7,5%
(c) Net change in protection per accounting period (%)									
1990-2014	-	0,0%	-	-	-	-	-	-4,9%	174,7%
2014-2018	-	0,0%	0,0%	-	-	-	-	0,0%	0,0%
2018-2020	-	0,0%	0,0%	-	-	-	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	0	6 655	0	0	0	0	-6 655	6 655
1990-2020	-	0,0%	-	-	-	-	-	-4,9%	174,7%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

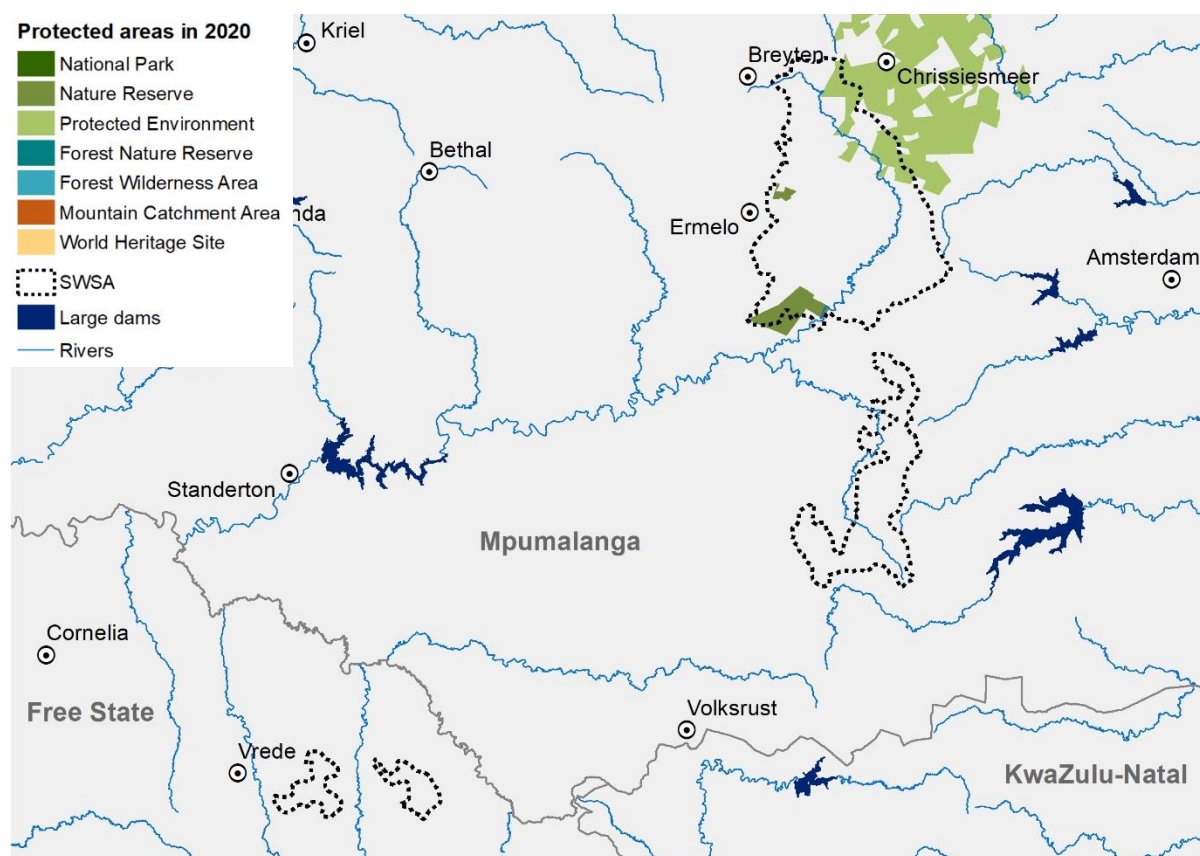
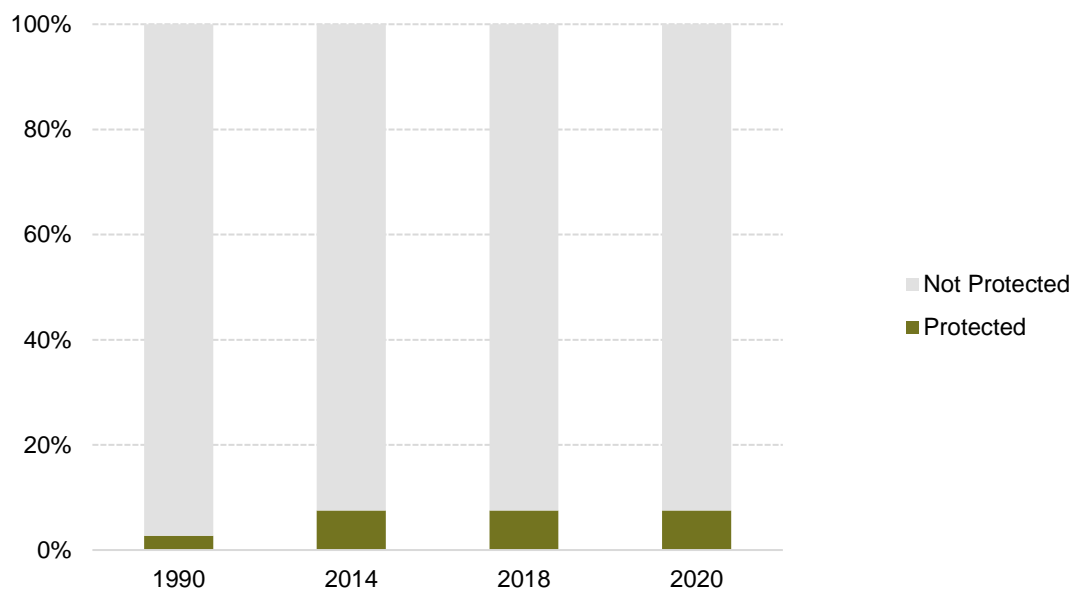
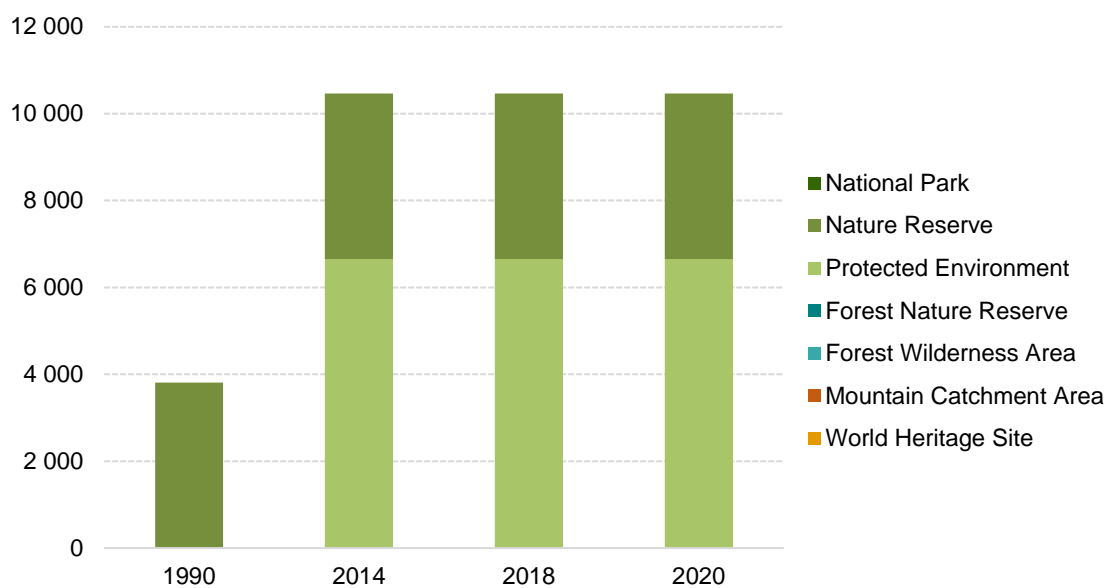
Figure 148. Protected areas occurring wholly or partially within Upper Vaal SWSA, 2020**Figure 149. Proportion of Upper Vaal SWSA protected, 1990, 2014, 2018, 2020**

Figure 150. Extent of protected areas in Upper Vaal SWSA by protected area type, 1990, 2014, 2018, 2020



4.17 Upper Usutu SWSA

Upper Usutu SWSA is one of seven transboundary SWSAs, with 87,0% of its area occurring within South Africa and 13,0% in Eswatini. The SWSA covers 539 322 ha (0,4%) of South Africa's mainland (Table 4 in Section 3.1). It is located in the Mpumalanga province and falls fully within the Gert Sibande District Municipality (Figure 151 and Appendix 2). Upper Usutu SWSA falls largely within the Grassland biome (99,0%) (Table 5 in Section 3.1 and Figure 152).

The estimated total population of the South African portion of Upper Usutu SWSA in 2011 was 170 354, with a population density of approximately 31,6 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 55,4% of households living in Upper Usutu SWSA was a water service provider, with boreholes as the main source of water for 14,3% of households, and 13,8% of households sourcing most of their water directly from springs, rivers or streams (Figure 153).

Figure 151. District municipalities in and around Upper Usutu SWSA

4.17.1 Key findings from the land account for Upper Usutu SWSA

Table 48 shows the change in main land cover classes (tier 2) in Upper Usutu SWSA between 1990 and 2020. Figure 154 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 155.

In 2020, 40,9% (220 723 ha) of Upper Usutu SWSA remained natural or semi-natural, compared with 46,1% in 1990. This was the lowest proportion of natural or semi-natural land cover of all the SWSAs (Table 12). As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included timber plantations (40,1% – almost as much as natural or semi-natural land cover), commercial field crops (7,7%), urban areas (1,9%) and subsistence crops (1,2%), with tiny proportions of orchards and vines and mines (<1,0% each). In 2020, Upper Usutu SWSA had the largest proportion of timber plantations of all SWSAs (Table 11). In 2020, Upper Usutu had the largest proportion of intensively modified land cover classes combined of all SWSAs (Table 12). The proportional division between the intensively modified land cover classes in Upper Usutu SWSA was fairly consistent over the period 1990 to 2020.

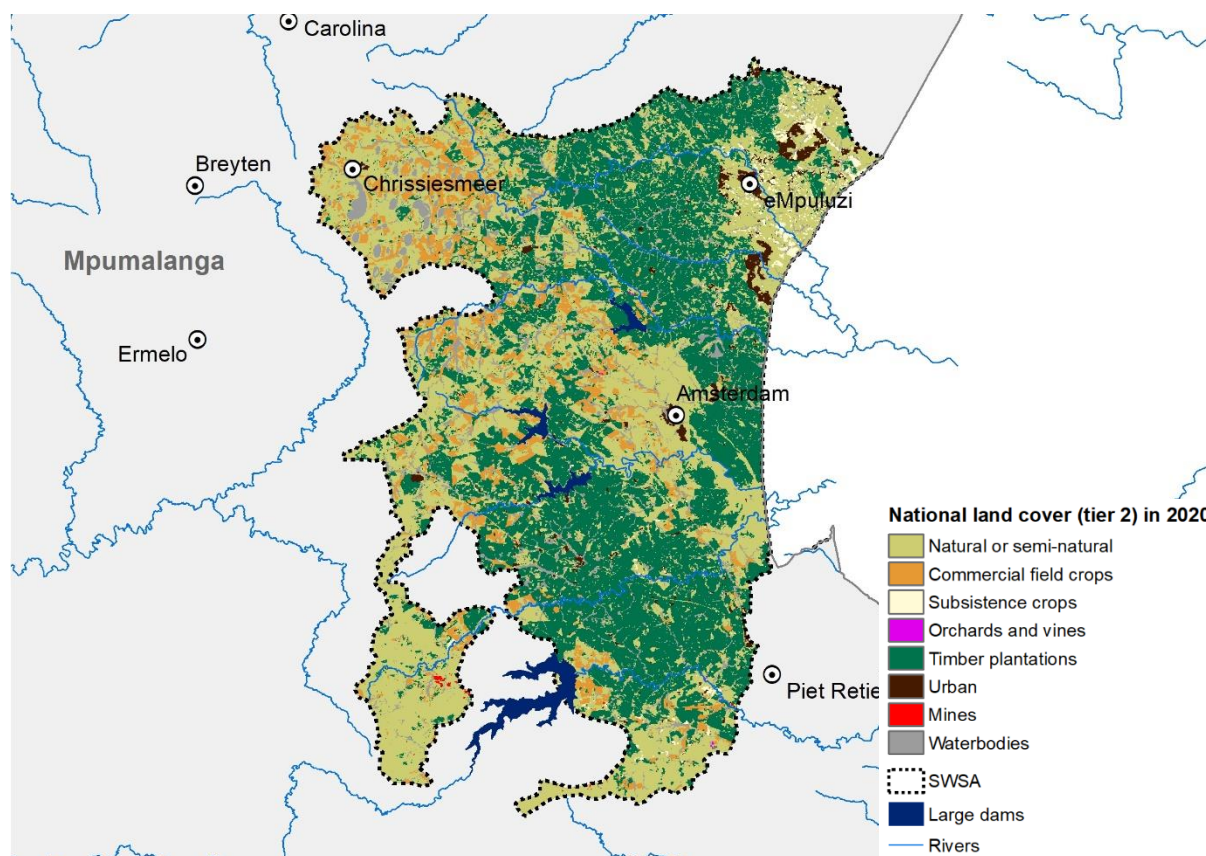
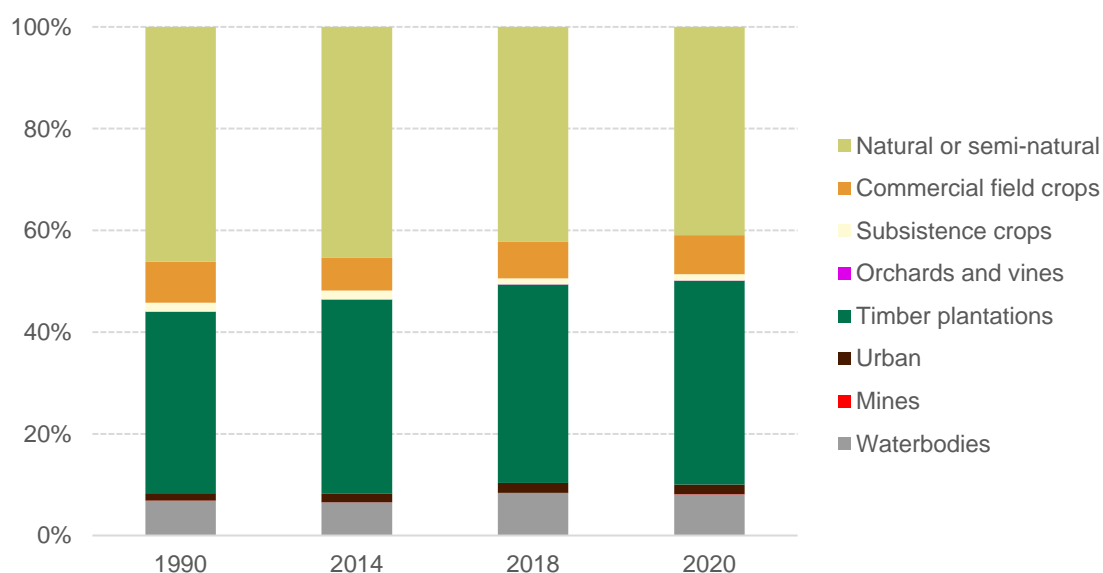
Among the intensively modified land cover classes, the following changes were notable over the period 1990 to 2020:

- An increase of 23 443 ha (12,2%) in timber plantations, from 192 706 ha in 1990 to 216 149 ha in 2020. This was the largest change in absolute terms in this SWSA.
- An increase of 142 ha (71,7%) in mines, from 198 ha in 1990 to 340 ha in 2020.

Table 48. Indicators drawn from the land account for Upper Usutu SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	248 876	43 631	9 288	43	192 706	7 767	198	36 813
2014	244 859	34 600	9 487	40	206 271	8 560	270	35 235
2018	228 055	38 756	6 224	82	210 579	10 514	348	44 764
2020	220 723	41 610	6 531	78	216 149	10 469	340	43 422
(b) Proportion of land cover classes (%)								
1990	46,1%	8,1%	1,7%	0,0%	35,7%	1,4%	0,0%	6,8%
2014	45,4%	6,4%	1,8%	0,0%	38,2%	1,6%	0,1%	6,5%
2018	42,3%	7,2%	1,2%	0,0%	39,0%	1,9%	0,1%	8,3%
2020	40,9%	7,7%	1,2%	0,0%	40,1%	1,9%	0,1%	8,1%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	-1,6%	-20,7%	2,1%	-7,0%	7,0%	10,2%	36,4%	-4,3%
2014-2018	-6,9%	12,0%	-34,4%	105,0%	2,1%	22,8%	28,9%	27,0%
2018-2020	-3,2%	7,4%	4,9%	-4,9%	2,6%	-0,4%	-2,3%	-3,0%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-28 153	-2 021	-2 757	35	23 443	2 702	142	6 609
1990-2020	-11,3%	-4,6%	-29,7%	81,4%	12,2%	34,8%	71,7%	18,0%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 154. Land cover classes (tier 2) in Upper Usutu SWSA, 2020**Figure 155. Land cover composition (tier 2) in Upper Usutu SWSA, 1990, 2014, 2018, 2020**

4.17.2 Key findings from the account for protected areas in Upper Usutu SWSA

Table 49 shows the change in the extent of protected areas in Upper Usutu SWSA between 1990 and 2020, by protected area type. Figure 156 provides a map of protected areas that occurred wholly or partially within Upper Usutu SWSA in 2020. Changes in protection over time are summarised in Figure 157 and Figure 158.

At the end of 2020, 7,8% (42 235 ha) of Upper Usutu SWSA was protected, compared with 0,6% (3 093 ha) in 1990, giving an overall increase in protection of 1265,5%. This increase took place between 1990 and 2014. The net percentage increase in protection in Upper Usutu between 1990 and 2020 was the third largest of all SWSAs (Soutpansberg and Waterberg SWSAs had the first and second largest increases) (Table 15).

Protected area types in Upper Usutu SWSA in 2020 included Protected Environment (6,9% of SWSA area) and Nature Reserve (0,9%). In 2020, Upper Usutu had the second largest proportion of Protected Environment of all SWSAs (Table 15).

Table 49. Indicators drawn from the protected area account for Upper Usutu SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	3 093	0	0	0	0	0	536 229	3 093
2014	0	5 009	37 226	0	0	0	0	497 087	42 235
2018	0	5 009	37 226	0	0	0	0	497 087	42 235
2020	0	5 009	37 226	0	0	0	0	497 087	42 235
(b) Proportion protected (%)									
1990	0,0%	0,6%	0,0%	0,0%	0,0%	0,0%	0,0%	99,4%	0,6%
2014	0,0%	0,9%	6,9%	0,0%	0,0%	0,0%	0,0%	92,2%	7,8%
2018	0,0%	0,9%	6,9%	0,0%	0,0%	0,0%	0,0%	92,2%	7,8%
2020	0,0%	0,9%	6,9%	0,0%	0,0%	0,0%	0,0%	92,2%	7,8%
(c) Net change in protection per accounting period (%)									
1990-2014	-	61,9%	-	-	-	-	-	-7,3%	1 265,5%
2014-2018	-	0,0%	0,0%	-	-	-	-	0,0%	0,0%
2018-2020	-	0,0%	0,0%	-	-	-	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	1 916	37 226	0	0	0	0	-39 142	39 142
1990-2020	0,0%	61,9%	-	-	-	-	-	-7,3%	1 265,5%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

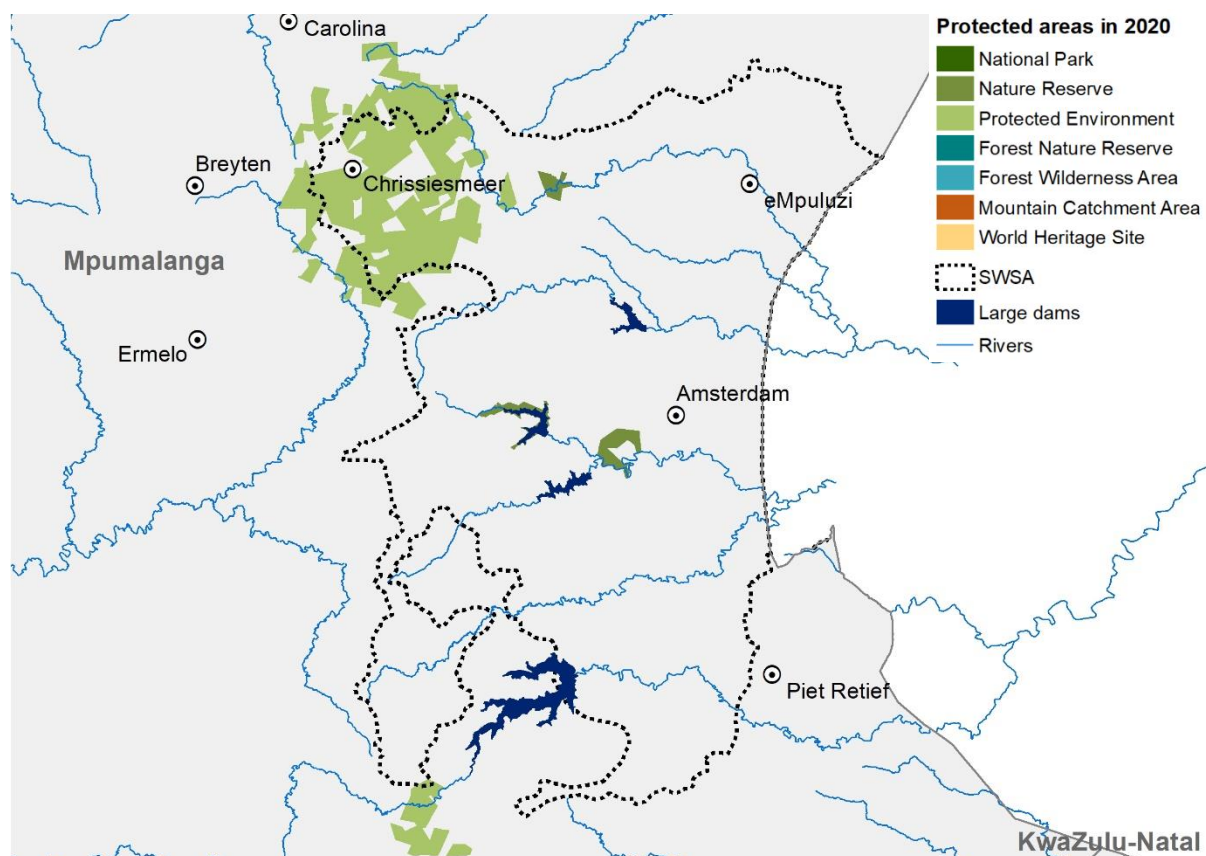
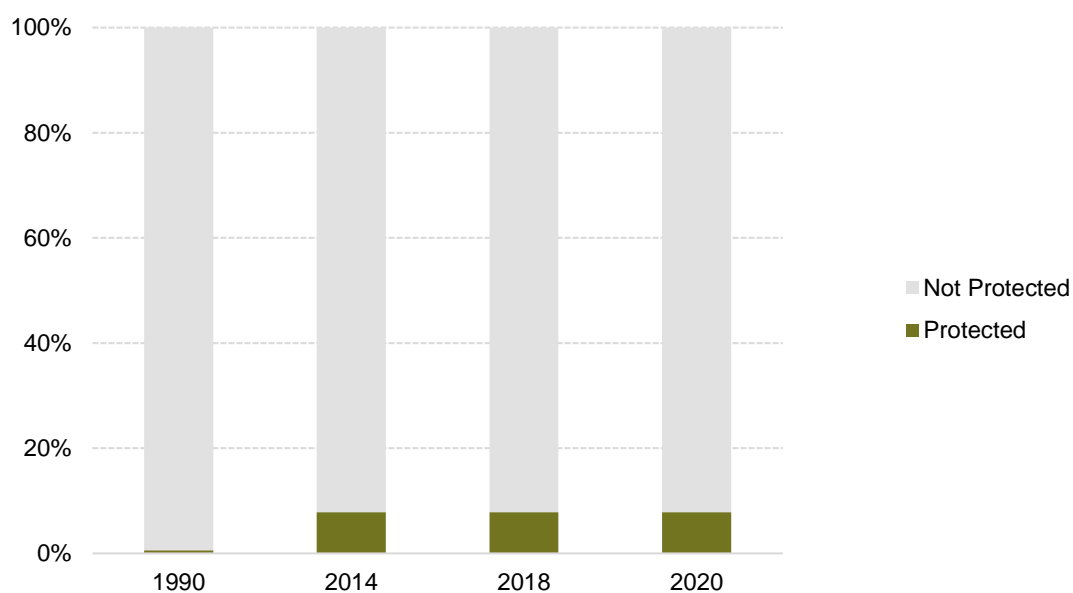
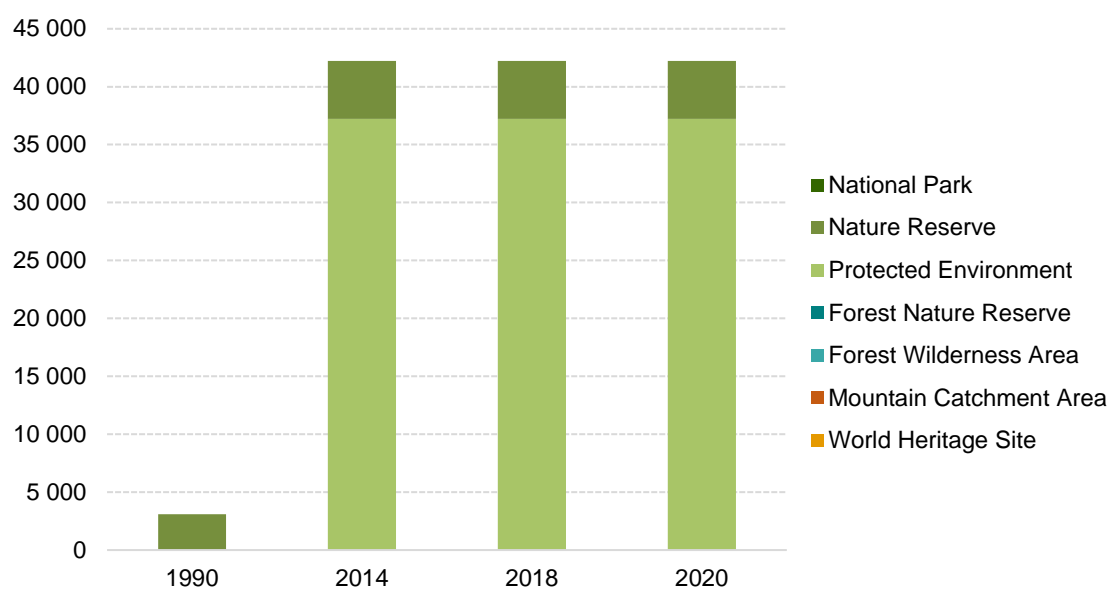
Figure 156. Protected areas occurring wholly or partially within Upper Usutu SWSA, 2020**Figure 157. Proportion of Upper Usutu SWSA protected, 1990, 2014, 2018, 2020**

Figure 158. Extent of protected areas in Upper Usutu SWSA by protected area type, 1990, 2014, 2018, 2020



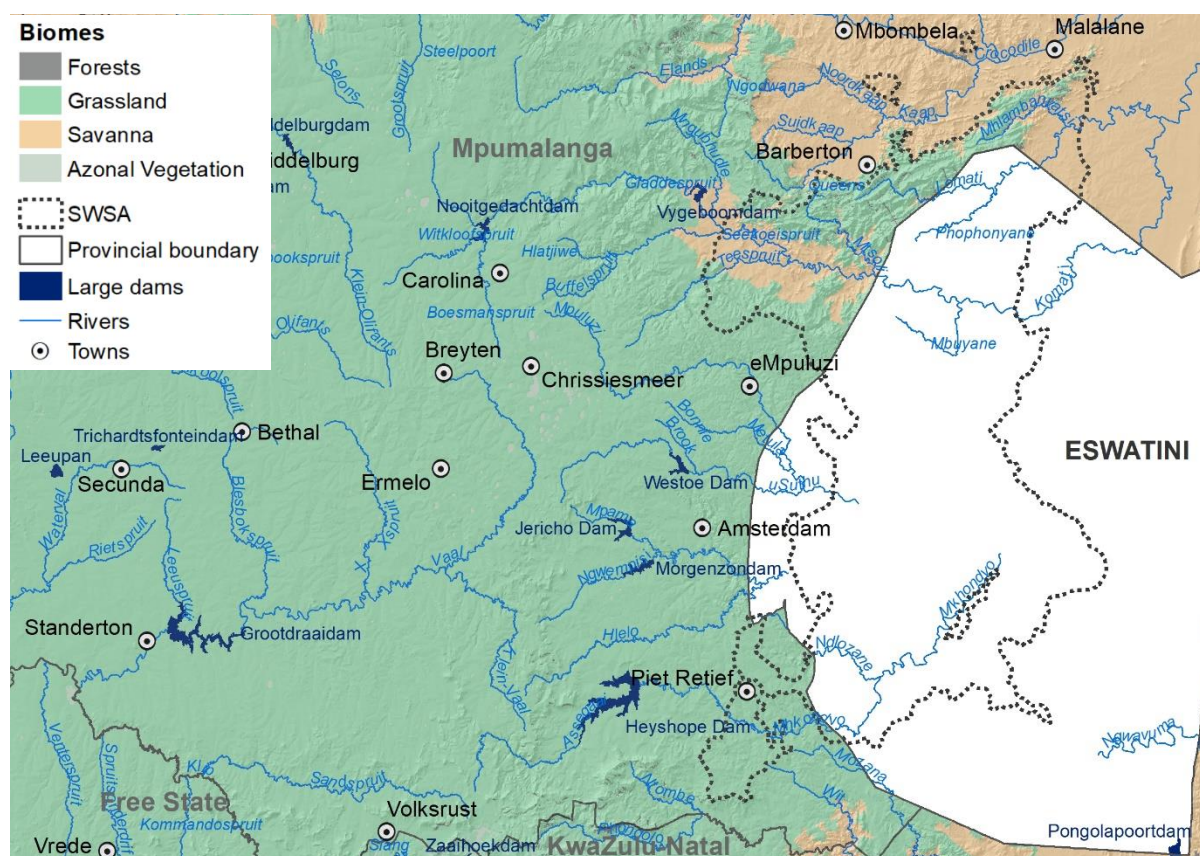
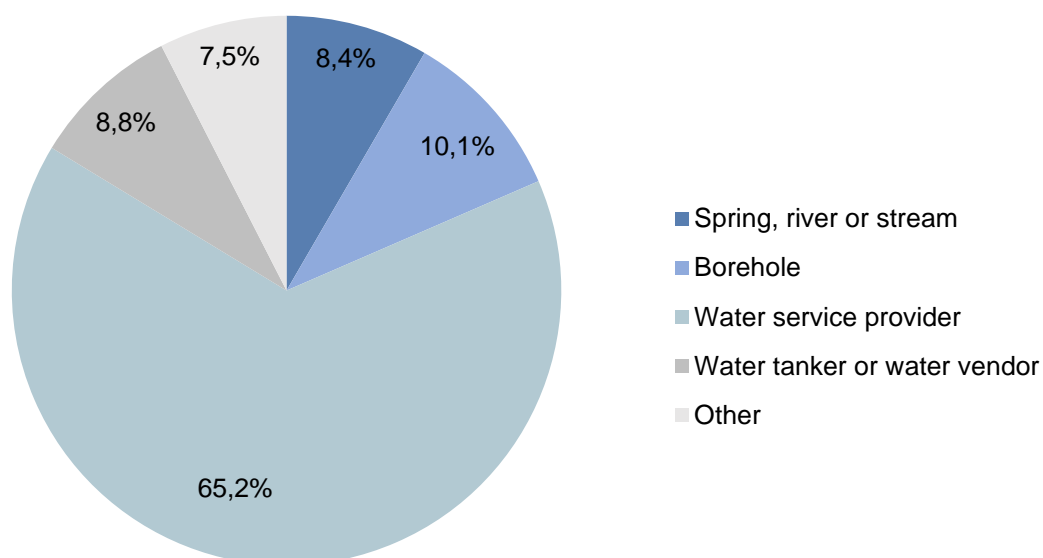
4.18 Mbabane Hills SWSA

Mbabane Hills SWSA is one of seven transboundary SWSAs, with 29,6% of its area occurring within South Africa and 70,4% in Eswatini. The SWSA covers 295 775 ha (0,2%) of South Africa's mainland (Table 4 in Section 3.1). It is located in the Mpumalanga province and spans two district municipalities: Gert Sibande (60,4%) and Ehlanzeni (39,6%) (Figure 159 and Appendix 2). Mbabane Hills SWSA falls mainly within the Grassland biome (63,0%) with portions in the Savanna (35,7%) and Forest (1,3%) biomes (Table 5 in Section 3.1 and Figure 160).

The estimated total population of the South African portion of Mbabane Hills SWSA in 2011 was 259 521, with a population density of approximately 87,7 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 65,2% of households living in Mbabane Hills SWSA was a water service provider, with boreholes as the main source of water for 10,1% of households, and 8,4% of households sourcing most of their water directly from springs, rivers or streams (Figure 161).

Figure 159. District municipalities in and around Mbabane Hills SWSA



Figure 160. Terrestrial biomes in and around Mbabane Hills SWSA**Figure 161. Main source of water for domestic use for households living in Mbabane Hills SWSA, based on the 2011 population census**

4.18.1 Key findings from the land account for Mbabane Hills SWSA

Table 50 shows the change in main land cover classes (tier 2) in Mbabane Hills SWSA between 1990 and 2020. Figure 162 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 163.

In 2020, 64,8% (191 667 ha) of Mbabane Hills SWSA remained natural or semi-natural, compared with 67,0% in 1990. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

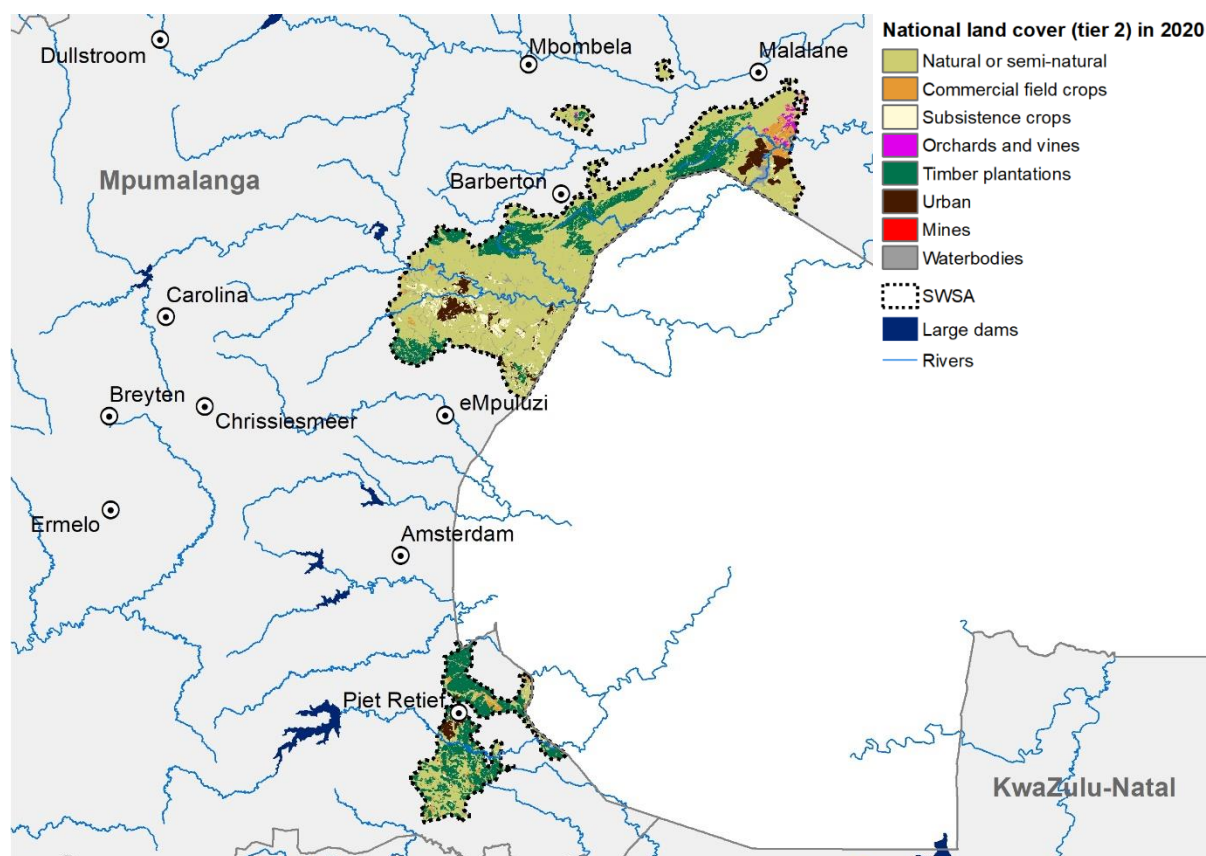
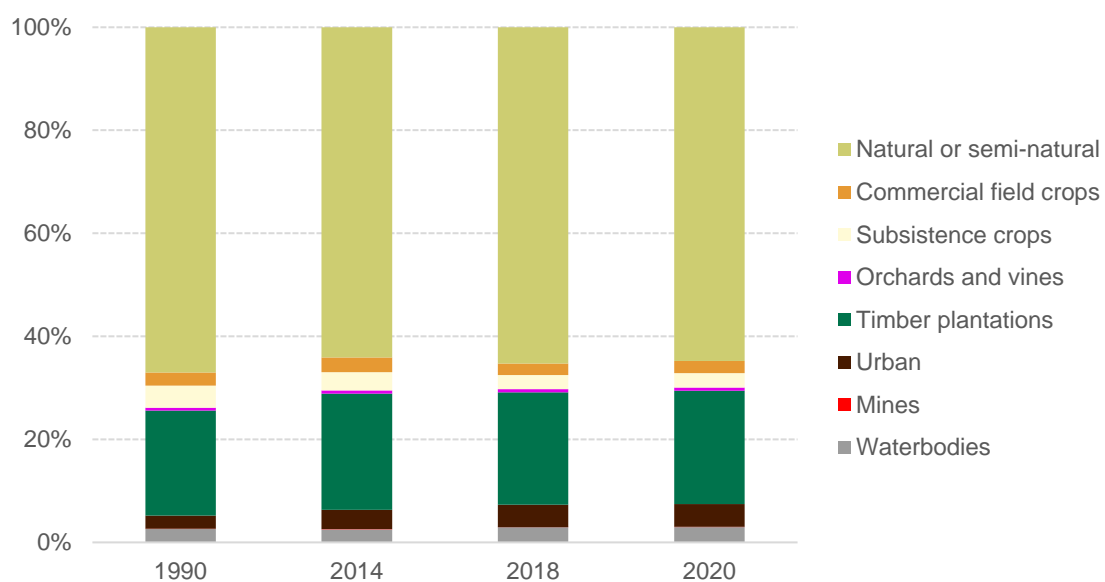
Intensively modified land cover classes in the rest of the SWSA in 2020 included timber plantations (22,0%), urban areas (4,5%), subsistence crops (2,8%) and commercial field crops (2,4%), with tiny proportions of orchards and vines and mines (<1,0% each). Mbabane Hills SWSA has the third highest proportion of timber plantations of all SWSAs (Upper Usutu and Mpumalanga Drakensberg SWSAs had the first and second highest proportions) (Table 11). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020.

Among the intensively modified land cover classes, a notable change over the period 1990 to 2020 was an increase of 5 593 ha (73,8%) in urban areas, from 7 583 ha in 1990 to 13 176 ha in 2020. This was the largest change in both absolute and percentage terms in this SWSA.

Table 50. Indicators drawn from the land account for Mbabane Hills SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	198 211	7 602	12 604	1 662	60 348	7 583	124	7 641
2014	189 642	8 432	10 417	1 798	66 845	11 021	66	7 554
2018	193 075	6 668	8 088	1 703	64 554	12 833	26	8 828
2020	191 667	6 987	8 294	1 735	65 039	13 176	34	8 843
(b) Proportion of land cover classes (%)								
1990	67,0%	2,6%	4,3%	0,6%	20,4%	2,6%	0,0%	2,6%
2014	64,1%	2,9%	3,5%	0,6%	22,6%	3,7%	0,0%	2,6%
2018	65,3%	2,3%	2,7%	0,6%	21,8%	4,3%	0,0%	3,0%
2020	64,8%	2,4%	2,8%	0,6%	22,0%	4,5%	0,0%	3,0%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	-4,3%	10,9%	-17,4%	8,2%	10,8%	45,3%	-46,8%	-1,1%
2014-2018	1,8%	-20,9%	-22,4%	-5,3%	-3,4%	16,4%	-60,6%	16,9%
2018-2020	-0,7%	4,8%	2,5%	1,9%	0,8%	2,7%	30,8%	0,2%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	-6 544	-615	-4 310	73	4 691	5 593	-90	1 202
1990-2020	-3,3%	-8,1%	-34,2%	4,4%	7,8%	73,8%	-72,6%	15,7%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 162. Land cover classes (tier 2) in Mbabane Hills SWSA, 2020**Figure 163. Land cover composition (tier 2) in Mbabane Hills SWSA, 1990, 2014, 2018, 2020**

4.18.2 Key findings from the account for protected areas in Mbabane Hills SWSA

Table 51 shows the change in the extent of protected areas in Mbabane Hills SWSA between 1990 and 2020, by protected area type. Figure 164 provides a map of protected areas that occurred wholly or partially within Mbabane Hills SWSA in 2020. Changes in protection over time are summarised in Figure 165 and Figure 166.

At the end of 2020, 35,3% (104 408 ha) of Mbabane Hills SWSA was protected, compared with 19,3% (57 148 ha) in 1990, giving an overall increase in protection of 82,7%. A large part of this increase took place between 2018 and 2020 and can be attributed to the declaration of Barberton Makhonjwa Mountains as a World Heritage Site in 2018.

Protected area types in Mbabane Hills SWSA in 2020 included Nature Reserve (25,2% of SWSA area), World Heritage Site¹¹ (10,1%), with a tiny proportion of Forest Nature Reserve (<1,0%).

Table 51. Indicators drawn from the protected area account for Mbabane Hills SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not Protected	Total protected
(a) Extent of protection (ha)									
1990	0	57 148	0	0	0	0	0	238 627	57 148
2014	0	71 117	0	34	0	0	0	224 624	71 151
2018	0	74 448	0	34	0	0	0	221 293	74 482
2020	0	74 448	0	34	0	0	29 926	191 367	104 408
(b) Proportion protected (%)									
1990	0,0%	19,3%	0,0%	0,0%	0,0%	0,0%	0,0%	80,7%	19,3%
2014	0,0%	24,0%	0,0%	0,0%	0,0%	0,0%	0,0%	75,9%	24,1%
2018	0,0%	25,2%	0,0%	0,0%	0,0%	0,0%	0,0%	74,8%	25,2%
2020	0,0%	25,2%	0,0%	0,0%	0,0%	0,0%	10,1%	64,7%	35,3%
(c) Net change in protection per accounting period (%)									
1990-2014	-	24,4%	-	-	-	-	-	-5,9%	24,5%
2014-2018	-	4,7%	-	0,0%	-	-	-	-1,5%	4,7%
2018-2020	-	0,0%	-	0,0%	-	-	-	-13,5%	40,2%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	17 300	0	34	0	0	29 926	-47 260	47 260
1990-2020	-	30,3%	-	-	-	-	-	-19,8%	82,7%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

¹¹ This represents only the portion of the Barberton Makhonjwa Mountains World Heritage Site within the SWSA that falls outside of other protected area types.

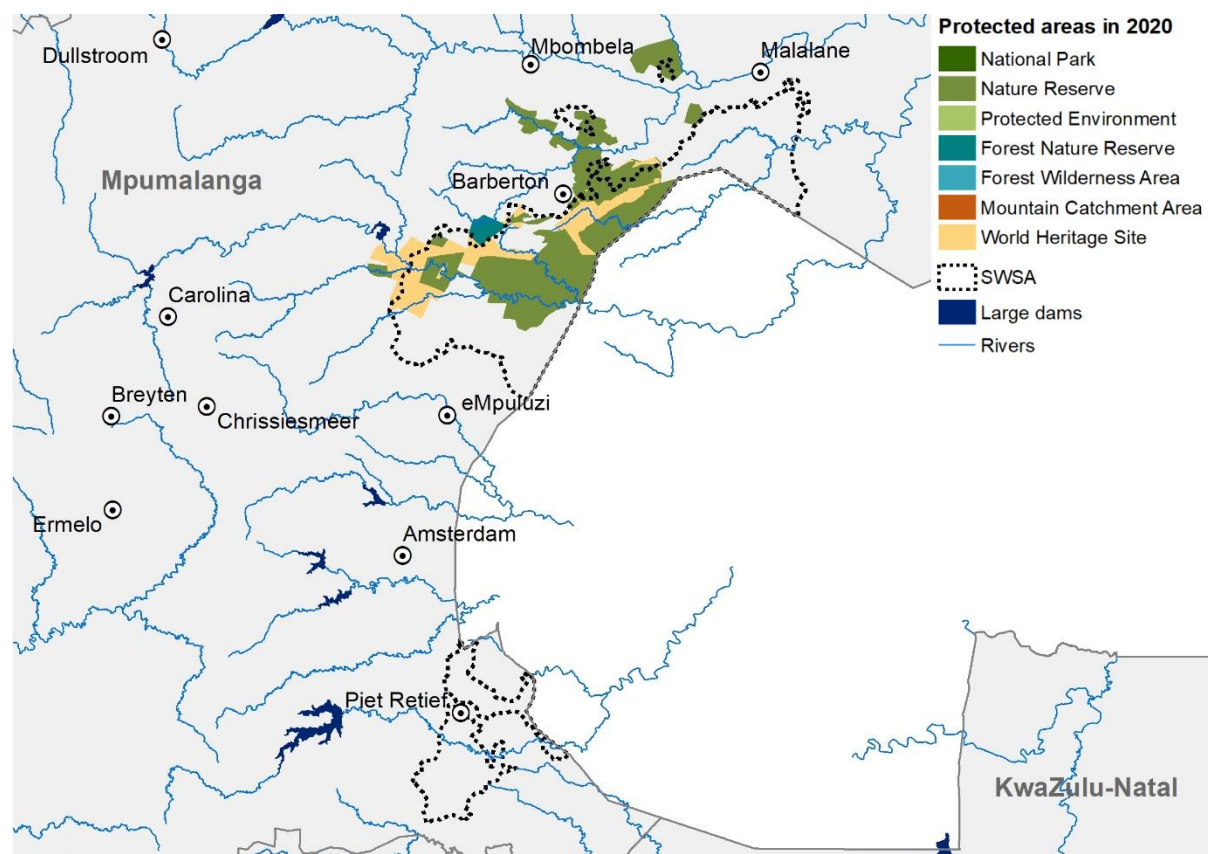
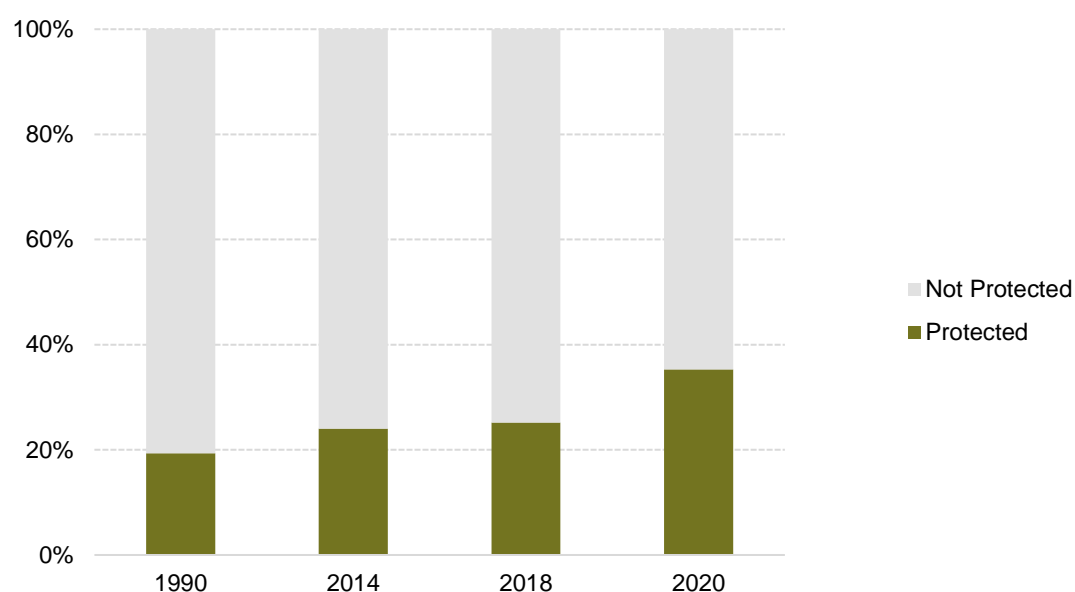
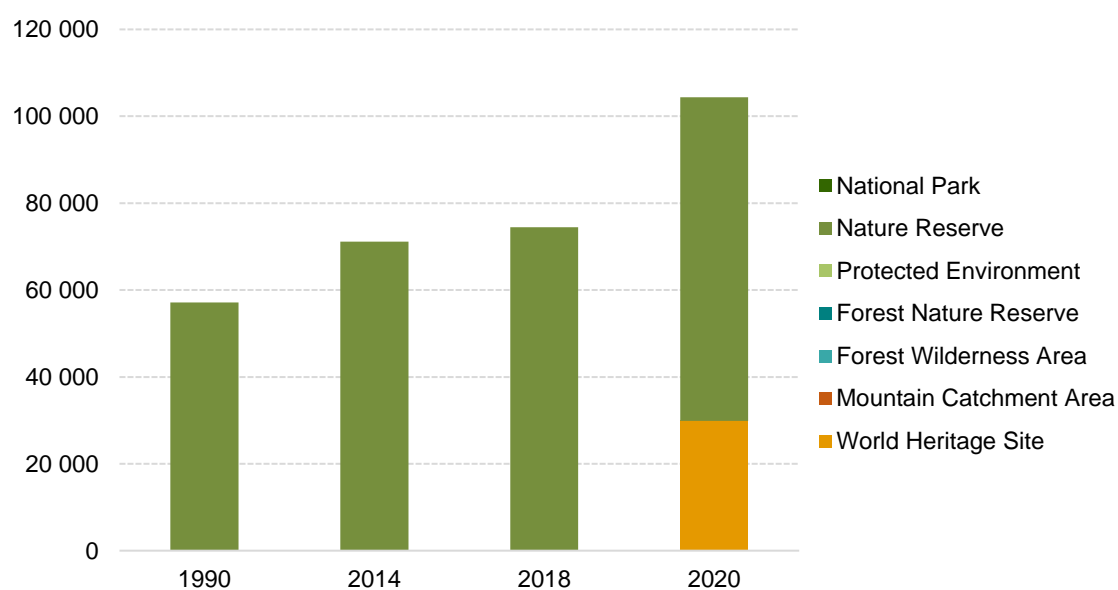
Figure 164. Protected areas occurring wholly or partially within Mbabane Hills SWSA, 2020

Figure 165. Proportion of Mbabane Hills SWSA protected, 1990, 2014, 2018, 2020**Figure 166. Extent of protected areas in Mbabane Hills SWSA by protected area type, 1990, 2014, 2018, 2020**

4.19 Mpumalanga Drakensberg SWSA

Mpumalanga Drakensberg SWSA covers 837 248 ha (0,7%) of South Africa's mainland (Table 4 in Section 3.1). It spans the Mpumalanga and Limpopo provinces (99,6% and 0,4% respectively) and five district municipalities: Ehlanzeni (69,9%), Gert Sibande (18,8%) and Nkangala (10,9%) in Mpumalanga, and Mopani (0,3%) and Sekhukhune (0,2%) in Limpopo (Figure 167 and Appendix 2). Mpumalanga Drakensberg SWSA falls mainly within the Grassland biome (59,2%) with portions in the Savanna (37,8%) and Forest (3,0%) biomes (Table 5 in Section 3.1 and Figure 168).

The estimated total population of Mpumalanga Drakensberg SWSA in 2011 was 324 968, with a population density of approximately 38,8 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 48,6% of households living in Mpumalanga Drakensberg SWSA was a water service provider, with boreholes as the main source of water for 14,6% of households, and 17,2% of households sourcing most of their water directly from springs, rivers or streams (Figure 169).

Figure 167. District municipalities in and around Mpumalanga Drakensberg SWSA

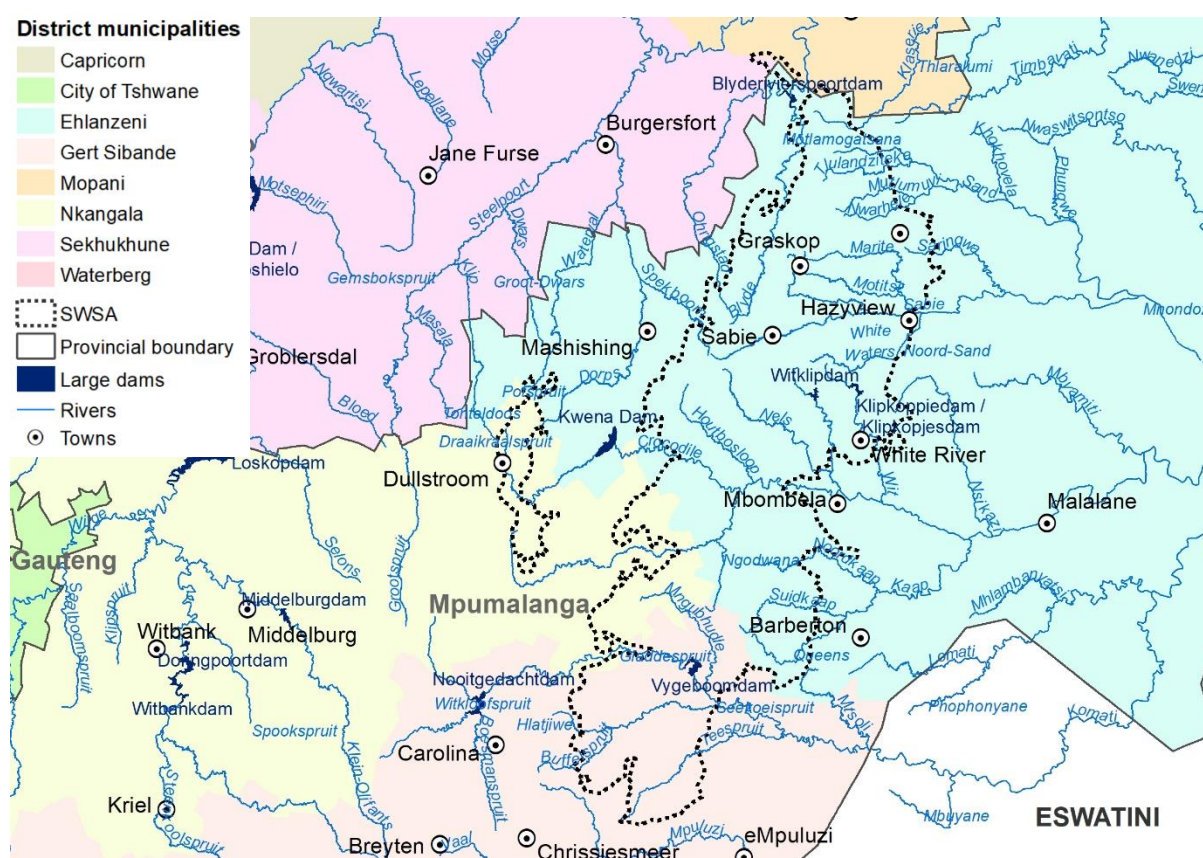
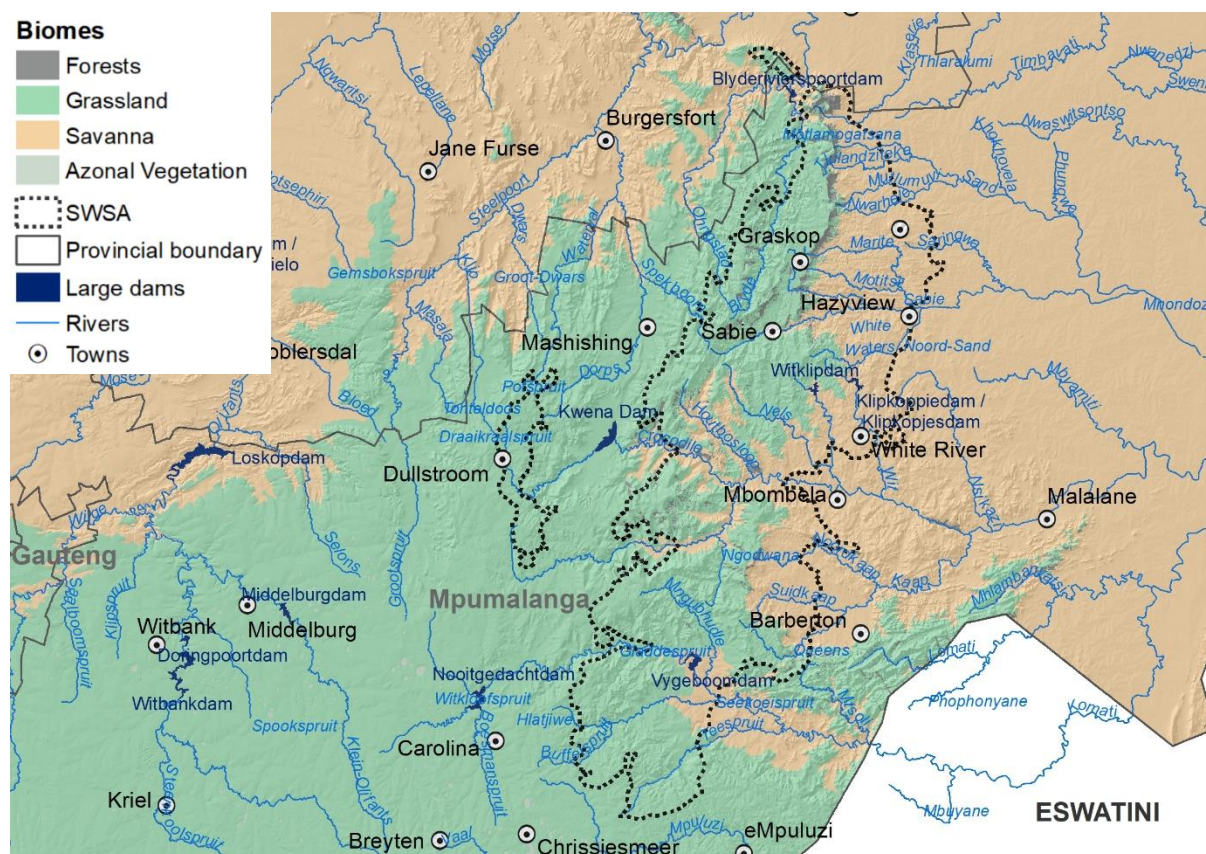
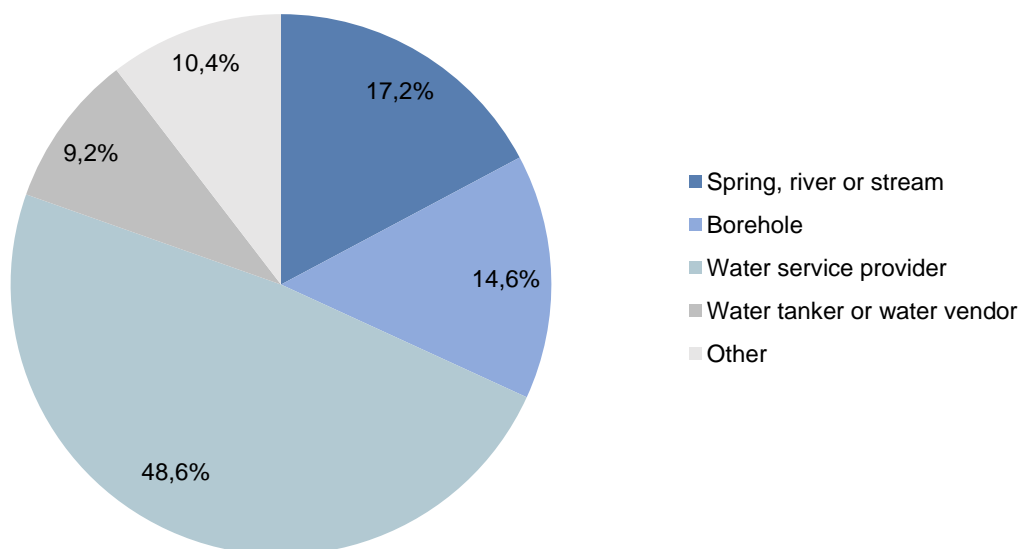


Figure 168. Terrestrial biomes in and around Mpumalanga Drakensberg SWSA**Figure 169. Main source of water for domestic use for households living in Mpumalanga Drakensberg SWSA, based on the 2011 population census**

4.19.1 Key findings from the land account for Mpumalanga Drakensberg SWSA

Table 52 shows the change in main land cover classes (tier 2) in Mpumalanga Drakensberg SWSA between 1990 and 2020. Figure 170 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 171.

In 2020, 51,3% (429 295 ha) of Mpumalanga Drakensberg SWSA remained natural or semi-natural, compared with 47,0% in 1990. This increase in natural or semi-natural land cover suggests that some intensively modified areas may have reverted to semi-natural over this period. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included timber plantations (39,4%), urban areas (2,8%), orchards and vines (2,4%) and commercial field crops (2,1%), with tiny proportions of mines and subsistence crops (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020.

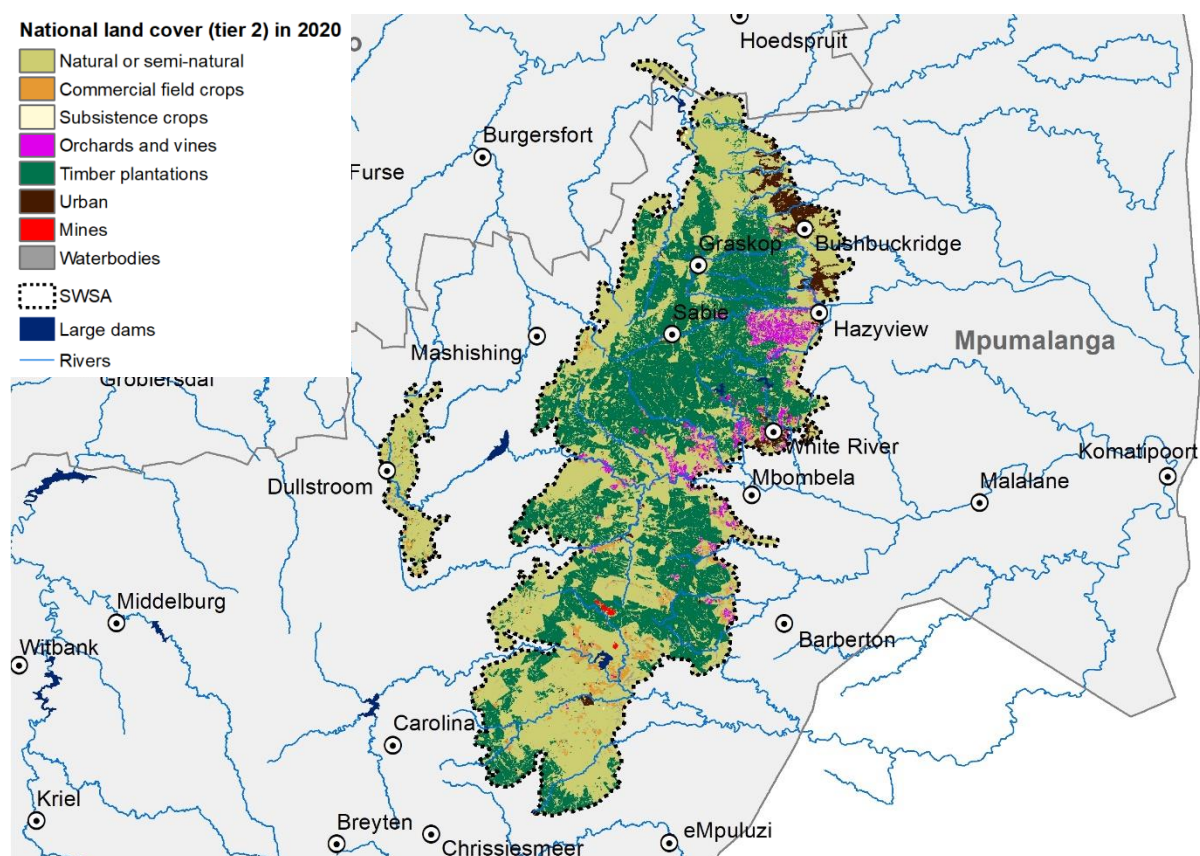
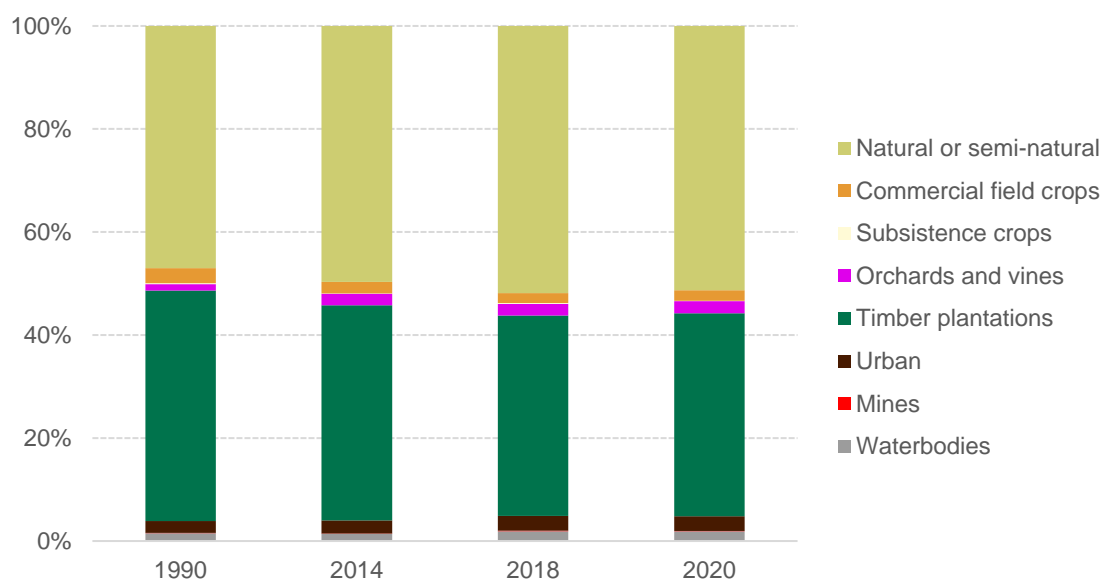
Among the intensively modified land cover classes, the following changes were notable over the period 1990 to 2020:

- A decrease of 44 256 ha (-11,8%) in timber plantations. This was the largest change in absolute terms in this SWSA. Notwithstanding this decrease, Mpumalanga Drakensberg SWSA still has the second largest proportion of timber plantations of all SWSAs (Table 11).
- An increase of 347,2% in the extent of mines, from 212 ha in 1990 to 948 ha in 2020. This was the largest change in percentage terms in this SWSA. Although mines make up less than 1,0% of the SWSA, even after this increase, 948 ha is the third largest extent of mines across all SWSAs by a substantial margin (the largest is Upper Vaal SWSA with 1 216 ha and second largest is Northern Drakensberg SWSA with 1 027 ha) (Table 11).
- An increase of 89,4% (9 300 ha) in orchards and vines, from 10 404 ha in 1990 to 19 704 ha in 2020.

Table 52. Indicators drawn from the land account for Mpumalanga Drakensberg SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	393 783	24 130	1 950	10 404	374 280	19 529	212	12 960
2014	415 911	18 755	755	18 754	349 374	21 419	782	11 498
2018	434 464	16 079	1 287	18 737	325 948	23 677	980	16 076
2020	429 295	17 489	360	19 704	330 024	23 707	948	15 721
(b) Proportion of land cover classes (%)								
1990	47,0%	2,9%	0,2%	1,2%	44,7%	2,3%	0,0%	1,5%
2014	49,7%	2,2%	0,1%	2,2%	41,7%	2,6%	0,1%	1,4%
2018	51,9%	1,9%	0,2%	2,2%	38,9%	2,8%	0,1%	1,9%
2020	51,3%	2,1%	0,0%	2,4%	39,4%	2,8%	0,1%	1,9%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	5,6%	-22,3%	-61,3%	80,3%	-6,7%	9,7%	268,9%	-11,3%
2014-2018	4,5%	-14,3%	70,5%	-0,1%	-6,7%	10,5%	25,3%	39,8%
2018-2020	-1,2%	8,8%	-72,0%	5,2%	1,3%	0,1%	-3,3%	-2,2%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	35 512	-6 641	-1 590	9 300	-44 256	4 178	736	2 761
1990-2020	9,0%	-27,5%	-81,5%	89,4%	-11,8%	21,4%	347,2%	21,3%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 170. Land cover classes (tier 2) in Mpumalanga Drakensberg SWSA, 2020**Figure 171. Land cover composition (tier 2) in Mpumalanga Drakensberg SWSA, 1990, 2014, 2018, 2020**

4.19.2 Key findings from the account for protected areas in Mpumalanga Drakensberg SWSA

Table 53 shows the change in the extent of protected areas in Mpumalanga Drakensberg SWSA between 1990 and 2020, by protected area type. Figure 172 provides a map of protected areas that occurred wholly or partially within Mpumalanga Drakensberg SWSA in 2020. Changes in protection over time are summarised in Figure 173 and Figure 174.

At the end of 2020, 12,6% (105 624 ha) of Mpumalanga Drakensberg SWSA was protected, compared with 6,0% (50 067 ha) in 1990, giving an overall increase in protection of 111,0%. Most of this increase took place between 1990 and 2014.

Protected area types in Mpumalanga Drakensberg SWSA in 2020 included Nature Reserve (9,0% of SWSA area) and Forest Nature Reserve (1,8%), with tiny proportions of World Heritage Site¹², Mountain Catchment Area and Protected Environment (<1,0% each).

Table 53. Indicators drawn from the protected area account for Mpumalanga Drakensberg SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	44 301	0	2 095	0	3 671	0	787 181	50 067
2014	0	74 523	22	15 090	0	3 671	0	743 942	93 306
2018	0	75 487	3 577	15 090	0	3 671	0	739 423	97 825
2020	0	75 487	3 577	15 090	0	3 671	7 799	731 624	105 624
(b) Proportion protected (%)									
1990	0,0%	5,3%	0,0%	0,3%	0,0%	0,4%	0,0%	94,0%	6,0%
2014	0,0%	8,9%	0,0%	1,8%	0,0%	0,4%	0,0%	88,9%	11,1%
2018	0,0%	9,0%	0,4%	1,8%	0,0%	0,4%	0,0%	88,3%	11,7%
2020	0,0%	9,0%	0,4%	1,8%	0,0%	0,4%	0,9%	87,4%	12,6%
(c) Net change in protection per accounting period (%)									
1990-2014	-	68,2%	-	620,3%	-	0,0%	-	-5,5%	86,4%
2014-2018	-	1,3%	16 159,1%	0,0%	-	0,0%	-	-0,6%	4,8%
2018-2020	-	0,0%	0,0%	0,0%	-	0,0%	-	-1,1%	8,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	31 186	3 577	12 995	0	0	7 799	-55 557	55 557
1990-2020	-	70,4%	-	620,3%	-	0,0%	-	-7,1%	111,0%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

¹² This represents only the portion of the Barberton Makhonjwa Mountains World Heritage Site within the SWSA that falls outside of other protected area types.

Figure 172. Protected areas occurring wholly or partially within Mpumalanga Drakensberg SWSA, 2020

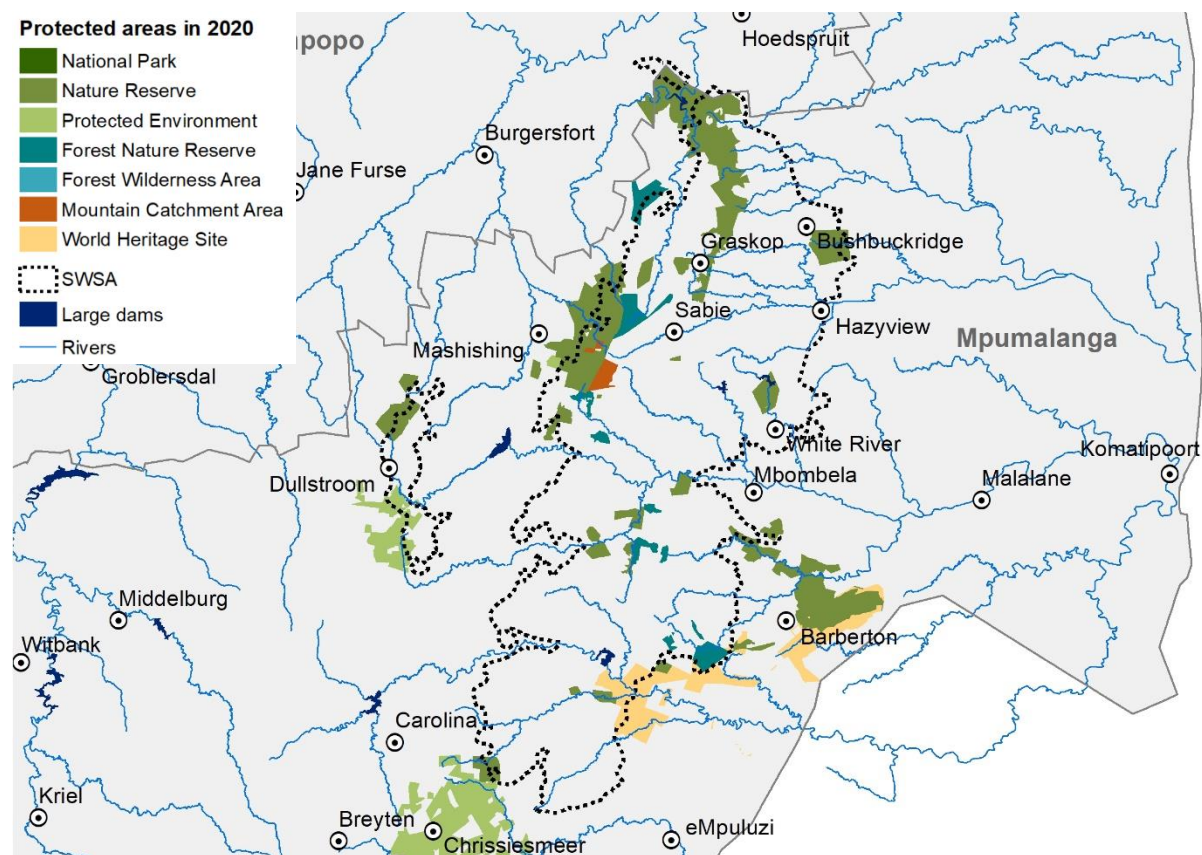
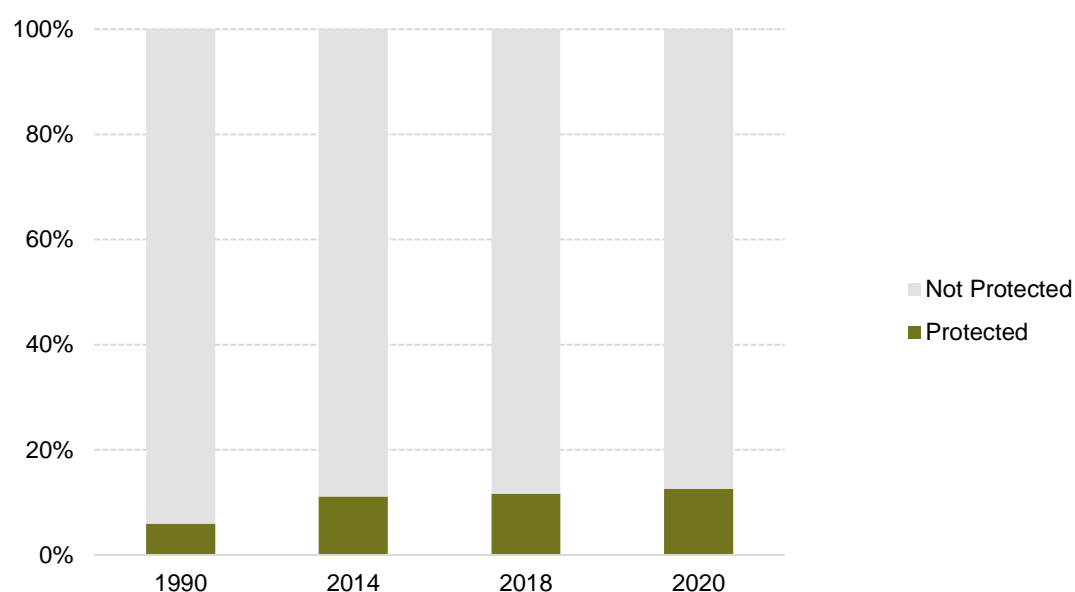
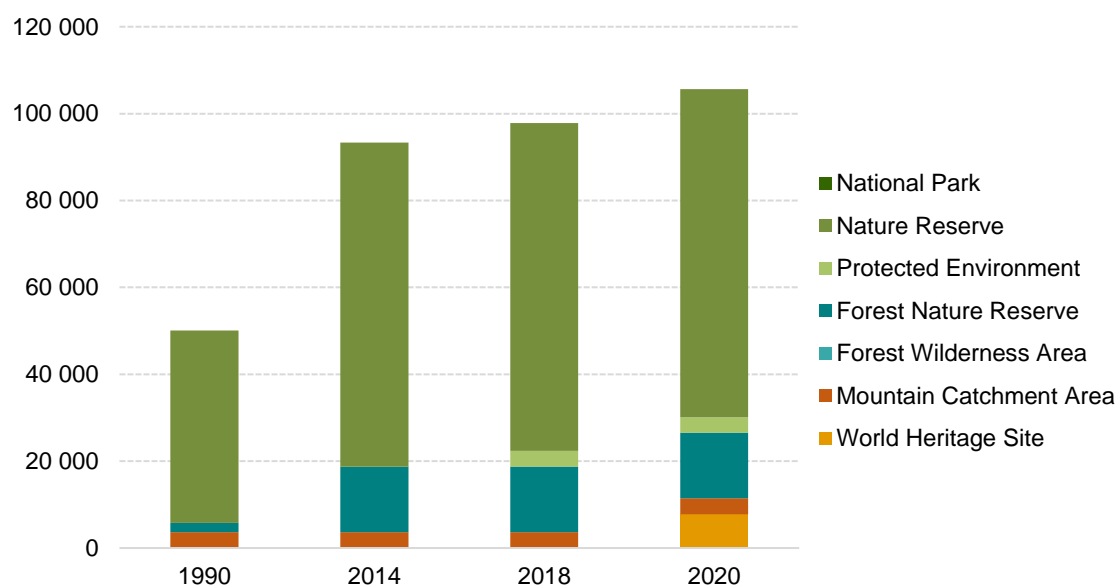


Figure 173. Proportion of Mpumalanga Drakensberg SWSA protected, 1990, 2014, 2018, 2020**Figure 174. Extent of protected areas in Mpumalanga Drakensberg SWSA by protected area type, 1990, 2014, 2018, 2020**

4.20 Wolkberg SWSA

Wolkberg SWSA covers 259 627 ha (0,2%) of South Africa's mainland (Table 4 in Section 3.1). It is located in the Limpopo province and spans three district municipalities: Mopani (75,0%), Capricorn (22,3%) and Sekhukhune (2,6%) (Figure 175 and Appendix 2). Wolkberg SWSA falls mainly within the Savanna biome (63,9%) with portions in the Grassland (28,3%) and Forest (7,8%) biomes (Table 5 in Section 3.1 and Figure 176).

The estimated total population of Wolkberg SWSA in 2011 was 323 409, with a population density of approximately 124,6 people per km² (Table 8 in Section 3.1). The main source of water for domestic use for 43,5% of households living in Wolkberg SWSA was a water service provider, with boreholes as the main source of water for 16,8% of households, and 12,3% of households sourcing most of their water directly from springs, rivers or streams (Figure 177).

Figure 175. District municipalities in and around Wolkberg SWSA

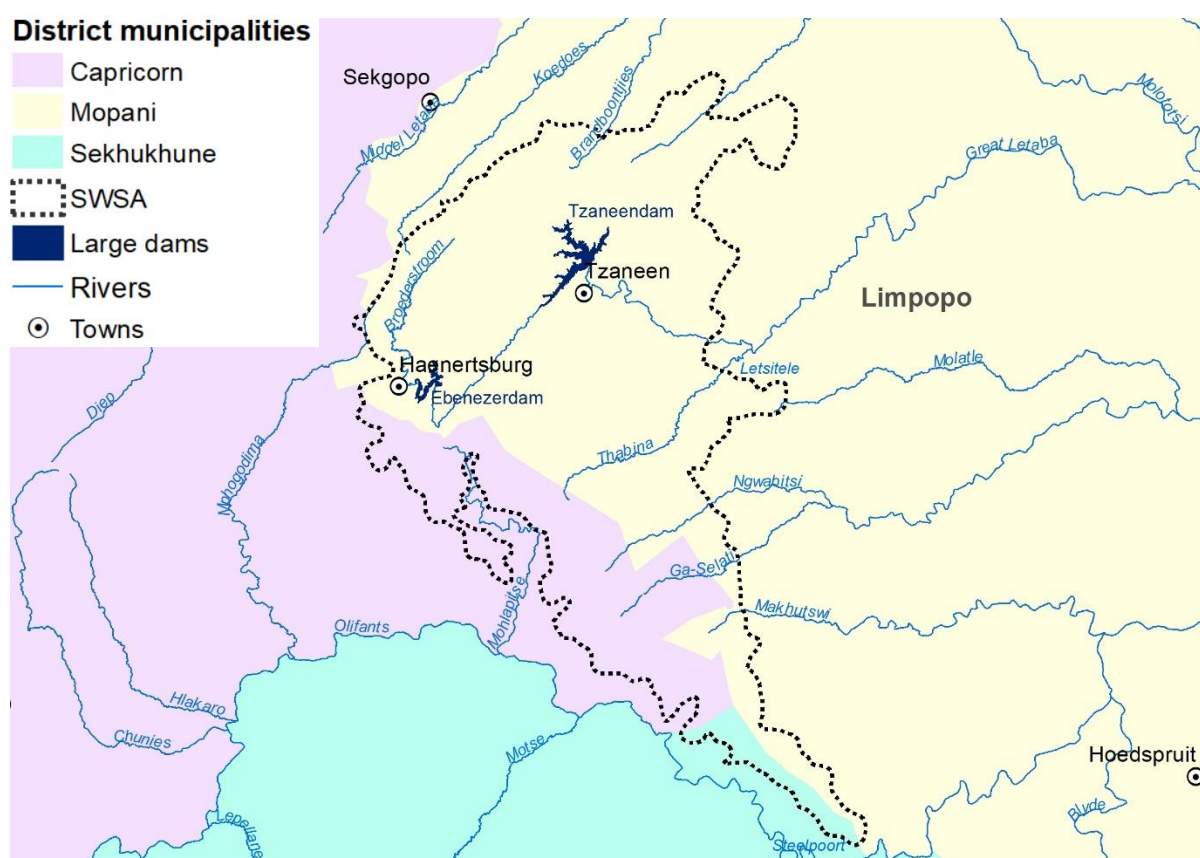
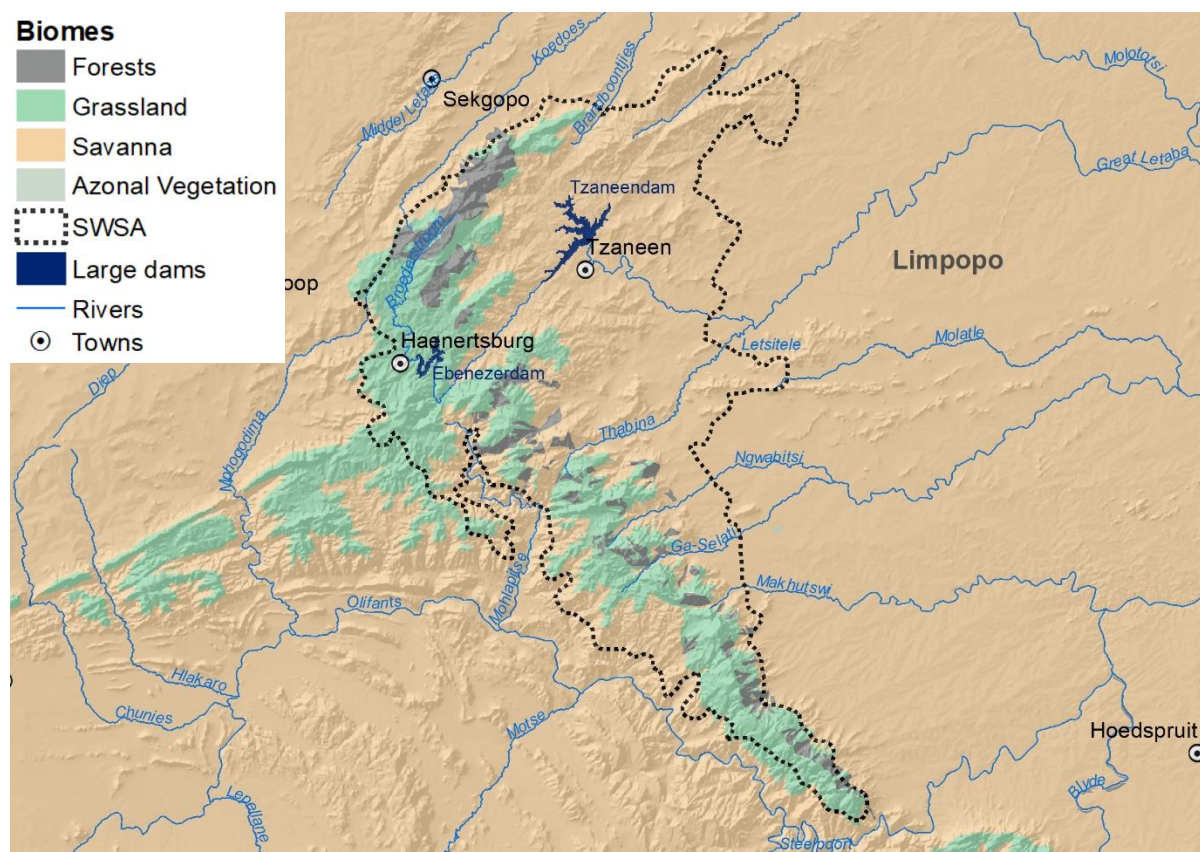
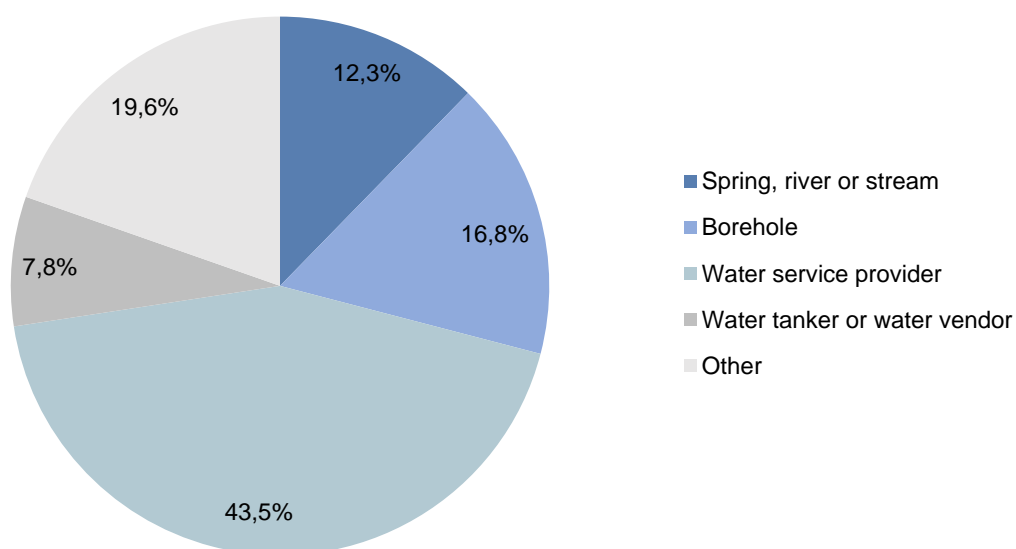


Figure 176. Terrestrial biomes in and around Wolkberg SWSA**Figure 177. Main source of water for domestic use for households living in Wolkberg SWSA, based on the 2011 population census**

4.20.1 Key findings from the land account for Wolkberg SWSA

Table 54 shows the change in main land cover classes (tier 2) in Wolkberg SWSA between 1990 and 2020. Figure 178 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 179.

In 2020, 63,4% (164 624 ha) of Wolkberg SWSA remained natural or semi-natural, compared with 61,7% in 1990. This increase in natural or semi-natural land cover suggests that some intensively modified areas may have reverted to semi-natural over this period. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included timber plantations (20,4%), urban areas (6,9%), orchards and vines (6,6%) and commercial field crops (1,7%), with tiny proportions of subsistence crops and mines (<1,0% each). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020.

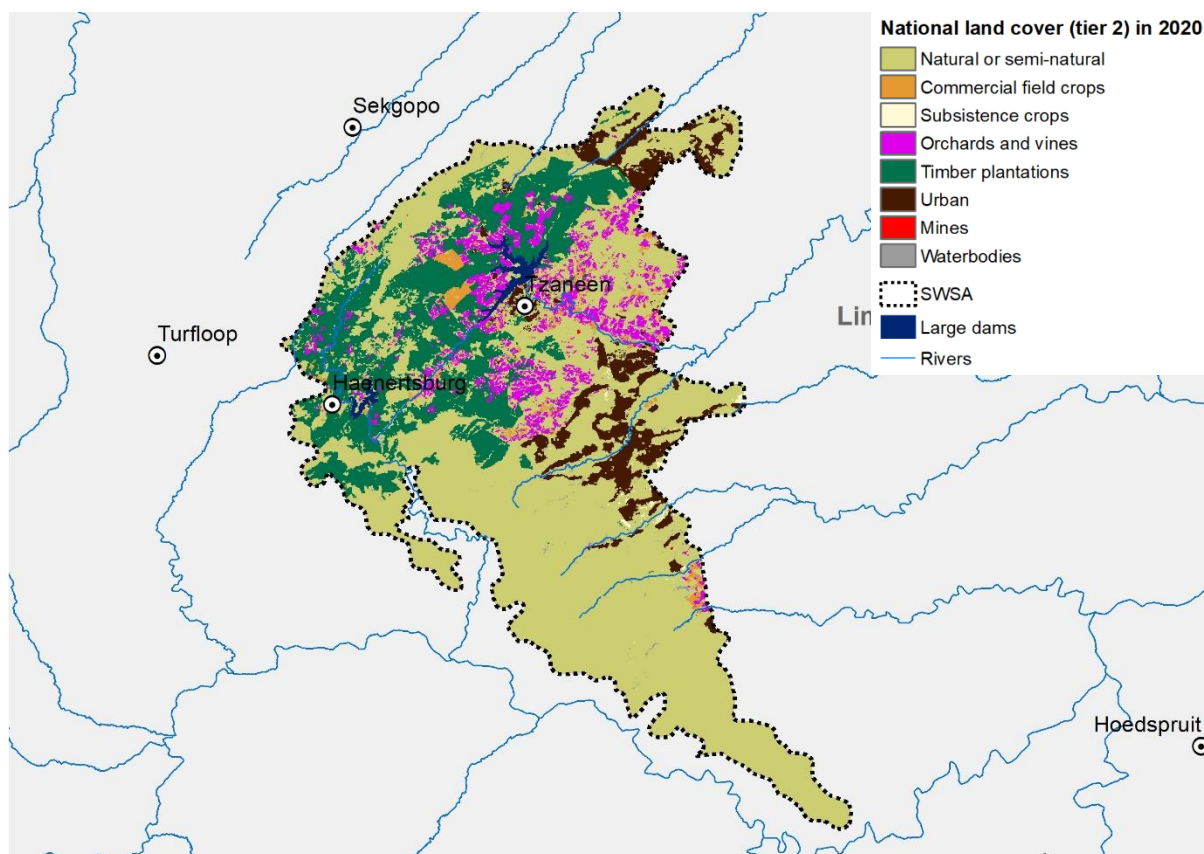
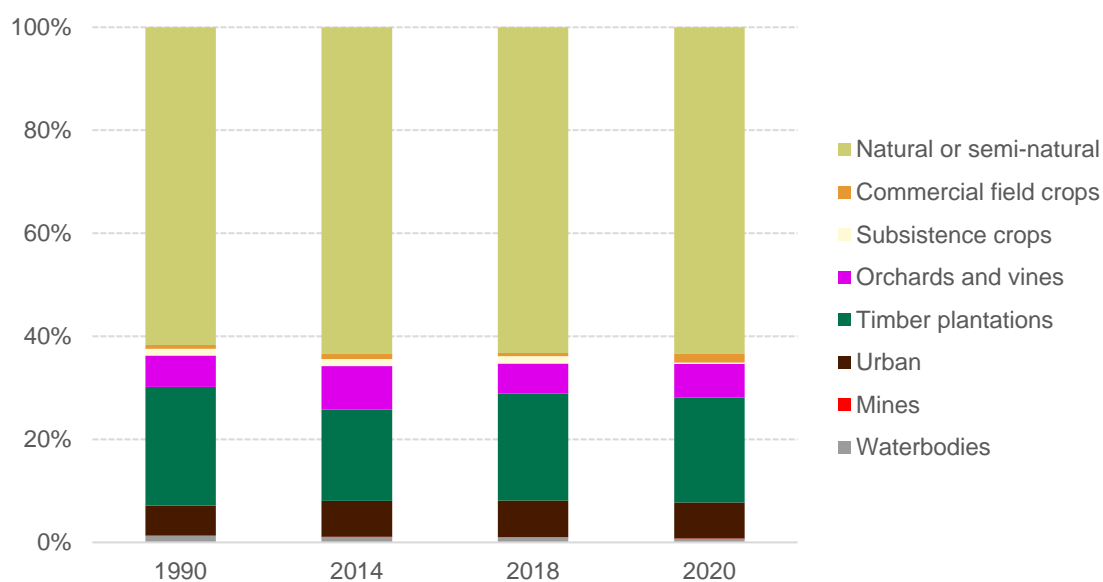
Among the intensively modified land cover classes, the following changes were notable over the period 1990 to 2020:

- An increase of 125,0% in commercial field crops, from 1 975 ha in 1990 to 4 443 in 2020. This was the largest change in percentage terms in this SWSA.
- A decrease of 6 976 ha (-11,7%) in timber plantations, from 59 875 ha in 1990 to 52 899 ha in 2020. This was the largest change in absolute terms in this SWSA.

Table 54. Indicators drawn from the land account for Wolkberg SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	160 112	1 975	3 406	15 771	59 875	14 927	107	3 454
2014	164 657	2 520	3 601	21 931	45 921	18 097	69	2 831
2018	164 212	1 526	3 692	15 176	53 952	18 381	109	2 579
2020	164 624	4 443	515	17 037	52 899	18 033	73	2 003
(b) Proportion of land cover classes (%)								
1990	61,7%	0,8%	1,3%	6,1%	23,1%	5,7%	0,0%	1,3%
2014	63,4%	1,0%	1,4%	8,4%	17,7%	7,0%	0,0%	1,1%
2018	63,2%	0,6%	1,4%	5,8%	20,8%	7,1%	0,0%	1,0%
2020	63,4%	1,7%	0,2%	6,6%	20,4%	6,9%	0,0%	0,8%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	2,8%	27,6%	5,7%	39,1%	-23,3%	21,2%	-35,5%	-18,0%
2014-2018	-0,3%	-39,4%	2,5%	-30,8%	17,5%	1,6%	58,0%	-8,9%
2018-2020	0,3%	191,2%	-86,1%	12,3%	-2,0%	-1,9%	-33,0%	-22,3%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	4 512	2 468	-2 891	1 266	-6 976	3 106	-34	-1 451
1990-2020	2,8%	125,0%	-84,9%	8,0%	-11,7%	20,8%	-31,8%	-42,0%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 178. Land cover classes (tier 2) in Wolkberg SWSA, 2020**Figure 179. Land cover composition (tier 2) of Wolkberg SWSA, 1990, 2014, 2018, 2020**

4.20.2 Key findings from the account for protected areas in Wolkberg SWSA

Table 55 shows the change in the extent of protected areas in Wolkberg SWSA between 1990 and 2020, by protected area type. Figure 180 provides a map of protected areas that occurred wholly or partially within Wolkberg SWSA in 2020. Changes in protection over time are summarised in Figure 181 and Figure 182.

At the end of 2020, 17,6% (45 618 ha) of Wolkberg SWSA was protected, compared with 16,3% (42 202 ha) in 1990, giving an overall increase in protection of 8,1%. This increase took place between 2014 and 2020.

Protected area types in Wolkberg SWSA in 2020 included Nature Reserve (9,9% of SWSA area), Forest Wilderness Area (5,8%) and Forest Nature Reserve (1,9%).

Table 55. Indicators drawn from the protected area account for Wolkberg SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	22 410	0	4 858	14 934	0	0	217 425	42 202
2014	0	22 410	0	4 858	14 934	0	0	217 425	42 202
2018	0	24 174	0	4 858	14 934	0	0	215 661	43 966
2020	0	25 826	0	4 858	14 934	0	0	214 009	45 618
(b) Proportion protected (%)									
1990	0,0%	8,6%	0,0%	1,9%	5,8%	0,0%	0,0%	83,7%	16,3%
2014	0,0%	8,6%	0,0%	1,9%	5,8%	0,0%	0,0%	83,7%	16,3%
2018	0,0%	9,3%	0,0%	1,9%	5,8%	0,0%	0,0%	83,1%	16,9%
2020	0,0%	9,9%	0,0%	1,9%	5,8%	0,0%	0,0%	82,4%	17,6%
(c) Net change in protection per accounting period (%)									
1990-2014	-	0,0%	-	0,0%	0,0%	-	-	0,0%	0,0%
2014-2018	-	7,9%	-	0,0%	0,0%	-	-	-0,8%	4,2%
2018-2020	-	6,8%	-	0,0%	0,0%	-	-	-0,8%	3,8%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	3 416	0	0	0	0	0	-3 416	3 416
1990-2020	-	15,2%	-	0,0%	0,0%	-	-	-1,6%	8,1%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

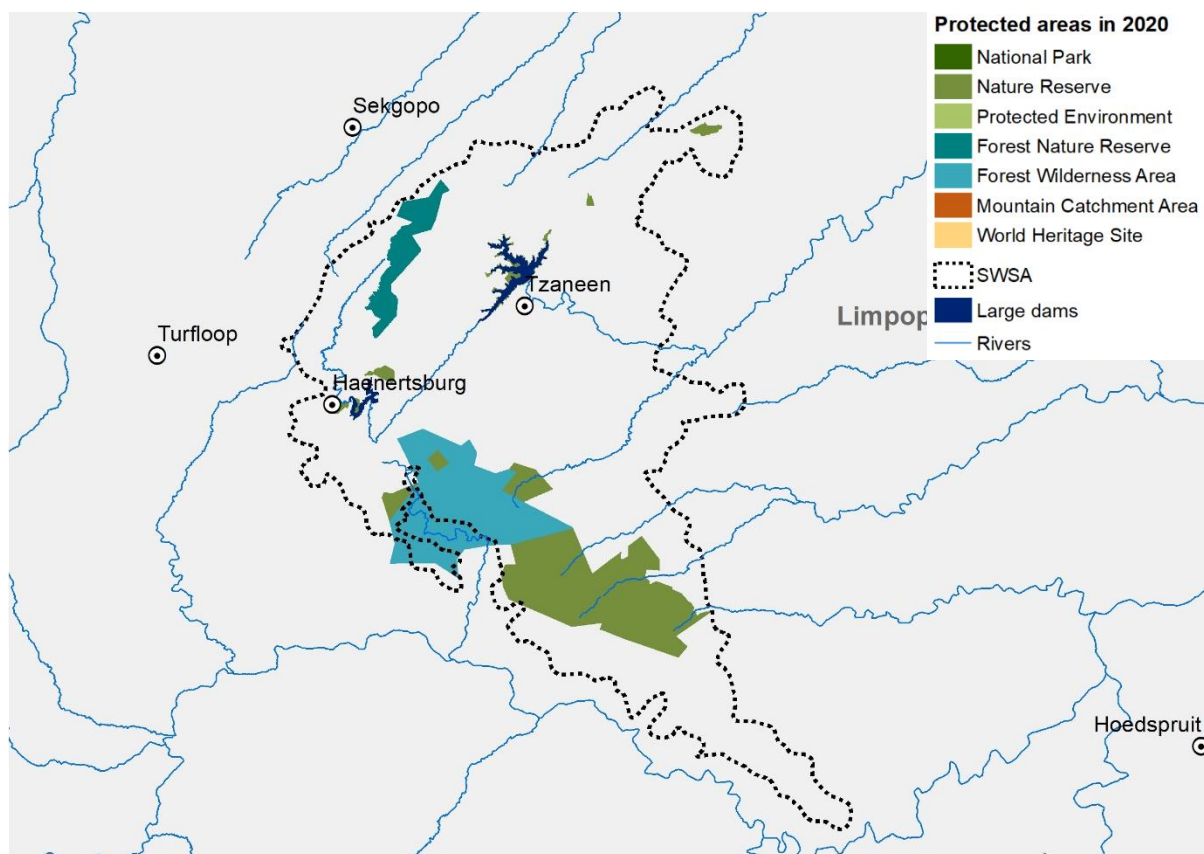
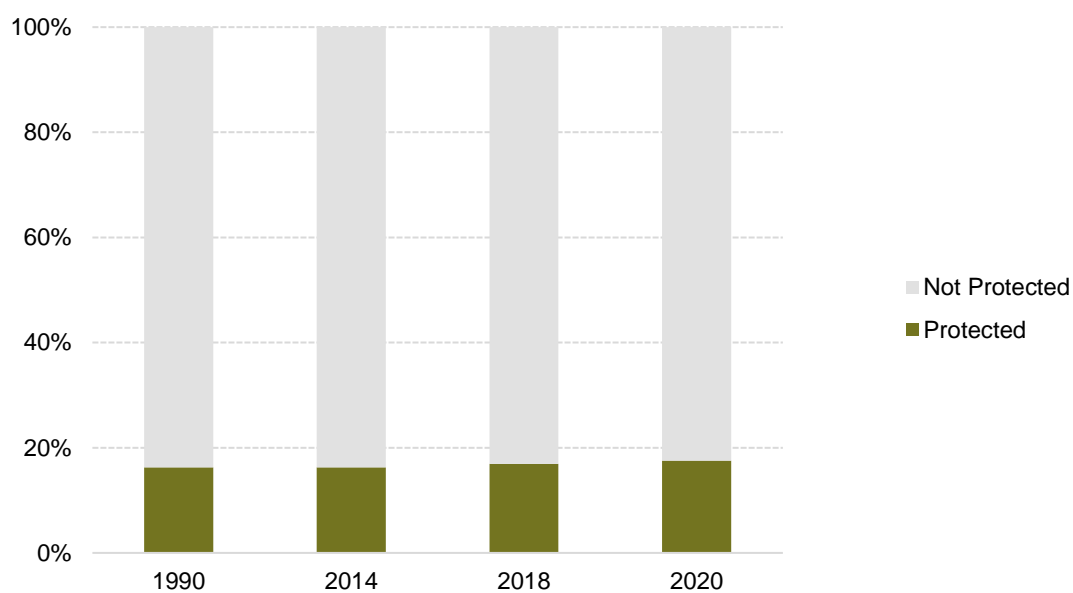
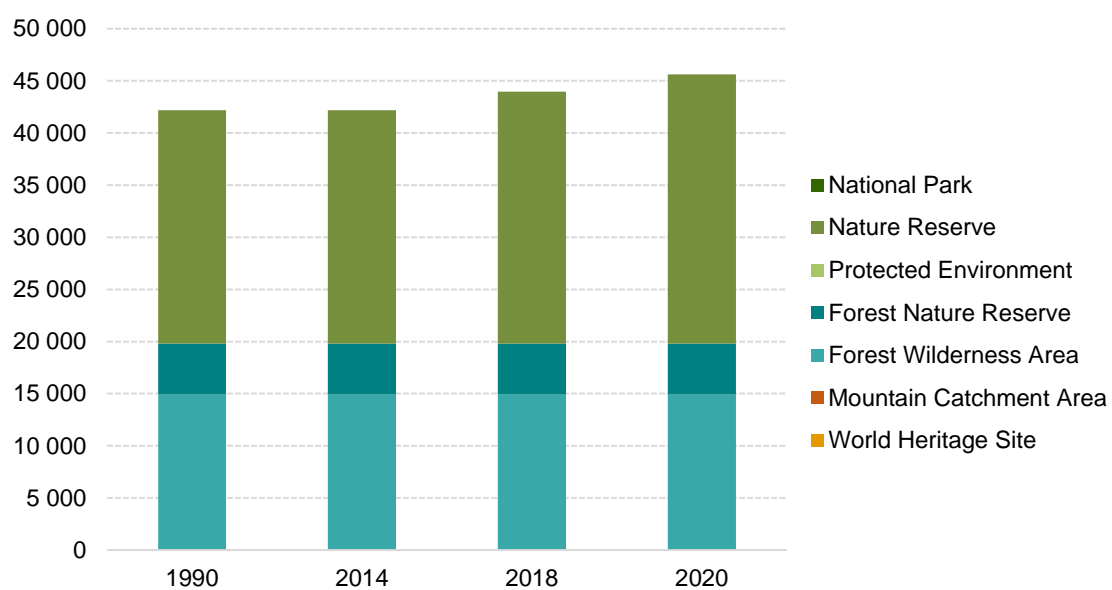
Figure 180. Protected areas occurring wholly or partially within Wolkberg SWSA, 2020**Figure 181. Proportion of Wolkberg SWSA protected, 1990, 2014, 2018, 2020**

Figure 182. Extent of protected areas in Wolkberg SWSA by protected area type, 1990, 2014, 2018, 2020



4.21 Soutpansberg SWSA

Soutpansberg SWSA covers 234 682 ha (0,2%) of South Africa's mainland (Table 4 in Section 3.1). It is located in the Limpopo province and spans three district municipalities: Vhembe (93,0%), Mopani (4,9%) and Capricorn (2,2%) (Figure 183 and Appendix 2). Soutpansberg SWSA falls largely within the Savanna biome (99,1%) (Table 5 in Section 3.1 and Figure 184).

The estimated total population of Soutpansberg SWSA in 2011 was 520 152, with a population density of approximately 221,6 people per km² (Table 8 in Section 3.1), making it the third most densely populated SWSA. The main source of water for domestic use for 65,0% of households living in Soutpansberg SWSA was a water service provider, with boreholes as the main source of water for 8,6% of households, and 12,8% of households sourcing most of their water directly from springs, rivers or streams (Figure 185).

Figure 183. District municipalities in and around Soutpansberg SWSA

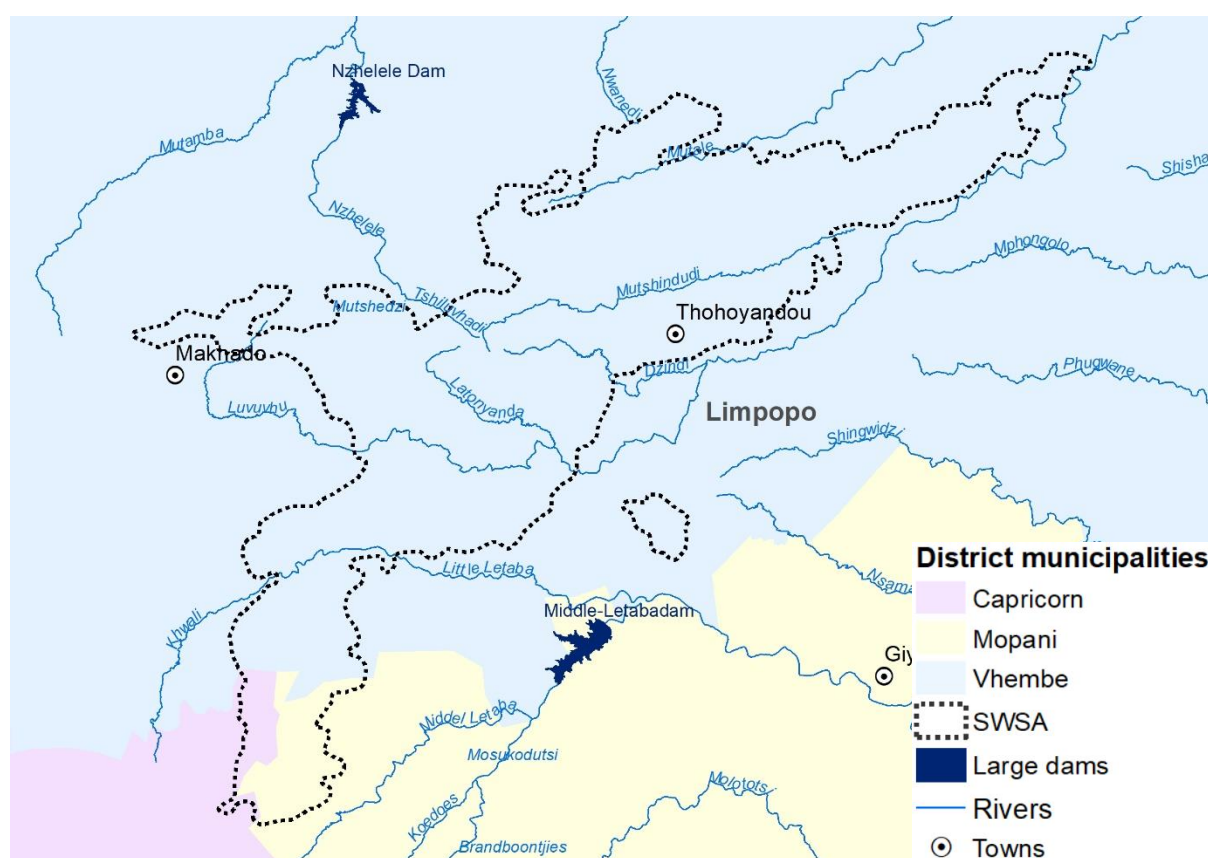
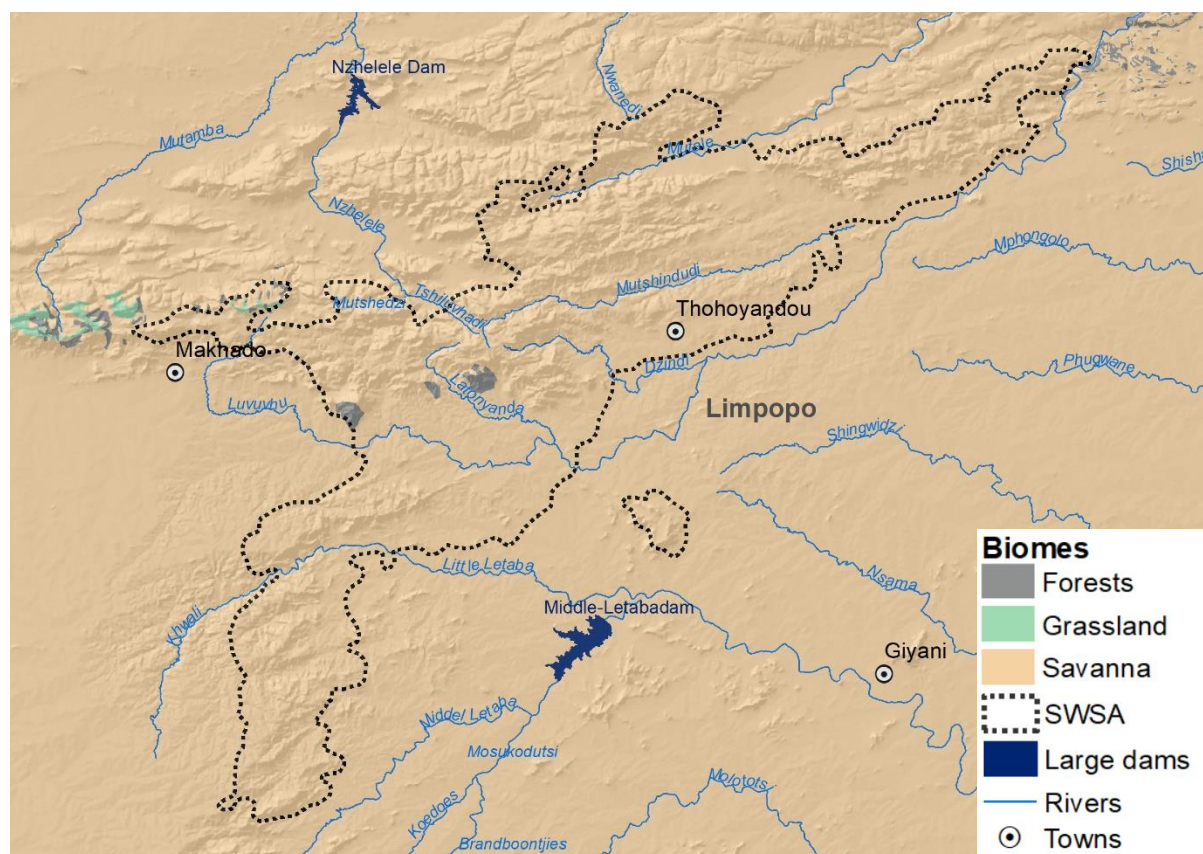
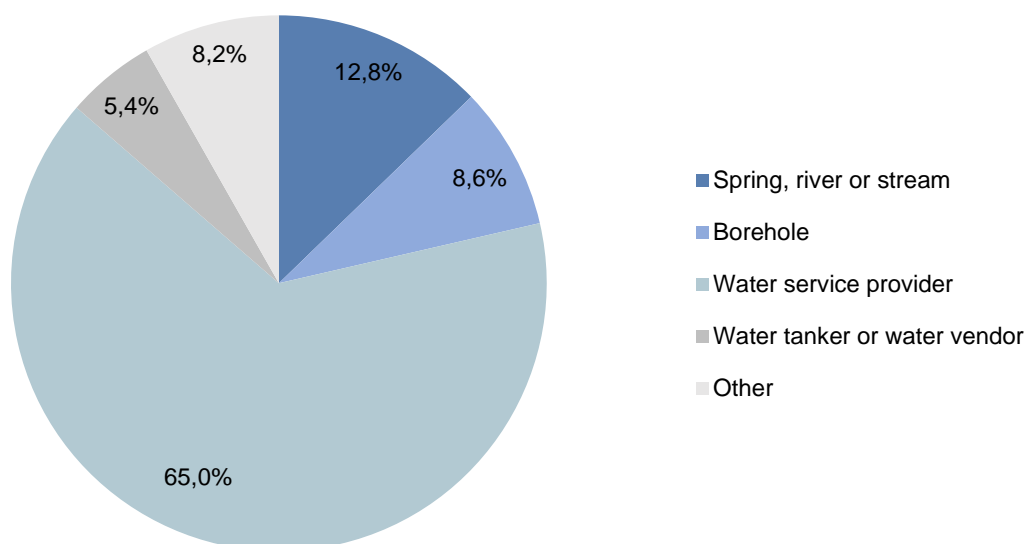


Figure 184. Terrestrial biomes in and around Soutpansberg SWSA**Figure 185. Main source of water for domestic use for households living in Soutpansberg SWSA, based on the 2011 population census**

4.21.1 Key findings from the land account for Soutpansberg SWSA

Table 56 shows the change in main land cover classes (tier 2) in Soutpansberg SWSA between 1990 and 2020. Figure 186 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 187.

In 2020, 63,4% (148 726 ha) of Soutpansberg SWSA remained natural or semi-natural, compared with 57,3% in 1990. This increase in natural or semi-natural land cover suggests that some intensively modified areas may have reverted to semi-natural over this period. As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 included urban areas (15,8%), timber plantations (12,4%), orchards and vines (6,8%), with tiny proportions of subsistence crops, commercial field crops and mines (<1,0% each). Soutpansberg SWSA has the second highest proportion of urban land cover of all SWSAs (Table Mountain SWSA had the highest proportion) (Table 11). The proportional division between these intensively modified land cover classes was fairly consistent over the period 1990 to 2020, although with considerable variation in the proportion of subsistence crops.

Among the intensively modified land cover classes, the following changes were notable over the period 1990 to 2020:

- A decrease of 90,4% in subsistence crops, from 21 684 ha in 1990 to 2 076 ha in 2020, but with considerable variation in the intervening years. This was the largest change in both absolute and percentage terms in this SWSA.
- An increase of 15,6% (4 987 ha) in urban areas, from 31 981 ha in 1990 to 36 968 ha in 2020. This was the second largest change in absolute terms in this SWSA.

Table 56. Indicators drawn from the land account for Soutpansberg SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	134 470	1 288	21 684	13 978	29 870	31 981	0	1 411
2014	148 774	2 858	4 902	16 592	24 019	36 704	24	809
2018	142 423	1 268	10 409	13 217	29 318	36 964	37	1 046
2020	148 726	628	2 076	16 003	29 202	36 968	38	1 041
(b) Proportion of land cover classes (%)								
1990	57,3%	0,5%	9,2%	6,0%	12,7%	13,6%	0,0%	0,6%
2014	63,4%	1,2%	2,1%	7,1%	10,2%	15,6%	0,0%	0,3%
2018	60,7%	0,5%	4,4%	5,6%	12,5%	15,8%	0,0%	0,4%
2020	63,4%	0,3%	0,9%	6,8%	12,4%	15,8%	0,0%	0,4%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	10,6%	121,9%	-77,4%	18,7%	-19,6%	14,8%	-	-42,7%
2014-2018	-4,3%	-55,6%	112,3%	-20,3%	22,1%	0,7%	54,2%	29,3%
2018-2020	4,4%	-50,5%	-80,1%	21,1%	-0,4%	0,0%	2,7%	-0,5%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	14 256	-660	-19 608	2 025	-668	4 987	38	-370
1990-2020	10,6%	-51,2%	-90,4%	14,5%	-2,2%	15,6%	-	-26,2%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

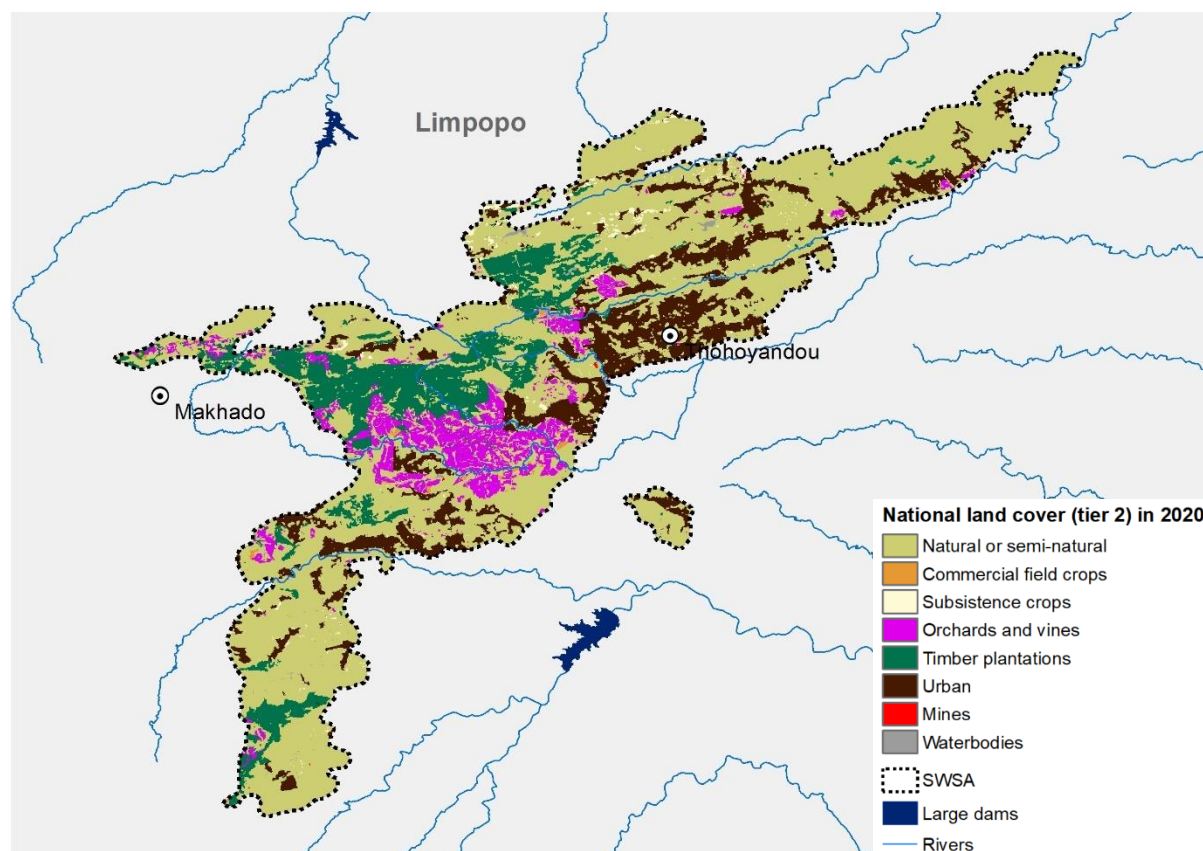
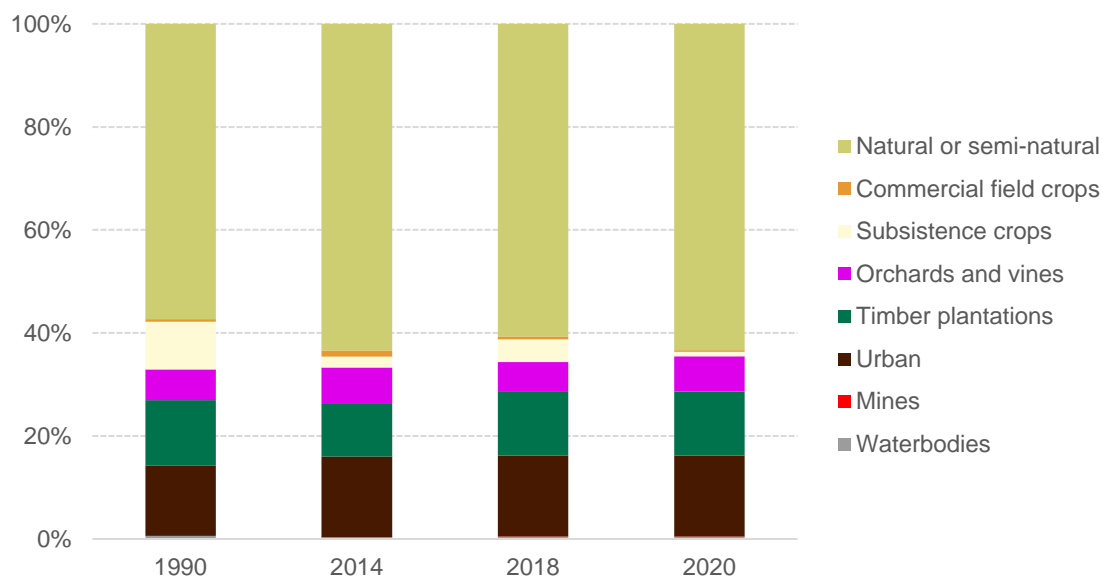
Figure 186. Land cover classes (tier 2) in Soutpansberg SWSA, 2020

Figure 187. Land cover composition (tier 2) in Soutpansberg SWSA, 1990, 2014, 2018, 2020

4.21.2 Key findings from the account for protected areas in Soutpansberg SWSA

Table 57 shows the change in the extent of protected areas in Soutpansberg SWSA between 1990 and 2020, by protected area type. Figure 188 provides a map of protected areas that occurred wholly or partially within Soutpansberg SWSA in 2020. Changes in protection over time are summarised in Figure 189 and Figure 190.

At the end of 2020, 18,6% (43 689 ha) of Soutpansberg SWSA was protected, compared with 0,8% (1 769 ha) in 1990, giving an overall increase in protection of 2 369,7%. Most of this increase took place between 2014 and 2018. Soutpansberg SWSA had the highest net percentage increase in protection between 1990 and 2020 of all SWSAs (Table 15).

Protected area types in Soutpansberg SWSA in 2020 included Protected Environment (16,6% of SWSA area) and Nature Reserve (1,2%), with a tiny proportion of Forest Nature Reserve (<1,0%). In 2020, Soutpansberg SWSA had the highest proportion of its area protected by Protected Environments of all SWSAs (Table 15).

Table 57. Indicators drawn from the protected area account for Soutpansberg SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	0	133	0	1 636	0	0	0	232 913	1 769
2014	0	796	0	1 986	0	0	0	231 900	2 782
2018	0	1 450	38 906	1 986	0	0	0	192 340	42 342
2020	0	2 797	38 906	1 986	0	0	0	190 993	43 689
(b) Proportion protected (%)									
1990	0,0%	0,1%	0,0%	0,7%	0,0%	0,0%	0,0%	99,2%	0,8%
2014	0,0%	0,3%	0,0%	0,8%	0,0%	0,0%	0,0%	98,8%	1,2%
2018	0,0%	0,6%	16,6%	0,8%	0,0%	0,0%	0,0%	82,0%	18,0%
2020	0,0%	1,2%	16,6%	0,8%	0,0%	0,0%	0,0%	81,4%	18,6%
(c) Net change in protection per accounting period (%)									
1990-2014	-	498,5%	-	21,4%	-	-	-	-0,4%	57,3%
2014-2018	-	82,2%	-	0,0%	-	-	-	-17,1%	1 422,0%
2018-2020	-	92,9%	0,0%	0,0%	-	-	-	-0,7%	3,2%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	0	2 664	38 906	350	0	0	0	-41 920	41 920
1990-2020	-	2 003,0%	-	21,4%	-	-	-	-18,0%	2 369,7%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

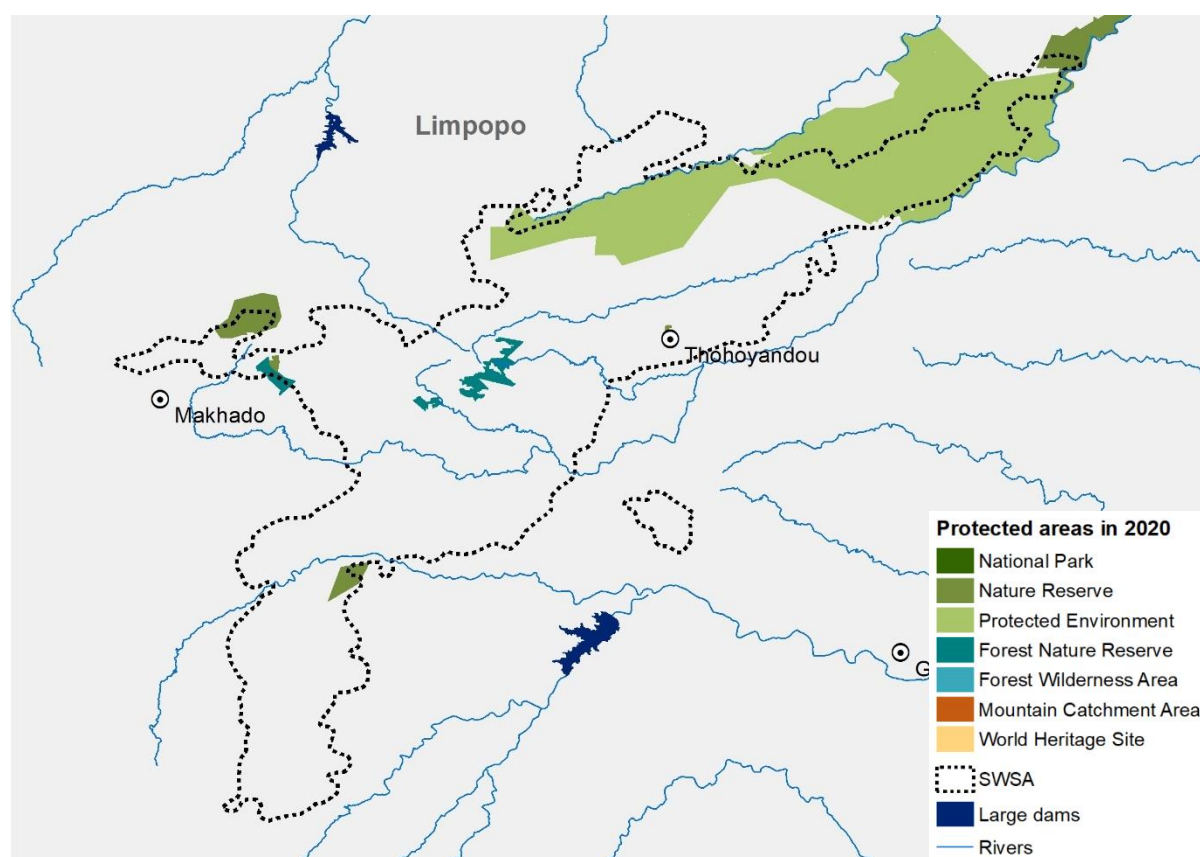
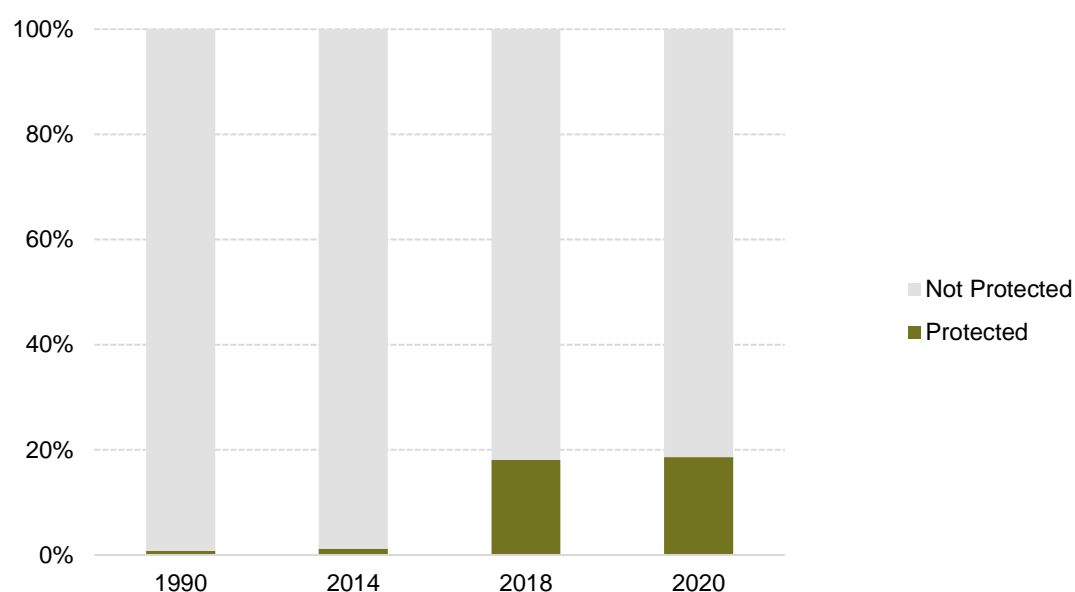
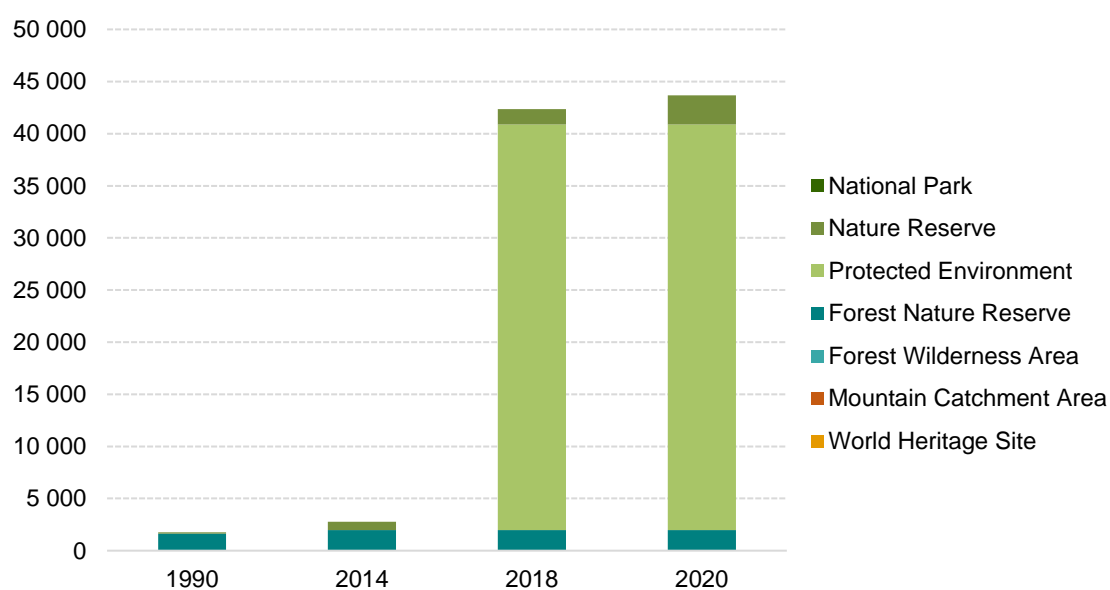
Figure 188. Protected areas occurring wholly or partially within Soutpansberg SWSA, 2020

Figure 189. Proportion of Soutpansberg SWSA protected, 1990, 2014, 2018, 2020**Figure 190. Extent of protected areas in Soutpansberg SWSA by protected area type, 1990, 2014, 2018, 2020**

4.22 Waterberg SWSA

Waterberg SWSA covers 103 201 ha (0,1%) of South Africa's mainland (Table 4 in Section 3.1). It is located in the Limpopo province and falls fully within the Waterberg District Municipality (Figure 191 and Appendix 2). Waterberg SWSA falls mostly within the Savanna biome (82,7%) with a portion in the Grassland biome (17,3%) (Table 5 in Section 3.1 and Figure 192).

The estimated total population of Waterberg SWSA in 2011 was 2 643 with a population density of approximately 2,6 people per km² (Table 8 in Section 3.1), making it the least densely populated SWSA. The main source of water for domestic use for 5,2% of households living in Waterberg SWSA was a water service provider, with boreholes as the main source of water for 79,8% of households, and 3,2% of households sourcing most of their water directly from springs, rivers or streams (Figure 193).

Figure 191. District municipalities in and around Waterberg SWSA

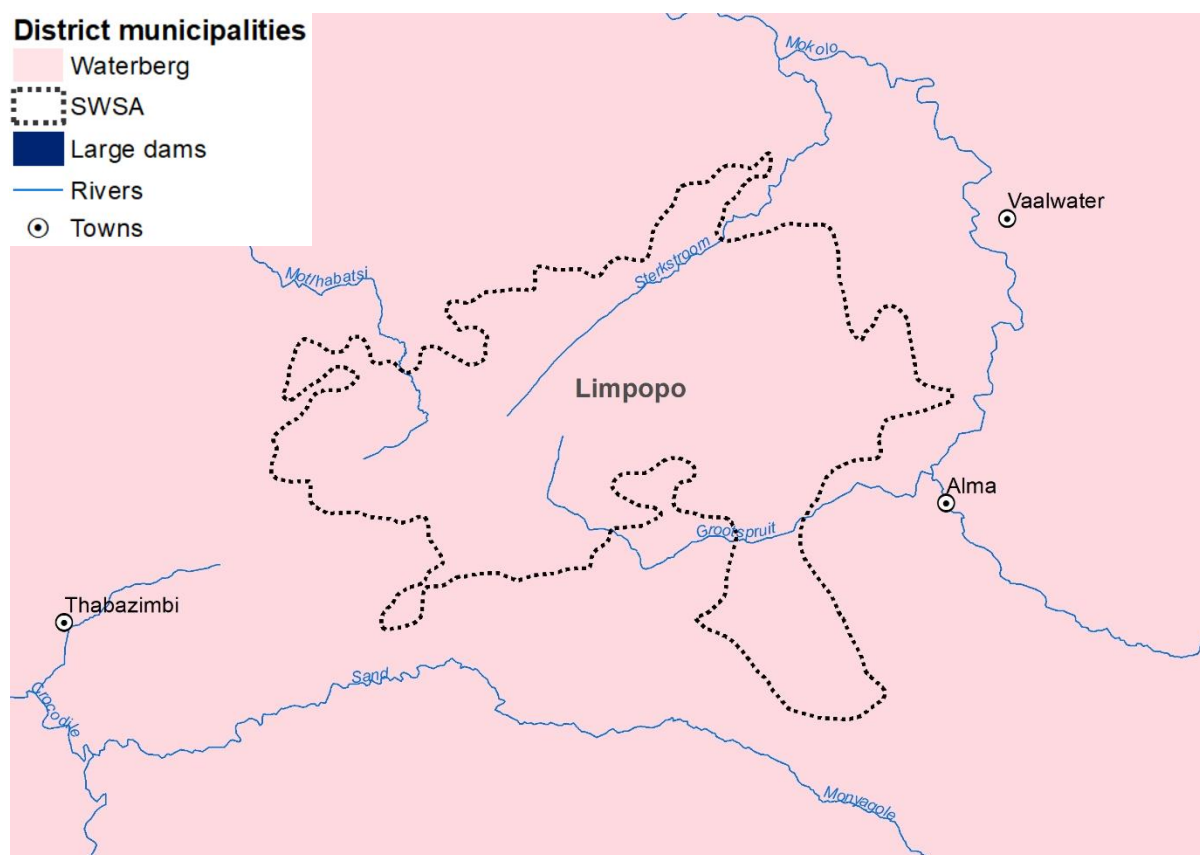
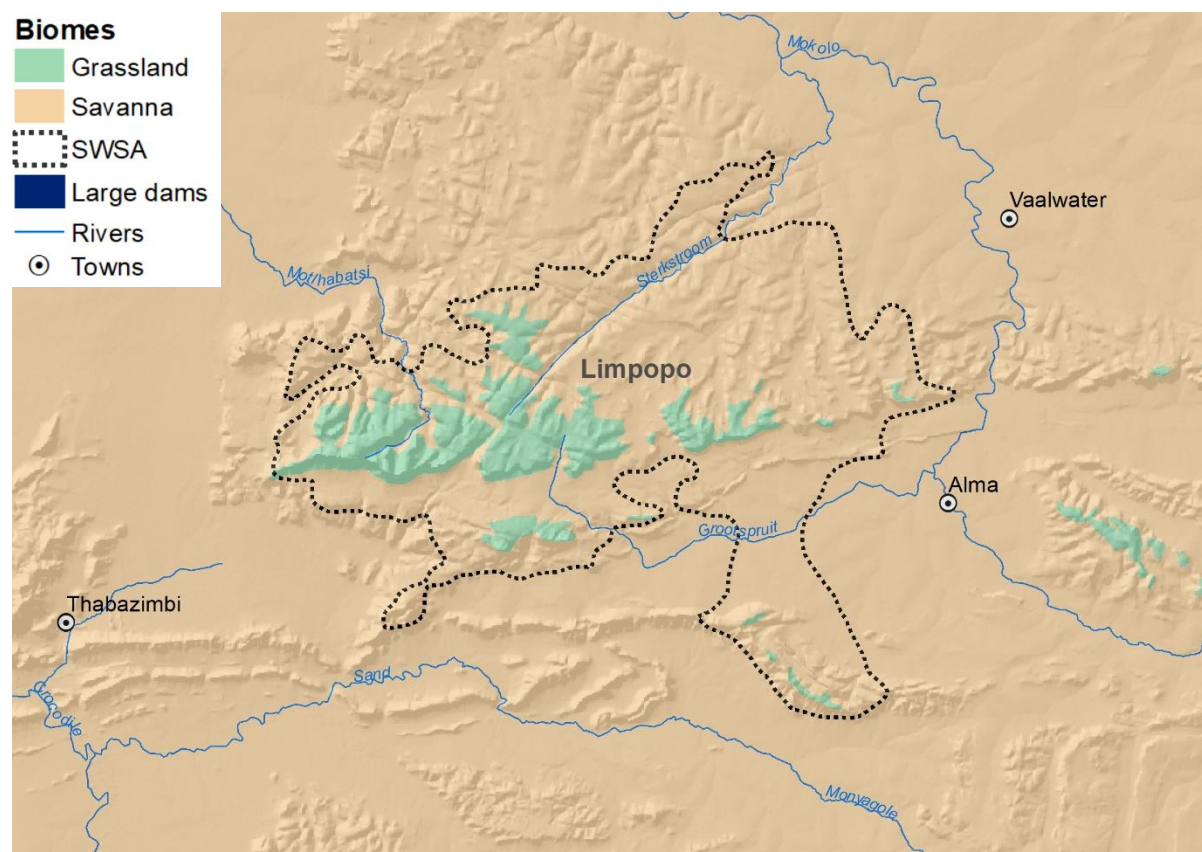
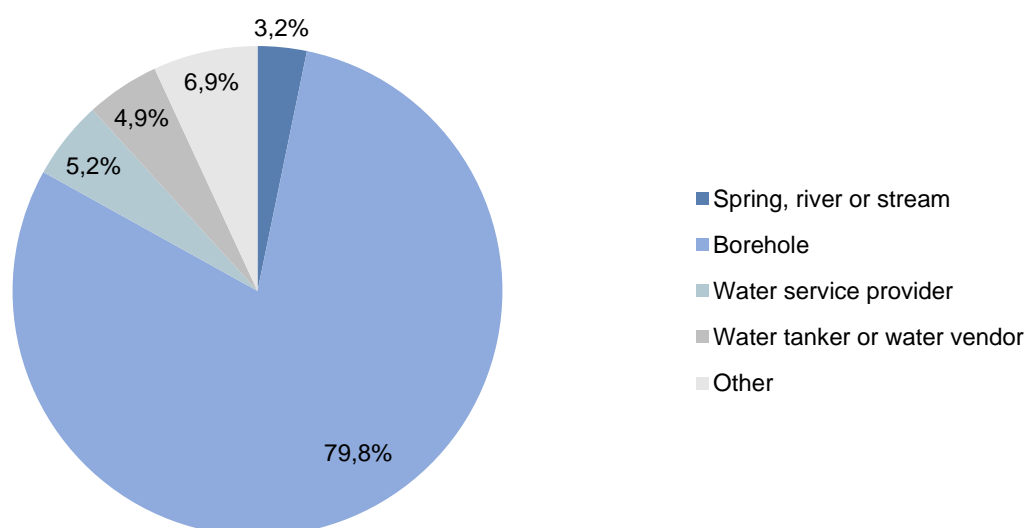


Figure 192. Terrestrial biomes in and around Waterberg SWSA**Figure 193. Main source of water for domestic use for households living in Waterberg SWSA, based on the 2011 population census**

4.22.1 Key findings from the land account for Waterberg SWSA

Table 58 shows the change in main land cover classes (tier 2) in Waterberg SWSA between 1990 and 2020. Figure 194 provides a map of land cover classes in 2020, and the changes over time are summarised in Figure 195.

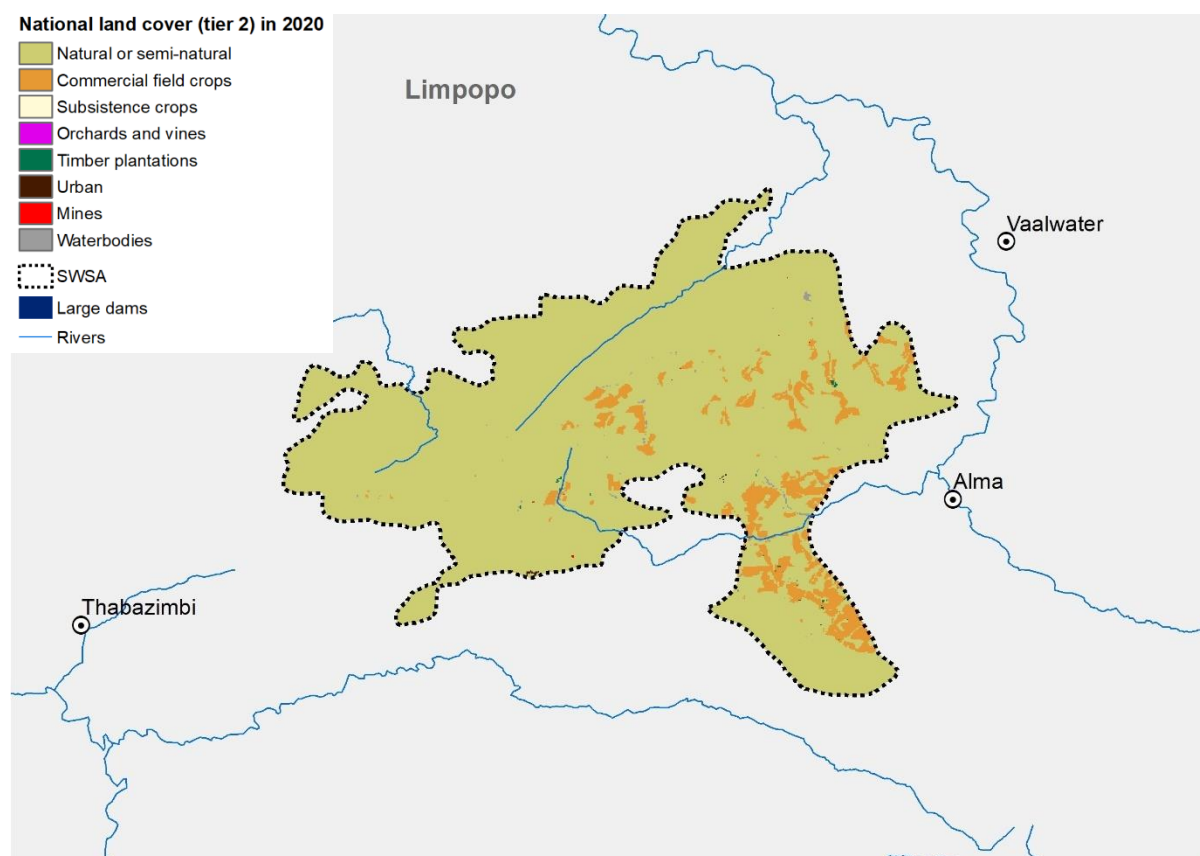
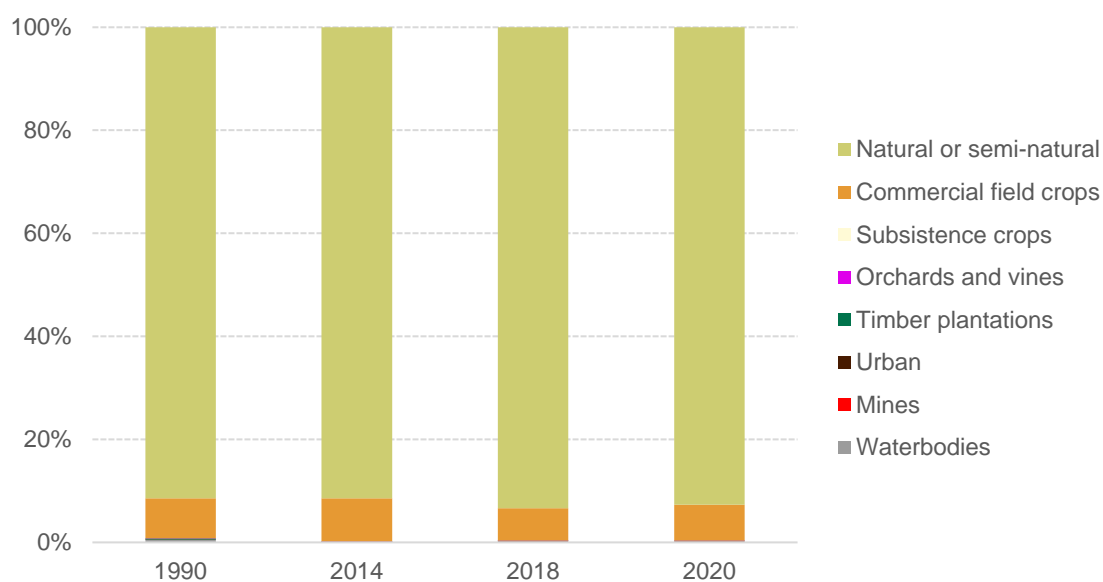
In 2020, 92,7% (95 648 ha) of Waterberg SWSA remained natural or semi-natural, compared with 91,4% in 1990. This increase in natural or semi-natural land cover suggests that some intensively modified areas may have reverted to semi-natural over this period. In 2020, Waterberg SWSA had the third highest proportion of natural or semi-natural land cover of all SWSAs (Table 12). As noted in Section 2.2, it is not possible based on land cover data alone to determine the ecological condition of these natural and semi-natural areas or how this may have changed over time.

Intensively modified land cover classes in the rest of the SWSA in 2020 were commercial field crops (7,0%) and tiny proportions of timber plantations, urban areas, mines, and orchards and vines (<1,0% each). The proportional division between these intensively modified land cover classes was largely unchanged over the period 1990 to 2020.

Table 58. Indicators drawn from the land account for Waterberg SWSA, 1990 to 2020

Land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*
(a) Extent of land cover classes (ha)								
1990	94 355	8 048	0	14	252	32	9	491
2014	94 361	8 641	0	11	6	32	3	147
2018	96 349	6 495	0	12	64	44	11	226
2020	95 648	7 214	0	1	62	38	10	228
(b) Proportion of land cover classes (%)								
1990	91,4%	7,8%	0,0%	0,0%	0,2%	0,0%	0,0%	0,5%
2014	91,4%	8,4%	0,0%	0,0%	0,0%	0,0%	0,0%	0,1%
2018	93,4%	6,3%	0,0%	0,0%	0,1%	0,0%	0,0%	0,2%
2020	92,7%	7,0%	0,0%	0,0%	0,1%	0,0%	0,0%	0,2%
(c) Net change in land cover classes per accounting period (%)								
1990-2014	0,0%	7,4%	-	-21,4%	-97,6%	0,0%	-66,7%	-70,1%
2014-2018	2,1%	-24,8%	-	9,1%	966,7%	37,5%	266,7%	53,7%
2018-2020	-0,7%	11,1%	-	-91,7%	-3,1%	-13,6%	-9,1%	0,9%
(d) Overall net change in land cover classes across all accounting periods (ha and %)								
1990-2020	1 293	-834	0	-13	-190	6	1	-263
1990-2020	1,4%	-10,4%	-	-92,9%	-75,4%	18,8%	11,1%	-53,6%

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

Figure 194. Land cover classes (tier 2) in Waterberg SWSA, 2020**Figure 195. Land cover composition (tier 2) in Waterberg SWSA, 1990, 2014, 2018, 2020**

4.22.2 Key findings from the account for protected areas in Waterberg SWSA

Table 59 shows the change in the extent of protected areas in Waterberg SWSA between 1990 and 2020, by protected area type. Figure 196 provides a map of protected areas that occurred wholly or partially within Waterberg SWSA in 2020. Changes in protection over time are summarised in Figure 197 and Figure 198.

At the end of 2020, 36,7% (37 873 ha) of Waterberg SWSA was protected, compared with 2,6% (2 663 ha) in 1990, giving an overall increase in protection of 1 322,2%. Most of this increase took place between 1990 and 2014.

Protected area types in Waterberg SWSA in 2020 included National Park (23,2% of SWSA area) and Nature Reserve (13,5%).

Table 59. Indicators drawn from the protected area account for Waterberg SWSA, 1990 to 2020

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total protected
(a) Extent of protection (ha)									
1990	452	2 211	0	0	0	0	0	100 538	2 663
2014	23 939	13 722	0	0	0	0	0	65 540	37 661
2018	23 939	13 934	0	0	0	0	0	65 328	37 873
2020	23 939	13 934	0	0	0	0	0	65 328	37 873
(b) Proportion protected (%)									
1990	0,4%	2,1%	0,0%	0,0%	0,0%	0,0%	0,0%	97,4%	2,6%
2014	23,2%	13,3%	0,0%	0,0%	0,0%	0,0%	0,0%	63,5%	36,5%
2018	23,2%	13,5%	0,0%	0,0%	0,0%	0,0%	0,0%	63,3%	36,7%
2020	23,2%	13,5%	0,0%	0,0%	0,0%	0,0%	0,0%	63,3%	36,7%
(c) Net change in protection per accounting period (%)									
1990-2014	5 196,2%	520,6%	-	-	-	-	-	-34,8%	1 314,2%
2014-2018	0,0%	1,5%	-	-	-	-	-	-0,3%	0,6%
2018-2020	0,0%	0,0%	-	-	-	-	-	0,0%	0,0%
(d) Overall net change in protection across all accounting periods (ha and %)									
1990-2020	23 487	11 723	0	0	0	0	0	-35 210	35 210
1990-2020	5 196,2%	530,2%	-	-	-	-	-	-35,0%	1 322,2%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

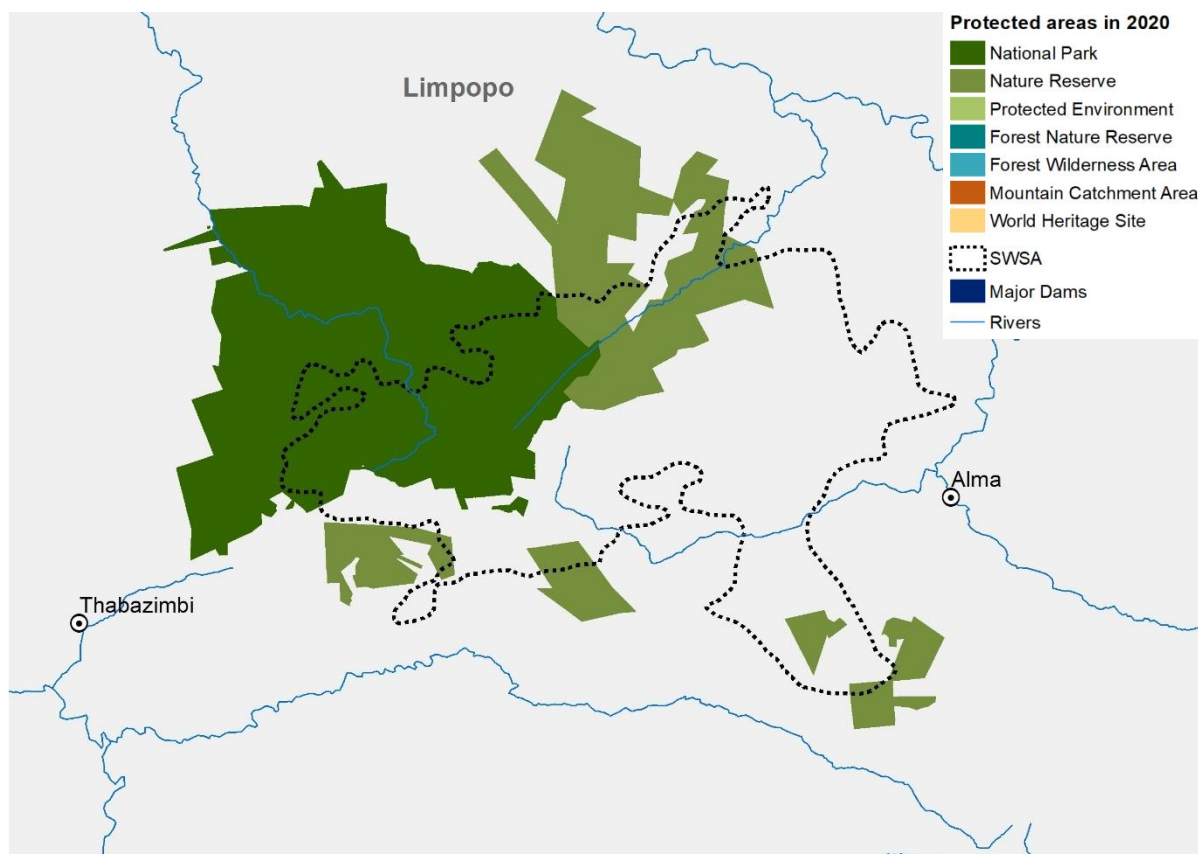
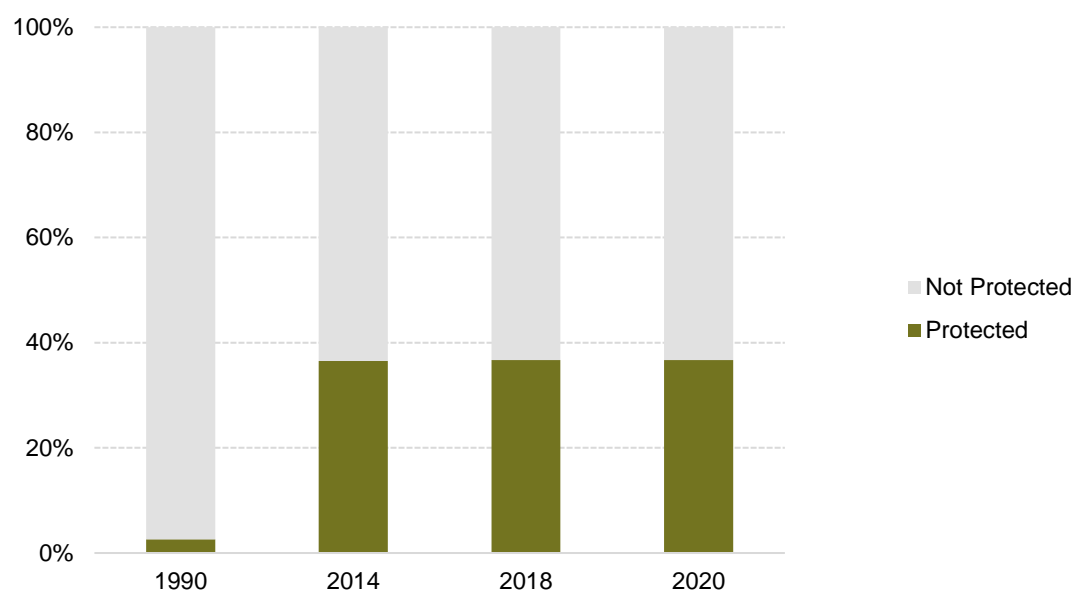
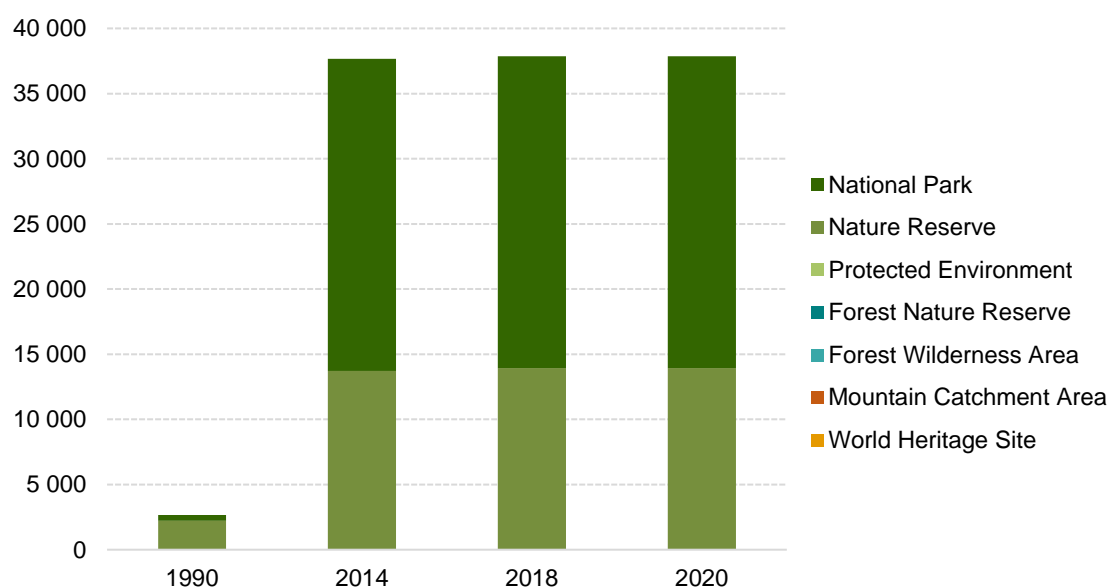
Figure 196. Protected areas occurring wholly or partially within Waterberg SWSA, 2020

Figure 197. Proportion of Waterberg SWSA protected, 1990, 2014, 2018, 2020**Figure 198. Extent of protected areas in Waterberg SWSA by protected area type, 1990, 2014, 2018, 2020**

5 DIRECTIONS FOR FUTURE WORK

Various directions for future work related to accounts for SWSAs have been identified, including through engagements with stakeholders. These would further enhance and add richness to the work undertaken thus far. These are outlined below.

1. Explore the development of ecosystem condition accounts for SWSAs

Ecosystem accounting allows for accounts of the extent and condition of ecosystems as well as accounts for ecosystem services. Ecosystem condition accounts record the changes in the condition of ecosystem assets in terms of selected characteristics and condition indicators over time and provide valuable information on the integrity of ecosystems.

The accounts presented here provide information about where natural or semi-natural areas have been converted to intensive land uses. However, they do not provide information about the ecological condition of the remaining natural or semi-natural areas. As discussed in Section 2.2, it is not possible to distinguish reliably between natural and semi-natural areas based on land cover data or to derive consistent information about their ecological condition, which requires a range of additional non-satellite derived data to be incorporated.

Factors that influence the ecological condition of natural and semi-natural areas in SWSAs (over and above outright removal of natural vegetation) include invasive woody plant species, alteration of flow through dams and abstraction of water, overgrazing, altered fire regimes, pollution and fragmentation. These pressures often interact with each other, compounding the overall impact. Further work would be required to develop sufficiently systematic spatial data on these pressures and their impacts to allow for ecosystem condition accounts to be developed. In particular, mapping of invasive alien plants in a consistent way across the country at regular intervals has proven remarkably challenging, and this would be a key dataset for assessing ecological condition in SWSAs.

The development of ecosystem condition accounts was noted as a priority for future work in the *Land and Terrestrial Ecosystem Accounts, 1990 to 2014* (Stats SA, 2020), with recognition that development of suitable spatial data on ecological condition for accounts will require collaboration between a range of government departments and agencies as well as research institutions.

2. Invest in the fine-scale delineation of SWSAs for groundwater and develop accounts for all SWSAs

The accounts presented here deal with only SWSAs for surface water, which have been delineated at a fine scale as explained in Section 2.1. South Africa also has SWSAs for groundwater, which have been delineated at a national level at a relatively broad spatial scale as areas where there is both high groundwater recharge and high levels of use or dependence on groundwater sources (Le Maitre et al., 2018). There is some overlap between SWSAs for surface water and groundwater. Investing in delineating SWSAs for groundwater at a finer scale would make it possible to compile accounts for SWSAs for groundwater, similar to the accounts presented here for SWSAs for surface water.

3. Explore the development of extent and condition accounts for terrestrial and freshwater ecosystem types within SWSAs

The accounts presented in this report focus on the extent of different intensively modified land cover classes and the extent of protected areas within SWSAs and do not include accounts for natural terrestrial ecosystems or for freshwater ecosystems (rivers and wetlands) within SWSAs. As noted above, all natural and semi-natural areas have been grouped together in the accounts and not disaggregated into different terrestrial ecosystem types. Contextual information about terrestrial biomes in SWSAs is provided in Section 3.1.1 but there is no detailed account for individual terrestrial ecosystem types, which are spatially delineated in the National Vegetation Map (see Section 2.4.3).

The SANLC includes land cover classes that relate to water surfaces, such as wetlands, water seasonal and water permanent, which are reflected in the account tables collectively as “waterbodies”. Land cover data are not well suited to mapping inland water ecosystems, which require non-satellite derived

data to map with any certainty. South Africa has more comprehensive and accurate sources of data for inland water ecosystems, including rivers and wetlands, and for artificial waterbodies such as dams. Given the critical role that rivers and wetlands play in the ecological functioning of SWSAs, it would be useful for future iterations of these accounts to include accounts for river and wetland ecosystems within SWSAs, drawing on the SAIIE (Van Deventer et al., 2018).

4. Explore the development of ecosystem services accounts for SWSAs

To complement the accounts presented here, accounts for flows of ecosystem services from SWSAs may be useful. Ecosystem services that may be relevant to address include water supply, water flow regulation, water purification, soil erosion control services and flood control services. These could draw on the methods and lessons from pilot accounts for ecosystem services that have been developed for the KwaZulu-Natal province (Turpie et al, 2021). Such accounts could contribute to understanding the social and economic importance of SWSAs. It may be possible to identify thresholds for particular SWSAs (for example, related to ecosystem extent or ecosystem condition within SWSAs) that are associated with their capacity to continue to provide particular ecosystem services. These may be different for different SWSAs and different ecosystem services.

Additionally, it may be useful for future iterations of the accounts for SWSAs to include an analysis breaking down water users within and downstream of SWSAs, looking at both surface and ground water extraction.

5. Explore links to national water accounts and catch-level water resource accounts

Stats SA has developed national water accounts that can be disaggregated to WMA level, and experimental catchment-level water resource accounts for the Berg-Breede and Greater uMngeni catchments are in development as part of the Ecological Infrastructure for Water Security (EI4WS) project that has supported the development of the accounts presented here. Future work could include exploring the relationship between these different sets of water-related accounts.

6. Explore links to socio-economic data in more detail

An advantage of thematic accounts like these is that they may be linked to a range of other data, including data from other measurement frameworks. Information from the population census, on total population, population density and the main source of water for households, has been linked to SWSAs in the accounts presented here. Future work could include additional demographic characteristics and indicators for SWSAs drawn from the population census to explore demographic trends in and around SWSAs. These could include, for example, household income and employment status. As discussed in Section 2.4.4, data from the population census for 2022 was not yet available at the time of developing these accounts. Future work should include updating the information provided here with information from the more recent census.

There is also scope to explore links between land accounts and data from the National Accounts (such as gross value added per industry). This could be useful for understanding the drivers of land use change in SWSAs. Quantifying the contribution of SWSAs to rural development and to the biodiversity economy (including the wildlife economy and nature-based tourism) could inform collaborative efforts to prioritise, secure and manage SWSAs in South Africa.

No information about land ownership is included in the accounts, either within SWSAs as a whole or within the protected area estate in SWSAs. Land in South Africa, including land in protected areas, can be owned privately, communally or by the state. Currently there is insufficient detailed and comprehensive spatial information about land ownership to include in the accounts, but this may become possible in future.

6 REFERENCES

Andren, H. 1999. Habitat fragmentation, the random sample hypothesis and critical thresholds. *Oikos* 84(2): 306-308.

Centre for Environmental Rights (CER). 2019. Why we must secure our water source areas now. Booklet published in association with World Wildlife Fund (WWF). Centre for Environmental Rights, Cape Town. 59 pages.

Dayaram, A., Skowno, A.L., Driver, A., Sink, K., Van Deventer, H., Smith-Adao, L., Van Niekerk, L., Harris, L.R., Job, N., & Nel, J.L. 2021. The South African National Ecosystem Classification System Handbook: First Edition. South African National Biodiversity Institute, Pretoria, South Africa. <http://hdl.handle.net/20.500.12143/7150>

Department of Agriculture, Land Reform and Rural Development (DALRRD) and Department of Planning Monitoring and Evaluation (DPME). 2021. National Spatial Development Framework 2021. Dated June 2021. DALRRD, Pretoria. 224 pages.

Department of Forestry Fisheries and the Environment (DFFE). 2020. South African National Land-Cover Dataset 2020 (SA_NLC_2020_Geo.TIFF), Pretoria: Department of Forestry, Fisheries and the Environment, Available from: https://egis.environment.gov.za/gis_data_downloads

Department of Forestry Fisheries and the Environment (DFFE). 2022. Measures to Secure Strategic Water Source Areas: Towards Securing the Strategic Water Source Areas for Surface Water. A report prepared by DFFE, the Department of Water and Sanitation, the South African Biodiversity Institute, and the World Wildlife Fund (WWF). DFFE, Pretoria. 80 pages.

Department of Water and Sanitation (DWA). 2021. National Water Resources Strategy, Draft 2.6, November 2021. Published in Government Gazette No. 47133, 29 July 2022, Notice No. 2327. Department of Water and Sanitation, Pretoria. 211 pages.

Desmet, P. 2018. Using landscape fragmentation thresholds to determine ecological process targets in systematic conservation plans. *Biological Conservation* 221: 257-260

Fahrig, L. 2001. How much habitat is enough? *Biological Conservation* 100(1): 65-74.

GEOTERRAIMAGE (GTI) 2015. 2013 - 2014 South African National Land-Cover Dataset. Data User Report and Metadata. March 2015. Version 05#2.

GEOTERRAIMAGE (GTI) 2016. 1990 South African National Land-Cover Dataset (including 1990-2013/14 land-cover change comments): Data User Report and Metadata. March 2016. Version 05#2.

GEOTERRAIMAGE (GTI) 2019. South African National Land-Cover 2018: Report & Accuracy Assessment. DEA E1434 Land-Cover. Version 004, 25-09-2019.

Le Maitre, D.C., Seyler, H., Holland, M., Smith-Adao, L., Nel, J.L., Maherry, A. and Witthüser, K. (2018) Identification, Delineation and Importance of the Strategic Water Source Areas of South Africa, Lesotho and Swaziland for Surface Water and Groundwater. Report No. TT 743/1/18, Water Research Commission, Pretoria.

Lötter, M.C. & Le Maitre, D. 2021. Fine-scale delineation of Strategic Water Source Areas for surface water in South Africa using Empirical Bayesian Kriging Regression Prediction: Technical report. Prepared for the South African National Biodiversity Institute (SANBI), Pretoria. 33 pages. Nel et al 2017 paper

Mucina, L. & Rutherford, M.C. 2006. The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

Municipal Demarcation Board (MDB). 2022. MDB District Municipal Boundary 2018. Spatial t: Feature layer Information updated 22 June 2022. Available from MDB Spatial Knowledge Hub accessible at <https://dataportal-mdb-sa.opendata.arcgis.com/>

Nel, J.L., Le Maitre, D.C., Roux, D.J., Colvin, C., Smith, J.S., Smith-Adao, L. B., Maherry, A. & Sitas, N. (2017) Strategic water source areas for urban water security: Making the connection between protecting ecosystems and benefiting from their services. *Ecosystem Services* 28: 251-259.

South Africa. 2016. National Water Act 1998 (Act No 36 of 1998). Notice: New Nine (9) Water Management Areas of South Africa. Government Gazette No. 40279, 16 September 2016, pages 169-173. (Published under Government Notice 1056).

South African National Biodiversity Institute (SANBI). 2016. Lexicon of Biodiversity Planning in South Africa. June 2016. South African National Biodiversity Institute, Pretoria. 58 pages.

Statistics South Africa (Stats SA). 2012. Census 2011: Statistical release (revised) P0301.4. Statistics South Africa. Pretoria. Released 30 October 2012.

Statistics South Africa (Stats SA). 2020. Natural Capital Series 1: Land and Terrestrial Ecosystem Accounts, 1990 to 2014. Discussion document D0401.1. Produced in collaboration with the South African National Biodiversity Institute and the Department of Environment, Forestry and Fisheries. Statistics South Africa, Pretoria.

Statistics South Africa (Stats SA). 2021. Natural Capital Series 2: Accounts for Protected Areas, 1900 to 2020. Discussion document D0401.2. Produced in collaboration with the South African National Biodiversity Institute and the Department of Forestry, Fisheries and the Environment. Statistics South Africa, Pretoria.

Turpie, J.K., Letley, G., Schmidt, K., Weiss, J., O'Farrell & Jewitt, D. 2021. Towards a method for accounting for ecosystem services and asset value: Pilot accounts for KwaZulu-Natal, South Africa, 2005-2011. Report developed for UNEP and UNSD for the Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) project. <https://seea.un.org/content/knowledge-base>.

United Nations et al. (UN). 2021. System of Environmental-Economic Accounting—Ecosystem Accounting (SEEA EA). White cover publication, pre-edited text subject to official editing. Available at: <https://seea.un.org/ecosystem-accounting>.

Van Deventer, H., Smith-Adao, L., Mbona, N., Petersen, C., Skowno, A., Collins, N.B., Grenfell, M., Job, N., Lötter, M., Ollis, D., Scherman, P., Sieben, E. & Snaddon, K. 2018. South African National Biodiversity Assessment 2018: Technical Report. Volume 2a: South African Inventory of Inland Aquatic Ecosystems (SAIIAE). Version 3, final released on 3 October 2019. Council for Scientific and Industrial Research (CSIR) and South African National Biodiversity Institute (SANBI): Pretoria, South Africa. Report Number: CSIR report number CSIR/NRE/ECOS/IR/2018/0001/A; SANBI report number <http://hdl.handle.net/20.500.12143/5847>.

APPENDIX 1: BRIEF DESCRIPTION OF THE TERRESTRIAL BIOMES OF SOUTH AFRICA

South Africa has nine biomes, which are characterised by certain physiognomy and climatic conditions, and into which South Africa's 458 vegetation types are grouped, as described in Section 2.4.3. The table below provides a brief description of each biome and gives the number of vegetation types that make up each biome. Vegetation types are identified in the South African portion of the Vegetation Map of South Africa, Lesotho and Swaziland (Mucina & Rutherford 2006; Dayaram et al. 2021) (referred to as the National Vegetation Map). Vegetation types are relatively homogenous units in the landscape, identified based on their biophysical characteristics such as species distribution, community composition, underlying geology and soil types, altitude, and rainfall gradients. They are used to represent terrestrial ecosystem types in ecosystem accounts.

Biome name	Short description	No. of vegetation types
Albany Thicket	Subtropical thicket is closed shrubland to a low forest dominated by evergreen, sclerophyllous or succulent trees, shrubs, and vines, many of which have stem spines. The vegetation cover is usually very dense, in places almost impenetrable. The vegetation is generally not divided into strata and has little herbaceous cover. Grass cover is absent or low. Thus fire is not as important in the disturbance regime as it is in Savannas. The Thicket biome shares floristic components with many other phytochoria. At its core distribution, Thicket is semi-arid to sub-humid (250-800mm/yr) with bimodal rainfall peaking in spring and autumn, although rainfall may occur throughout the year. The biome can be subtropical to warm-temperate and is mostly frost-free. Thicket is dominated by trees and shrubs that are very long-lived and re-sprout after frost and fire. Flowers tend to be inconspicuous and predominantly bird-dispersed and appear throughout the year. The biome supports a diverse mammal fauna and megaherbivores are a key part of defoliation with drought, fire and tree mortality playing lesser roles.	44
Desert	The Desert biome is found under very harsh environmental conditions that are more extreme than those found in the Succulent Karoo biome and Nama Karoo biome. Rainfall is highly variable between years but usually falls in summer (MAR 10mm in the west, to 70 or 80mm inland) with high levels of summer aridity. The Desert biome of South Africa is the southernmost extension of the extensive Namib Desert that covers the western parts of Namibia and stretches to southern Angola. Annual plants (often annual grasses) dominate, especially after rains. During dry periods the plains can appear completely bare. Perennial plants are usually encountered in specialized habitats associated with local concentrations of water. Common examples of these are broad drainage lines. The perennial grass, <i>Stipagrostis sabulicola</i> , occurs sporadically on large sand dunes which contain substantial stores of water. The Desert biome includes an abundant insect fauna which includes many tenebrionid beetles, some of which can utilize fog water.	15
Forest	Forests are restricted to frost-free areas with a mean annual rainfall of more than 525mm in the winter rainfall region and more than 725 mm rainfall in the summer rainfall region. They occur from sea level to over 2100m above sea level. Forests rarely burn, mainly due to the high humidity - under extremely hot and dry (berg wind) conditions fires may occur and destroy the forest structure. Forests tend to occur in patches, few of which cover areas greater than 1 km ² , with areas greater than this only common in the southern Cape and Lowveld Escarpment. Even added together, forests cover less than 0.5% of southern Africa's surface area, making this the smallest biome in the country. The canopy cover of forests is continuous, comprising mostly evergreen trees, and beneath it the vegetation is multi-layered. Herbaceous plants, particularly ferns, are only common in the montane forests, whereas lianas and epiphytes are common throughout. A herbaceous ground layer is almost absent due to the dense shade. On the edges of the	12

Biome name	Short description	No. of vegetation types
	patches of forest are distinctive communities, the so-called fringe, and ecotonal communities, which are able to tolerate fire. Some 649 woody and 636 herbaceous plant species are recorded from forests. However, forests are not floristically uniform.	
Fynbos	Fynbos is dominated by small-leaved, evergreen shrubs whose regeneration is intimately related to fire. The four complex factors paramount in fynbos ecology are: (1) generally nutrient-poor soils, (2) hot, dry summers alternating with cool, wet winters, typical of other Mediterranean-type regions (more pronounced in the western portions of the biome), (3) recurrent fires at 5–50 year intervals, (4) an intricate complex of animal-plant interactions, especially involving grazing, pollination, and dispersal. Like other Mediterranean-type ecosystems, the Fynbos biome has exceptionally high plant endemism and species richness.	122
Grassland	The Grassland biome is found chiefly on the high central plateau of South Africa, and the inland areas of KwaZulu-Natal and the Eastern Cape. The topography is mainly flat and rolling but includes the escarpment itself. The altitude varies from near sea level to 2 850 m above sea level. Grasslands are dominated by Poaceae. Trees are mostly absent, except in a few localized habitats. Forbs, particularly geophytes (bulbs) are abundant and comprise more than two-thirds of the biomass. Frosts, fire, and grazing maintain the grass and forb dominance and limit the establishment of trees. At higher rainfall and on more acidic soils, sour grasses prevail, with 625 mm per year taken as the level at which unpalatable grasses predominate. C4 grasses dominate throughout the biome, except at the highest altitudes where C3 grasses become prominent.	73
Indian Ocean Coastal Belt	This region occurs as an almost 800 km long coastal strip between the South African border with Mozambique as far south as the mouth of the Great Kei River. This high-level vegetation unit comprises a dominant forest cover interrupted by edaphically or hydrologically controlled areas of grassland, with at least a significant part of the belt being open to dense savanna vegetation, interspersed with many areas of forest and grassland.	6
Nama-Karoo	The Nama-Karoo biome occurs in the central/western interior of South Africa, at altitudes between 500 and 2000m, with most of the biome failing between 1000 and 1400m. It is the second-largest biome in the region. The geology underlying the biome is varied, as the distribution of this biome is determined primarily by rainfall. The rain falls in summer and varies between 100 and 520mm per year. This also determines the predominant soil type - over 80% of the area is covered by a lime-rich, weakly developed soil over rock. Although less than 5% of rain reaches the rivers, the high erodibility of soils poses a major problem where overgrazing occurs. The dominant vegetation is a grassy, dwarf shrubland. Grasses tend to be more common in depressions and on sandy soils, and less abundant on clayey soils. Grazing rapidly increases the relative abundance of shrubs. Most of the grasses are of the C4 type and, like the shrubs, are deciduous in response to rainfall events. The amount and nature of the fuel load are insufficient to carry fires and fires are rare within the biome. The large historical herds of Springbok and other game no longer exist. Like the many bird species in the area - mainly larks - the game was probably nomadic between patches of rainfall events within the biome. The Brown Locust and Karoo Caterpillar exhibit eruptions under similarly favourable, local rainfall events, and attract large numbers of bird and mammal predators.	13
Savanna	The Savanna biome is the largest biome in southern Africa, occupying 46% of its area, and over one-third the area of South Africa. It is well developed over the Lowveld and Kalahari region of South Africa and is also the dominant vegetation in Botswana, Namibia, and Zimbabwe. It is characterized by a grassy ground layer and a distinct upper layer of woody plants. Where this upper layer is near the ground the vegetation may be referred to as Shrubveld, where it is dense as Woodland. Intermediate stages are locally known as Bushveld. The environmental factors delimiting the biome are complex: altitude ranges from sea level to 2 000 m; rainfall varies from 235 to 1 000 mm per year; frost may occur from 0 to 120 days per year, and almost every major geological and soil type	91

Biome name	Short description	No. of vegetation types
	occurs within the biome. A major factor delimiting the biome is low and highly seasonal rainfall which prevents the upper layer from dominating, coupled with fires and grazing, which keep the grass layer dominant. Summer rainfall is essential for the grass dominance, which, with its fine material, fuels near-annual fires. Almost all species are adapted to survive fires. The grass layer is dominated by C4-type grasses, which are at an advantage where the growing season is hot, but where rainfall has a stronger winter component, C3-type grasses dominate. The shrub-tree layer may vary from 1 to 20 m in height, but in Bushveld typically varies from 3 to 7 m.	
Succulent Karoo	The Succulent Karoo biome has equal status to the other biomes in South Africa - it is not a subtype of "a Karoo biome." Most of the biome covers a flat to gently undulating plain, with some hilly and "broken" veld, mostly situated to the west and south of the escarpment, and north of the Cape Fold Belt. The altitude is mostly below 800 m, but in the east, it may reach 1 500 m. Soils are lime-rich and often weakly developed. The Succulent Karoo biome is primarily determined by the presence of low winter rainfall and extreme summer aridity. Rainfall varies between 20 and 290 mm per year. Because the rains are cyclonic, and not due to thunderstorms, the erosive power is far less than of the summer rainfall biomes. During summer, temperatures in excess of 40°C are common. Fog is common nearer the coast. Frost is infrequent. Desiccating, hot, north-westerly wind may occur throughout the year. The vegetation is dominated by dwarf, succulent shrubs, of which the Mesembryanthemaceae Crassulaceae are particularly prominent. Mass flowering displays of annuals (mainly Asteraceae) occur in spring, often on degraded lands. Grasses are rare, except in some sandy areas, and are of the C3 type. The number of plant species mostly succulents - is very high and unparalleled elsewhere in the world for an arid area of this size.	64

APPENDIX 2: PROPORTION OF SWSAS ACROSS PROVINCES, DISTRICT MUNICIPALITIES AND METROPOLITAN MUNICIPALITIES

SWSAs fall across seven of South Africa's nine provinces (Table 6), across four metropolitan municipalities and numerous district municipalities. The area of and proportion of each SWSA across provinces, metropolitan municipalities and district municipalities is provided in this Appendix. As shown in Section 3.1 in Table 4, some SWSAs extend into Lesotho and Eswatini. The extent that falls outside South Africa's administrative boundaries is not included in this table.

SWSA name	Area of SWSA within SA	Province	Area of SWSA in the province	Proportion of SWSA that falls within the province	Municipality name	District code	Area of SWSA in municipality	Proportion of SWSA that falls within the municipality
Table Mountain	47 246	Western Cape	47 246	100,0%	City of Cape Town	CPT	47 246	100,0%
Boland	608 054	Western Cape	608 054	100,0%	City of Cape Town	CPT	51 201	8,4%
					West Coast	DC1	6 819	1,1%
					Cape Winelands	DC2	327 230	53,8%
					Overberg	DC3	222 804	36,6%
Groot Winterhoek	518 310	Western Cape	518 310	100,0%	West Coast	DC1	194 114	37,5%
					Cape Winelands	DC2	324 196	62,5%
Langeberg	171 527	Western Cape	171 527	100,0%	Cape Winelands	DC2	9 945	5,8%
					Overberg	DC3	64 425	37,6%
					Garden Route	DC4	97 157	56,6%
Swartberg	77 983	Western Cape	77 983	100,0%	Garden Route	DC4	59 384	76,1%
					Central Karoo	DC5	18 599	23,9%
Outeniqua	304 237	Western Cape	304 237	100,0%	Garden Route	DC4	304 237	100,0%
Kouga	63 099	Western Cape	23 794	37,7%	Garden Route	DC4	23 794	37,7%
		Eastern Cape	39 305	62,3%	Sarah Baartman	DC10	39 305	62,3%
Tsitsikamma	322 208	Western Cape	62 365	19,4%	Garden Route	DC4	62 365	19,4%
		Eastern Cape	259 843	80,6%	Sarah Baartman	DC10	233 715	72,5%
					Nelson Mandela Bay	NMA	26 128	8,1%
Amathole	200 112	Eastern Cape	200 112	100,0%	Buffalo City	BUF	74 742	37,4%
					Amathole	DC12	125 124	62,5%
					Chris Hani	DC13	246	0,1%
Eastern Cape Drakensberg	1 452 814	Eastern Cape	1 452 814	100,0%	Chris Hani	DC13	297 737	20,5%
					Joe Gqabi	DC14	745 287	51,3%
					O.R.Tambo	DC15	185 571	12,8%
					Alfred Nzo	DC44	224 219	15,4%
Southern Drakensberg	1 842 165	Eastern Cape	229 007	12,4%	O.R.Tambo	DC15	6 319	0,3%
					Alfred Nzo	DC44	222 688	12,1%
		KwaZulu-Natal	1 613 158	87,6%	Ugu	DC21	61 830	3,4%
					uMgungundlovu	DC22	649 621	35,3%
					Uthukela	DC23	90 069	4,9%
					Umzinyathi	DC24	101 036	5,5%
					iLembe	DC29	380	0,0%
					Harry Gwala	DC43	710 215	38,6%
					eThekweni	ETH	7	0,0%

SWSA name	Area of SWSA within SA	Province	Area of SWSA in the province	Proportion of SWSA that falls within the province	Municipality name	District code	Area of SWSA in municipality	Proportion of SWSA that falls within the municipality
Northern Drakensberg	868 838	Free State KwaZulu-Natal	110 686 758 152	12,7% 87,3%	Thabo Mofutsanyane	DC19	110 686	12,7%
					Uthukela	DC23	486 606	56,0%
					Umzinyathi	DC24	125 110	14,4%
					Amajuba	DC25	146 436	16,9%
Maloti Drakensberg	154 716	Free State	154 716	100,0%	Thabo Mofutsanyane	DC19	154 716	100,0%
Mfolozi Headwaters	192 049	KwaZulu-Natal	192 049	100,0%	Zululand	DC26	168 330	87,6%
					Umkhanyakude	DC27	13 910	7,2%
					King Cetshwayo	DC28	9 809	5,1%
Enkangala Grassland	788 092	Free State KwaZulu-Natal	452 558 597	0,1% 70,9%	Thabo Mofutsanyane	DC19	452	0,1%
					Amajuba	DC25	252 242	32,0%
					Zululand	DC26	306 355	38,9%
					Gert Sibande	DC30	229 043	29,1%
Upper Vaal	139 415	Free State Mpumalanga	10 203 129 212	7,3% 92,7%	Thabo Mofutsanyane	DC19	10 203	7,3%
					Gert Sibande	DC30	129 212	92,7%
Upper Usutu	539 322	Mpumalanga	539 322	100,0%	Gert Sibande	DC30	539 322	100,0%
Mbabane Hills	295 775	Mpumalanga	295 775	100,0%	Gert Sibande	DC30	178 619	60,4%
					Ehlanzeni	DC32	117 156	39,6%
Mpumalanga Drakensberg	837 248	Mpumalanga	833 726	99,6%	Gert Sibande	DC30	157 040	18,8%
					Nkangala	DC31	91 092	10,9%
					Ehlanzeni	DC32	585 594	69,9%
					Mopani	DC33	2 264	0,3%
					Sekhukhune	DC47	1 258	0,2%
Wolkberg	259 627	Limpopo	259 627	100,0%	Mopani	DC33	194 823	75,0%
					Capricorn	DC35	57 970	22,3%
					Sekhukhune	DC47	6 834	2,6%
Soutpansberg	234 682	Limpopo	234 682	100,0%	Mopani	DC33	11 458	4,9%
					Vhembe	DC34	218 142	93,0%
					Capricorn	DC35	5 082	2,2%
Waterberg	103 201	Limpopo	103 201	100,0%	Waterberg	DC36	103 201	100,0%

APPENDIX 3: ACCOUNT TABLES FOR LAND ACCOUNTS FOR EACH SWSA

This appendix provides the land accounts for main land cover classes (tier 2) for each SWSA from 1990 to 2020, with accounting tables for three accounting periods and for 1990 to 2020 overall. The change matrices for these accounting periods are available in a spreadsheet from Stats SA. The tables in Section 4 with key findings from the land accounts for each SWSA summarise information from the tables in this Appendix.

1. Land account for main land cover classes (tier 2) for Table Mountain SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	24 929	522	0	519	1 972	17 534	267	1 503	47 246
Total additions to stock	2 549	126		60	148	1 279	140	343	4 645
Total reductions in stock	1 643	25		68	996	1 567	79	267	4 645
Net change in stock	906	101		-8	-848	-288	61	76	0
<i>Net change as % of opening</i>	<i>3,6%</i>	<i>19,3%</i>		<i>-1,5%</i>	<i>-43,0%</i>	<i>-1,6%</i>	<i>22,8%</i>	<i>5,1%</i>	
Unchanged (opening - reductions)	23 286	497		451	976	15 967	188	1 236	
<i>Unchanged as % of opening</i>	<i>93,4%</i>	<i>95,2%</i>		<i>86,9%</i>	<i>49,5%</i>	<i>91,1%</i>	<i>70,4%</i>	<i>82,2%</i>	
Spatial turnover (additions + reductions)	4 192	151		128	1 144	2 846	219	610	
<i>Spatial turnover as % of opening</i>	<i>16,8%</i>	<i>28,9%</i>		<i>24,7%</i>	<i>58,0%</i>	<i>16,2%</i>	<i>82,0%</i>	<i>40,6%</i>	
Opening stock 2014**	25 835	623	0	511	1 124	17 246	328	1 579	47 246
Total additions to stock	1 013	709		112	184	2 599	119	381	5 117
Total reductions in stock	2 980	101		127	200	986	268	455	5 117
Net change in stock	-1 967	608		-15	-16	1 613	-149	-74	0
<i>Net change as % of opening</i>	<i>-7,6%</i>	<i>97,6%</i>		<i>-2,9%</i>	<i>-1,4%</i>	<i>9,4%</i>	<i>-45,4%</i>	<i>-4,7%</i>	
Unchanged (opening - reductions)	22 855	522		384	924	16 260	60	1 124	
<i>Unchanged as % of opening</i>	<i>88,5%</i>	<i>83,8%</i>		<i>75,1%</i>	<i>82,2%</i>	<i>94,3%</i>	<i>18,3%</i>	<i>71,2%</i>	
Spatial turnover (additions + reductions)	3 993	810		239	384	3 585	387	836	
<i>Spatial turnover as % of opening</i>	<i>15,5%</i>	<i>130,0%</i>		<i>46,8%</i>	<i>34,2%</i>	<i>20,8%</i>	<i>118,0%</i>	<i>52,9%</i>	
Opening stock 2018**	23 868	1 231	0	496	1 108	18 859	179	1 505	47 246
Total additions to stock	694	91		62	110	485	37	165	1 644
Total reductions in stock	744	54		32	58	536	5	215	1 644
Net change in stock	-50	37		30	52	-51	32	-50	0
<i>Net change as % of opening</i>	<i>-0,2%</i>	<i>3,0%</i>		<i>6,0%</i>	<i>4,7%</i>	<i>-0,3%</i>	<i>17,9%</i>	<i>-3,3%</i>	
Unchanged (opening - reductions)	23 124	1 177		464	1 050	18 323	174	1 290	
<i>Unchanged as % of opening</i>	<i>96,9%</i>	<i>95,6%</i>		<i>93,5%</i>	<i>94,8%</i>	<i>97,2%</i>	<i>97,2%</i>	<i>85,7%</i>	
Spatial turnover (additions + reductions)	1 438	145		94	168	1 021	42	380	
<i>Spatial turnover as % of opening</i>	<i>6,0%</i>	<i>11,8%</i>		<i>19,0%</i>	<i>15,2%</i>	<i>5,4%</i>	<i>23,5%</i>	<i>25,2%</i>	
Closing stock 2020	23 818	1 268	0	526	1 160	18 808	211	1 455	47 246

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	24 929	522	0	519	1 972	17 534	267	1 503	47 246
Total additions to stock	2 108	813		112	238	2 713	211	453	6 648
Total reductions in stock	3 219	67		105	1 050	1 439	267	501	6 648
Net change in stock	-1 111	746		7	-812	1 274	-56	-48	0
<i>Net change as % of opening</i>	<i>-4,5%</i>	<i>142,9%</i>		<i>1,3%</i>	<i>-41,2%</i>	<i>7,3%</i>	<i>-21,0%</i>	<i>-3,2%</i>	
Unchanged (opening - reductions)	21 710	455		414	922	16 095	0	1 002	
<i>Unchanged as % of opening</i>	<i>87,1%</i>	<i>87,2%</i>		<i>79,8%</i>	<i>46,8%</i>	<i>91,8%</i>	<i>0,0%</i>	<i>66,7%</i>	
Spatial turnover (additions + reductions)	5 327	880		217	1 288	4 152	478	954	
<i>Spatial turnover as % of opening</i>	<i>21,4%</i>	<i>168,6%</i>		<i>41,8%</i>	<i>65,3%</i>	<i>23,7%</i>	<i>179,0%</i>	<i>63,5%</i>	
Closing stock 2020	23 818	1 268	0	526	1 160	18 808	211	1 455	47 246

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

2. Land account for main land cover classes (tier 2) for Boland SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	425 642	39 648	0	74 136	27 440	20 958	300	19 930	608 054
Total additions to stock	30 660	4 198		9 828	3 351	7 099	177	3 537	58 850
Total reductions in stock	20 530	6 968		6 285	17 421	2 416	170	5 060	58 850
Net change in stock	10 130	-2 770		3 543	-14 070	4 683	7	-1 523	0
<i>Net change as % of opening</i>	<i>2,4%</i>	<i>-7,0%</i>		<i>4,8%</i>	<i>-51,3%</i>	<i>22,3%</i>	<i>2,3%</i>	<i>-7,6%</i>	
Unchanged (opening - reductions)	405 112	32 680		67 851	10 019	18 542	130	14 870	
<i>Unchanged as % of opening</i>	<i>95,2%</i>	<i>82,4%</i>		<i>91,5%</i>	<i>36,5%</i>	<i>88,5%</i>	<i>43,3%</i>	<i>74,6%</i>	
Spatial turnover (additions + reductions)	51 190	11 166		16 113	20 772	9 515	347	8 597	
<i>Spatial turnover as % of opening</i>	<i>12,0%</i>	<i>28,2%</i>		<i>21,7%</i>	<i>75,7%</i>	<i>45,4%</i>	<i>115,7%</i>	<i>43,1%</i>	
Opening stock 2014**	435 772	36 878	0	77 679	13 370	25 641	307	18 407	608 054
Total additions to stock	19 998	21 714	5	8 313	4 083	7 793	240	4 217	66 363
Total reductions in stock	28 353	7 657		21 218	1 952	2 104	126	4 953	66 363
Net change in stock	-8 355	14 057	5	-12 905	2 131	5 689	114	-736	0
<i>Net change as % of opening</i>	<i>-1,9%</i>	<i>38,1%</i>		<i>-16,6%</i>	<i>15,9%</i>	<i>22,2%</i>	<i>37,1%</i>	<i>-4,0%</i>	
Unchanged (opening - reductions)	407 419	29 221		56 461	11 418	23 537	181	13 454	
<i>Unchanged as % of opening</i>	<i>93,5%</i>	<i>79,2%</i>		<i>72,7%</i>	<i>85,4%</i>	<i>91,8%</i>	<i>59,0%</i>	<i>73,1%</i>	
Spatial turnover (additions + reductions)	48 351	29 371		29 531	6 035	9 897	366	9 170	
<i>Spatial turnover as % of opening</i>	<i>11,1%</i>	<i>79,6%</i>		<i>38,0%</i>	<i>45,1%</i>	<i>38,6%</i>	<i>119,2%</i>	<i>49,8%</i>	
Opening stock 2018**	427 417	50 935	5	64 774	15 501	31 330	421	17 671	608 054
Total additions to stock	7 467	4 070	1	4 703	1 831	1 627	75	3 663	23 437
Total reductions in stock	12 304	2 677		3 175	1 315	1 806	75	2 085	23 437
Net change in stock	-4 837	1 393	1	1 528	516	-179		1 578	0
<i>Net change as % of opening</i>	<i>-1,1%</i>	<i>2,7%</i>	<i>20,0%</i>	<i>2,4%</i>	<i>3,3%</i>	<i>-0,6%</i>		<i>8,9%</i>	
Unchanged (opening - reductions)	415 113	48 258		61 599	14 186	29 524	346	15 586	
<i>Unchanged as % of opening</i>	<i>97,1%</i>	<i>94,7%</i>		<i>95,1%</i>	<i>91,5%</i>	<i>94,2%</i>	<i>82,2%</i>	<i>88,2%</i>	
Spatial turnover (additions + reductions)	19 771	6 747		7 878	3 146	3 433	150	5 748	
<i>Spatial turnover as % of opening</i>	<i>4,6%</i>	<i>13,2%</i>		<i>12,2%</i>	<i>20,3%</i>	<i>11,0%</i>	<i>35,6%</i>	<i>32,5%</i>	
Closing stock 2020	422 580	52 328	6	66 302	16 017	31 151	421	19 249	608 054

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	425 642	39 648	0	74 136	27 440	20 958	300	19 930	608 054
Total additions to stock	30 630	21 004	6	8 571	4 814	12 404	295	5 287	83 011
Total reductions in stock	33 692	8 324		16 405	16 237	2 211	174	5 968	83 011
Net change in stock	-3 062	12 680	6	-7 834	-11 423	10 193	121	-681	0
<i>Net change as % of opening</i>	<i>-0,7%</i>	<i>32,0%</i>		<i>-10,6%</i>	<i>-41,6%</i>	<i>48,6%</i>	<i>40,3%</i>	<i>-3,4%</i>	
Unchanged (opening - reductions)	391 950	31 324		57 731	11 203	18 747	126	13 962	
<i>Unchanged as % of opening</i>	<i>92,1%</i>	<i>79,0%</i>		<i>77,9%</i>	<i>40,8%</i>	<i>89,5%</i>	<i>42,0%</i>	<i>70,1%</i>	
Spatial turnover (additions + reductions)	64 322	29 328		24 976	21 051	14 615	469	11 255	
<i>Spatial turnover as % of opening</i>	<i>15,1%</i>	<i>74,0%</i>		<i>33,7%</i>	<i>76,7%</i>	<i>69,7%</i>	<i>156,3%</i>	<i>56,5%</i>	
Closing stock 2020	422 580	52 328	6	66 302	16 017	31 151	421	19 249	608 054

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

3. Land account for main land cover classes (tier 2) for Groot Winterhoek SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	455 626	31 740	48	21 252	1 583	819	6	7 236	518 310
Total additions to stock	6 269	2 873	9	2 160	373	162	17	2 060	13 923
Total reductions in stock	5 888	3 139	7	1 766	1 093	114	3	1 913	13 923
Net change in stock	381	-266	2	394	-720	48	14	147	0
<i>Net change as % of opening</i>	<i>0,1%</i>	<i>-0,8%</i>	<i>4,2%</i>	<i>1,9%</i>	<i>-45,5%</i>	<i>5,9%</i>	<i>233,3%</i>	<i>2,0%</i>	
Unchanged (opening - reductions)	449 738	28 601	41	19 486	490	705	3	5 323	
<i>Unchanged as % of opening</i>	<i>98,7%</i>	<i>90,1%</i>	<i>85,4%</i>	<i>91,7%</i>	<i>31,0%</i>	<i>86,1%</i>	<i>50,0%</i>	<i>73,6%</i>	
Spatial turnover (additions + reductions)	12 157	6 012	16	3 926	1 466	276	20	3 973	
<i>Spatial turnover as % of opening</i>	<i>2,7%</i>	<i>18,9%</i>	<i>33,3%</i>	<i>18,5%</i>	<i>92,6%</i>	<i>33,7%</i>	<i>333,3%</i>	<i>54,9%</i>	
Opening stock 2014**	456 007	31 474	50	21 646	863	867	20	7 383	518 310
Total additions to stock	7 985	9 043	3	3 805	373	731	17	3 087	25 044
Total reductions in stock	10 614	5 676	50	5 720	283	27	10	2 664	25 044
Net change in stock	-2 629	3 367	-47	-1 915	90	704	7	423	0
<i>Net change as % of opening</i>	<i>-0,6%</i>	<i>10,7%</i>	<i>-94,0%</i>	<i>-8,8%</i>	<i>10,4%</i>	<i>81,2%</i>	<i>35,0%</i>	<i>5,7%</i>	
Unchanged (opening - reductions)	445 393	25 798	0	15 926	580	840	10	4 719	
<i>Unchanged as % of opening</i>	<i>97,7%</i>	<i>82,0%</i>	<i>0,0%</i>	<i>73,6%</i>	<i>67,2%</i>	<i>96,9%</i>	<i>50,0%</i>	<i>63,9%</i>	
Spatial turnover (additions + reductions)	18 599	14 719	53	9 525	656	758	27	5 751	
<i>Spatial turnover as % of opening</i>	<i>4,1%</i>	<i>46,8%</i>	<i>106,0%</i>	<i>44,0%</i>	<i>76,0%</i>	<i>87,4%</i>	<i>135,0%</i>	<i>77,9%</i>	
Opening stock 2018**	453 378	34 841	3	19 731	953	1 571	27	7 806	518 310
Total additions to stock	3 469	2 509	1	1 308	298	179	23	2 297	10 084
Total reductions in stock	5 544	1 651		1 041	133	190	7	1 518	10 084
Net change in stock	-2 075	858	1	267	165	-11	16	779	0
<i>Net change as % of opening</i>	<i>-0,5%</i>	<i>2,5%</i>	<i>33,3%</i>	<i>1,4%</i>	<i>17,3%</i>	<i>-0,7%</i>	<i>59,3%</i>	<i>10,0%</i>	
Unchanged (opening - reductions)	447 834	33 190		18 690	820	1 381	20	6 288	
<i>Unchanged as % of opening</i>	<i>98,8%</i>	<i>95,3%</i>		<i>94,7%</i>	<i>86,0%</i>	<i>87,9%</i>	<i>74,1%</i>	<i>80,6%</i>	
Spatial turnover (additions + reductions)	9 013	4 160		2 349	431	369	30	3 815	
<i>Spatial turnover as % of opening</i>	<i>2,0%</i>	<i>11,9%</i>		<i>11,9%</i>	<i>45,2%</i>	<i>23,5%</i>	<i>111,1%</i>	<i>48,9%</i>	
Closing stock 2020	451 303	35 699	4	19 998	1 118	1 560	43	8 585	518 310

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	455 626	31 740	48	21 252	1 583	819	6	7 236	518 310
Total additions to stock	7 557	9 330	4	3 701	558	790	41	3 958	25 939
Total reductions in stock	11 880	5 371	48	4 955	1 023	49	4	2 609	25 939
Net change in stock	-4 323	3 959	-44	-1 254	-465	741	37	1 349	0
<i>Net change as % of opening</i>	<i>-0,9%</i>	<i>12,5%</i>	<i>-91,7%</i>	<i>-5,9%</i>	<i>-29,4%</i>	<i>90,5%</i>	<i>616,7%</i>	<i>18,6%</i>	
Unchanged (opening - reductions)	443 746	26 369	0	16 297	560	770	2	4 627	
<i>Unchanged as % of opening</i>	<i>97,4%</i>	<i>83,1%</i>	<i>0,0%</i>	<i>76,7%</i>	<i>35,4%</i>	<i>94,0%</i>	<i>33,3%</i>	<i>63,9%</i>	
Spatial turnover (additions + reductions)	19 437	14 701	52	8 656	1 581	839	45	6 567	
<i>Spatial turnover as % of opening</i>	<i>4,3%</i>	<i>46,3%</i>	<i>108,3%</i>	<i>40,7%</i>	<i>99,9%</i>	<i>102,4%</i>	<i>750,0%</i>	<i>90,8%</i>	
Closing stock 2020	451 303	35 699	4	19 998	1 118	1 560	43	8 585	518 310

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

4. Land account for main land cover classes (tier 2) for Langeberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	133 135	25 935	0	788	6 447	345	7	4 870	171 527
Total additions to stock	5 983	4 010		316	492	373	2	371	11 547
Total reductions in stock	4 341	2 133		101	2 485	50	7	2 430	11 547
Net change in stock	1 642	1 877		215	-1 993	323	-5	-2 059	0
<i>Net change as % of opening</i>	<i>1,2%</i>	<i>7,2%</i>		<i>27,3%</i>	<i>-30,9%</i>	<i>93,6%</i>	<i>-71,4%</i>	<i>-42,3%</i>	
Unchanged (opening - reductions)	128 794	23 802		687	3 962	295	0	2 440	
<i>Unchanged as % of opening</i>	<i>96,7%</i>	<i>91,8%</i>		<i>87,2%</i>	<i>61,5%</i>	<i>85,5%</i>	<i>0,0%</i>	<i>50,1%</i>	
Spatial turnover (additions + reductions)	10 324	6 143		417	2 977	423	9	2 801	
<i>Spatial turnover as % of opening</i>	<i>7,8%</i>	<i>23,7%</i>		<i>52,9%</i>	<i>46,2%</i>	<i>122,6%</i>	<i>128,6%</i>	<i>57,5%</i>	
Opening stock 2014**	134 777	27 812	0	1 003	4 454	668	2	2 811	171 527
Total additions to stock	5 544	5 351		303	1 485	290	19	850	13 842
Total reductions in stock	6 932	5 107		449	381	41		932	13 842
Net change in stock	-1 388	244		-146	1 104	249	19	-82	0
<i>Net change as % of opening</i>	<i>-1,0%</i>	<i>0,9%</i>		<i>-14,6%</i>	<i>24,8%</i>	<i>37,3%</i>	<i>950,0%</i>	<i>-2,9%</i>	
Unchanged (opening - reductions)	127 845	22 705		554	4 073	627		1 879	
<i>Unchanged as % of opening</i>	<i>94,9%</i>	<i>81,6%</i>		<i>55,2%</i>	<i>91,4%</i>	<i>93,9%</i>		<i>66,8%</i>	
Spatial turnover (additions + reductions)	12 476	10 458		752	1 866	331		1 782	
<i>Spatial turnover as % of opening</i>	<i>9,3%</i>	<i>37,6%</i>		<i>75,0%</i>	<i>41,9%</i>	<i>49,6%</i>		<i>63,4%</i>	
Opening stock 2018**	133 389	28 056	0	857	5 558	917	21	2 729	171 527
Total additions to stock	2 207	1 839		68	501	86	13	544	5 258
Total reductions in stock	2 622	1 438		52	445	109	8	584	5 258
Net change in stock	-415	401		16	56	-23	5	-40	0
<i>Net change as % of opening</i>	<i>-0,3%</i>	<i>1,4%</i>		<i>1,9%</i>	<i>1,0%</i>	<i>-2,5%</i>	<i>23,8%</i>	<i>-1,5%</i>	
Unchanged (opening - reductions)	130 767	26 618		805	5 113	808	13	2 145	
<i>Unchanged as % of opening</i>	<i>98,0%</i>	<i>94,9%</i>		<i>93,9%</i>	<i>92,0%</i>	<i>88,1%</i>	<i>61,9%</i>	<i>78,6%</i>	
Spatial turnover (additions + reductions)	4 829	3 277		120	946	195	21	1 128	
<i>Spatial turnover as % of opening</i>	<i>3,6%</i>	<i>11,7%</i>		<i>14,0%</i>	<i>17,0%</i>	<i>21,3%</i>	<i>100,0%</i>	<i>41,3%</i>	
Closing stock 2020	132 974	28 457	0	873	5 614	894	26	2 689	171 527

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	133 135	25 935	0	788	6 447	345	7	4 870	171 527
Total additions to stock	6 155	5 402		301	1 066	562	25	569	14 080
Total reductions in stock	6 316	2 880		216	1 899	13	6	2 750	14 080
Net change in stock	-161	2 522		85	-833	549	19	-2 181	0
<i>Net change as % of opening</i>	<i>-0,1%</i>	<i>9,7%</i>		<i>10,8%</i>	<i>-12,9%</i>	<i>159,1%</i>	<i>271,4%</i>	<i>-44,8%</i>	
Unchanged (opening - reductions)	126 819	23 055		572	4 548	332	1	2 120	
<i>Unchanged as % of opening</i>	<i>95,3%</i>	<i>88,9%</i>		<i>72,6%</i>	<i>70,5%</i>	<i>96,2%</i>	<i>14,3%</i>	<i>43,5%</i>	
Spatial turnover (additions + reductions)	12 471	8 282		517	2 965	575	31	3 319	
<i>Spatial turnover as % of opening</i>	<i>9,4%</i>	<i>31,9%</i>		<i>65,6%</i>	<i>46,0%</i>	<i>166,7%</i>	<i>442,9%</i>	<i>68,2%</i>	
Closing stock 2020	132 974	28 457	0	873	5 614	894	26	2 689	171 527

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

5. Land account for main land cover classes (tier 2) for Swartberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	76 786	1 024	0	15	0	0	0	158	77 983
Total additions to stock	443	112		2				16	573
Total reductions in stock	127	294		2				150	573
Net change in stock	316	-182						-134	0
<i>Net change as % of opening</i>	<i>0,4%</i>	<i>-17,8%</i>						<i>-84,8%</i>	
Unchanged (opening - reductions)	76 659	730		13				8	
<i>Unchanged as % of opening</i>	<i>99,8%</i>	<i>71,3%</i>		<i>86,7%</i>				<i>5,1%</i>	
Spatial turnover (additions + reductions)	570	406		4				166	
<i>Spatial turnover as % of opening</i>	<i>0,7%</i>	<i>39,6%</i>		<i>26,7%</i>				<i>105,1%</i>	
Opening stock 2014**	77 102	842	0	15	0	0	0	24	77 983
Total additions to stock	183	364		3	7	11		60	628
Total reductions in stock	438	180		4				6	628
Net change in stock	-255	184		-1	7	11		54	0
<i>Net change as % of opening</i>	<i>-0,3%</i>	<i>21,9%</i>		<i>-6,7%</i>				<i>225,0%</i>	
Unchanged (opening - reductions)	76 664	662		11				18	
<i>Unchanged as % of opening</i>	<i>99,4%</i>	<i>78,6%</i>		<i>73,3%</i>				<i>75,0%</i>	
Spatial turnover (additions + reductions)	621	544		7				66	
<i>Spatial turnover as % of opening</i>	<i>0,8%</i>	<i>64,6%</i>		<i>46,7%</i>				<i>275,0%</i>	
Opening stock 2018**	76 847	1 026	0	14	7	11	0	78	77 983
Total additions to stock	120	90			4	1		56	271
Total reductions in stock	147	84		2	3	7		28	271
Net change in stock	-27	6		-2	1	-6		28	0
<i>Net change as % of opening</i>	<i>0,0%</i>	<i>0,6%</i>		<i>-14,3%</i>	<i>14,3%</i>	<i>-54,5%</i>		<i>35,9%</i>	
Unchanged (opening - reductions)	76 700	942		12	4	4		50	
<i>Unchanged as % of opening</i>	<i>99,8%</i>	<i>91,8%</i>		<i>85,7%</i>	<i>57,1%</i>	<i>36,4%</i>		<i>64,1%</i>	
Spatial turnover (additions + reductions)	267	174			7	8		84	
<i>Spatial turnover as % of opening</i>	<i>0,3%</i>	<i>17,0%</i>			<i>100,0%</i>	<i>72,7%</i>		<i>107,7%</i>	
Closing stock 2020	76 820	1 032	0	12	8	5	0	106	77 983

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	76 786	1 024	0	15	0	0	0	158	77 983
Total additions to stock	442	320		2	8	5		82	859
Total reductions in stock	408	312		5				134	859
Net change in stock	34	8		-3	8	5		-52	0
<i>Net change as % of opening</i>	<i>0,0%</i>	<i>0,8%</i>		<i>-20,0%</i>				<i>-32,9%</i>	
Unchanged (opening - reductions)	76 378	712		10				24	
<i>Unchanged as % of opening</i>	<i>99,5%</i>	<i>69,5%</i>		<i>66,7%</i>				<i>15,2%</i>	
Spatial turnover (additions + reductions)	850	632		7				216	
<i>Spatial turnover as % of opening</i>	<i>1,1%</i>	<i>61,7%</i>		<i>46,7%</i>				<i>136,7%</i>	
Closing stock 2020	76 820	1 032	0	12	8	5	0	106	77 983

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

6. Land account for main land cover classes (tier 2) for Outeniqua SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	215 057	19 911	0	466	58 108	6 892	22	3 781	304 237
Total additions to stock	19 954	1 839		66	2 329	2 191	14	386	26 779
Total reductions in stock	5 522	2 718		48	16 574	739	16	1 162	26 779
Net change in stock	14 432	-879		18	-14 245	1 452	-2	-776	0
<i>Net change as % of opening</i>	<i>6,7%</i>	<i>-4,4%</i>		<i>3,9%</i>	<i>-24,5%</i>	<i>21,1%</i>	<i>-9,1%</i>	<i>-20,5%</i>	
Unchanged (opening - reductions)	209 535	17 193		418	41 534	6 153	6	2 619	
<i>Unchanged as % of opening</i>	<i>97,4%</i>	<i>86,3%</i>		<i>89,7%</i>	<i>71,5%</i>	<i>89,3%</i>	<i>27,3%</i>	<i>69,3%</i>	
Spatial turnover (additions + reductions)	25 476	4 557		114	18 903	2 930	30	1 548	
<i>Spatial turnover as % of opening</i>	<i>11,8%</i>	<i>22,9%</i>		<i>24,5%</i>	<i>32,5%</i>	<i>42,5%</i>	<i>136,4%</i>	<i>40,9%</i>	
Opening stock 2014**	229 489	19 032	0	484	43 863	8 344	20	3 005	304 237
Total additions to stock	9 768	4 671		313	7 318	1 621	29	417	24 137
Total reductions in stock	12 849	3 219		166	6 674	705	7	517	24 137
Net change in stock	-3 081	1 452		147	644	916	22	-100	0
<i>Net change as % of opening</i>	<i>-1,3%</i>	<i>7,6%</i>		<i>30,4%</i>	<i>1,5%</i>	<i>11,0%</i>	<i>110,0%</i>	<i>-3,3%</i>	
Unchanged (opening - reductions)	216 640	15 813		318	37 189	7 639	13	2 488	
<i>Unchanged as % of opening</i>	<i>94,4%</i>	<i>83,1%</i>		<i>65,7%</i>	<i>84,8%</i>	<i>91,6%</i>	<i>65,0%</i>	<i>82,8%</i>	
Spatial turnover (additions + reductions)	22 617	7 890		479	13 992	2 326	36	934	
<i>Spatial turnover as % of opening</i>	<i>9,9%</i>	<i>41,5%</i>		<i>99,0%</i>	<i>31,9%</i>	<i>27,9%</i>	<i>180,0%</i>	<i>31,1%</i>	
Opening stock 2018**	226 408	20 484	0	631	44 507	9 260	42	2 905	304 237
Total additions to stock	3 879	1 430		74	2 590	425	10	249	8 657
Total reductions in stock	4 208	1 009		56	2 558	522	7	297	8 657
Net change in stock	-329	421		18	32	-97	3	-48	0
<i>Net change as % of opening</i>	<i>-0,1%</i>	<i>2,1%</i>		<i>2,9%</i>	<i>0,1%</i>	<i>-1,0%</i>	<i>7,1%</i>	<i>-1,7%</i>	
Unchanged (opening - reductions)	222 200	19 475		575	41 949	8 738	35	2 608	
<i>Unchanged as % of opening</i>	<i>98,1%</i>	<i>95,1%</i>		<i>91,1%</i>	<i>94,3%</i>	<i>94,4%</i>	<i>83,3%</i>	<i>89,8%</i>	
Spatial turnover (additions + reductions)	8 087	2 439		130	5 148	947	17	546	
<i>Spatial turnover as % of opening</i>	<i>3,6%</i>	<i>11,9%</i>		<i>20,6%</i>	<i>11,6%</i>	<i>10,2%</i>	<i>40,5%</i>	<i>18,8%</i>	
Closing stock 2020	226 079	20 905	0	649	44 539	9 163	45	2 857	304 237

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	215 057	19 911	0	466	58 108	6 892	22	3 781	304 237
Total additions to stock	21 925	4 246		312	5 270	3 130	40	357	35 280
Total reductions in stock	10 903	3 252		129	18 839	859	17	1 281	35 280
Net change in stock	11 022	994		183	-13 569	2 271	23	-924	0
<i>Net change as % of opening</i>	<i>5,1%</i>	<i>5,0%</i>		<i>39,3%</i>	<i>-23,4%</i>	<i>33,0%</i>	<i>104,5%</i>	<i>-24,4%</i>	
Unchanged (opening - reductions)	204 154	16 659		337	39 269	6 033	5	2 500	
<i>Unchanged as % of opening</i>	<i>94,9%</i>	<i>83,7%</i>		<i>72,3%</i>	<i>67,6%</i>	<i>87,5%</i>	<i>22,7%</i>	<i>66,1%</i>	
Spatial turnover (additions + reductions)	32 828	7 498		441	24 109	3 989	57	1 638	
<i>Spatial turnover as % of opening</i>	<i>15,3%</i>	<i>37,7%</i>		<i>94,6%</i>	<i>41,5%</i>	<i>57,9%</i>	<i>259,1%</i>	<i>43,3%</i>	
Closing stock 2020	226 079	20 905	0	649	44 539	9 163	45	2 857	304 237

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

7. Land account for main land cover classes (tier 2) for Kouga SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	62 551	21	0	0	0	0	0	527	63 099
Total additions to stock	252	6						187	445
Total reductions in stock	192	4						249	445
Net change in stock	60	2						-62	0
<i>Net change as % of opening</i>	<i>0,1%</i>	<i>9,5%</i>						<i>-11,8%</i>	
Unchanged (opening - reductions)	62 359	17						278	
<i>Unchanged as % of opening</i>	<i>99,7%</i>	<i>81,0%</i>						<i>52,8%</i>	
Spatial turnover (additions + reductions)	444	10						436	
<i>Spatial turnover as % of opening</i>	<i>0,7%</i>	<i>47,6%</i>						<i>82,7%</i>	
Opening stock 2014**	62 611	23	0	0	0	0	0	465	63 099
Total additions to stock	112	32						169	313
Total reductions in stock	198	9						106	313
Net change in stock	-86	23						63	0
<i>Net change as % of opening</i>	<i>-0,1%</i>	<i>100,0%</i>						<i>13,5%</i>	
Unchanged (opening - reductions)	62 413	14						359	
<i>Unchanged as % of opening</i>	<i>99,7%</i>	<i>60,9%</i>						<i>77,2%</i>	
Spatial turnover (additions + reductions)	310	41						275	
<i>Spatial turnover as % of opening</i>	<i>0,5%</i>	<i>178,3%</i>						<i>59,1%</i>	
Opening stock 2018**	62 525	46	0	0	0	0	0	528	63 099
Total additions to stock	95	2						97	194
Total reductions in stock	99	1						94	194
Net change in stock	-4	1						3	0
<i>Net change as % of opening</i>	<i>0,0%</i>	<i>2,2%</i>						<i>0,6%</i>	
Unchanged (opening - reductions)	62 426	45						434	
<i>Unchanged as % of opening</i>	<i>99,8%</i>	<i>97,8%</i>						<i>82,2%</i>	
Spatial turnover (additions + reductions)	194	3						191	
<i>Spatial turnover as % of opening</i>	<i>0,3%</i>	<i>6,5%</i>						<i>36,2%</i>	
Closing stock 2020	62 521	47	0	0	0	0	0	531	63 099

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	62 551	21	0	0	0	0	0	527	63 099
Total additions to stock	242	33						239	514
Total reductions in stock	272	7						235	514
Net change in stock	-30	26						4	0
<i>Net change as % of opening</i>	<i>0,0%</i>	<i>123,8%</i>						<i>0,8%</i>	
Unchanged (opening - reductions)	62 279	14						292	
<i>Unchanged as % of opening</i>	<i>99,6%</i>	<i>66,7%</i>						<i>55,4%</i>	
Spatial turnover (additions + reductions)	514	40						474	
<i>Spatial turnover as % of opening</i>	<i>0,8%</i>	<i>190,5%</i>						<i>89,9%</i>	
Closing stock 2020	62 521	47	0	0	0	0	0	531	63 099

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

8. Land account for main land cover classes (tier 2) for Tsitsikamma SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	237 943	38 532	140	886	34 775	6 802	15	3 115	322 208
Total additions to stock	17 927	4 288	63	98	1 398	1 410	10	758	25 952
Total reductions in stock	5 901	6 230	97	156	10 882	767	15	1 904	25 952
Net change in stock	12 026	-1 942	-34	-58	-9 484	643	-5	-1 146	0
<i>Net change as % of opening</i>	<i>5,1%</i>	<i>-5,0%</i>	<i>-24,3%</i>	<i>-6,5%</i>	<i>-27,3%</i>	<i>9,5%</i>	<i>-33,3%</i>	<i>-36,8%</i>	
Unchanged (opening - reductions)	232 042	32 302	43	730	23 893	6 035	0	1 211	
<i>Unchanged as % of opening</i>	<i>97,5%</i>	<i>83,8%</i>	<i>30,7%</i>	<i>82,4%</i>	<i>68,7%</i>	<i>88,7%</i>	<i>0,0%</i>	<i>38,9%</i>	
Spatial turnover (additions + reductions)	23 828	10 518	160	254	12 280	2 177	25	2 662	
<i>Spatial turnover as % of opening</i>	<i>10,0%</i>	<i>27,3%</i>	<i>114,3%</i>	<i>28,7%</i>	<i>35,3%</i>	<i>32,0%</i>	<i>166,7%</i>	<i>85,5%</i>	
Opening stock 2014**	249 969	36 590	106	828	25 291	7 445	10	1 969	322 208
Total additions to stock	5 081	5 137	132	945	6 246	869	65	689	19 164
Total reductions in stock	11 968	3 478	19	137	2 098	761	7	696	19 164
Net change in stock	-6 887	1 659	113	808	4 148	108	58	-7	0
<i>Net change as % of opening</i>	<i>-2,8%</i>	<i>4,5%</i>	<i>106,6%</i>	<i>97,6%</i>	<i>16,4%</i>	<i>1,5%</i>	<i>580,0%</i>	<i>-0,4%</i>	
Unchanged (opening - reductions)	238 001	33 112	87	691	23 193	6 684	3	1 273	
<i>Unchanged as % of opening</i>	<i>95,2%</i>	<i>90,5%</i>	<i>82,1%</i>	<i>83,5%</i>	<i>91,7%</i>	<i>89,8%</i>	<i>30,0%</i>	<i>64,7%</i>	
Spatial turnover (additions + reductions)	17 049	8 615	151	1 082	8 344	1 630	72	1 385	
<i>Spatial turnover as % of opening</i>	<i>6,8%</i>	<i>23,5%</i>	<i>142,5%</i>	<i>130,7%</i>	<i>33,0%</i>	<i>21,9%</i>	<i>720,0%</i>	<i>70,3%</i>	
Opening stock 2018**	243 082	38 249	219	1 636	29 439	7 553	68	1 962	322 208
Total additions to stock	2 684	2 691	25	121	2 297	536	8	462	8 824
Total reductions in stock	4 986	1 451	13	478	1 131	375	29	361	8 824
Net change in stock	-2 302	1 240	12	-357	1 166	161	-21	101	0
<i>Net change as % of opening</i>	<i>-0,9%</i>	<i>3,2%</i>	<i>5,5%</i>	<i>-21,8%</i>	<i>4,0%</i>	<i>2,1%</i>	<i>-30,9%</i>	<i>5,1%</i>	
Unchanged (opening - reductions)	238 096	36 798	206	1 158	28 308	7 178	39	1 601	
<i>Unchanged as % of opening</i>	<i>97,9%</i>	<i>96,2%</i>	<i>94,1%</i>	<i>70,8%</i>	<i>96,2%</i>	<i>95,0%</i>	<i>57,4%</i>	<i>81,6%</i>	
Spatial turnover (additions + reductions)	7 670	4 142	38	599	3 428	911	37	823	
<i>Spatial turnover as % of opening</i>	<i>3,2%</i>	<i>10,8%</i>	<i>17,4%</i>	<i>36,6%</i>	<i>11,6%</i>	<i>12,1%</i>	<i>54,4%</i>	<i>41,9%</i>	
Closing stock 2020	240 780	39 489	231	1 279	30 605	7 714	47	2 063	322 208

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	237 943	38 532	140	886	34 775	6 802	15	3 115	322 208
Total additions to stock	13 220	6 376	115	519	3 345	1 777	47	839	26 238
Total reductions in stock	10 383	5 419	24	126	7 515	865	15	1 891	26 238
Net change in stock	2 837	957	91	393	-4 170	912	32	-1 052	0
<i>Net change as % of opening</i>	<i>1,2%</i>	<i>2,5%</i>	<i>65,0%</i>	<i>44,4%</i>	<i>-12,0%</i>	<i>13,4%</i>	<i>213,3%</i>	<i>-33,8%</i>	
Unchanged (opening - reductions)	227 560	33 113	116	760	27 260	5 937	0	1 224	
<i>Unchanged as % of opening</i>	<i>95,6%</i>	<i>85,9%</i>	<i>82,9%</i>	<i>85,8%</i>	<i>78,4%</i>	<i>87,3%</i>	<i>0,0%</i>	<i>39,3%</i>	
Spatial turnover (additions + reductions)	23 603	11 795	139	645	10 860	2 642	62	2 730	
<i>Spatial turnover as % of opening</i>	<i>9,9%</i>	<i>30,6%</i>	<i>99,3%</i>	<i>72,8%</i>	<i>31,2%</i>	<i>38,8%</i>	<i>413,3%</i>	<i>87,6%</i>	
Closing stock 2020	240 780	39 489	231	1 279	30 605	7 714	47	2 063	322 208

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

9. Land account for main land cover classes (tier 2) for Amathole SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	149 871	8 887	3 445	1 938	21 711	13 098	52	1 110	200 112
Total additions to stock	11 509	1 037	234	144	4 466	2 889	2	386	20 667
Total reductions in stock	8 072	2 651	510	564	6 548	1 887	41	394	20 667
Net change in stock	3 437	-1 614	-276	-420	-2 082	1 002	-39	-8	0
<i>Net change as % of opening</i>	<i>2,3%</i>	<i>-18,2%</i>	<i>-8,0%</i>	<i>-21,7%</i>	<i>-9,6%</i>	<i>7,7%</i>	<i>-75,0%</i>	<i>-0,7%</i>	
Unchanged (opening - reductions)	141 799	6 236	2 935	1 374	15 163	11 211	11	716	
<i>Unchanged as % of opening</i>	<i>94,6%</i>	<i>70,2%</i>	<i>85,2%</i>	<i>70,9%</i>	<i>69,8%</i>	<i>85,6%</i>	<i>21,2%</i>	<i>64,5%</i>	
Spatial turnover (additions + reductions)	19 581	3 688	744	708	11 014	4 776	43	780	
<i>Spatial turnover as % of opening</i>	<i>13,1%</i>	<i>41,5%</i>	<i>21,6%</i>	<i>36,5%</i>	<i>50,7%</i>	<i>36,5%</i>	<i>82,7%</i>	<i>70,3%</i>	
Opening stock 2014**	153 308	7 273	3 169	1 518	19 629	14 100	13	1 102	200 112
Total additions to stock	4 049	2 434	652	43	4 435	2 530	49	440	14 632
Total reductions in stock	8 566	1 217	341	1 335	1 689	1 266	1	217	14 632
Net change in stock	-4 517	1 217	311	-1 292	2 746	1 264	48	223	0
<i>Net change as % of opening</i>	<i>-2,9%</i>	<i>16,7%</i>	<i>9,8%</i>	<i>-85,1%</i>	<i>14,0%</i>	<i>9,0%</i>	<i>369,2%</i>	<i>20,2%</i>	
Unchanged (opening - reductions)	144 742	6 056	2 828	183	17 940	12 834	12	885	
<i>Unchanged as % of opening</i>	<i>94,4%</i>	<i>83,3%</i>	<i>89,2%</i>	<i>12,1%</i>	<i>91,4%</i>	<i>91,0%</i>	<i>92,3%</i>	<i>80,3%</i>	
Spatial turnover (additions + reductions)	12 615	3 651	993	1 378	6 124	3 796	50	657	
<i>Spatial turnover as % of opening</i>	<i>8,2%</i>	<i>50,2%</i>	<i>31,3%</i>	<i>90,8%</i>	<i>31,2%</i>	<i>26,9%</i>	<i>384,6%</i>	<i>59,6%</i>	
Opening stock 2018**	148 791	8 490	3 480	226	22 375	15 364	61	1 325	200 112
Total additions to stock	2 361	780	256	61	1 731	982	41	196	6 408
Total reductions in stock	3 617	477	167	21	1 113	742	18	253	6 408
Net change in stock	-1 256	303	89	40	618	240	23	-57	0
<i>Net change as % of opening</i>	<i>-0,8%</i>	<i>3,6%</i>	<i>2,6%</i>	<i>17,7%</i>	<i>2,8%</i>	<i>1,6%</i>	<i>37,7%</i>	<i>-4,3%</i>	
Unchanged (opening - reductions)	152 408	8 967	3 647	247	23 488	16 106	79	1 578	
<i>Unchanged as % of opening</i>	<i>102,4%</i>	<i>105,6%</i>	<i>104,8%</i>	<i>109,3%</i>	<i>105,0%</i>	<i>104,8%</i>	<i>129,5%</i>	<i>119,1%</i>	
Spatial turnover (additions + reductions)	5 978	1 257	423	82	2 844	1 724	59	449	
<i>Spatial turnover as % of opening</i>	<i>4,0%</i>	<i>14,8%</i>	<i>12,2%</i>	<i>36,3%</i>	<i>12,7%</i>	<i>11,2%</i>	<i>96,7%</i>	<i>33,9%</i>	
Closing stock 2020	147 535	8 793	3 569	266	22 993	15 604	84	1 268	200 112

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	149 871	8 887	3 445	1 938	21 711	13 098	52	1 110	200 112
Total additions to stock	9 913	2 429	456	69	6 857	4 320	71	527	24 642
Total reductions in stock	12 249	2 523	332	1 741	5 575	1 814	39	369	24 642
Net change in stock	-2 336	-94	124	-1 672	1 282	2 506	32	158	0
<i>Net change as % of opening</i>	<i>-1,6%</i>	<i>-1,1%</i>	<i>3,6%</i>	<i>-86,3%</i>	<i>5,9%</i>	<i>19,1%</i>	<i>61,5%</i>	<i>14,2%</i>	
Unchanged (opening - reductions)	137 622	6 364	3 113	197	16 136	11 284	13	741	
<i>Unchanged as % of opening</i>	<i>91,8%</i>	<i>71,6%</i>	<i>90,4%</i>	<i>10,2%</i>	<i>74,3%</i>	<i>86,2%</i>	<i>25,0%</i>	<i>66,8%</i>	
Spatial turnover (additions + reductions)	22 162	4 952	788	1 810	12 432	6 134	110	896	
<i>Spatial turnover as % of opening</i>	<i>14,8%</i>	<i>55,7%</i>	<i>22,9%</i>	<i>93,4%</i>	<i>57,3%</i>	<i>46,8%</i>	<i>211,5%</i>	<i>80,7%</i>	
Closing stock 2020	147 535	8 793	3 569	266	22 993	15 604	84	1 268	200 112

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

10. Land account for main land cover classes (tier 2) for Eastern Cape Drakensberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	1 170 375	33 544	101 977	0	52 198	73 585	63	21 072	1 452 814
Total additions to stock	40 410	3 442	10 588		23 783	2 944	13	6 304	87 484
Total reductions in stock	42 330	4 615	6 904		14 611	7 593	48	11 383	87 484
Net change in stock	-1 920	-1 173	3 684		9 172	-4 649	-35	-5 079	0
<i>Net change as % of opening</i>	<i>-0,2%</i>	<i>-3,5%</i>	<i>3,6%</i>		<i>17,6%</i>	<i>-6,3%</i>	<i>-55,6%</i>	<i>-24,1%</i>	
Unchanged (opening - reductions)	1 128 045	28 929	95 073		37 587	65 992	15	9 689	
<i>Unchanged as % of opening</i>	<i>96,4%</i>	<i>86,2%</i>	<i>93,2%</i>		<i>72,0%</i>	<i>89,7%</i>	<i>23,8%</i>	<i>46,0%</i>	
Spatial turnover (additions + reductions)	82 740	8 057	17 492		38 394	10 537	61	17 687	
<i>Spatial turnover as % of opening</i>	<i>7,1%</i>	<i>24,0%</i>	<i>17,2%</i>		<i>73,6%</i>	<i>14,3%</i>	<i>96,8%</i>	<i>83,9%</i>	
Opening stock 2014**	1 168 455	32 371	105 661	0	61 370	68 936	28	15 993	1 452 814
Total additions to stock	24 066	5 387	12 060	37	23 779	12 856	103	7 040	85 328
Total reductions in stock	56 882	4 445	13 877		3 164	2 971	13	3 976	85 328
Net change in stock	-32 816	942	-1 817	37	20 615	9 885	90	3 064	0
<i>Net change as % of opening</i>	<i>-2,8%</i>	<i>2,9%</i>	<i>-1,7%</i>		<i>33,6%</i>	<i>14,3%</i>	<i>321,4%</i>	<i>19,2%</i>	
Unchanged (opening - reductions)	1 111 573	27 926	91 784		58 206	65 965	15	12 017	
<i>Unchanged as % of opening</i>	<i>95,1%</i>	<i>86,3%</i>	<i>86,9%</i>		<i>94,8%</i>	<i>95,7%</i>	<i>53,6%</i>	<i>75,1%</i>	
Spatial turnover (additions + reductions)	80 948	9 832	25 937		26 943	15 827	116	11 016	
<i>Spatial turnover as % of opening</i>	<i>6,9%</i>	<i>30,4%</i>	<i>24,5%</i>		<i>43,9%</i>	<i>23,0%</i>	<i>414,3%</i>	<i>68,9%</i>	
Opening stock 2018**	1 135 639	33 313	103 844	37	81 985	78 821	118	19 057	1 452 814
Total additions to stock	15 822	2 925	6 511	2	6 772	3 792	21	3 344	39 189
Total reductions in stock	20 971	1 823	4 987	1	4 344	3 529	48	3 486	39 189
Net change in stock	-5 149	1 102	1 524	1	2 428	263	-27	-142	0
<i>Net change as % of opening</i>	<i>-0,5%</i>	<i>3,3%</i>	<i>1,5%</i>	<i>2,7%</i>	<i>3,0%</i>	<i>0,3%</i>	<i>-22,9%</i>	<i>-0,7%</i>	
Unchanged (opening - reductions)	1 114 668	31 490	98 857	36	77 641	75 292	70	15 571	
<i>Unchanged as % of opening</i>	<i>98,2%</i>	<i>94,5%</i>	<i>95,2%</i>	<i>97,3%</i>	<i>94,7%</i>	<i>95,5%</i>	<i>59,3%</i>	<i>81,7%</i>	
Spatial turnover (additions + reductions)	36 793	4 748	11 498	3	11 116	7 321	69	6 830	
<i>Spatial turnover as % of opening</i>	<i>3,2%</i>	<i>14,3%</i>	<i>11,1%</i>	<i>8,1%</i>	<i>13,6%</i>	<i>9,3%</i>	<i>58,5%</i>	<i>35,8%</i>	
Closing stock 2020	1 130 490	34 415	105 368	38	84 413	79 084	91	18 915	1 452 814

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	1 170 375	33 544	101 977	0	52 198	73 585	63	21 072	1 452 814
Total additions to stock	29 337	4 043	10 831	38	41 334	9 328	67	9 087	104 065
Total reductions in stock	69 222	3 172	7 440		9 119	3 829	39	11 244	104 065
Net change in stock	-39 885	871	3 391	38	32 215	5 499	28	-2 157	0
<i>Net change as % of opening</i>	<i>-3,4%</i>	<i>2,6%</i>	<i>3,3%</i>		<i>61,7%</i>	<i>7,5%</i>	<i>44,4%</i>	<i>-10,2%</i>	
Unchanged (opening - reductions)	1 101 153	30 372	94 537		43 079	69 756	24	9 828	
<i>Unchanged as % of opening</i>	<i>94,1%</i>	<i>90,5%</i>	<i>92,7%</i>		<i>82,5%</i>	<i>94,8%</i>	<i>38,1%</i>	<i>46,6%</i>	
Spatial turnover (additions + reductions)	98 559	7 215	18 271		50 453	13 157	106	20 331	
<i>Spatial turnover as % of opening</i>	<i>8,4%</i>	<i>21,5%</i>	<i>17,9%</i>		<i>96,7%</i>	<i>17,9%</i>	<i>168,3%</i>	<i>96,5%</i>	
Closing stock 2020	1 130 490	34 415	105 368	38	84 413	79 084	91	18 915	1 452 814

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

11. Land account for main land cover classes (tier 2) for Southern Drakensberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	1 179 033	149 554	65 757	1 594	292 944	111 446	50	41 787	1 842 165
Total additions to stock	64 361	37 853	23 299	1 007	55 738	7 233	22	10 955	200 468
Total reductions in stock	117 754	14 201	4 585	150	38 494	10 291	32	14 961	200 468
Net change in stock	-53 393	23 652	18 714	857	17 244	-3 058	-10	-4 006	0
<i>Net change as % of opening</i>	<i>-4,5%</i>	<i>15,8%</i>	<i>28,5%</i>	<i>53,8%</i>	<i>5,9%</i>	<i>-2,7%</i>	<i>-20,0%</i>	<i>-9,6%</i>	
Unchanged (opening - reductions)	1 061 279	135 353	61 172	1 444	254 450	101 155	18	26 826	
<i>Unchanged as % of opening</i>	<i>90,0%</i>	<i>90,5%</i>	<i>93,0%</i>	<i>90,6%</i>	<i>86,9%</i>	<i>90,8%</i>	<i>36,0%</i>	<i>64,2%</i>	
Spatial turnover (additions + reductions)	182 115	52 054	27 884	1 157	94 232	17 524	54	25 916	
<i>Spatial turnover as % of opening</i>	<i>15,4%</i>	<i>34,8%</i>	<i>42,4%</i>	<i>72,6%</i>	<i>32,2%</i>	<i>15,7%</i>	<i>108,0%</i>	<i>62,0%</i>	
Opening stock 2014**	1 125 640	173 206	84 471	2 451	310 188	108 388	40	37 781	1 842 165
Total additions to stock	80 031	14 939	8 361	398	42 161	20 260	189	23 519	189 858
Total reductions in stock	88 048	36 208	24 504	1 347	24 952	6 211	9	8 579	189 858
Net change in stock	-8 017	-21 269	-16 143	-949	17 209	14 049	180	14 940	0
<i>Net change as % of opening</i>	<i>-0,7%</i>	<i>-12,3%</i>	<i>-19,1%</i>	<i>-38,7%</i>	<i>5,5%</i>	<i>13,0%</i>	<i>450,0%</i>	<i>39,5%</i>	
Unchanged (opening - reductions)	1 037 592	136 998	59 967	1 104	285 236	102 177	31	29 202	
<i>Unchanged as % of opening</i>	<i>92,2%</i>	<i>79,1%</i>	<i>71,0%</i>	<i>45,0%</i>	<i>92,0%</i>	<i>94,3%</i>	<i>77,5%</i>	<i>77,3%</i>	
Spatial turnover (additions + reductions)	168 079	51 147	32 865	1 745	67 113	26 471	198	32 098	
<i>Spatial turnover as % of opening</i>	<i>14,9%</i>	<i>29,5%</i>	<i>38,9%</i>	<i>71,2%</i>	<i>21,6%</i>	<i>24,4%</i>	<i>495,0%</i>	<i>85,0%</i>	
Opening stock 2018**	1 117 623	151 937	68 328	1 502	327 397	122 437	220	52 721	1 842 165
Total additions to stock	27 118	9 915	4 229	215	12 977	6 123	63	6 704	67 344
Total reductions in stock	32 426	7 470	3 864	129	11 266	5 211	47	6 931	67 344
Net change in stock	-5 308	2 445	365	86	1 711	912	16	-227	0
<i>Net change as % of opening</i>	<i>-0,5%</i>	<i>1,6%</i>	<i>0,5%</i>	<i>5,7%</i>	<i>0,5%</i>	<i>0,7%</i>	<i>7,3%</i>	<i>-0,4%</i>	
Unchanged (opening - reductions)	1 085 197	144 467	64 464	1 373	316 131	117 226	173	45 790	
<i>Unchanged as % of opening</i>	<i>97,1%</i>	<i>95,1%</i>	<i>94,3%</i>	<i>91,4%</i>	<i>96,6%</i>	<i>95,7%</i>	<i>78,6%</i>	<i>86,9%</i>	
Spatial turnover (additions + reductions)	59 544	17 385	8 093	344	24 243	11 334	110	13 635	
<i>Spatial turnover as % of opening</i>	<i>5,3%</i>	<i>11,4%</i>	<i>11,8%</i>	<i>22,9%</i>	<i>7,4%</i>	<i>9,3%</i>	<i>50,0%</i>	<i>25,9%</i>	
Closing stock 2020	1 112 315	154 382	68 693	1 588	329 108	123 349	236	52 494	1 842 165

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	1 179 033	149 554	65 757	1 594	292 944	111 446	50	41 787	1 842 165
Total additions to stock	62 429	24 256	9 524	469	73 033	18 933	210	24 720	213 574
Total reductions in stock	129 147	19 428	6 588	475	36 869	7 030	24	14 013	213 574
Net change in stock	-66 718	4 828	2 936	-6	36 164	11 903	186	10 707	0
<i>Net change as % of opening</i>	<i>-5,7%</i>	<i>3,2%</i>	<i>4,5%</i>	<i>-0,4%</i>	<i>12,3%</i>	<i>10,7%</i>	<i>372,0%</i>	<i>25,6%</i>	
Unchanged (opening - reductions)	1 049 886	130 126	59 169	1 119	256 075	104 416	26	27 774	
<i>Unchanged as % of opening</i>	<i>89,0%</i>	<i>87,0%</i>	<i>90,0%</i>	<i>70,2%</i>	<i>87,4%</i>	<i>93,7%</i>	<i>52,0%</i>	<i>66,5%</i>	
Spatial turnover (additions + reductions)	191 576	43 684	16 112	944	109 902	25 963	234	38 733	
<i>Spatial turnover as % of opening</i>	<i>16,2%</i>	<i>29,2%</i>	<i>24,5%</i>	<i>59,2%</i>	<i>37,5%</i>	<i>23,3%</i>	<i>468,0%</i>	<i>92,7%</i>	
Closing stock 2020	1 112 315	154 382	68 693	1 588	329 108	123 349	236	52 494	1 842 165

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

12. Land account for main land cover classes (tier 2) for Northern Drakensberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	735 304	44 953	19 526	124	14 190	32 546	822	21 373	868 838
Total additions to stock	20 401	12 892	9 969	77	9 885	1 869	533	3 093	58 719
Total reductions in stock	34 377	7 029	1 543	6	5 009	3 763	372	6 620	58 719
Net change in stock	-13 976	5 863	8 426	71	4 876	-1 894	161	-3 527	0
<i>Net change as % of opening</i>	<i>-1,9%</i>	<i>13,0%</i>	<i>43,2%</i>	<i>57,3%</i>	<i>34,4%</i>	<i>-5,8%</i>	<i>19,6%</i>	<i>-16,5%</i>	
Unchanged (opening - reductions)	700 927	37 924	17 983	118	9 181	28 783	450	14 753	
<i>Unchanged as % of opening</i>	<i>95,3%</i>	<i>84,4%</i>	<i>92,1%</i>	<i>95,2%</i>	<i>64,7%</i>	<i>88,4%</i>	<i>54,7%</i>	<i>69,0%</i>	
Spatial turnover (additions + reductions)	54 778	19 921	11 512	83	14 894	5 632	905	9 713	
<i>Spatial turnover as % of opening</i>	<i>7,4%</i>	<i>44,3%</i>	<i>59,0%</i>	<i>66,9%</i>	<i>105,0%</i>	<i>17,3%</i>	<i>110,1%</i>	<i>45,4%</i>	
Opening stock 2014**	721 328	50 816	27 952	195	19 066	30 652	983	17 846	868 838
Total additions to stock	25 591	9 160	5 573	23	4 979	8 057	270	11 250	64 903
Total reductions in stock	33 935	12 744	8 563	73	3 284	2 277	426	3 601	64 903
Net change in stock	-8 344	-3 584	-2 990	-50	1 695	5 780	-156	7 649	0
<i>Net change as % of opening</i>	<i>-1,2%</i>	<i>-7,1%</i>	<i>-10,7%</i>	<i>-25,6%</i>	<i>8,9%</i>	<i>18,9%</i>	<i>-15,9%</i>	<i>42,9%</i>	
Unchanged (opening - reductions)	687 393	38 072	19 389	122	15 782	28 375	557	14 245	
<i>Unchanged as % of opening</i>	<i>95,3%</i>	<i>74,9%</i>	<i>69,4%</i>	<i>62,6%</i>	<i>82,8%</i>	<i>92,6%</i>	<i>56,7%</i>	<i>79,8%</i>	
Spatial turnover (additions + reductions)	59 526	21 904	14 136	96	8 263	10 334	696	14 851	
<i>Spatial turnover as % of opening</i>	<i>8,3%</i>	<i>43,1%</i>	<i>50,6%</i>	<i>49,2%</i>	<i>43,3%</i>	<i>33,7%</i>	<i>70,8%</i>	<i>83,2%</i>	
Opening stock 2018**	712 984	47 232	24 962	145	20 761	36 432	827	25 495	868 838
Total additions to stock	9 643	5 407	2 200	16	1 861	2 169	300	2 978	24 574
Total reductions in stock	12 441	2 303	1 647	63	2 557	2 097	100	3 366	24 574
Net change in stock	-2 798	3 104	553	-47	-696	72	200	-388	0
<i>Net change as % of opening</i>	<i>-0,4%</i>	<i>6,6%</i>	<i>2,2%</i>	<i>-32,4%</i>	<i>-3,4%</i>	<i>0,2%</i>	<i>24,2%</i>	<i>-1,5%</i>	
Unchanged (opening - reductions)	700 543	44 929	23 315	82	18 204	34 335	727	22 129	
<i>Unchanged as % of opening</i>	<i>98,3%</i>	<i>95,1%</i>	<i>93,4%</i>	<i>56,6%</i>	<i>87,7%</i>	<i>94,2%</i>	<i>87,9%</i>	<i>86,8%</i>	
Spatial turnover (additions + reductions)	22 084	7 710	3 847	79	4 418	4 266	400	6 344	
<i>Spatial turnover as % of opening</i>	<i>3,1%</i>	<i>16,3%</i>	<i>15,4%</i>	<i>54,5%</i>	<i>21,3%</i>	<i>11,7%</i>	<i>48,4%</i>	<i>24,9%</i>	
Closing stock 2020	710 186	50 336	25 515	98	20 065	36 504	1 027	25 107	868 838

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	735 304	44 953	19 526	124	14 190	32 546	822	21 373	868 838
Total additions to stock	20 569	13 345	8 321	41	11 603	6 681	662	10 590	71 812
Total reductions in stock	45 687	7 962	2 332	67	5 728	2 723	457	6 856	71 812
Net change in stock	-25 118	5 383	5 989	-26	5 875	3 958	205	3 734	0
<i>Net change as % of opening</i>	<i>-3,4%</i>	<i>12,0%</i>	<i>30,7%</i>	<i>-21,0%</i>	<i>41,4%</i>	<i>12,2%</i>	<i>24,9%</i>	<i>17,5%</i>	
Unchanged (opening - reductions)	689 617	36 991	17 194	57	8 462	29 823	365	14 517	
<i>Unchanged as % of opening</i>	<i>93,8%</i>	<i>82,3%</i>	<i>88,1%</i>	<i>46,0%</i>	<i>59,6%</i>	<i>91,6%</i>	<i>44,4%</i>	<i>67,9%</i>	
Spatial turnover (additions + reductions)	66 256	21 307	10 653	108	17 331	9 404	1 119	17 446	
<i>Spatial turnover as % of opening</i>	<i>9,0%</i>	<i>47,4%</i>	<i>54,6%</i>	<i>87,1%</i>	<i>122,1%</i>	<i>28,9%</i>	<i>136,1%</i>	<i>81,6%</i>	
Closing stock 2020	710 186	50 336	25 515	98	20 065	36 504	1 027	25 107	868 838

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

13. Land account for main land cover classes (tier 2) for Maloti Drakensberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	116 690	33 448	85	168	1 504	1 347	15	1 459	154 716
Total additions to stock	4 178	3 500	164	29	401	576	2	456	9 306
Total reductions in stock	4 735	3 308	9	18	682	96	9	449	9 306
Net change in stock	-557	192	155	11	-281	480	-7	7	0
<i>Net change as % of opening</i>	<i>-0,5%</i>	<i>0,6%</i>	<i>182,4%</i>	<i>6,5%</i>	<i>-18,7%</i>	<i>35,6%</i>	<i>-46,7%</i>	<i>0,5%</i>	
Unchanged (opening - reductions)	111 955	30 140	76	150	822	1 251	6	1 010	
<i>Unchanged as % of opening</i>	<i>95,9%</i>	<i>90,1%</i>	<i>89,4%</i>	<i>89,3%</i>	<i>54,7%</i>	<i>92,9%</i>	<i>40,0%</i>	<i>69,2%</i>	
Spatial turnover (additions + reductions)	8 913	6 808	173	47	1 083	672	11	905	
<i>Spatial turnover as % of opening</i>	<i>7,6%</i>	<i>20,4%</i>	<i>203,5%</i>	<i>28,0%</i>	<i>72,0%</i>	<i>49,9%</i>	<i>73,3%</i>	<i>62,0%</i>	
Opening stock 2014**	116 133	33 640	240	179	1 223	1 827	8	1 466	154 716
Total additions to stock	5 335	4 275	14	28	1 314	505	25	903	12 399
Total reductions in stock	6 347	4 717	166	112	510	80	3	464	12 399
Net change in stock	-1 012	-442	-152	-84	804	425	22	439	0
<i>Net change as % of opening</i>	<i>-0,9%</i>	<i>-1,3%</i>	<i>-63,3%</i>	<i>-46,9%</i>	<i>65,7%</i>	<i>23,3%</i>	<i>275,0%</i>	<i>29,9%</i>	
Unchanged (opening - reductions)	109 786	28 923	74	67	713	1 747	5	1 002	
<i>Unchanged as % of opening</i>	<i>94,5%</i>	<i>86,0%</i>	<i>30,8%</i>	<i>37,4%</i>	<i>58,3%</i>	<i>95,6%</i>	<i>62,5%</i>	<i>68,3%</i>	
Spatial turnover (additions + reductions)	11 682	8 992	180	140	1 824	585	28	1 367	
<i>Spatial turnover as % of opening</i>	<i>10,1%</i>	<i>26,7%</i>	<i>75,0%</i>	<i>78,2%</i>	<i>149,1%</i>	<i>32,0%</i>	<i>350,0%</i>	<i>93,2%</i>	
Opening stock 2018**	115 121	33 198	88	95	2 027	2 252	30	1 905	154 716
Total additions to stock	2 450	2 554	9	17	246	148	9	329	5 762
Total reductions in stock	3 020	1 488	4	10	673	107	10	450	5 762
Net change in stock	-570	1 066	5	7	-427	41	-1	-121	0
<i>Net change as % of opening</i>	<i>-0,5%</i>	<i>3,2%</i>	<i>5,7%</i>	<i>7,4%</i>	<i>-21,1%</i>	<i>1,8%</i>	<i>-3,3%</i>	<i>-6,4%</i>	
Unchanged (opening - reductions)	112 101	31 710	84	85	1 354	2 145	20	1 455	
<i>Unchanged as % of opening</i>	<i>97,4%</i>	<i>95,5%</i>	<i>95,5%</i>	<i>89,5%</i>	<i>66,8%</i>	<i>95,2%</i>	<i>66,7%</i>	<i>76,4%</i>	
Spatial turnover (additions + reductions)	5 470	4 042	13	27	919	255	19	779	
<i>Spatial turnover as % of opening</i>	<i>4,8%</i>	<i>12,2%</i>	<i>14,8%</i>	<i>28,4%</i>	<i>45,3%</i>	<i>11,3%</i>	<i>63,3%</i>	<i>40,9%</i>	
Closing stock 2020	114 551	34 264	93	102	1 600	2 293	29	1 784	154 716

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	116 690	33 448	85	168	1 504	1 347	15	1 459	154 716
Total additions to stock	3 494	3 333	23	23	911	1 020	20	791	9 615
Total reductions in stock	5 633	2 517	15	89	815	74	6	466	9 615
Net change in stock	-2 139	816	8	-66	96	946	14	325	0
<i>Net change as % of opening</i>	<i>-1,8%</i>	<i>2,4%</i>	<i>9,4%</i>	<i>-39,3%</i>	<i>6,4%</i>	<i>70,2%</i>	<i>93,3%</i>	<i>22,3%</i>	
Unchanged (opening - reductions)	111 057	30 931	70	79	689	1 273	9	993	
<i>Unchanged as % of opening</i>	<i>95,2%</i>	<i>92,5%</i>	<i>82,4%</i>	<i>47,0%</i>	<i>45,8%</i>	<i>94,5%</i>	<i>60,0%</i>	<i>68,1%</i>	
Spatial turnover (additions + reductions)	9 127	5 850	38	112	1 726	1 094	26	1 257	
<i>Spatial turnover as % of opening</i>	<i>7,8%</i>	<i>17,5%</i>	<i>44,7%</i>	<i>66,7%</i>	<i>114,8%</i>	<i>81,2%</i>	<i>173,3%</i>	<i>86,2%</i>	
Closing stock 2020	114 551	34 264	93	102	1 600	2 293	29	1 784	154 716

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

14. Land account for main land cover classes (tier 2) for Mfolozi Headwaters SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	140 765	2 199	11 677	101	23 182	13 762	94	269	192 049
Total additions to stock	7 374	797	4 365	608	8 745	604	37	97	22 627
Total reductions in stock	13 574	813	1 931	10	4 120	1 990	85	104	22 627
Net change in stock	-6 200	-16	2 434	598	4 625	-1 386	-48	-7	0
<i>Net change as % of opening</i>	<i>-4,4%</i>	<i>-0,7%</i>	<i>20,8%</i>	<i>592,1%</i>	<i>20,0%</i>	<i>-10,1%</i>	<i>-51,1%</i>	<i>-2,6%</i>	
Unchanged (opening - reductions)	127 191	1 386	9 746	91	19 062	11 772	9	165	
<i>Unchanged as % of opening</i>	<i>90,4%</i>	<i>63,0%</i>	<i>83,5%</i>	<i>90,1%</i>	<i>82,2%</i>	<i>85,5%</i>	<i>9,6%</i>	<i>61,3%</i>	
Spatial turnover (additions + reductions)	20 948	1 610	6 296	618	12 865	2 594	122	201	
<i>Spatial turnover as % of opening</i>	<i>14,9%</i>	<i>73,2%</i>	<i>53,9%</i>	<i>611,9%</i>	<i>55,5%</i>	<i>18,8%</i>	<i>129,8%</i>	<i>74,7%</i>	
Opening stock 2014**	134 565	2 183	14 111	699	27 807	12 376	46	262	192 049
Total additions to stock	10 936	399	2 932	10	5 122	2 813	13	767	22 992
Total reductions in stock	9 927	1 220	6 373	649	3 155	1 589	12	67	22 992
Net change in stock	1 009	-821	-3 441	-639	1 967	1 224	1	700	0
<i>Net change as % of opening</i>	<i>0,7%</i>	<i>-37,6%</i>	<i>-24,4%</i>	<i>-91,4%</i>	<i>7,1%</i>	<i>9,9%</i>	<i>2,2%</i>	<i>267,2%</i>	
Unchanged (opening - reductions)	124 638	963	7 738	50	24 652	10 787	34	195	
<i>Unchanged as % of opening</i>	<i>92,6%</i>	<i>44,1%</i>	<i>54,8%</i>	<i>7,2%</i>	<i>88,7%</i>	<i>87,2%</i>	<i>73,9%</i>	<i>74,4%</i>	
Spatial turnover (additions + reductions)	20 863	1 619	9 305	659	8 277	4 402	25	834	
<i>Spatial turnover as % of opening</i>	<i>15,5%</i>	<i>74,2%</i>	<i>65,9%</i>	<i>94,3%</i>	<i>29,8%</i>	<i>35,6%</i>	<i>54,3%</i>	<i>318,3%</i>	
Opening stock 2018**	135 574	1 362	10 670	60	29 774	13 600	47	962	192 049
Total additions to stock	2 542	182	1 009	3	1 414	1 389	11	198	6 748
Total reductions in stock	3 533	71	759	9	1 435	797	6	138	6 748
Net change in stock	-991	111	250	-6	-21	592	5	60	0
<i>Net change as % of opening</i>	<i>-0,7%</i>	<i>8,1%</i>	<i>2,3%</i>	<i>-10,0%</i>	<i>-0,1%</i>	<i>4,4%</i>	<i>10,6%</i>	<i>6,2%</i>	
Unchanged (opening - reductions)	132 041	1 291	9 911	51	28 339	12 803	41	824	
<i>Unchanged as % of opening</i>	<i>97,4%</i>	<i>94,8%</i>	<i>92,9%</i>	<i>85,0%</i>	<i>95,2%</i>	<i>94,1%</i>	<i>87,2%</i>	<i>85,7%</i>	
Spatial turnover (additions + reductions)	6 075	253	1 768	12	2 849	2 186	17	336	
<i>Spatial turnover as % of opening</i>	<i>4,5%</i>	<i>18,6%</i>	<i>16,6%</i>	<i>20,0%</i>	<i>9,6%</i>	<i>16,1%</i>	<i>36,2%</i>	<i>34,9%</i>	
Closing stock 2020	134 583	1 473	10 920	54	29 753	14 192	52	1 022	192 049

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	140 765	2 199	11 677	101	23 182	13 762	94	269	192 049
Total additions to stock	8 483	436	2 770	6	10 708	2 041	42	831	25 317
Total reductions in stock	14 665	1 162	3 527	53	4 137	1 611	84	78	25 317
Net change in stock	-6 182	-726	-757	-47	6 571	430	-42	753	0
<i>Net change as % of opening</i>	<i>-4,4%</i>	<i>-33,0%</i>	<i>-6,5%</i>	<i>-46,5%</i>	<i>28,3%</i>	<i>3,1%</i>	<i>-44,7%</i>	<i>279,9%</i>	
Unchanged (opening - reductions)	126 100	1 037	8 150	48	19 045	12 151	10	191	
<i>Unchanged as % of opening</i>	<i>89,6%</i>	<i>47,2%</i>	<i>69,8%</i>	<i>47,5%</i>	<i>82,2%</i>	<i>88,3%</i>	<i>10,6%</i>	<i>71,0%</i>	
Spatial turnover (additions + reductions)	23 148	1 598	6 297	59	14 845	3 652	126	909	
<i>Spatial turnover as % of opening</i>	<i>16,4%</i>	<i>72,7%</i>	<i>53,9%</i>	<i>58,4%</i>	<i>64,0%</i>	<i>26,5%</i>	<i>134,0%</i>	<i>337,9%</i>	
Closing stock 2020	134 583	1 473	10 920	54	29 753	14 192	52	1 022	192 049

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

15. Land account for main land cover classes (tier 2) for Enkangala Grassland SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	623 420	49 988	14 097	264	65 016	13 692	313	21 302	788 092
Total additions to stock	23 100	13 295	9 217	109	41 248	2 560	108	3 971	93 608
Total reductions in stock	62 172	10 605	1 898	29	6 782	2 062	260	9 800	93 608
Net change in stock	-39 072	2 690	7 319	80	34 466	498	-152	-5 829	0
<i>Net change as % of opening</i>	<i>-6,3%</i>	<i>5,4%</i>	<i>51,9%</i>	<i>30,3%</i>	<i>53,0%</i>	<i>3,6%</i>	<i>-48,6%</i>	<i>-27,4%</i>	
Unchanged (opening - reductions)	561 248	39 383	12 199	235	58 234	11 630	53	11 502	
<i>Unchanged as % of opening</i>	<i>90,0%</i>	<i>78,8%</i>	<i>86,5%</i>	<i>89,0%</i>	<i>89,6%</i>	<i>84,9%</i>	<i>16,9%</i>	<i>54,0%</i>	
Spatial turnover (additions + reductions)	85 272	23 900	11 115	138	48 030	4 622	368	13 771	
<i>Spatial turnover as % of opening</i>	<i>13,7%</i>	<i>47,8%</i>	<i>78,8%</i>	<i>52,3%</i>	<i>73,9%</i>	<i>33,8%</i>	<i>117,6%</i>	<i>64,6%</i>	
Opening stock 2014**	584 348	52 678	21 416	344	99 482	14 190	161	15 473	788 092
Total additions to stock	30 233	11 073	4 543	93	17 291	4 235	145	14 588	82 201
Total reductions in stock	43 550	14 412	9 802	116	9 228	1 746	78	3 269	82 201
Net change in stock	-13 317	-3 339	-5 259	-23	8 063	2 489	67	11 319	0
<i>Net change as % of opening</i>	<i>-2,3%</i>	<i>-6,3%</i>	<i>-24,6%</i>	<i>-6,7%</i>	<i>8,1%</i>	<i>17,5%</i>	<i>41,6%</i>	<i>73,2%</i>	
Unchanged (opening - reductions)	540 798	38 266	11 614	228	90 254	12 444	83	12 204	
<i>Unchanged as % of opening</i>	<i>92,5%</i>	<i>72,6%</i>	<i>54,2%</i>	<i>66,3%</i>	<i>90,7%</i>	<i>87,7%</i>	<i>51,6%</i>	<i>78,9%</i>	
Spatial turnover (additions + reductions)	73 783	25 485	14 345	209	26 519	5 981	223	17 857	
<i>Spatial turnover as % of opening</i>	<i>12,6%</i>	<i>48,4%</i>	<i>67,0%</i>	<i>60,8%</i>	<i>26,7%</i>	<i>42,1%</i>	<i>138,5%</i>	<i>115,4%</i>	
Opening stock 2018**	571 031	49 339	16 157	321	107 545	16 679	228	26 792	788 092
Total additions to stock	11 957	5 826	1 916	56	5 538	1 666	91	3 455	30 505
Total reductions in stock	15 282	2 771	1 355	25	5 308	1 290	57	4 417	30 505
Net change in stock	-3 325	3 055	561	31	230	376	34	-962	0
<i>Net change as % of opening</i>	<i>-0,6%</i>	<i>6,2%</i>	<i>3,5%</i>	<i>9,7%</i>	<i>0,2%</i>	<i>2,3%</i>	<i>14,9%</i>	<i>-3,6%</i>	
Unchanged (opening - reductions)	555 749	46 568	14 802	296	102 237	15 389	171	22 375	
<i>Unchanged as % of opening</i>	<i>97,3%</i>	<i>94,4%</i>	<i>91,6%</i>	<i>92,2%</i>	<i>95,1%</i>	<i>92,3%</i>	<i>75,0%</i>	<i>83,5%</i>	
Spatial turnover (additions + reductions)	27 239	8 597	3 271	81	10 846	2 956	148	7 872	
<i>Spatial turnover as % of opening</i>	<i>4,8%</i>	<i>17,4%</i>	<i>20,2%</i>	<i>25,2%</i>	<i>10,1%</i>	<i>17,7%</i>	<i>64,9%</i>	<i>29,4%</i>	
Closing stock 2020	567 706	52 394	16 718	352	107 775	17 055	262	25 830	788 092

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	623 420	49 988	14 097	264	65 016	13 692	313	21 302	788 092
Total additions to stock	21 759	13 503	5 783	118	49 514	5 212	200	13 516	109 605
Total reductions in stock	77 473	11 097	3 162	30	6 755	1 849	251	8 988	109 605
Net change in stock	-55 714	2 406	2 621	88	42 759	3 363	-51	4 528	0
<i>Net change as % of opening</i>	<i>-8,9%</i>	<i>4,8%</i>	<i>18,6%</i>	<i>33,3%</i>	<i>65,8%</i>	<i>24,6%</i>	<i>-16,3%</i>	<i>21,3%</i>	
Unchanged (opening - reductions)	545 947	38 891	10 935	234	58 261	11 843	62	12 314	
<i>Unchanged as % of opening</i>	<i>87,6%</i>	<i>77,8%</i>	<i>77,6%</i>	<i>88,6%</i>	<i>89,6%</i>	<i>86,5%</i>	<i>19,8%</i>	<i>57,8%</i>	
Spatial turnover (additions + reductions)	99 232	24 600	8 945	148	56 269	7 061	451	22 504	
<i>Spatial turnover as % of opening</i>	<i>15,9%</i>	<i>49,2%</i>	<i>63,5%</i>	<i>56,1%</i>	<i>86,5%</i>	<i>51,6%</i>	<i>144,1%</i>	<i>105,6%</i>	
Closing stock 2020	567 706	52 394	16 718	352	107 775	17 055	262	25 830	788 092

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

16. Land account for main land cover classes (tier 2) for Upper Vaal SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	92 867	36 697	0	44	1 353	407	768	7 279	139 415
Total additions to stock	8 028	2 862		6	1 107	79	557	812	13 451
Total reductions in stock	4 671	6 349		4	580	92	276	1 479	13 451
Net change in stock	3 357	-3 487		2	527	-13	281	-667	0
<i>Net change as % of opening</i>	<i>3,6%</i>	<i>-9,5%</i>		<i>4,5%</i>	<i>39,0%</i>	<i>-3,2%</i>	<i>36,6%</i>	<i>-9,2%</i>	
Unchanged (opening - reductions)	88 196	30 348		40	773	315	492	5 800	
<i>Unchanged as % of opening</i>	<i>95,0%</i>	<i>82,7%</i>		<i>90,9%</i>	<i>57,1%</i>	<i>77,4%</i>	<i>64,1%</i>	<i>79,7%</i>	
Spatial turnover (additions + reductions)	12 699	9 211		10	1 687	171	833	2 291	
<i>Spatial turnover as % of opening</i>	<i>13,7%</i>	<i>25,1%</i>		<i>22,7%</i>	<i>124,7%</i>	<i>42,0%</i>	<i>108,5%</i>	<i>31,5%</i>	
Opening stock 2014**	96 224	33 210	0	46	1 880	394	1 049	6 612	139 415
Total additions to stock	4 056	7 565		6	2 172	280	714	5 294	20 087
Total reductions in stock	14 855	3 287		6	459	132	412	936	20 087
Net change in stock	-10 799	4 278			1 713	148	302	4 358	0
<i>Net change as % of opening</i>	<i>-11,2%</i>	<i>12,9%</i>			<i>91,1%</i>	<i>37,6%</i>	<i>28,8%</i>	<i>65,9%</i>	
Unchanged (opening - reductions)	81 369	29 923		40	1 421	262	637	5 676	
<i>Unchanged as % of opening</i>	<i>84,6%</i>	<i>90,1%</i>		<i>87,0%</i>	<i>75,6%</i>	<i>66,5%</i>	<i>60,7%</i>	<i>85,8%</i>	
Spatial turnover (additions + reductions)	18 911	10 852		12	2 631	412	1 126	6 230	
<i>Spatial turnover as % of opening</i>	<i>19,7%</i>	<i>32,7%</i>		<i>26,1%</i>	<i>139,9%</i>	<i>104,6%</i>	<i>107,3%</i>	<i>94,2%</i>	
Opening stock 2018**	85 425	37 488	0	46	3 593	542	1 351	10 970	139 415
Total additions to stock	2 844	3 110		3	579	113	114	1 217	7 980
Total reductions in stock	4 533	1 039		18	714	93	249	1 334	7 980
Net change in stock	-1 689	2 071		-15	-135	20	-135	-117	0
<i>Net change as % of opening</i>	<i>-2,0%</i>	<i>5,5%</i>		<i>-32,6%</i>	<i>-3,8%</i>	<i>3,7%</i>	<i>-10,0%</i>	<i>-1,1%</i>	<i>0,0%</i>
Unchanged (opening - reductions)	80 892	36 449		28	2 879	449	1 102	9 636	131 435
<i>Unchanged as % of opening</i>	<i>94,7%</i>	<i>97,2%</i>		<i>60,9%</i>	<i>80,1%</i>	<i>82,8%</i>	<i>81,6%</i>	<i>87,8%</i>	<i>94,3%</i>
Spatial turnover (additions + reductions)	7 377	4 149		21	1 293	206	363	2 551	15 960
<i>Spatial turnover as % of opening</i>	<i>8,6%</i>	<i>11,1%</i>		<i>45,7%</i>	<i>36,0%</i>	<i>38,0%</i>	<i>26,9%</i>	<i>23,3%</i>	<i>11,4%</i>
Closing stock 2020	83 736	39 559	0	31	3 458	562	1 216	10 853	139 415

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	92 867	36 697	0	44	1 353	407	768	7 279	139 415
Total additions to stock	5 670	7 275		4	2 653	314	835	4 936	21 687
Total reductions in stock	14 801	4 413		17	548	159	387	1 362	21 687
Net change in stock	-9 131	2 862		-13	2 105	155	448	3 574	0
<i>Net change as % of opening</i>	<i>-9,8%</i>	<i>7,8%</i>		<i>-29,5%</i>	<i>155,6%</i>	<i>38,1%</i>	<i>58,3%</i>	<i>49,1%</i>	
Unchanged (opening - reductions)	78 066	32 284		27	805	248	381	5 917	
<i>Unchanged as % of opening</i>	<i>84,1%</i>	<i>88,0%</i>		<i>61,4%</i>	<i>59,5%</i>	<i>60,9%</i>	<i>49,6%</i>	<i>81,3%</i>	
Spatial turnover (additions + reductions)	20 471	11 688		21	3 201	473	1 222	6 298	
<i>Spatial turnover as % of opening</i>	<i>22,0%</i>	<i>31,9%</i>		<i>47,7%</i>	<i>236,6%</i>	<i>116,2%</i>	<i>159,1%</i>	<i>86,5%</i>	
Closing stock 2020	83 736	39 559	0	31	3 458	562	1 216	10 853	139 415

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

17. Land account for main land cover classes (tier 2) for Upper Usutu SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	248 876	43 631	9 288	43	192 706	7 767	198	36 813	539 322
Total additions to stock	37 425	3 418	1 360	10	38 886	1 901	228	6 108	89 336
Total reductions in stock	41 442	12 449	1 161	13	25 321	1 108	156	7 686	89 336
Net change in stock	-4 017	-9 031	199	-3	13 565	793	72	-1 578	0
<i>Net change as % of opening</i>	<i>-1,6%</i>	<i>-20,7%</i>	<i>2,1%</i>	<i>-7,0%</i>	<i>7,0%</i>	<i>10,2%</i>	<i>36,4%</i>	<i>-4,3%</i>	
Unchanged (opening - reductions)	207 434	31 182	8 127	30	167 385	6 659	42	29 127	
<i>Unchanged as % of opening</i>	<i>83,3%</i>	<i>71,5%</i>	<i>87,5%</i>	<i>69,8%</i>	<i>86,9%</i>	<i>85,7%</i>	<i>21,2%</i>	<i>79,1%</i>	
Spatial turnover (additions + reductions)	78 867	15 867	2 521	23	64 207	3 009	384	13 794	
<i>Spatial turnover as % of opening</i>	<i>31,7%</i>	<i>36,4%</i>	<i>27,1%</i>	<i>53,5%</i>	<i>33,3%</i>	<i>38,7%</i>	<i>193,9%</i>	<i>37,5%</i>	
Opening stock 2014**	244 859	34 600	9 487	40	206 271	8 560	270	35 235	539 322
Total additions to stock	31 083	7 932	1 457	49	28 418	2 785	224	15 770	87 718
Total reductions in stock	47 887	3 776	4 720	7	24 110	831	146	6 241	87 718
Net change in stock	-16 804	4 156	-3 263	42	4 308	1 954	78	9 529	0
<i>Net change as % of opening</i>	<i>-6,9%</i>	<i>12,0%</i>	<i>-34,4%</i>	<i>105,0%</i>	<i>2,1%</i>	<i>22,8%</i>	<i>28,9%</i>	<i>27,0%</i>	
Unchanged (opening - reductions)	196 972	30 824	4 767	33	182 161	7 729	124	28 994	
<i>Unchanged as % of opening</i>	<i>80,4%</i>	<i>89,1%</i>	<i>50,2%</i>	<i>82,5%</i>	<i>88,3%</i>	<i>90,3%</i>	<i>45,9%</i>	<i>82,3%</i>	
Spatial turnover (additions + reductions)	78 970	11 708	6 177	56	52 528	3 616	370	22 011	
<i>Spatial turnover as % of opening</i>	<i>32,3%</i>	<i>33,8%</i>	<i>65,1%</i>	<i>140,0%</i>	<i>25,5%</i>	<i>42,2%</i>	<i>137,0%</i>	<i>62,5%</i>	
Opening stock 2018**	228 055	38 756	6 224	82	210 579	10 514	348	44 764	539 322
Total additions to stock	11 451	4 065	688	7	13 012	793	71	4 658	34 745
Total reductions in stock	18 783	1 211	381	11	7 442	838	79	6 000	34 745
Net change in stock	-7 332	2 854	307	-4	5 570	-45	-8	-1 342	0
<i>Net change as % of opening</i>	<i>-3,2%</i>	<i>7,4%</i>	<i>4,9%</i>	<i>-4,9%</i>	<i>2,6%</i>	<i>-0,4%</i>	<i>-2,3%</i>	<i>-3,0%</i>	
Unchanged (opening - reductions)	209 272	37 545	5 843	71	203 137	9 676	269	38 764	
<i>Unchanged as % of opening</i>	<i>91,8%</i>	<i>96,9%</i>	<i>93,9%</i>	<i>86,6%</i>	<i>96,5%</i>	<i>92,0%</i>	<i>77,3%</i>	<i>86,6%</i>	
Spatial turnover (additions + reductions)	30 234	5 276	1 069	18	20 454	1 631	150	10 658	
<i>Spatial turnover as % of opening</i>	<i>13,3%</i>	<i>13,6%</i>	<i>17,2%</i>	<i>22,0%</i>	<i>9,7%</i>	<i>15,5%</i>	<i>43,1%</i>	<i>23,8%</i>	
Closing stock 2020	220 723	41 610	6 531	78	216 149	10 469	340	43 422	539 322

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	248 876	43 631	9 288	43	192 706	7 767	198	36 813	539 322
Total additions to stock	37 784	8 536	1 708	41	49 690	3 743	304	16 234	118 040
Total reductions in stock	65 937	10 557	4 465	6	26 247	1 041	162	9 625	118 040
Net change in stock	-28 153	-2 021	-2 757	35	23 443	2 702	142	6 609	0
<i>Net change as % of opening</i>	<i>-11,3%</i>	<i>-4,6%</i>	<i>-29,7%</i>	<i>81,4%</i>	<i>12,2%</i>	<i>34,8%</i>	<i>71,7%</i>	<i>18,0%</i>	
Unchanged (opening - reductions)	182 939	33 074	4 823	37	166 459	6 726	36	27 188	
<i>Unchanged as % of opening</i>	<i>73,5%</i>	<i>75,8%</i>	<i>51,9%</i>	<i>86,0%</i>	<i>86,4%</i>	<i>86,6%</i>	<i>18,2%</i>	<i>73,9%</i>	
Spatial turnover (additions + reductions)	103 721	19 093	6 173	47	75 937	4 784	466	25 859	
<i>Spatial turnover as % of opening</i>	<i>41,7%</i>	<i>43,8%</i>	<i>66,5%</i>	<i>109,3%</i>	<i>39,4%</i>	<i>61,6%</i>	<i>235,4%</i>	<i>70,2%</i>	
Closing stock 2020	220 723	41 610	6 531	78	216 149	10 469	340	43 422	539 322

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

18. Land account for main land cover classes (tier 2) for Mbabane Hills SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	198 211	7 602	12 604	1 662	60 348	7 583	124	7 641	295 775
Total additions to stock	11 462	2 835	2 538	587	11 544	4 100	55	2 683	35 804
Total reductions in stock	20 031	2 005	4 725	451	5 047	662	113	2 770	35 804
Net change in stock	-8 569	830	-2 187	136	6 497	3 438	-58	-87	0
<i>Net change as % of opening</i>	<i>-4,3%</i>	<i>10,9%</i>	<i>-17,4%</i>	<i>8,2%</i>	<i>10,8%</i>	<i>45,3%</i>	<i>-46,8%</i>	<i>-1,1%</i>	
Unchanged (opening - reductions)	178 180	5 597	7 879	1 211	55 301	6 921	11	4 871	
<i>Unchanged as % of opening</i>	<i>89,9%</i>	<i>73,6%</i>	<i>62,5%</i>	<i>72,9%</i>	<i>91,6%</i>	<i>91,3%</i>	<i>8,9%</i>	<i>63,7%</i>	
Spatial turnover (additions + reductions)	31 493	4 840	7 263	1 038	16 591	4 762	168	5 453	
<i>Spatial turnover as % of opening</i>	<i>15,9%</i>	<i>63,7%</i>	<i>57,6%</i>	<i>62,5%</i>	<i>27,5%</i>	<i>62,8%</i>	<i>135,5%</i>	<i>71,4%</i>	
Opening stock 2014**	189 642	8 432	10 417	1 798	66 845	11 021	66	7 554	295 775
Total additions to stock	14 397	811	2 364	175	5 201	2 435	14	2 701	28 098
Total reductions in stock	10 964	2 575	4 693	270	7 492	623	54	1 427	28 098
Net change in stock	3 433	-1 764	-2 329	-95	-2 291	1 812	-40	1 274	0
<i>Net change as % of opening</i>	<i>1,8%</i>	<i>-20,9%</i>	<i>-22,4%</i>	<i>-5,3%</i>	<i>-3,4%</i>	<i>16,4%</i>	<i>-60,6%</i>	<i>16,9%</i>	
Unchanged (opening - reductions)	178 678	5 857	5 724	1 528	59 353	10 398	12	6 127	
<i>Unchanged as % of opening</i>	<i>94,2%</i>	<i>69,5%</i>	<i>54,9%</i>	<i>85,0%</i>	<i>88,8%</i>	<i>94,3%</i>	<i>18,2%</i>	<i>81,1%</i>	
Spatial turnover (additions + reductions)	25 361	3 386	7 057	445	12 693	3 058	68	4 128	
<i>Spatial turnover as % of opening</i>	<i>13,4%</i>	<i>40,2%</i>	<i>67,7%</i>	<i>24,7%</i>	<i>19,0%</i>	<i>27,7%</i>	<i>103,0%</i>	<i>54,6%</i>	
Opening stock 2018**	193 075	6 668	8 088	1 703	64 554	12 833	26	8 828	295 775
Total additions to stock	4 299	505	1 565	93	2 393	815	16	1 223	10 909
Total reductions in stock	5 707	186	1 359	61	1 908	472	8	1 208	10 909
Net change in stock	-1 408	319	206	32	485	343	8	15	0
<i>Net change as % of opening</i>	<i>-0,7%</i>	<i>4,8%</i>	<i>2,5%</i>	<i>1,9%</i>	<i>0,8%</i>	<i>2,7%</i>	<i>30,8%</i>	<i>0,2%</i>	
Unchanged (opening - reductions)	187 368	6 482	6 729	1 642	62 646	12 361	18	7 620	
<i>Unchanged as % of opening</i>	<i>97,0%</i>	<i>97,2%</i>	<i>83,2%</i>	<i>96,4%</i>	<i>97,0%</i>	<i>96,3%</i>	<i>69,2%</i>	<i>86,3%</i>	
Spatial turnover (additions + reductions)	10 006	691	2 924	154	4 301	1 287	24	2 431	
<i>Spatial turnover as % of opening</i>	<i>5,2%</i>	<i>10,4%</i>	<i>36,2%</i>	<i>9,0%</i>	<i>6,7%</i>	<i>10,0%</i>	<i>92,3%</i>	<i>27,5%</i>	
Closing stock 2020	191 667	6 987	8 294	1 735	65 039	13 176	34	8 843	295 775

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	198 211	7 602	12 604	1 662	60 348	7 583	124	7 641	295 775
Total additions to stock	17 117	1 710	2 863	520	12 685	6 219	22	3 983	45 119
Total reductions in stock	23 661	2 325	7 173	447	7 994	626	112	2 781	45 119
Net change in stock	-6 544	-615	-4 310	73	4 691	5 593	-90	1 202	0
<i>Net change as % of opening</i>	<i>-3,3%</i>	<i>-8,1%</i>	<i>-34,2%</i>	<i>4,4%</i>	<i>7,8%</i>	<i>73,8%</i>	<i>-72,6%</i>	<i>15,7%</i>	
Unchanged (opening - reductions)	174 550	5 277	5 431	1 215	52 354	6 957	12	4 860	
<i>Unchanged as % of opening</i>	<i>88,1%</i>	<i>69,4%</i>	<i>43,1%</i>	<i>73,1%</i>	<i>86,8%</i>	<i>91,7%</i>	<i>9,7%</i>	<i>63,6%</i>	
Spatial turnover (additions + reductions)	40 778	4 035	10 036	967	20 679	6 845	134	6 764	
<i>Spatial turnover as % of opening</i>	<i>20,6%</i>	<i>53,1%</i>	<i>79,6%</i>	<i>58,2%</i>	<i>34,3%</i>	<i>90,3%</i>	<i>108,1%</i>	<i>88,5%</i>	
Closing stock 2020	191 667	6 987	8 294	1 735	65 039	13 176	34	8 843	295 775

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

19. Land account for main land cover classes (tier 2) for Mpumalanga Drakensberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	393 783	24 130	1 950	10 404	374 280	19 529	212	12 960	837 248
Total additions to stock	53 172	5 826	433	9 088	19 782	3 516	723	3 770	96 310
Total reductions in stock	31 044	11 201	1 628	738	44 688	1 626	153	5 232	96 310
Net change in stock	22 128	-5 375	-1 195	8 350	-24 906	1 890	570	-1 462	0
<i>Net change as % of opening</i>	<i>5,6%</i>	<i>-22,3%</i>	<i>-61,3%</i>	<i>80,3%</i>	<i>-6,7%</i>	<i>9,7%</i>	<i>268,9%</i>	<i>-11,3%</i>	
Unchanged (opening - reductions)	362 739	12 929	322	9 666	329 592	17 903	59	7 728	
<i>Unchanged as % of opening</i>	<i>92,1%</i>	<i>53,6%</i>	<i>16,5%</i>	<i>92,9%</i>	<i>88,1%</i>	<i>91,7%</i>	<i>27,8%</i>	<i>59,6%</i>	
Spatial turnover (additions + reductions)	84 216	17 027	2 061	9 826	64 470	5 142	876	9 002	
<i>Spatial turnover as % of opening</i>	<i>21,4%</i>	<i>70,6%</i>	<i>105,7%</i>	<i>94,4%</i>	<i>17,2%</i>	<i>26,3%</i>	<i>413,2%</i>	<i>69,5%</i>	
Opening stock 2014**	415 911	18 755	755	18 754	349 374	21 419	782	11 498	837 248
Total additions to stock	58 598	2 796	1 084	3 783	27 311	3 909	354	7 146	104 981
Total reductions in stock	40 045	5 472	552	3 800	50 737	1 651	156	2 568	104 981
Net change in stock	18 553	-2 676	532	-17	-23 426	2 258	198	4 578	0
<i>Net change as % of opening</i>	<i>4,5%</i>	<i>-14,3%</i>	<i>70,5%</i>	<i>-0,1%</i>	<i>-6,7%</i>	<i>10,5%</i>	<i>25,3%</i>	<i>39,8%</i>	
Unchanged (opening - reductions)	375 866	13 283	203	14 954	298 637	19 768	626	8 930	
<i>Unchanged as % of opening</i>	<i>90,4%</i>	<i>70,8%</i>	<i>26,9%</i>	<i>79,7%</i>	<i>85,5%</i>	<i>92,3%</i>	<i>80,1%</i>	<i>77,7%</i>	
Spatial turnover (additions + reductions)	18 553	-2 676	532	-17	-23 426	2 258	198	4 578	
<i>Spatial turnover as % of opening</i>	<i>4,5%</i>	<i>-14,3%</i>	<i>70,5%</i>	<i>-0,1%</i>	<i>-6,7%</i>	<i>10,5%</i>	<i>25,3%</i>	<i>39,8%</i>	
Opening stock 2018**	434 464	16 079	1 287	18 737	325 948	23 677	980	16 076	837 248
Total additions to stock	12 899	2 145	46	1 832	12 914	1 190	79	2 482	33 587
Total reductions in stock	18 068	735	973	865	8 838	1 160	111	2 837	33 587
Net change in stock	-5 169	1 410	-927	967	4 076	30	-32	-355	0
<i>Net change as % of opening</i>	<i>-1,2%</i>	<i>8,8%</i>	<i>-72,0%</i>	<i>5,2%</i>	<i>1,3%</i>	<i>0,1%</i>	<i>-3,3%</i>	<i>-2,2%</i>	
Unchanged (opening - reductions)	416 396	15 344	314	17 872	317 110	22 517	869	13 239	
<i>Unchanged as % of opening</i>	<i>95,8%</i>	<i>95,4%</i>	<i>24,4%</i>	<i>95,4%</i>	<i>97,3%</i>	<i>95,1%</i>	<i>88,7%</i>	<i>82,4%</i>	
Spatial turnover (additions + reductions)	30 967	2 880	1 019	2 697	21 752	2 350	190	5 319	
<i>Spatial turnover as % of opening</i>	<i>7,1%</i>	<i>17,9%</i>	<i>79,2%</i>	<i>14,4%</i>	<i>6,7%</i>	<i>9,9%</i>	<i>19,4%</i>	<i>33,1%</i>	
Closing stock 2020	429 295	17 489	360	19 704	330 024	23 707	948	15 721	837 248

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	393 783	24 130	1 950	10 404	374 280	19 529	212	12 960	837 248
Total additions to stock	76 861	5 865	161	10 557	24 712	6 126	918	8 278	133 478
Total reductions in stock	41 349	12 506	1 751	1 257	68 968	1 948	182	5 517	133 478
Net change in stock	35 512	-6 641	-1 590	9 300	-44 256	4 178	736	2 761	0
<i>Net change as % of opening</i>	<i>9,0%</i>	<i>-27,5%</i>	<i>-81,5%</i>	<i>89,4%</i>	<i>-11,8%</i>	<i>21,4%</i>	<i>347,2%</i>	<i>21,3%</i>	
Unchanged (opening - reductions)	352 434	11 624	199	9 147	305 312	17 581	30	7 443	
<i>Unchanged as % of opening</i>	<i>89,5%</i>	<i>48,2%</i>	<i>10,2%</i>	<i>87,9%</i>	<i>81,6%</i>	<i>90,0%</i>	<i>14,2%</i>	<i>57,4%</i>	
Spatial turnover (additions + reductions)	118 210	18 371	1 912	11 814	93 680	8 074	1 100	13 795	
<i>Spatial turnover as % of opening</i>	<i>30,0%</i>	<i>76,1%</i>	<i>98,1%</i>	<i>113,6%</i>	<i>25,0%</i>	<i>41,3%</i>	<i>518,9%</i>	<i>106,4%</i>	
Closing stock 2020	429 295	17 489	360	19 704	330 024	23 707	948	15 721	837 248

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

20. Land account for main land cover classes (tier 2) for Wolkberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	160 112	1 975	3 406	15 771	59 875	14 927	107	3 454	259 627
Total additions to stock	16 365	1 663	1 820	6 932	1 013	4 022	33	610	32 458
Total reductions in stock	11 820	1 118	1 625	772	14 967	852	71	1 233	32 458
Net change in stock	4 545	545	195	6 160	-13 954	3 170	-38	-623	0
<i>Net change as % of opening</i>	<i>2,8%</i>	<i>27,6%</i>	<i>5,7%</i>	<i>39,1%</i>	<i>-23,3%</i>	<i>21,2%</i>	<i>-35,5%</i>	<i>-18,0%</i>	
Unchanged (opening - reductions)	148 292	857	1 781	14 999	44 908	14 075	36	2 221	
<i>Unchanged as % of opening</i>	<i>92,6%</i>	<i>43,4%</i>	<i>52,3%</i>	<i>95,1%</i>	<i>75,0%</i>	<i>94,3%</i>	<i>33,6%</i>	<i>64,3%</i>	
Spatial turnover (additions + reductions)	28 185	2 781	3 445	7 704	15 980	4 874	104	1 843	
<i>Spatial turnover as % of opening</i>	<i>17,6%</i>	<i>140,8%</i>	<i>101,1%</i>	<i>48,8%</i>	<i>26,7%</i>	<i>32,7%</i>	<i>97,2%</i>	<i>53,4%</i>	
Opening stock 2014**	164 657	2 520	3 601	21 931	45 921	18 097	69	2 831	259 627
Total additions to stock	11 673	797	1 536	812	9 350	1 440	67	630	26 305
Total reductions in stock	12 118	1 791	1 445	7 567	1 319	1 156	27	882	26 305
Net change in stock	-445	-994	91	-6 755	8 031	284	40	-252	0
<i>Net change as % of opening</i>	<i>-0,3%</i>	<i>-39,4%</i>	<i>2,5%</i>	<i>-30,8%</i>	<i>17,5%</i>	<i>1,6%</i>	<i>58,0%</i>	<i>-8,9%</i>	
Unchanged (opening - reductions)	152 539	729	2 156	14 364	44 602	16 941	42	1 949	
<i>Unchanged as % of opening</i>	<i>92,6%</i>	<i>28,9%</i>	<i>59,9%</i>	<i>65,5%</i>	<i>97,1%</i>	<i>93,6%</i>	<i>60,9%</i>	<i>68,8%</i>	
Spatial turnover (additions + reductions)	23 791	2 588	2 981	8 379	10 669	2 596	94	1 512	
<i>Spatial turnover as % of opening</i>	<i>14,4%</i>	<i>102,7%</i>	<i>82,8%</i>	<i>38,2%</i>	<i>23,2%</i>	<i>14,3%</i>	<i>136,2%</i>	<i>53,4%</i>	
Opening stock 2018**	164 212	1 526	3 692	15 176	53 952	18 381	109	2 579	259 627
Total additions to stock	8 006	3 633	97	5 002	2 108	470	21	295	19 632
Total reductions in stock	7 594	716	3 274	3 141	3 161	818	57	871	19 632
Net change in stock	412	2 917	-3 177	1 861	-1 053	-348	-36	-576	0
<i>Net change as % of opening</i>	<i>0,3%</i>	<i>191,2%</i>	<i>-86,1%</i>	<i>12,3%</i>	<i>-2,0%</i>	<i>-1,9%</i>	<i>-33,0%</i>	<i>-22,3%</i>	
Unchanged (opening - reductions)	156 618	810	418	12 035	50 791	17 563	52	1 708	
<i>Unchanged as % of opening</i>	<i>95,4%</i>	<i>53,1%</i>	<i>11,3%</i>	<i>79,3%</i>	<i>94,1%</i>	<i>95,5%</i>	<i>47,7%</i>	<i>66,2%</i>	
Spatial turnover (additions + reductions)	15 600	4 349	3 371	8 143	5 269	1 288	78	1 166	
<i>Spatial turnover as % of opening</i>	<i>9,5%</i>	<i>285,0%</i>	<i>91,3%</i>	<i>53,7%</i>	<i>9,8%</i>	<i>7,0%</i>	<i>71,6%</i>	<i>45,2%</i>	
Closing stock 2020	164 624	4 443	515	17 037	52 899	18 033	73	2 003	259 627

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	160 112	1 975	3 406	15 771	59 875	14 927	107	3 454	259 627
Total additions to stock	15 531	3 701	325	5 828	3 123	4 339	56	694	33 597
Total reductions in stock	11 019	1 233	3 216	4 562	10 099	1 233	90	2 145	33 597
Net change in stock	4 512	2 468	-2 891	1 266	-6 976	3 106	-34	-1 451	0
<i>Net change as % of opening</i>	<i>2,8%</i>	<i>125,0%</i>	<i>-84,9%</i>	<i>8,0%</i>	<i>-11,7%</i>	<i>20,8%</i>	<i>-31,8%</i>	<i>-42,0%</i>	
Unchanged (opening - reductions)	149 093	742	190	11 209	49 776	13 694	17	1 309	
<i>Unchanged as % of opening</i>	<i>93,1%</i>	<i>37,6%</i>	<i>5,6%</i>	<i>71,1%</i>	<i>83,1%</i>	<i>91,7%</i>	<i>15,9%</i>	<i>37,9%</i>	
Spatial turnover (additions + reductions)	26 550	4 934	3 541	10 390	13 222	5 572	146	2 839	
<i>Spatial turnover as % of opening</i>	<i>16,6%</i>	<i>249,8%</i>	<i>104,0%</i>	<i>65,9%</i>	<i>22,1%</i>	<i>37,3%</i>	<i>136,4%</i>	<i>82,2%</i>	
Closing stock 2020	164 624	4 443	515	17 037	52 899	18 033	73	2 003	259 627

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

21. Land account for main land cover classes (tier 2) for Soutpansberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	134 470	1 288	21 684	13 978	29 870	31 981	0	1 411	234 682
Total additions to stock	25 690	2 109	954	3 512	648	6 683	24	368	39 988
Total reductions in stock	11 386	539	17 736	898	6 499	1 960		970	39 988
Net change in stock	14 304	1 570	-16 782	2 614	-5 851	4 723	24	-602	0
<i>Net change as % of opening</i>	<i>10,6%</i>	<i>121,9%</i>	<i>-77,4%</i>	<i>18,7%</i>	<i>-19,6%</i>	<i>14,8%</i>		<i>-42,7%</i>	
Unchanged (opening - reductions)	123 084	749	3 948	13 080	23 371	30 021		441	
<i>Unchanged as % of opening</i>	<i>91,5%</i>	<i>58,2%</i>	<i>18,2%</i>	<i>93,6%</i>	<i>78,2%</i>	<i>93,9%</i>		<i>31,3%</i>	
Spatial turnover (additions + reductions)	37 076	2 648	18 690	4 410	7 147	8 643		1 338	
<i>Spatial turnover as % of opening</i>	<i>27,6%</i>	<i>205,6%</i>	<i>86,2%</i>	<i>31,5%</i>	<i>23,9%</i>	<i>27,0%</i>		<i>94,8%</i>	
Opening stock 2014**	148 774	2 858	4 902	16 592	24 019	36 704	24	809	234 682
Total additions to stock	10 290	855	8 448	1 560	5 905	2 343	29	373	29 803
Total reductions in stock	16 641	2 445	2 941	4 935	606	2 083	16	136	29 803
Net change in stock	-6 351	-1 590	5 507	-3 375	5 299	260	13	237	0
<i>Net change as % of opening</i>	<i>-4,3%</i>	<i>-55,6%</i>	<i>112,3%</i>	<i>-20,3%</i>	<i>22,1%</i>	<i>0,7%</i>	<i>54,2%</i>	<i>29,3%</i>	
Unchanged (opening - reductions)	132 133	413	1 961	11 657	23 413	34 621	8	673	
<i>Unchanged as % of opening</i>	<i>88,8%</i>	<i>14,5%</i>	<i>40,0%</i>	<i>70,3%</i>	<i>97,5%</i>	<i>94,3%</i>	<i>33,3%</i>	<i>83,2%</i>	
Spatial turnover (additions + reductions)	26 931	3 300	11 389	6 495	6 511	4 426	45	509	
<i>Spatial turnover as % of opening</i>	<i>18,1%</i>	<i>115,5%</i>	<i>232,3%</i>	<i>39,1%</i>	<i>27,1%</i>	<i>12,1%</i>	<i>187,5%</i>	<i>62,9%</i>	
Opening stock 2018**	142 423	1 268	10 409	13 217	29 318	36 964	37	1 046	234 682
Total additions to stock	12 157	501	550	4 539	932	1 166	15	154	20 014
Total reductions in stock	5 854	1 141	8 883	1 753	1 048	1 162	14	159	20 014
Net change in stock	6 303	-640	-8 333	2 786	-116	4	1	-5	0
<i>Net change as % of opening</i>	<i>4,4%</i>	<i>-50,5%</i>	<i>-80,1%</i>	<i>21,1%</i>	<i>-0,4%</i>	<i>0,0%</i>	<i>2,7%</i>	<i>-0,5%</i>	
Unchanged (opening - reductions)	136 569	127	1 526	11 464	28 270	35 802	23	887	
<i>Unchanged as % of opening</i>	<i>95,9%</i>	<i>10,0%</i>	<i>14,7%</i>	<i>86,7%</i>	<i>96,4%</i>	<i>96,9%</i>	<i>62,2%</i>	<i>84,8%</i>	
Spatial turnover (additions + reductions)	18 011	1 642	9 433	6 292	1 980	2 328	29	313	
<i>Spatial turnover as % of opening</i>	<i>12,6%</i>	<i>129,5%</i>	<i>90,6%</i>	<i>47,6%</i>	<i>6,8%</i>	<i>6,3%</i>	<i>78,4%</i>	<i>29,9%</i>	
Closing stock 2020	148 726	628	2 076	16 003	29 202	36 968	38	1 041	234 682

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	134 470	1 288	21 684	13 978	29 870	31 981	0	1 411	234 682
Total additions to stock	27 123	423	960	3 626	2 128	7 469	38	596	42 363
Total reductions in stock	12 867	1 083	20 568	1 601	2 796	2 482		966	42 363
Net change in stock	14 256	-660	-19 608	2 025	-668	4 987	38	-370	0
<i>Net change as % of opening</i>	<i>10,6%</i>	<i>-51,2%</i>	<i>-90,4%</i>	<i>14,5%</i>	<i>-2,2%</i>	<i>15,6%</i>		<i>-26,2%</i>	
Unchanged (opening - reductions)	121 603	205	1 116	12 377	27 074	29 499		445	
<i>Unchanged as % of opening</i>	<i>90,4%</i>	<i>15,9%</i>	<i>5,1%</i>	<i>88,5%</i>	<i>90,6%</i>	<i>92,2%</i>		<i>31,5%</i>	
Spatial turnover (additions + reductions)	39 990	1 506	21 528	5 227	4 924	9 951		1 562	
<i>Spatial turnover as % of opening</i>	<i>29,7%</i>	<i>116,9%</i>	<i>99,3%</i>	<i>37,4%</i>	<i>16,5%</i>	<i>31,1%</i>		<i>110,7%</i>	
Closing stock 2020	148 726	628	2 076	16 003	29 202	36 968	38	1 041	234 682

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

22. Land account for main land cover classes (tier 2) for Waterberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	94 355	8 048	0	14	252	32	9	491	103 201
Total additions to stock	1 796	1 771			1	4	2	50	3 624
Total reductions in stock	1 790	1 178		3	247	4	8	394	3 624
Net change in stock	6	593		-3	-246		-6	-344	0
<i>Net change as % of opening</i>	<i>0,0%</i>	<i>7,4%</i>		<i>-21,4%</i>	<i>-97,6%</i>		<i>-66,7%</i>	<i>-70,1%</i>	
Unchanged (opening - reductions)	92 565	6 870		11	5	28	1	97	
<i>Unchanged as % of opening</i>	<i>98,1%</i>	<i>85,4%</i>		<i>78,6%</i>	<i>2,0%</i>	<i>87,5%</i>	<i>11,1%</i>	<i>19,8%</i>	
Spatial turnover (additions + reductions)	3 586	2 949			248	8	10	444	
<i>Spatial turnover as % of opening</i>	<i>3,8%</i>	<i>36,6%</i>			<i>98,4%</i>	<i>25,0%</i>	<i>111,1%</i>	<i>90,4%</i>	
Opening stock 2014**	94 361	8 641	0	11	6	32	3	147	103 201
Total additions to stock	2 447	289		2	58	16	11	109	2 932
Total reductions in stock	459	2 435		1		4	3	30	2 932
Net change in stock	1 988	-2 146		1	58	12	8	79	0
<i>Net change as % of opening</i>	<i>2,1%</i>	<i>-24,8%</i>		<i>9,1%</i>	<i>966,7%</i>	<i>37,5%</i>	<i>266,7%</i>	<i>53,7%</i>	
Unchanged (opening - reductions)	93 902	6 206		10		28	0	117	
<i>Unchanged as % of opening</i>	<i>99,5%</i>	<i>71,8%</i>		<i>90,9%</i>		<i>87,5%</i>	<i>0,0%</i>	<i>79,6%</i>	
Spatial turnover (additions + reductions)	2 906	2 724		3		20	14	139	
<i>Spatial turnover as % of opening</i>	<i>3,1%</i>	<i>31,5%</i>		<i>27,3%</i>		<i>62,5%</i>	<i>466,7%</i>	<i>94,6%</i>	
Opening stock 2018**	96 349	6 495	0	12	64	44	11	226	103 201
Total additions to stock	1 441	2 105		1	8	3	3	49	3 610
Total reductions in stock	2 142	1 386		12	10	9	4	47	3 610
Net change in stock	-701	719		-11	-2	-6	-1	2	0
<i>Net change as % of opening</i>	<i>-0,7%</i>	<i>11,1%</i>		<i>-91,7%</i>	<i>-3,1%</i>	<i>-13,6%</i>	<i>-9,1%</i>	<i>0,9%</i>	
Unchanged (opening - reductions)	94 207	5 109		0	54	35	7	179	
<i>Unchanged as % of opening</i>	<i>97,8%</i>	<i>78,7%</i>		<i>0,0%</i>	<i>84,4%</i>	<i>79,5%</i>	<i>63,6%</i>	<i>79,2%</i>	
Spatial turnover (additions + reductions)	3 583	3 491		13	18	12	7	96	
<i>Spatial turnover as % of opening</i>	<i>3,7%</i>	<i>53,7%</i>		<i>108,3%</i>	<i>28,1%</i>	<i>27,3%</i>	<i>63,6%</i>	<i>42,5%</i>	
Closing stock 2020	95 648	7 214	0	1	62	38	10	228	103 201

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period

Main land cover classes (tier 2)	Natural or semi-natural	Commercial field crops	Subsistence crops	Orchards and vines	Timber plantations	Urban	Mines	Waterbodies*	Total
Opening stock 1990	94 355	8 048	0	14	252	32	9	491	103 201
Total additions to stock	2 912	1 498		1	37	10	10	109	4 577
Total reductions in stock	1 619	2 332		14	227	4	9	372	4 577
Net change in stock	1 293	-834		-13	-190	6	1	-263	0
<i>Net change as % of opening</i>	<i>1,4%</i>	<i>-10,4%</i>		<i>-92,9%</i>	<i>-75,4%</i>	<i>18,8%</i>	<i>11,1%</i>	<i>-53,6%</i>	
Unchanged (opening - reductions)	92 736	5 716		0	25	28	0	119	
<i>Unchanged as % of opening</i>	<i>98,3%</i>	<i>71,0%</i>		<i>0,0%</i>	<i>9,9%</i>	<i>87,5%</i>	<i>0,0%</i>	<i>24,2%</i>	
Spatial turnover (additions + reductions)	4 531	3 830		15	264	14	19	481	
<i>Spatial turnover as % of opening</i>	<i>4,8%</i>	<i>47,6%</i>		<i>107,1%</i>	<i>104,8%</i>	<i>43,8%</i>	<i>211,1%</i>	<i>98,0%</i>	
Closing stock 2020	95 648	7 214	0	1	62	38	10	228	103 201

* Changes in the extent of waterbodies may reflect wetter or drier years and should not be interpreted as loss or gain in the true extent of waterbodies (such as wetlands), which would require additional data to determine.

APPENDIX 4: ACCOUNT TABLES FOR PROTECTED AREAS IN EACH SWSA

This appendix provides the accounts for protected areas for each SWSA from 1990 to 2020. For each SWSA, there is an account table showing all the accounting periods followed by an account table showing overall change across the three accounting periods combined, based on declaration dates in the SAPAD (see Section 2.3). The change matrices for these accounting periods are available in a spreadsheet from Stats SA. The tables in Section 4 with key findings from the accounts for protected areas for each SWSA summarise information from the tables in this Appendix.

1. Extent account for protected areas in Table Mountain SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	5 595	538	0	0	0	0	0	41 113	47 246	6 133	13,0%
Total additions to stock	13 618	63							13 681		
Total reductions in stock								13 681	13 681		
Net change in stock	13 618	63						-13 681	0	13 681	
<i>Net change as % of opening</i>	<i>243,4%</i>	<i>11,7%</i>						<i>-33,3%</i>		<i>223,1%</i>	
Opening stock 2014**	19 213	601	0	0	0	0	0	27 432	47 246	19 814	41,9%
Total additions to stock		27							27		
Total reductions in stock								27	27		
Net change in stock		27						-27	0	27	
<i>Net change as % of opening</i>		<i>4,5%</i>						<i>-0,1%</i>		<i>0,1%</i>	
Opening stock 2018**	19 213	628	0	0	0	0	0	27 405	47 246	19 841	42,0%
Total additions to stock		1 386							1 386		
Total reductions in stock								1 386	1 386		
Net change in stock		1 386						-1 386	0	1 386	
<i>Net change as % of opening</i>		<i>220,7%</i>						<i>-5,1%</i>		<i>7,0%</i>	
Closing stock 2020	19 213	2 014	0	0	0	0	0	26 019	47 246	21 227	44,9%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	5 595	538	0	0	0	0	0	41 113	47 246	6 133	13,0%
Total additions to stock	13 618	1 476							15 094		
Total reductions in stock								15 094	15 094		
Net change in stock	13 618	1 476						-15 094	0	15 094	
<i>Net change as % of opening</i>	<i>243,4%</i>	<i>274,3%</i>						<i>-36,7%</i>		<i>246,1%</i>	
Closing stock 2020	19 213	2 014	0	0	0	0	0	26 019	47 246	21 227	44,9%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

2. Extent account for land-based protected areas in the Boland SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	123 390	0	26 804	1 748	81 259	0	374 853	608 054	233 201	38,4%
Total additions to stock	6 454	10 918	4 389						21 761	21 761	
Total reductions in stock								21 761	21 761		
Net change in stock	6 454	10 918	4 389					-21 761	0	21 761	9,3%
<i>Net change as % of opening</i>	<i>-</i>	<i>8,8%</i>	<i>-</i>					<i>-5,8%</i>		<i>9,3%</i>	
Opening stock 2014**	6 454	134 308	4 389	26 804	1 748	81 259	0	353 092	608 054	254 962	41,9%
Total additions to stock		8 642							8 642	8 642	
Total reductions in stock								8 642	8 642		
Net change in stock		8 642						-8 642	0	8 642	3,4%
<i>Net change as % of opening</i>		<i>6,4%</i>						<i>-2,4%</i>		<i>3,4%</i>	
Opening stock 2018**	6 454	142 950	4 389	26 804	1 748	81 259	0	344 450	608 054	263 604	43,4%
Total additions to stock									0	0	
Total reductions in stock									0	0	
Net change in stock									0	0	
<i>Net change as % of opening</i>										<i>0,0%</i>	
Closing stock 2020	6 454	142 950	4 389	26 804	1 748	81 259	0	344 450	608 054	263 604	43,4%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	123 390	0	26 804	1 748	81 259	0	374 853	608 054	233 201	38,4%
Total additions to stock	6 454	19 560	4 389						30 403	30 403	
Total reductions in stock								30 403	30 403		
Net change in stock	6 454	19 560	4 389					-30 403	0	30 403	13,0%
<i>Net change as % of opening</i>		<i>15,9%</i>	<i>-</i>					<i>-8,1%</i>		<i>13,0%</i>	
Closing stock 2020	6 454	142 950	4 389	26 804	1 748	81 259	0	344 450	608 054	263 604	43,4%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

3. Extent account for land-based protected areas in the Groot Winterhoek SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	24 449	0	0	81 418	209 692	0	202 751	518 310	315 559	60,9%
Total additions to stock		3 479							3 479		
Total reductions in stock								3 479	3 479		
Net change in stock		3 479						-3 479	0	3 479	
<i>Net change as % of opening</i>		14,2%						-1,7%		1,1%	
Opening stock 2014**	0	27 928	0	0	81 418	209 692	0	199 272	518 310	319 038	61,6%
Total additions to stock		5 945	4 352						10 297		
Total reductions in stock								10 297	10 297		
Net change in stock		5 945	4 352					-10 297	0	10 297	
<i>Net change as % of opening</i>		21,3%	-					-5,2%		3,2%	
Opening stock 2018**	0	33 873	4 352	0	81 418	209 692	0	188 975	518 310	329 335	63,5%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	0	33 873	4 352	0	81 418	209 692	0	188 975	518 310	329 335	63,5%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	24 449	0	0	81 418	209 692	0	202 751	518 310	315 559	60,9%
Total additions to stock		9 424	4 352						13 776		
Total reductions in stock								13 776	13 776		
Net change in stock		9 424	4 352					-13 776	0	13 776	
<i>Net change as % of opening</i>		38,5%	-					-6,8%		4,4%	
Closing stock 2020	0	33 873	4 352	0	81 418	209 692	0	188 975	518 310	329 335	63,5%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

4. Extent account for land-based protected areas in the Langeberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	1 722	11 822	0	11 560	12 978	43 926	0	89 519	171 527	82 008	47,8%
Total additions to stock		643							643		
Total reductions in stock								643	643		
Net change in stock		643						-643	0	643	
<i>Net change as % of opening</i>		5,4%						-0,7%		0,8%	
Opening stock 2014**	1 722	12 465	0	11 560	12 978	43 926	0	88 876	171 527	82 651	48,2%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Opening stock 2018**	1 722	12 465	0	11 560	12 978	43 926	0	88 876	171 527	82 651	48,2%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	1 722	12 465	0	11 560	12 978	43 926	0	88 876	171 527	82 651	48,2%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	1 722	11 822	0	11 560	12 978	43 926	0	89 519	171 527	82 008	47,8%
Total additions to stock		643							643		
Total reductions in stock								643	643		
Net change in stock		643						-643	0	643	
<i>Net change as % of opening</i>		5,4%						-0,7%		0,8%	
Closing stock 2020	1 722	12 465	0	11 560	12 978	43 926	0	88 876	171 527	82 651	48,2%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

5. Extent account for land-based protected areas in the Swartberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	46 549	0	0	0	12 941	0	18 493	77 983	59 490	76,3%
Total additions to stock		188							188		
Total reductions in stock								188	188		
Net change in stock		188						-188	0	188	
<i>Net change as % of opening</i>		0,4%						-1,0%		0,3%	
Opening stock 2014**	0	46 737	0	0	0	12 941	0	18 305	77 983	59 678	76,5%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Opening stock 2018**	0	46 737	0	0	0	12 941	0	18 305	77 983	59 678	76,5%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	0	46 737	0	0	0	12 941	0	18 305	77 983	59 678	76,5%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	46 549	0	0	0	12 941	0	18 493	77 983	59 490	76,3%
Total additions to stock		188							188		
Total reductions in stock								188	188		
Net change in stock		188						-188	0	188	
<i>Net change as % of opening</i>		0,4%						-1,0%		0,3%	
Closing stock 2020	0	46 737	0	0	0	12 941	0	18 305	77 983	59 678	76,5%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

6. Extent account for land-based protected areas in the Outeniqua SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	60 290	25 070	11 603	6 715	2 256	11 764	0	186 539	304 237	117 698	38,7%
Total additions to stock		5 195							5 195		
Total reductions in stock								5 195	5 195		
Net change in stock		5 195						-5 195	0	5 195	
<i>Net change as % of opening</i>		20,7%						-2,8%		4,4%	
Opening stock 2014**	60 290	30 265	11 603	6 715	2 256	11 764	0	181 344	304 237	122 893	40,4%
Total additions to stock		207	565						772		
Total reductions in stock								772	772		
Net change in stock		207	565					-772	0	772	
<i>Net change as % of opening</i>		0,7%	4,9%					-0,4%		0,6%	
Opening stock 2018**	60 290	30 472	12 168	6 715	2 256	11 764	0	180 572	304 237	123 665	40,6%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	60 290	30 472	12 168	6 715	2 256	11 764	0	180 572	304 237	123 665	40,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	60 290	25 070	11 603	6 715	2 256	11 764	0	186 539	304 237	117 698	38,7%
Total additions to stock		5 402	565						5 967		
Total reductions in stock								5 967	5 967		
Net change in stock		5 402	565					-5 967	0	5 967	
<i>Net change as % of opening</i>		21,5%	4,9%					-3,2%		5,1%	
Closing stock 2020	60 290	30 472	12 168	6 715	2 256	11 764	0	180 572	304 237	123 665	40,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

7. Extent account for land-based protected areas in the Kouga SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	0	0	0	0	0	0	63 099	63 099	0	0,0%
Total additions to stock		43 910							43 910		
Total reductions in stock								43 910	43 910		
Net change in stock		43 910						-43 910	0	43 910	
<i>Net change as % of opening</i>		-						-69,6%		-	
Opening stock 2014**	0	43 910	0	0	0	0	0	19 189	63 099	43 910	69,6%
Total additions to stock		1 705							1 705		
Total reductions in stock								1 705	1 705		
Net change in stock		1 705						-1 705	0	1 705	
<i>Net change as % of opening</i>		3,9%						-8,9%		3,9%	
Opening stock 2018**	0	45 615	0	0	0	0	0	17 484	63 099	45 615	72,3%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	0	45 615	0	0	0	0	0	17 484	63 099	45 615	72,3%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	0	0	0	0	0	0	63 099	63 099	0	0,0%
Total additions to stock		45 615							45 615		
Total reductions in stock								45 615	45 615		
Net change in stock		45 615						-45 615	0	45 615	
<i>Net change as % of opening</i>		-						-72,3%		-	
Closing stock 2020	0	45 615	0	0	0	0	0	17 484	63 099	45 615	72,3%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

8. Extent account for land-based protected areas in the Tsitsikamma SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	67 221	34 171	0	353	7 358	0	0	213 105	322 208	109 103	33,9%
Total additions to stock		1 516							1 516		
Total reductions in stock								1 516	1 516		
Net change in stock		1 516						-1 516	0	1 516	
<i>Net change as % of opening</i>		4,4%						-0,7%		1,4%	
Opening stock 2014**	67 221	35 687	0	353	7 358	0	0	211 589	322 208	110 619	34,3%
Total additions to stock		144							144		
Total reductions in stock								144	144		
Net change in stock		144						-144	0	144	
<i>Net change as % of opening</i>		0,4%						-0,1%		0,1%	
Opening stock 2018**	67 221	35 831	0	353	7 358	0	0	211 445	322 208	110 763	34,4%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	67 221	35 831	0	353	7 358	0	0	211 445	322 208	110 763	34,4%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	67 221	34 171	0	353	7 358	0	0	213 105	322 208	109 103	33,9%
Total additions to stock		1 660							1 660		
Total reductions in stock								1 660	1 660		
Net change in stock		1 660						-1 660	0	1 660	
<i>Net change as % of opening</i>		4,9%						-0,8%		1,5%	
Closing stock 2020	67 221	35 831	0	353	7 358	0	0	211 445	322 208	110 763	34,4%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

9. Extent account for land-based protected areas in the Amathole SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	2 892	0	1 542	0	0	0	195 678	200 112	4 434	2,2%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Opening stock 2014**	0	2 892	0	1 542	0	0	0	195 678	200 112	4 434	2,2%
Total additions to stock			81						81		
Total reductions in stock								81	81		
Net change in stock			81					-81	0	81	
<i>Net change as % of opening</i>			-					0,0%		1,8%	
Opening stock 2018**	0	2 892	81	1 542	0	0	0	195 597	200 112	4 515	2,3%
Total additions to stock		243		1 546					1 789		
Total reductions in stock								1 789	1 789		
Net change in stock		243		1 546				-1 789	0	1 789	
<i>Net change as % of opening</i>		8,4%		100,3%				-0,9%		39,6%	
Closing stock 2020	0	3 135	81	3 088	0	0	0	193 808	200 112	6 304	3,2%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	2 892	0	1 542	0	0	0	195 678	200 112	4 434	2,2%
Total additions to stock		243	81	1 546					1 870		
Total reductions in stock								1 870	1 870		
Net change in stock		243	81	1 546				-1 870	0	1 870	
<i>Net change as % of opening</i>		8,4%		100,3%				-1,0%		42,2%	
Closing stock 2020	0	3 135	81	3 088	0	0	0	193 808	200 112	6 304	3,2%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

10. Extent account for land-based protected areas in the Eastern Cape Drakensberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	13 394	0	0	0	0	0	1 439 420	1 452 814	13 394	0,9%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Opening stock 2014**	0	13 394	0	0	0	0	0	1 439 420	1 452 814	13 394	0,9%
Total additions to stock		2 986							2 986		
Total reductions in stock								2 986	2 986		
Net change in stock		2 986						-2 986	0	2 986	
<i>Net change as % of opening</i>		22,3%						-0,2%		22,3%	
Opening stock 2018**	0	16 380	0	0	0	0	0	1 436 434	1 452 814	16 380	1,1%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	0	16 380	0	0	0	0	0	1 436 434	1 452 814	16 380	1,1%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	13 394	0	0	0	0	0	1 439 420	1 452 814	13 394	0,9%
Total additions to stock		2 986							2 986		
Total reductions in stock								2 986	2 986		
Net change in stock		2 986						-2 986	0	2 986	
<i>Net change as % of opening</i>		22,3%						-0,2%		22,3%	
Closing stock 2020	0	16 380	0	0	0	0	0	1 436 434	1 452 814	16 380	1,1%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

11. Extent account for land-based protected areas in the Southern Drakensberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	63 085	0	44 552	84 866	0	0	1 649 662	1 842 165	192 503	10,4%
Total additions to stock		20 775	11 513	4 102			7 493		43 883		
Total reductions in stock								43 883	43 883		
Net change in stock		20 775	11 513	4 102			7 493	-43 883	0	43 883	
<i>Net change as % of opening</i>		32,9%	-	9,2%			-	-2,7%		22,8%	
Opening stock 2014**	0	83 860	11 513	48 654	84 866	0	7 493	1 605 779	1 842 165	236 386	12,8%
Total additions to stock		12 553	5 459						18 012		
Total reductions in stock								18 012	18 012		
Net change in stock		12 553	5 459					-18 012	0	18 012	
<i>Net change as % of opening</i>		15,0%	47,4%					-1,1%		7,6%	
Opening stock 2018**	0	96 413	16 972	48 654	84 866	0	7 493	1 587 767	1 842 165	254 398	13,8%
Total additions to stock		1 940							1 940		
Total reductions in stock								-1 940	-1 940		
Net change in stock		1 940						-1 940	0	1 940	
<i>Net change as % of opening</i>		2,0%						-0,1%		0,8%	
Closing stock 2020	0	98 353	16 972	48 654	84 866	0	7 493	1 585 827	1 842 165	256 338	13,9%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	63 085	0	44 552	84 866	0	0	1 649 662	1 842 165	192 503	10,4%
Total additions to stock		35 268	16 972	4 102			7 493		63 835		
Total reductions in stock								63 835	63 835		
Net change in stock		35 268	16 972	4 102			7 493	-63 835	0	63 835	
<i>Net change as % of opening</i>		55,9%	-	9,2%			-	-3,9%		33,2%	
Closing stock 2020	0	98 353	16 972	48 654	84 866	0	7 493	1 585 827	1 842 165	256 338	13,9%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

12. Extent account for land-based protected areas in the Northern Drakensberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	17 941	0	6 058	32 704	0	0	812 135	868 838	56 703	6,5%
Total additions to stock		3 928					7 164		11 092		
Total reductions in stock								11 092	11 092		
Net change in stock		3 928					7 164	-11 092	0	11 092	
<i>Net change as % of opening</i>		21,9%					-	-1,4%		19,6%	
Opening stock 2014**	0	21 869	0	6 058	32 704	0	7 164	801 043	868 838	67 795	7,8%
Total additions to stock		14 470	181						14 651		
Total reductions in stock								14 651	14 651		
Net change in stock		14 470	181					-14 651	0	14 651	
<i>Net change as % of opening</i>		66,2%	-					-1,8%		21,6%	
Opening stock 2018**	0	36 339	181	6 058	32 704	0	7 164	786 392	868 838	82 446	9,5%
Total additions to stock		1 236							1 236		
Total reductions in stock								1 236	1 236		
Net change in stock		1 236						-1 236	0	1 236	
<i>Net change as % of opening</i>		3,4%						-0,2%		1,5%	
Closing stock 2020	0	37 575	181	6 058	32 704	0	7 164	785 156	868 838	83 682	9,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	17 941	0	6 058	32 704	0	0	812 135	868 838	56 703	6,5%
Total additions to stock		19 634	181				7 164		26 979		
Total reductions in stock								26 979	26 979		
Net change in stock		19 634	181				7 164	-26 979	0	26 979	
<i>Net change as % of opening</i>		109,4%	-				-	-3,3%		47,6%	
Closing stock 2020	0	37 575	181	6 058	32 704	0	7 164	785 156	868 838	83 682	9,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

13. Extent account for land-based protected areas in the Maloti Drakensberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	16 342	649	0	0	0	0	0	137 725	154 716	16 991	11,0%
Total additions to stock		7 502							7 502		
Total reductions in stock								7 502	7 502		
Net change in stock		7 502						-7 502	0	7 502	
<i>Net change as % of opening</i>		1155,9%						-5,4%		44,2%	
Opening stock 2014**	16 342	8 151	0	0	0	0	0	130 223	154 716	24 493	15,8%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Opening stock 2018**	16 342	8 151	0	0	0	0	0	130 223	154 716	24 493	15,8%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	16 342	8 151	0	0	0	0	0	130 223	154 716	24 493	15,8%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	16 342	649	0	0	0	0	0	137 725	154 716	16 991	11,0%
Total additions to stock		7 502							7 502		
Total reductions in stock								7 502	7 502		
Net change in stock		7 502						-7 502	0	7 502	
<i>Net change as % of opening</i>		1155,9%						-5,4%		44,2%	
Closing stock 2020	16 342	8 151	0	0	0	0	0	130 223	154 716	24 493	15,8%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

14. Extent account for land-based protected areas in the Mfolozi Headwaters SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	4 428	0	0	5 261	0	0	182 360	192 049	9 689	5,0%
Total additions to stock		3 454							3 454		
Total reductions in stock								3 454	3 454		
Net change in stock		3 454						-3 454	0	3 454	
<i>Net change as % of opening</i>		78,0%						-1,9%		35,6%	
Opening stock 2014**	0	7 882	0	0	5 261	0	0	178 906	192 049	13 143	6,8%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Opening stock 2018**	0	7 882	0	0	5 261	0	0	178 906	192 049	13 143	6,8%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	0	7 882	0	0	5 261	0	0	178 906	192 049	13 143	6,8%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	4 428	0	0	5 261	0	0	182 360	192 049	9 689	5,0%
Total additions to stock		3 454							3 454		
Total reductions in stock								3 454	3 454		
Net change in stock		3 454						-3 454	0	3 454	
<i>Net change as % of opening</i>		78,0%						-1,9%		35,6%	
Closing stock 2020	0	7 882	0	0	5 261	0	0	178 906	192 049	13 143	6,8%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

15. Extent account for land-based protected areas in the Enkangala Grassland SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	16 256	0	0	0	0	0	771 836	788 092	16 256	2,1%
Total additions to stock		10 575	41 678						52 253		
Total reductions in stock								52 253	52 253		
Net change in stock		10 575	41 678					-52 253	0	52 253	
<i>Net change as % of opening</i>		65,1%	-					-6,8%		321,4%	
Opening stock 2014**	0	26 831	41 678	0	0	0	0	719 583	788 092	68 509	8,7%
Total additions to stock		1 433							1 433		
Total reductions in stock								1 433	1 433		
Net change in stock		1 433						-1 433	0	1 433	
<i>Net change as % of opening</i>		5,3%						-0,2%		2,1%	
Opening stock 2018**	0	28 264	41 678	0	0	0	0	718 150	788 092	69 942	8,9%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	0	28 264	41 678	0	0	0	0	718 150	788 092	69 942	8,9%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	16 256	0	0	0	0	0	771 836	788 092	16 256	2,1%
Total additions to stock		12 008	41 678						53 686		
Total reductions in stock								53 686	53 686		
Net change in stock		12 008	41 678					-53 686	0	53 686	
<i>Net change as % of opening</i>		73,9%	-					-7,0%		330,3%	
Closing stock 2020	0	28 264	41 678	0	0	0	0	718 150	788 092	69 942	8,9%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

16. Extent account for land-based protected areas in the Upper Vaal SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	3 810	0	0	0	0	0	135 605	139 415	3 810	2,7%
Total additions to stock			6 655						6 655		
Total reductions in stock								6 655	6 655		
Net change in stock			6 655					-6 655	0	6 655	
<i>Net change as % of opening</i>			-					-4,9%		174,7%	
Opening stock 2014**	0	3 810	6 655	0	0	0	0	128 950	139 415	10 465	7,5%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Opening stock 2018**	0	3 810	6 655	0	0	0	0	128 950	139 415	10 465	7,5%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	0	3 810	6 655	0	0	0	0	128 950	139 415	10 465	7,5%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	3 810	0	0	0	0	0	135 605	139 415	3 810	2,7%
Total additions to stock			6 655						6 655		
Total reductions in stock								6 655	6 655		
Net change in stock			6 655					-6 655	0	6 655	
<i>Net change as % of opening</i>			-					-4,9%		174,7%	
Closing stock 2020	0	3 810	6 655	0	0	0	0	128 950	139 415	10 465	7,5%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

17. Extent account for land-based protected areas in the Upper Usutu SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	3 093	0	0	0	0	0	536 229	539 322	3 093	0,6%
Total additions to stock		1 916	37 226						39 142		
Total reductions in stock								39 142	39 142		
Net change in stock		1 916	37 226					-39 142	0	39 142	
<i>Net change as % of opening</i>		61,9%	-					-7,3%		1 265,5%	
Opening stock 2014**	0	5 009	37 226	0	0	0	0	497 087	539 322	42 235	7,8%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Opening stock 2018**	0	5 009	37 226	0	0	0	0	497 087	539 322	42 235	7,8%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	0	5 009	37 226	0	0	0	0	497 087	539 322	42 235	7,8%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	3 093	0	0	0	0	0	536 229	539 322	3 093	0,6%
Total additions to stock		1 916	37 226						39 142		
Total reductions in stock								39 142	39 142		
Net change in stock		1 916	37 226					-39 142	0	39 142	
<i>Net change as % of opening</i>		61,9%	-					-7,3%		1265,5%	
Closing stock 2020	0	5 009	37 226	0	0	0	0	497 087	539 322	42 235	7,8%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

18. Extent account for land-based protected areas in the Mbabane Hills SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	57 148	0	0	0	0	0	238 627	295 775	57 148	19,3%
Total additions to stock		13 969		34					14 003		
Total reductions in stock								14 003	14 003		
Net change in stock		13 969		34				-14 003	0	14 003	
<i>Net change as % of opening</i>		24,4%		-				-5,9%		24,5%	
Opening stock 2014**	0	71 117	0	34	0	0	0	224 624	295 775	71 151	24,1%
Total additions to stock		3 331							3 331		
Total reductions in stock								3 331	3 331		
Net change in stock		3 331						-3 331	0	3 331	
<i>Net change as % of opening</i>		4,7%						-1,5%		4,7%	
Opening stock 2018**	0	74 448	0	34	0	0	0	221 293	295 775	74 482	25,2%
Total additions to stock							29 926		29 926		
Total reductions in stock								29 926	29 926		
Net change in stock							29 926	-29 926	0	29 926	
<i>Net change as % of opening</i>							-	-13,5%		40,2%	
Closing stock 2020	0	74 448	0	34	0	0	29 926	191 367	295 775	104 408	35,3%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	57 148	0	0	0	0	0	238 627	295 775	57 148	19,3%
Total additions to stock		17 300		34			29 926		47 260		
Total reductions in stock								47 260	47 260		
Net change in stock		17 300		34			29 926	-47 260	0	47 260	
<i>Net change as % of opening</i>		30,3%					-	-19,8%		82,7%	
Closing stock 2020	0	74 448	0	34	0	0	29 926	191 367	295 775	104 408	35,3%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

19. Extent account for land-based protected areas in the Mpumalanga Drakensberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	44 301	0	2 095	0	3 671	0	787 181	837 248	50 067	6,0%
Total additions to stock		30 222	22	12 995					43 239		
Total reductions in stock								43 239	43 239		
Net change in stock		30 222	22	12 995				-43 239	0	43 239	
<i>Net change as % of opening</i>		68,2%	-	620,3%				-5,5%		86,4%	
Opening stock 2014**	0	74 523	22	15 090	0	3 671	0	743 942	837 248	93 306	11,1%
Total additions to stock		964	3 555						4 519		
Total reductions in stock								4 519	4 519		
Net change in stock		964	3 555					-4 519	0	4 519	
<i>Net change as % of opening</i>		1,3%	16 159,1%					-0,6%		4,8%	
Opening stock 2018**	0	75 487	3 577	15 090	0	3 671	0	739 423	837 248	97 825	11,7%
Total additions to stock							7 799		7 799		
Total reductions in stock								7 799	7 799		
Net change in stock							7 799	-7 799	0	7 799	
<i>Net change as % of opening</i>							-	-1,1%		8,0%	
Closing stock 2020	0	75 487	3 577	15 090	0	3 671	7 799	731 624	837 248	105 624	12,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	44 301	0	2 095	0	3 671	0	787 181	837 248	50 067	6,0%
Total additions to stock		31 186	3 577	12 995			7 799		55 557		
Total reductions in stock								55 557	55 557		
Net change in stock		31 186	3 577	12 995			7 799	-55 557	0	55 557	
<i>Net change as % of opening</i>		70,4%	-	620,3%				-7,1%		111,0%	
Closing stock 2020	0	75 487	3 577	15 090	0	3 671	7 799	731 624	837 248	105 624	12,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

20. Extent account for land-based protected areas in the Wolkberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	22 410	0	4 858	14 934	0	0	217 425	259 627	42 202	16,3%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Opening stock 2014**	0	22 410	0	4 858	14 934	0	0	217 425	259 627	42 202	16,3%
Total additions to stock		1 764							1 764		
Total reductions in stock								1 764	1 764		
Net change in stock		1 764						-1 764	0	1 764	
<i>Net change as % of opening</i>		7,9%						-0,8%		4,2%	
Opening stock 2018**	0	24 174	0	4 858	14 934	0	0	215 661	259 627	43 966	16,9%
Total additions to stock		1 652							1 652		
Total reductions in stock								1 652	1 652		
Net change in stock		1 652						-1 652	0	1 652	
<i>Net change as % of opening</i>		6,8%						-0,8%		3,8%	
Closing stock 2020	0	25 826	0	4 858	14 934	0	0	214 009	259 627	45 618	17,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	22 410	0	4 858	14 934	0	0	217 425	259 627	42 202	16,3%
Total additions to stock		3 416							3 416		
Total reductions in stock								3 416	3 416		
Net change in stock		3 416						-3 416	0	3 416	
<i>Net change as % of opening</i>		15,2%						-1,6%		8,1%	
Closing stock 2020	0	25 826	0	4 858	14 934	0	0	214 009	259 627	45 618	17,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

21. Extent account for land-based protected areas in the Soutpansberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	0	133	0	1 636	0	0	0	232 913	234 682	1 769	0,8%
Total additions to stock		663		350					1 013		
Total reductions in stock								1 013	1 013		
Net change in stock		663		350				-1 013	0	1 013	
<i>Net change as % of opening</i>		498,5%		21,4%				-0,4%		57,3%	
Opening stock 2014**	0	796	0	1 986	0	0	0	231 900	234 682	2 782	1,2%
Total additions to stock		654	38 906						39 560		
Total reductions in stock								39 560	39 560		
Net change in stock		654	38 906					-39 560	0	39 560	
<i>Net change as % of opening</i>		82,2%	-					-17,1%		1422,0%	
Opening stock 2018**	0	1 450	38 906	1 986	0	0	0	192 340	234 682	42 342	18,0%
Total additions to stock		1 347							1 347		
Total reductions in stock								1 347	1 347		
Net change in stock		1 347						-1 347	0	1 347	
<i>Net change as % of opening</i>		92,9%						-0,7%		3,2%	
Closing stock 2020	0	2 797	38 906	1 986	0	0	0	190 993	234 682	43 689	18,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	0	133	0	1 636	0	0	0	232 913	234 682	1 769	0,8%
Total additions to stock		2 664	38 906	350					41 920		
Total reductions in stock								41 920	41 920		
Net change in stock		2 664	38 906	350				-41 920	0	41 920	
<i>Net change as % of opening</i>		2 003,0%	-	21,4%				-18,0%		2369,7%	
Closing stock 2020	0	2 797	38 906	1 986	0	0	0	190 993	234 682	43 689	18,6%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

22. Extent account for land-based protected areas in the Waterberg SWSA, 1990–2020, for three accounting periods and overall, in hectares

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening stock 1990	452	2 211	0	0	0	0	0	100 538	103 201	2 663	2,6%
Total additions to stock	23 487	11 511							34 998		
Total reductions in stock								34 998	34 998		
Net change in stock	23 487	11 511						-34 998	0	34 998	
<i>Net change as % of opening</i>	5 196,2%	520,6%						-34,8%		1 314,2%	
Opening stock 2014**	23 939	13 722	0	0	0	0	0	65 540	103 201	37 661	36,5%
Total additions to stock		212							212		
Total reductions in stock								212	212		
Net change in stock		212						-212	0	212	
<i>Net change as % of opening</i>		1,5%						-0,3%		0,6%	
Opening stock 2018**	23 939	13 934	0	0	0	0	0	65 328	103 201	37 873	36,7%
Total additions to stock									0		
Total reductions in stock									0		
Net change in stock									0	0	
<i>Net change as % of opening</i>										0,0%	
Closing stock 2020	23 939	13 934	0	0	0	0	0	65 328	103 201	37 873	36,7%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

** The opening stock for this accounting period is the same as the closing stock for the previous accounting period.

Protected area type	National Park	Nature Reserve	Protected Environment	Forest Nature Reserve	Forest Wilderness Area	Mountain Catchment Area	World Heritage Site*	Not protected	Total	Total protected (ha)	Total protected (%)
Opening Stock 1990	452	2 211	0	0	0	0	0	100 538	103 201	2 663	2,6%
Total additions to stock	23 487	11 723							35 210		
Total reductions in stock								35 210	35 210		
Net change in stock	23 487	11 723						-35 210	0	35 210	
<i>Net change as % of opening</i>	5 196,2%	530,2%						-35,0%		1 322,2%	
Closing stock 2020	23 939	13 934	0	0	0	0	0	65 328	103 201	37 873	36,7%

* Note that World Heritage Sites show only the portion that does not overlap with other protected area types (refer to Section 2.3).

PREVIOUS PUBLICATIONS IN THE NATURAL CAPITAL SERIES

Statistics South Africa (Stats SA). 2020. Natural Capital Series 1: Land and Terrestrial Ecosystem Accounts, 1990 to 2014. Discussion document D0401.1. Produced in collaboration with the South African National Biodiversity Institute and the Department of Forestry, Fisheries and the Environment. Statistics South Africa, Pretoria.

Statistics South Africa (Stats SA). 2021. Natural Capital Series 2: Accounts for Protected Areas, 1900 to 2020. Discussion document D0401.2. Produced in collaboration with the South African National Biodiversity Institute and the Department of Forestry, Fisheries and the Environment. Statistics South Africa, Pretoria.

