



Directory of southern African conservation areas

T Greyling and B J Huntley (editors)

A report of the Committee for Nature Conservation Research
National Programme for Environmental Sciences

SOUTH AFRICAN NATIONAL SCIENTIFIC PROGRAMMES REPORT NO

98

DECEMBER 1984

(ii)

Issued by

Foundation for Research Development
Council for Scientific and Industrial Research
P O Box 395
Pretoria
0001

South Africa

from whom copies of reports in this series are available on request

Printed in 1984 in the Republic of South Africa

ISBN 0 7988 3396 3

Editors' address:

Ms T Greyling and Mr B J Huntley
Foundation for Research Development
Council for Scientific and Industrial Research
P O Box 395
PRETORIA
0001
South Africa

PREFACE

During the 90 years since the first game reserve was proclaimed in South Africa, an impressive network of national parks and game, nature and forest reserves has been established in the country and its neighbouring states. This network of conservation areas is part of a greater, global effort to conserve biotic diversity, ecological processes and life support systems within some 3 000 protected areas that today span the world from Arctic to Antarctic, through all continents and on most island groups.

The International Union for the Conservation of Nature and Natural Resources (IUCN) has for the past thirty years maintained various forms of register on the distribution and characteristics of such protected areas. From fairly modest beginnings, the data base is now maintained by a professional data processing unit at Cambridge, United Kingdom, which regularly produces major analyses of the state of protected areas around the world.

South Africa has been an active member of IUCN since the organization's establishment in 1948. The South African National Committee for IUCN, in collaboration with the Committee for Nature Conservation Research of the National Programme for Environmental Sciences, has, with the assistance of colleagues throughout southern Africa, prepared the present Directory as a contribution to the current efforts of the IUCN to expand and update its data base on conserved areas in the Afro-tropical biogeographic realm. This Directory provides information on 155 conservation areas, each of 1 000 ha or greater, managed by a governmental or statutory body. It is anticipated that the Directory will be updated, expanded and improved in a second edition to be prepared in four or five years' time. The second edition would include in addition to those areas listed in this volume, information on private and municipal conservation areas of greater than 10 years' standing, plus a listing of all conservation areas regardless of size.

ABSTRACT

This Directory provides detailed information on 155 conservation areas of greater than 1 000 ha administered by government and statutory bodies in the Republics of South Africa, Transkei, Bophuthatswana, Ciskei and Venda, and the Kingdoms of Lesotho and Swaziland. The data sheets for each of the 155 areas described include details on date of proclamation, geographical features, vegetation, flora and fauna, infrastructure and principal reference material. A synthesis of the data examines the historical development of the conservation area network in southern Africa, and provides analyses of the area conserved by state, province, management category, management authority and by biome and vegetation type. The synthesis concludes that greater emphasis should be placed on the acquisition of more land for conservation in the highveld grassland, succulent karoo and lowland fynbos ecosystems of southern Africa. The conserved areas cover a total of 5,76 million hectares, or 4,5% of southern Africa.

SAMEVATTING

Hierdie Gids voorsien gedetailleerde inligting oor 155 bewaarde gebiede groter as 1 000 ha wat deur staats- en statutêre liggame in die Republieke van Suid-Afrika, Transkei, Bophuthatswana, Ciskei en Venda, en die Koninkryke van Lesotho en Swaziland geadministreer word. Die datavelle vir elk van die 155 gebiede wat beskryf word, sluit besonderhede in oor die datum van proklamasie, geografiese eienskappe, plantegroei, flora en fauna, infrastruktuur en belangrike verwysingsmateriaal. 'n Sintese van die data beskryf die historiese ontwikkeling van die netwerk van bewaarde gebiede in suidelike Afrika, en verskaf analyses van die gebied wat bewaar word per staat, provinsie, bestuurskategorie, bestuursowerheid en per bioom en veldtipe. Die sintese kom tot die slotsom dat groter nadruk gelê behoort te word op die verkryging van meer grond vir bewaring in die hoëveldse grasveld, sukkulentkaroo en kusfynbosekosisteme van suidelike Afrika. Die bewaarde gebiede dek 'n totaal van 5,76 miljoen hektaar, oftewel 4,5% van suidelike Afrika.

TABLE OF CONTENTS	Page
Preface	(iii)
Abstract	(iv)
Samevatting	(iv)
INTRODUCTION	1
Background to the Directory	1
Acknowledgements	3
WHAT THE DATA SHEETS CONTAIN	5
Name of the conservation area	7
Proclamation	7
Geographical features	7
Physical features	7
Vegetation and flora	7
Fauna	7
Infrastructure	7
Principal reference material	8
Preparation	8
SYNTHESIS OF THE DATA	9
The development of the conservation area network	9
Area conserved within each state/province	11
Area conserved by individual management authorities	11
Area conserved by management category	12
Conservation cover by biome and vegetation type	13
DIRECTORY OF DATA SHEETS	
National Parks Board, RSA	15
Directorate of Forestry, RSA	38
Natal Parks, Game and Fish Preservation Board	107
Transvaal Nature Conservation Division	146
Cape Department of Nature and Environmental Conservation	188
Orange Free State Nature Conservation Division	236

INTRODUCTION

Background to the Directory

The publication of the World Conservation Strategy (IUCN 1980) introduced a new era in the history of nature conservation, possibly as significant as the proclamation, in 1872, of the world's first national parks at Yosemite and Yellowstone, USA. The importance of the World Conservation Strategy (WCS) is that it brought focus to new dimensions in conservation, expressed most clearly in its three main goals:

1. To maintain essential ecological processes and life support systems;
2. To preserve genetic diversity; and
3. To ensure that utilization of species and ecosystems is sustainable.

These goals differed in many ways from the traditional emphasis on protecting mainly large, often spectacular, species of mammals within rigorously policed national parks, where tourist revenue was believed by most to be the only tangible benefit derived from the exercise.

Despite its faults, the national park concept was the key to creating a wider interest in wild species, ecosystems and landscapes and undoubtedly contributed to the upsurge of interest in environmental conservation during the 1960's and 70's when many western nations felt the negative impacts of industrialization on the quality of life. Although only 4,5 percent of southern Africa* falls within conservation areas today, and despite the fact that the major portion of this land occurs in the savanna biome, this network of 155 areas totalling 5,76 million hectares can be regarded as a capital investment, paying ecological interest, while ways and means are sought to achieve WCS goals in the remaining 95,5 percent of the region's land area. Thus vast areas of conserved mountain catchments safeguard water supplies and maintain the soil mantle of highly vulnerable highlands (WCS, Goal 1), the wide spread of national parks and reserves provide in situ reservoirs of southern Africa's unusually rich fauna and flora (WCS, Goal 2), while research on the management and utilization of the diverse large mammal populations in many conservation areas indicates their potential as sustainable sources of protein and other products (WCS, Goal 3).

*Southern Africa as used here includes Lesotho, Swaziland and the area previously administered as the Union of South Africa, today comprising the Republics of South Africa, Transkei, Bophuthatswana, Venda and Ciskei. Where reference is made to the Republic of South Africa, it is implied that the newly independent Republics are excluded. See Figure 1.

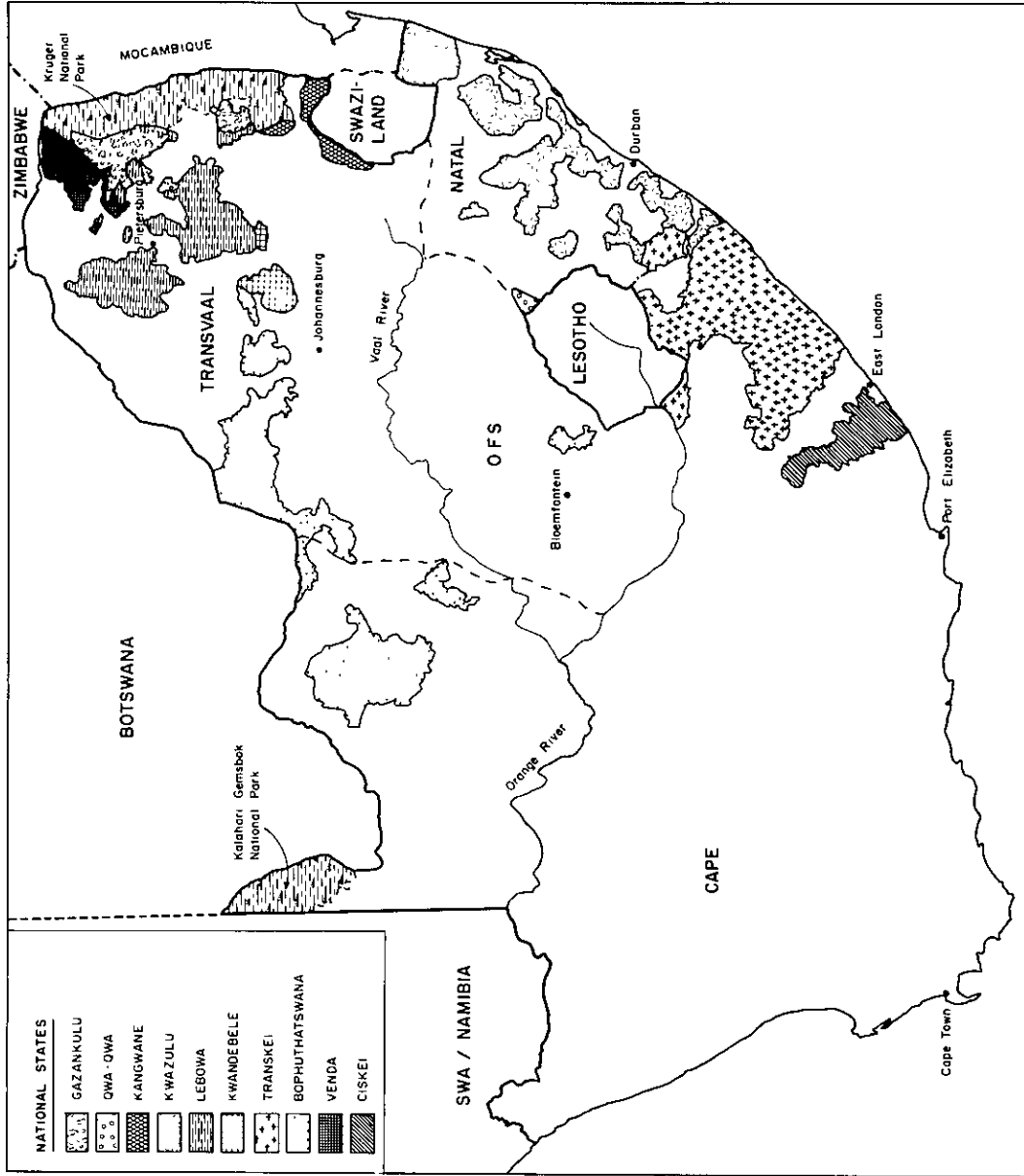


Figure 1. Political divisions of southern Africa referred to in this Directory.

The importance of conservation areas thus extends far beyond tourist use, or the rather esoteric and aesthetic objectives behind the national parks definition included in the United Nations List of National Parks and Equivalent Reserves first published in 1961 (Harroy 1971). The UN list nevertheless gave impetus to international interest in proclaiming and effectively managing conservation areas and led to the preparation by IUCN of the World Directory of National Parks and other Protected Areas (IUCN 1975) and more recently the series of directories on biogeographical realms, initiated with the IUCN Directory of Neotropical Protected Areas (IUCN 1982).

The objectives of the new series of directories include:

- Establishing the basis for a monitoring system which will help ensure that the specific objectives of each protected area are attained and continue to be attained;
- Providing the basis for establishing priorities for future action;
- Promoting the effective management of protected areas by making basic information widely available;
- Providing a working tool for protected area managers, facilitating comparison between areas; and
- Stimulating increased interest in protected areas on the part of students, scientists, researchers, land-use planners, government officials, and the general public.

The preparation of the IUCN Directory for the Afrotropical Realm (IUCN 1985) is well advanced. In compiling the data for the Directory, IUCN, through its Commission for National Parks and Protected Areas, and its Protected Areas Data Unit, called on the support of its southern African members and this resulted in the preparation of material of use both to the IUCN and more specifically to the southern African conservation community. The present volume is therefore a compilation based on the joint efforts of numerous individuals and organizations in the Republics of South Africa, Transkei, Bophuthatswana, Venda and Ciskei and the Kingdoms of Lesotho and Swaziland.

Acknowledgements

The valuable help of individual contributors is acknowledged at the end of each data sheet. In more general terms, thanks are due to Karl Lane, who assisted in the checking of much of the raw data, and Ruth Viljoen and Margaret Orton, who prepared the material in camera-ready form for printing. The photographs used to illustrate this Directory were provided by the various management authorities, to whom our thanks are due.

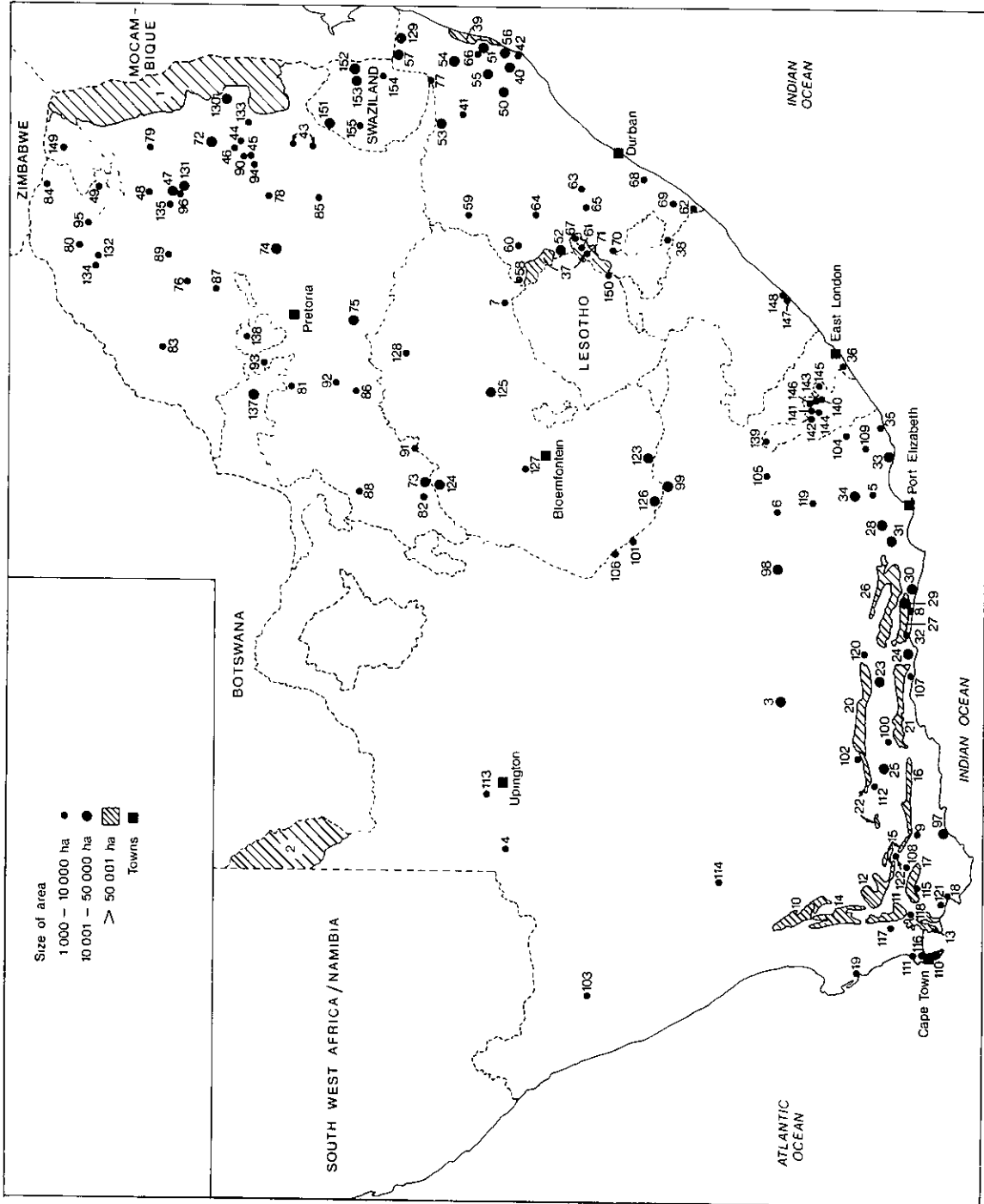


Figure 2. Distribution of southern African conservation areas included in this Directory.

WHAT THE DATA SHEETS CONTAIN

The information contained in this volume was drawn together in standardized data sheets completed by personnel of the various administrations responsible for the conservation areas listed. The accuracy, detail and relevance of the information provided varied rather widely between contributors and in some cases several drafts were needed before the entry was acceptable. This does not imply that all the information included is comprehensive and faultless - but the current volume provides as complete and up-to-date (as of 1 January 1984) a data set as resources currently permit. The information is stored on diskette, facilitating updating every four or five years.

The Directory includes all those conservation areas larger than 1 000 ha administered by government departments at the national, provincial, or in the Cape, Divisional Council level. The location of each conservation area listed in this Directory is indicated in Figure 2. Some of the returns submitted by management authorities included more than one conservation area within a data sheet. These areas are managed as single entities and the statistics used in this Directory relate to the units described in the data sheets, rather than the total number of individual designated areas. Numerous large privately owned conservation areas, such as the Timbavati, Sabi-Sand and Klaserie Game Reserves, have been excluded from the Directory. Also excluded are the large areas of land administered by the South African Defence Force, on which nature conservation measures are strictly enforced, but for which data sheets are not currently available.

Information on management practises, zoning, problems relating to invasive alien plants and animals and other disturbance factors is not included. In most cases the negative influences are of a transient nature or are being actively combatted within the normal constraints of finances and manpower. Unlike many other parts of Africa, the level of training, dedication and general competence of conservation personnel in southern Africa is outstandingly high, and with very few exceptions the support provided by both government and public is strong.

The terminology used to categorize conservation areas in southern Africa is very inconsistent, as is the case throughout the world. Although IUCN (1978) has attempted to bring some order to terminology by categorizing conservation areas according to their management goals, the criteria used still permit confused interpretations. For this reason the categories used in this Directory should be considered provisional. The IUCN system is followed, using the criteria indicated in Table 1, but as already noted, these need revision within the southern African context.

Table 1. Alternative categories for the management and development of natural and cultural resources to achieve primary conservation objectives (From Miller, 1983)

CONSERVATION OBJECTIVES	ALTERNATIVE MANAGEMENT CATEGORIES									
	A. Categories of special concern					B. Categories of general concern			C. Categories used by international programmes	
	I	II	III	IV	V	VI	VII	VIII	IX	X
	Scientific Reserve	National Park	Natural Monument	Nature Reserve	Protected Landscape	Resource Reserve	Anthropological Reserve	Multiple Use Area	Biosphere Reserve	World Heritage Site
Maintain sample ecosystems in natural state	1	1	1	1	2	3	1		1	1
Maintain ecological diversity and environmental regulation	3	1	1	2	2	2	1	2	1	1
Conserve genetic resources	1	1	1	1	2	3	1	3	1	1
Provide for education, research and environmental monitoring	1	2	1	1	2	3	2	2	1	1
Protect water catchments	3	3	3	3	2	3	3	3	3	3
Control erosion, sedimentation, protect down-stream investments	3	3	3	3	3	3	3	3	3	3
Provide hunting, fishing and animal products			2		3	3	3	1	3	
Provide recreation and tourism services		1	2	3	1		3	1	3	1
Produce timber and forage on sustained yield basis				3	2		3	1	3	
Protect sites and objects of cultural value		1	3		1	3	1	3	2	1
Protect scenic beauty and green areas	3	1	2	2	1			3	2	1
Maintain open options and management flexibility					3	1	3	1	2	3
Stimulate rational use of marginal lands and rural development	2	1	2	2	1	3	2	1	2	2

1. Primary objective for management of area and resources.
2. Not necessarily primary, but always included as an important objective.
3. Included as an objective where resources and other management objectives permit.

With few exceptions, the conservation areas included in this Directory are publically owned and administered by central or provincial government authorities. Their biota are afforded full legal protection against disturbance by man, other than that provided for within management policies - ie culling, controlled burning, soil erosion prevention, etc. Details regarding the type of information provided in the data sheets follows:

Name of conservation area

The official name of the area as provided by the responsible management authority.

Proclamation

The date of establishment and the Act/Decree/Ordinance number of the original or subsequent legislative articles relating to its establishment.

Geographical features

The area's location in terms of longitude and latitude, nearest town and distance, and size.

Physical features

Highest and lowest altitudes in metres above sea level, highest mountain, mean annual rainfall, range in monthly mean temperatures, and duration of the rainy season. Brief notes on soils (where pedological terminology is used MacVicar 1977 is followed), geomorphology, major rivers and streams and other outstanding physical features.

Vegetation and flora

The vegetation types, in terms of Acocks's (1975) Veld Type classification, their area, plus a description of the major plant communities and their dominant or important species. Where possible notes are provided on economically important or endemic species of plants. Plant names follow Smith (1966) and Gibbs Russell (1984). Conservation status of plant species follows Hall et al (1980).

Fauna

Endangered, vulnerable or rare animal species are listed, and where available details of the population size, importance or other species are given. The conservation status of animals follows the South African Red Data Books for mammals (Skinner et al 1977) and Meester (1976), fishes (Skelton in prep), birds (Siegfried et al 1976) and reptiles and amphibians (McLachlan 1978). The nomenclature of Smithers (1983) was followed for mammals, Bruton et al (1982) for fishes, Maclean (1984) for birds and Broadley (1983) for snakes.

Infrastructure

Information is provided on visitor facilities, numbers of visitors both present and potential, staffing and budget, local administration, etc.

Budget figures are for the 1982/83 financial year, unless indicated otherwise. If salaries are excluded, this is noted. The original data sheets requested information on zoning, management problems, special scientific facilities, etc, but as most of the information provided was repetitive or inconsequential it has not been included in this volume.

Principal reference material

Published information on the areas varies from hundreds of detailed scientific and popular accounts on Kruger National Park to little or no published information on the vast majority of the areas. Only key references are included. Further information can be obtained, where available, from the management authority.

Preparation

The name of contributor/s and date of the preparation of the original data sheet. In all cases the sheets were checked during 1984 in order to up-date where necessary.

SYNTHESIS OF THE DATA

The development of the conservation area network

On 13 June 1894, Africa's first game reserve was proclaimed following a resolution approved by State President Paul Kruger in 1889. The Pongolo government game reserve, 17 400 ha in extent, lay between the Pongolo river and the Swaziland border. Although provided with a game ranger and staff from the date of proclamation, the Anglo-Boer war and other factors led to the reserve soon falling into neglect and in 1921 the reserve was deproclaimed (Pringle 1982). In 1895 two reserves were established in Pretoria, the surviving 8,5 ha of one of these remaining today as Groenkloof National Park, the headquarters of the National Parks Board.

Conservationists in Natal, concerned at the rapid depletion of game in Zululand, in 1895 urged the colonial government to set aside five areas in which hunting was prohibited. These were proclaimed game reserves in 1897. Three of these areas remain today as Hluhluwe, Umfolozi and St Lucia game reserves.

In 1898 the Sabie Game Reserve was proclaimed in the Transvaal Lowveld, providing the nucleus of what was to become southern Africa's first, largest and most famous national park, named after State President Paul Kruger, who was instrumental in establishing the Sabie reserve. While considerable interest was being aroused by the establishment of reserves in the game-rich areas of Zululand and the Transvaal, foresters in the Cape Colony were expressing alarm at the rapid reduction of the indigenous forests of the coastal mountains. In 1887 the first forest reserve was established at East London, followed in 1890 by a reserve at Tsitsikamma, at Knysna in 1894 and at Walker Bay in 1895. By the end of the 19th century 355 559 ha of forest reserves had been proclaimed in the Cape. While the level of protection afforded the indigenous fauna and flora within these forest reserves was perhaps not as complete as it was in the game reserves, the vast areas of land administered by the various forestry departments since colonial times contribute a major portion of southern Africa's wildlife estate today.

The increase in the number and total area of reserves proclaimed in southern Africa is illustrated in Figure 3 in which data are plotted cumulatively for five year periods commencing in 1895. The number of reserves proclaimed for each period followed a fairly uniform rate of approximately one reserve per year over the 70 years from 1895 to 1965. From 1966 to 1980, 66 reserves, or 4,4 per year, were proclaimed. This fourfold increase in the rate of reserve establishment is a clear reflection of the impact of the worldwide interest in conservation experienced during the 1960's and 70's.

In terms of the area allocated to conservation, the rate of increase was fairly constant at approximately 50 000 ha per annum for the first thirty years, followed by a considerable leap in the period 1925 to 1935, with the establishment of the Kruger and Kalahari Gemsbok National Parks, when over three million ha were added within a decade. From 1935 to 1965 the rate of increase dropped to 13 000 ha per annum, while the rate increased to 38 000 ha per annum during the 15 years 1966 to 1980. Despite the scarcity of both land and finances currently being experienced, it would appear that the healthy rate of increase in both the number and area of reserves created in southern Africa continues into the 1980's at the encouraging pace experienced in the late 1960's and 1970's.

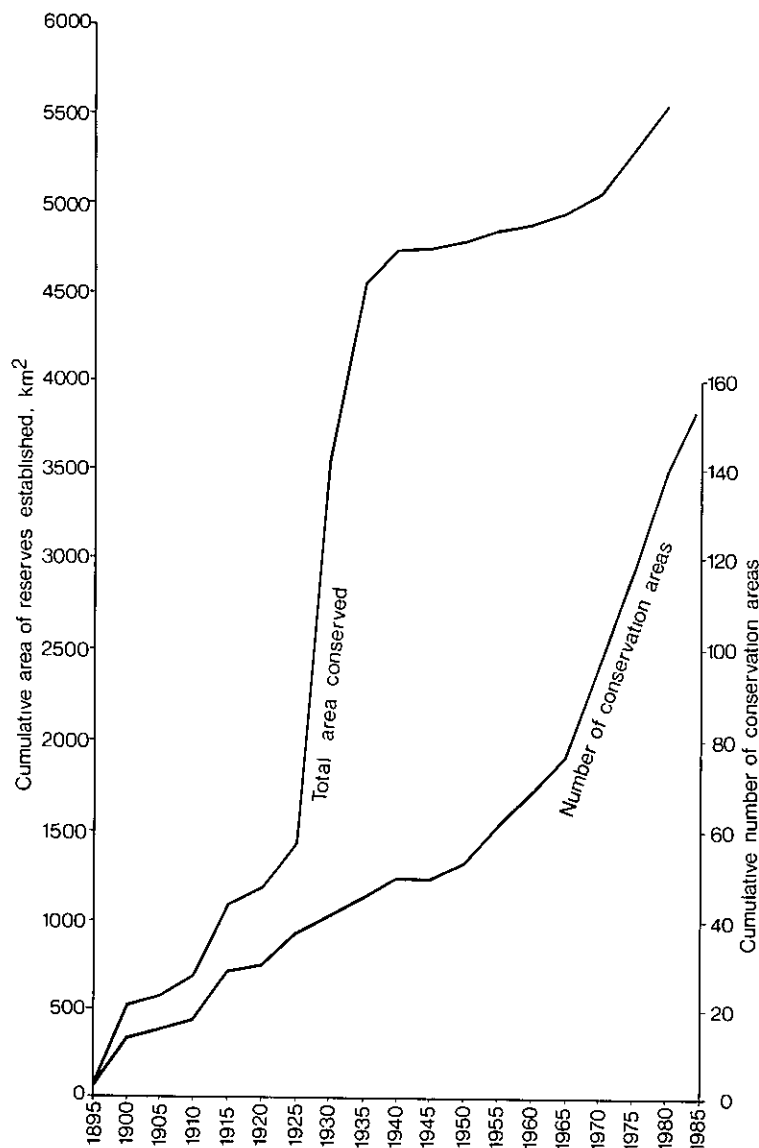


Figure 3. Increase in the number and total area (in km²) of reserves proclaimed in southern Africa cumulatively for five year periods commencing in 1895.

Area conserved within each state/province

The conservation effort seems to have met with varying success in the different states and provinces of southern Africa (Table 2). Excluding the Prince Edward Islands, which enjoy de facto scientific reserve status over their whole area, the province with the highest proportion of its land area falling under formal conservation protection is the Transvaal. Although the major portion (87%) of its conservation area is accounted for by the Kruger National Park, Transvaal has 38 other conservation areas of over 1 000 ha, occupying a total of 249 532 ha. Orange Free State, Venda, Lesotho and Transkei are very poorly provided for, although the very low figure (0,14%) for Transkei does not include forest reserves for which data were not available.

Table 2. Area in km² conserved within each state/province

State/Province	Total area	Area conserved	Percent conserved
Cape	654 767	27 099	4,13
Transvaal	262 499	21 981	8,37
Orange Free State	127 993	767	0,60
Natal	86 967	5 712	6,57
Prince Edward Islands	390	390	100,00
Transkei	42 000	60	0,14
Bophuthatswana	40 000	574	1,44
Lesotho	30 344	68	0,22
Swaziland	17 366	602	3,47
Ciskei	10 874	278	2,56
Venda	6 875	32	0,47
TOTAL	1 270 871	57 563	4,53

Area conserved by individual management authority

Table 3 summarizes the data in terms of management authority. Over half the total conservation estate in southern Africa is administered by the South African National Parks Board, with an additional one third falling under the control of the South African Directorate of Forestry. The remaining 15% is the responsibility of twelve different state and provincial authorities.

Area conserved by management category

The distribution of the number and land area of the 155 parks and reserves included in the Directory in terms of their management category is indicated in Table 4. As noted in the introduction to the Directory, the use of the categories is fraught with difficulties due to overlapping criteria and definitions, so the summary provided in Table 4 is difficult to interpret. A more meaningful analysis will be possible once the classification of southern African conservation areas has been undertaken on a basis of more objective criteria.

Table 3. Total area (km²) of conservation units listed in this Directory per each management authority and percentage of total area conserved in this region.

Management Authority	No of Areas	Area Conserved	Percent
National Parks Board, RSA	9	29 718	51,63
Directorate of Forestry, RSA	40	18 801	32,66
Natal Parks Board	22	2 630	4,57
Transvaal Nature Conservation Division	25	1 467	2,55
Cape Department of Nature and Environmental Conservation	26	1 322	2,30
Orange Free State Nature Conservation Division	6	704	1,22
National States, RSA	7	917	1,59
Department of Transport, RSA	1	390	0,68
Republic of Bophuthatswana	2	574	1,00
Republic of Ciskei	8	278	0,48
Kingdom of Swaziland	5	602	1,04
Kingdom of Lesotho	1	68	0,12
Republic of Transkei	2	60	0,10
Republic of Venda	1	32	0,06
TOTAL	155	57 563	100,00

Table 4. Area conserved by management category.

Management category	I	II	III	IV	V
No of areas	1	14	0	136	4
Area, km ²	390	30 431	0	26 569	173

Conservation cover by biome and vegetation type

A detailed and ongoing analysis of the conservation cover provided for southern African Veld Types as defined by Acocks (1975) has been undertaken by NAKOR, an interdepartmental coordinating committee for nature conservation. The most recent synthesis of this information is provided by Scheepers (1983), who concludes that the general picture has not changed much since the first survey published by Edwards (1974). The data pertain to southern Africa as defined on page 1, excluding Lesotho and Swaziland.

Of 70 Veld Types described by Acocks, only five have more than ten percent of their area within conservation areas. Three of these types are arid savanna communities within the Kruger National Park, the other two are mountain fynbos communities falling within the mountain catchment reserves of the south-west and southern Cape. No fewer than 47 Veld Types have less than one percent of their area conserved. The disproportion in the conservation cover given different biomes is indicated by the fact that the savanna biome, occupying 32,7% of southern Africa, has 29,7% of its area conserved, while the karoo biome, occupying 26,3% has only 0,56% of its area conserved. The situation reflects the traditional emphasis given to conserving areas with spectacular ungulate and carnivore species, rather than the floristically diverse but less charismatic communities such as highveld grassland, succulent karoo and lowland fynbos.

The international significance of the poor cover given to these systems is highlighted in a review of the conservation cover of 189 mapped vegetation units within Africa south of the equator (Huntley and Ellis 1984). Within this 5,9 million km² area, the most critically threatened southern African systems were identified as highveld grassland of South Africa (with only 0,19% conserved), the winter-rainfall karoo (0,06% conserved) and lowland fynbos (1,38% conserved) (Table 5). It is therefore essential that every effort be made during the next decade to obtain a better balance of conservation areas in southern Africa. A coordinated national effort in South Africa should be focused on conserving highveld grassland, succulent karoo and lowland fynbos. The situation in these ecosystems is so critical that current efforts to obtain even more arid savanna land should be dropped and the funds be directed to international rather than parochial priorities.

Table 5. Synopsis of the conservation cover of major ecosystems in Africa south of the Equator (from Huntley and Ellis 1984).

	Total area km ²	Area conserved km ²	Percent conserved
1. FORESTS	127 395	909	0,71
1.1 Lowland Forest Biome	107 651	436	0,40
1.1.1 Guineo-Congolian lowland forests	62 520	171	0,27
1.1.2 Indian Ocean Coastal Belt lowland forests	45 131	265	0,59
1.2 Montane Forest Biome	19 744	473	2,40
1.2.1 Afromontane forests	19 744	473	2,40
2. SAVANNAS	4 428 877	317 607	7,17
2.1 Moist Savanna Biome	2 606 977	110 599	4,24
2.1.1 Congo savanna	227 367	514	0,23
2.1.2 Brachystegia/Julbernardia miombo	1 716 142	78 498	4,57
2.1.3 Mixed broadleaf savannas	405 796	8 149	2,01
2.1.4 Baikiaea woodlands	218 975	22 640	10,34
2.1.5 Cryptosepalum-Marquesia woodlands and dry forests	37 797	798	2,11
2.2 Arid Savanna Biome	1 821 900	207 008	11,36
2.2.1 Colophospermum mopane woodlands	542 403	57 242	10,55
2.2.2 Acacia-Commiphora savannas and thickets	1 252 950	147 513	11,77
2.2.3 Thickets and dry forests	26 547	2 253	8,50
3. GRASSLANDS	549 500	37 636	6,84
3.1 Afro-Alpine Biome	26 490	700	2,64
3.1.1 Afro-Alpine grasslands and heathlands	26 490	700	2,64
3.2 Edaphic Grasslands	190 243	32 005	16,82
3.2.1 Swamps	41 627	3 264	7,84
3.2.2 Floodplains of central Africa	127 243	22 538	17,71
3.2.3 Saline grasslands of central Africa	21 373	6 203	29,02
3.3 Highland Grassland Biome	206 667	3 189	1,54
3.3.1 Highveld grasslands of South Africa	178 123	345	0,19
3.3.2 Highland grasslands of central Africa	28 544	2 844	9,96
3.4 Seral Grasslands	126 100	1 742	1,38
3.4.1 Grasslands of the South African escarpment	126 100	1 742	1,38
4. DESERTS AND SEMI-DESERTS	602 697	46 553	7,71
4.1 Namib desert	95 971	43 460	45,28
4.1.1 The Namib desert	95 971	43 460	45,28
4.2 Karoo Biome	506 726	3 093	0,61
4.2.1 'False' karoo	109 116	1 533	1,40
4.2.2 Summer-rainfall karoo	232 187	1 459	0,63
4.2.3 Winter-rainfall karoo	165 423	101	0,06
5. FYNBOS	60 259	7 356	12,21
5.1 Mountain Fynbos	35 712	7 018	19,65
5.2 Lowland Fynbos	24 547	338	1,38

NATIONAL PARKS BOARD OF TRUSTEES

The National Parks Board of Trustees was established in 1926 in terms of the National Parks Act (Act 56 of 1926). The Board currently administers nine national parks with a total area of 29 718 km², accounting for 52,04 per cent of the conservation estate in southern Africa. The budget for the 1982/83 financial year totalled R27,6 million, including salaries. The staff complement of 3 282 included 562 conservation officers and 81 research officers.

The conservation areas administered by the National Parks Board all qualify for inclusion within IUCN Category II - national parks - although some were initially proclaimed to conserve individual species such as bontebok, mountain zebra and Addo elephant, while others, such as Augrabies Falls and Golden Gate, were proclaimed to conserve outstanding landscapes. Both of these groups could be classified under Category III - natural monuments - but their current management objectives, infrastructure and legal standing place them adequately within Category II.

Headquarters address

The Chief Director
National Parks Board of Trustees
P O Box 787
PRETORIA
0001
South Africa

Areas included in the Directory (Category II)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
1	Kruger National Park	1 948 528	16
2	Kalahari Gemsbok National Park	959 103	20
3	Karoo National Park	27 011	22
4	Augrabies Falls National Park	9 415	24
5	Addo Elephant National Park	8 879	26
6	Mountain Zebra National Park	6 536	28
7	Golden Gate Highlands National Park	6 241	31
8	Tsitsikamma Forest and Coastal National Park	3 318	33
9	Bontebok National Park	2 786	35
	Subtotal	2 971 817	

1 KRUGER NATIONAL PARK

Proclamation

Date Established: 31 May 1926

Decree Number: Proclamation 197 in Government Gazette 1578 of 1926 and the National Parks Act of 1962.

Geographical Features

Location: Latitude: 22°31' - 25°30'S Longitude: 30°45' - 32°02'E

Nearest town and distance: Phalaborwa in the north (1,5 km) and White River in the south (≈60 km).

Area: 1 948 528 ha.

Physical Features

Elevation: Lowest: 122 m Highest: 867 m

Highest Mountain: Kandizwe

Annual rainfall: 625 - 750 mm Pretoriuskop area and 375 - 600 mm in the Pafuri-Shingwedzi-Letaba area.

Annual average temperature range: Minimum: 4°C Maximum: 34°C

Rainy season: Summer (September - March).

Soils: Soils are derived from archaean granites, dolerite intrusions, Karoo-sediments, basalts, weathered sandstone and rhyolites. Soils vary widely from deep sands to clay pans, with gleying and include ferriferous and saline types.

Description of Geomorphology: Geologically the park is roughly bisected from north to south by a band of Karoo sandstone and Ecca shales. The western half consists mainly of granite and its erosion products but with extensive dolerite intrusions, whilst the eastern Lebombo flats consist of basalts and the Lebombo Mountains primarily of rhyolite formations. Two sandveld areas occur in the northern area - one at Punda Maria, which is derived from the Dominion Reef and Waterberg Systems whilst the other, consisting of aeolian sands overlying cretaceous gravel and waterwashed pebbles, occurs on the eastern boundary south of Pafuri. This latter area, called the Nyandu sandveld gives rise to a floristic community which is unique in the park (and in South Africa) and also harbours many interesting and unique animal species.

Major rivers and streams: Crocodile, Limpopo, Sabie, Olifants, Letaba and Levubu Rivers are all perennial. Seasonal rivers flow only for a short while during the rainy season but normally incorporate a series of permanent and semi-permanent pools along their length.

Vegetation and Flora

Vegetation types: 53 779 ha Lowveld Sour Bushveld (Veld Type 9); 443 290 ha Lowveld (Veld Type 10); 568 191 ha Arid Lowveld (Veld Type 11); 850 533 ha Mopani Veld (Veld Type 15); 32 735 ha Mixed Bushveld (Veld Type 18) (Acocks 1975).

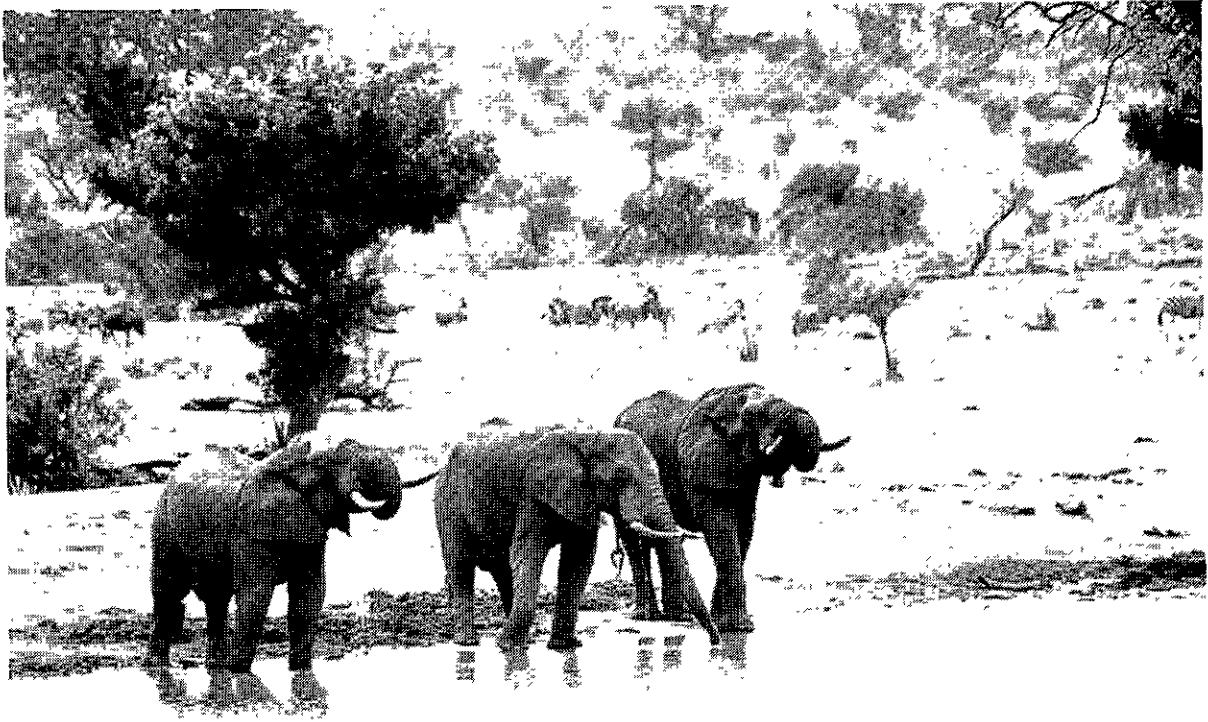


Figure 4. Elephant at a waterhole in the Kruger National Park.



Figure 5. A buffalo bull immobilized for veterinary research purposes.

Description of vegetation: The plant life of the park varies from subtropical to tropical, with some temperate forms occurring at higher altitudes. Four main areas of bushveld (lowveld) are recognized in the park. An area of Acacia spp and Combretum spp lies between the western boundary and roughly the centre of the park south of the Olifants River. Acacia spp are dominant along the rivers and streams. Sclerocarya caffra is also abundant. South of the Olifants River in the eastern half of the park Acacia nigrescens and Sclerocarya caffra savanna dominates, this area providing the most important grazing land. Combretum imberbe is another common tree species. Grasses such as Themeda triandra and Panicum maximum predominate. Colophospermum mopane-Combretum spp veld lies in the western half of the park, north of the Olifants River. An area of shrub mopane veld covers most of the north-western part of the park. There are a number of smaller areas which carry distinctive vegetation such as Pretoriuskop where Dichrostachys cinerea subsp nyassana and Terminalia sericea are prominent. The Punda Maria sandveld is equally well defined with a wide variety of unique species, while Adansonia digitata is common in the north-eastern Pafuri region of the park. More than 2 000 species of vascular plants have been collected.

Fauna

Endangered species: Mammals: leopard Panthera pardus, brown hyaena Hyaena brunnea, honey badger Mellivora capensis, oribi Ourebia ourebi, red duiker Cephalophus natalensis, suni Neotragus moschatus, yellow golden mole Calcochloris obtusirostris, Juliana's golden mole Amblysomus julianae, Damara woolly bat Kerivoula argentata, Welwitsch's bat Myotis welwitschii, aloe bat Eptesicus zuluensis, Sundevall's free tailed bat Tadarida midas, thick tailed galago Galago crassicaudatus, samango monkey Cercopithecus alboocularis, pangolin Manis temminckii, Meller's mongoose Rhynchogale melleri, cheetah Acinonyx jubatus, wild dog Lycaon pictus, black rhinoceros Diceros bicornis, tsessebe Damaliscus lunatus, sable Hippotragus niger and roan H equinus. Birds: pinkbacked pelican Pelecanus rufescens, goliath heron Ardea goliath, bald ibis Geronticus calvus, Cape vulture Gyps coprotheres, Egyptian vulture Neophron percnopterus, pygmy falcon Polihierax semitorquatus, Pel's fishing owl Scotopelia peli and spotted creeper Salpornis spilonotus. Reptiles: crocodile Crocodylus niloticus.

Dominant or important species of fauna: Mammals of arid and semi-arid habitats are well represented and the Kruger National Park offers as many species of wildlife as are found in other African game sanctuaries. Altogether there are 122 species of mammals, 55 species of fish and 109 species of reptiles. Mammals include lion Panthera leo (1 500), spotted hyaena Crocuta crocuta (2 000), elephant Loxodonta africana (7 300), square-lipped rhinoceros Ceratotherium simum (740), Burchells' zebra Equus burchelli (28 000), hippopotamus Hippopotamus amphibius (3 000), warthog Phacochoerus aethiopicus (4 000), giraffe Giraffa camelopardalis (5 000), buffalo Syncerus caffer (32 000), eland Taurotragus oryx (700), kudu Tragelaphus strepsiceros (11 000), nyala Tragelaphus angasii (1 000), bushbuck Tragelaphus scriptus (1 500+), waterbuck Kobus ellipsiprymnus (4 200), reedbuck Redunca arundinum (1 500+), mountain reedbuck Redunca fulvorufula (300), grey rhebok Pelea capreolus (±30), blue wildebeest Connochaetes taurinus (11 600) and impala Aepyceros melampus (126 750). The following species of larger mammals also occur in the park but it is

not possible to provide an accurate estimate of numbers: steenbok Raphicerus campestris, Sharpe's grysbok Raphicerus sharpei, klipspringer Oreotragus oreotragus and common duiker Sylvicapra grimmia. More than 400 species of birds have been recorded in the park, several of which are endemic to the park.

Infrastructure

Visitor Facilities: The park has extremely well developed visitor facilities. Almost 6 000 visitors can be accommodated per night in fully equipped air-conditioned thatched huts and camp sites. There are 17 rest camps throughout the park. All the main camps have restaurants and shops.

Numbers: 400 500 per annum Potential: Approaching its limit.

Staff (and positions): Administrative - 177; Technical Services - 1 271; Nature Conservation - 428; Tourism - 905; Research and Information - 51. Total - 2 832.

Budget: R23 000 000,00 per annum (including salaries).

Local Administration: The Park Warden, Kruger National Park, Private Bag X402, Skukuza, 1350, South Africa.

Other Information of Interest: There are five information centres and conservation related film shows are screened regularly at the larger rest camps. Four wilderness trails have been established in the park.

Principal Reference Material

Kemp A C 1974. The distribution and status of the birds of the Kruger National Park. Koedoe Monograph 2, 1-341.

Kloppers J and G van Son 1978. Butterflies of the Kruger National Park. Pretoria: National Parks Board of Trustees.

Pienaar U de V 1961. A supplementary checklist of Decapoda, fresh-water fish, amphibia, reptiles and small mammals recorded in the Kruger National Park. Koedoe 4, 167-177.

Pienaar U de V 1963. The large mammals of the Kruger National Park - their distribution and present-day status. Koedoe 6, 1-37.

Pienaar U de V 1964. The small mammals of the Kruger National Park - a systematic list and zoogeography. Koedoe 7, 1-25.

Pienaar U de V 1969. Predator-prey relationships amongst the larger mammals of the Kruger National Park. Koedoe 12, 108-176.

Pienaar U de V 1978. The freshwater fishes of the Kruger National Park. Pretoria: National Parks Board of Trustees.

Pienaar U de V 1978. The Reptile Fauna of the Kruger National Park. Pretoria: National Parks Board of Trustees.

Pienaar U de V, I L Rautenbach and G de Graaff 1980. The small mammals of the Kruger National Park. Pretoria: National Parks Board of Trustees.

Van Wyk P 1971. A supplementary list of flowering plants occurring in the Kruger National Park. Koedoe 14, 111-122.

A complete list of references is available from the Chief Director, National Parks Board, P O Box 787, Pretoria, 0001, South Africa.

Preparation: Dr G de Graaff and Miss D J van Rensburg, November 1983.

2 KALAHARI GEMSBOK NATIONAL PARK

Proclamation

Date Established: 17 June 1931

Decree Number: Proclamation 243 in Government Gazette 1963 of 3 July 1931 and the National Parks Act of 1962.

Geographical Features

Location: Latitude: 24°50' - 26°29'S Longitude: 20°00' - 20°41'E

Nearest town and distance: Upington, 320 km

Area: 959 103 ha

Physical Features

Elevation: Lowest: 609,5 m Highest: 975,3 m

Highest Mountain: Bayip

Annual rainfall: 127 mm

Annual average temperature range: Minimum: 4°C Maximum: 32°C

Rainy season: Summer (January - April)

Soils: Red Kalahari sand overlying calcareous substrata.

Description of Geomorphology: A semi-desert region largely covered by long, parallel dunes of red and white sands orientated northwest-south-east. The wide bed of the Nossob River forms the eastern north-eastern boundary over 280 km in length while the Auob River traverses the southern part of the park. Geologically composed of a 12-60 m thick layer of Kalahari sands overlying blue shales of the Dwyka Series, Karoo System. Pans and calcrete flats occur locally.

Major rivers and streams: Nossob and Auob Rivers. Usually both are dry, only flowing a few times a century.

Other outstanding physical features: Well developed red sand dunes in the south. Representative sample of the Kalahari as an ecosystem.

Vegetation and Flora

Vegetation types: Kalahari Thornveld (Veld Type 16(a)) and Vryburg Shrub Bushveld (Veld Type 16(b)) (Acocks 1975).

Description of vegetation: The river beds have a marked influence on the vegetation. Between them, in an area known as the inner veld, are the red Kalahari sand dunes. The dunes are covered with grasses as well as a scattering of trees such as Terminalia sericea, Boscia albitrunca and Acacia haematoxylon. There is a greater profusion of plant life in and near the river beds where A erioloba, A mellifera subsp detinens, Grewia spp and Rhigozum trichotomum grow. Sparse woodland of A erioloba, A haematoxylon and Lebeckia spinescens is fairly extensive on loamy sands. Grasses such as Stipagrostis obtusa, S ciliata, Aristida spp, Asthenatherum glaucum, Themeda triandra and Eragrostis lehmanniana occur in the park.

Economically important species of plants: Several species occur which are utilized mainly by indigenous people such as the Bushmen.

Fauna

Endangered species: Mammals: brown hyaena Hyaena brunnea, wild dog Lycaon pictus, pangolin Manis temminckii, honey badger Mellivora capensis, Woosnam's desert rat Zelotomys woosnami, cheetah Acinonyx jubatus and leopard Panthera pardus.

Dominant or important species of fauna: Mammals: antbear Orycteropus afer, gemsbok Oryx gazella, red hartebeest Alcelaphus buselaphus, common duiker Sylvicapra grimmia and steenbok Raphicerus campestris. In addition there are large herds of blue wildebeest Connochaetes taurinus, eland Taurotragus oryx and springbok Antidorcas marsupialis, whilst carnivores include lion Panthera leo and the spotted hyaena Crocuta crocuta. Bird species exceed 215 in number.

Infrastructure

Visitor Facilities: Three rest camps with huts and ablution blocks (123 beds) and 65 camp sites.

Numbers: 10 978 per annum Potential: Maximum almost reached for overnight facilities. Daily visitors not limited.

Staff (and positions): Administrative - 1; Technical Services - 8; Nature Conservation - 15; Tourism - 27; Research and Information - 1. Total - 52.
Budget: R700 000,00 per annum (including salaries).

Local Administration: The Park Warden, Kalahari Gemsbok National Park, Private Bag X5890, Gemsbokpark, 8815, South Africa.

Other Information of Interest: This National Park is contiguous to the Gemsbok National Park of the Republic of Botswana.

Principal Reference Material

Barnard P J 1961. The phenomenon of game migration in the Kalahari Gemsbok National Park. Koedoe 4, 178-194.

Bolwig N 1958. Aspects of animal ecology in the Kalahari. Koedoe 1, 115-135.

Leistner O A 1959. Preliminary list of plants found in the Kalahari Gemsbok National Park. Koedoe 2, 152-172.

Mills M G L 1976. A revised check-list of birds in the Kalahari Gemsbok National Park. Koedoe 19, 49-62.

Parris R, J du P Bothma, E Waanders and A F Boshoff 1977. Preliminary map of the south-western Kalahari desert. Koedoe 2, 163-168.

A complete list of references is available from the Chief Director, National Parks Board, P O Box 787, Pretoria, 0001, South Africa.

Preparation: Dr G de Graaff and Miss D J van Rensburg, November 1983.

3 KAROO NATIONAL PARK

Proclamation

Date Established: 7 September 1979

Decree Number: Proclamation 201 in Government Gazette 6648 of 7 September 1979 and the National Parks Act of 1962.

Geographical Features

Location: Latitude: 32°20'S Longitude: 22°30'E

Nearest town and distance: Beaufort West, 8 km

Area: 27 011 ha

Physical Features

Elevation: Lowest: 899 m Highest: 1 908 m

Highest Mountain: Bulthoudersbank

Annual rainfall: 256 mm

Annual average temperature range: Minimum: 10°C Maximum: 24°C

Rainy season: Summer (September - March)

Soils: 60% stony surface, 16% Glen Rosa, 16% Mispah and Dundee and 8% Hutton as dominant soil forms.

Description of Geomorphology: Karoo System consisting of Dwyka Series, Ecca Series, Beaufort Series and Stormberg Series.

Major rivers and streams: Gamka River, Hoofspruit, Slaz River and Doringhoek River.

Other outstanding physical features: The sediments of the Beaufort Series have yielded by far the majority of fossil synapsid reptiles hitherto known to science. Three reptilian subclasses of importance - the Anapsida, the Synapsida and the Diapsida all occur in these Beaufort beds.

Vegetation and Flora

Vegetation types: 10 811 ha Karroid Broken Veld (Veld Type 26) and 16 200 ha Karroid Merxmuellera Mountain Veld replaced by Karoo (Veld Type 42) (Acocks 1975).

Description of vegetation: Dwarf shrubs known as "karoo bush" are typical of the plains. There is a great variety of perennial grasses and bushes forming communities in this low lying, hilly country including Pentzia spinescens, Selago albida, Eriocephalus spinescens, Rhus longispina, Acacia karroo, Rhus erosa, Rhus lancea, Grewia occidentalis, Aristida obtusa, A curvata, Merxmuellera disticha, Zygophyllum spp, Salsola spp and various Mesembryanthemum spp.

Fauna

Endangered species: Mammals: leopard Panthera pardus, aardwolf Proteles cristatus, Lesueur's hairy bat Myotis lesueuri, spectacled dormouse Graphiurus ocularis, honey badger Mellivora capensis and Cape mountain zebra Equus zebra zebra.

Dominant or important species of fauna: Species such as black wildebeest Connochaetes gnou (28) and springbok Antidorcas marsupialis have been reintroduced to the park. A census taken in 1983 yielded the following results: mountain reedbuck Redunca fulvorufula (100), steenbok Raphicerus campestris (150), gemsbok Oryx gazella (7), chacma baboon Papio ursinus (50), grey rhebok Pelea capreolus (50), springbok Antidorcas marsupialis (150), klipspringer Oreotragus oreotragus (5), common duiker Sylvicapra grimmia (3), red hartebeest Alcelaphus buselaphus (8) and kudu Tragelaphus strepsiceros (130). Ostrich Struthio camelus also occur.



Figure 6. A scene in the Karoo National Park. Veld Type 26, Karroid Broken Veld.

Infrastructure

Visitor Facilities: Springbok Hiking Trail with two overnight huts to accommodate 12 people each. Rest camp envisaged for near future.

Numbers: 3 463 per annum Potential: To be increased considerably.

Staff (and positions): 15 staff. Temporary labourers are employed for weed control and removal of fences.

Budget: R200 000,00 per annum (including salaries).

Local Administration: The Park Warden, Karoo National Park, P O Box 316, Beaufort West, 6970, South Africa.

Other Information of Interest: The adaptations of fauna and flora to a harsh and hostile environment are strikingly demonstrated in this park.

Principal Reference Material

De Graaff G, G A Robinson, P T van der Walt, B R Bryden and E A van der Hoven 1979. The Karoo National Park. Pretoria: National Parks Board of Trustees.

De Graaff G and I L Rautenbach (1983). A survey of Mammals in the newly proclaimed Karoo National Park, South Africa. Annales de Musee Royale de la Afrique Centrale, Tervuren, Belgique, 237: 89-99.

A complete list of references is available from the Chief Director, National Parks Board, P O Box 787, Pretoria, 0001, South Africa.

Preparation: Dr G de Graaff and Miss D J van Rensburg, November 1983.

4 AUGRABIES FALLS NATIONAL PARK

Proclamation

Date Established: 5 August 1966

Decree Number: Proclamation 216 in Government Gazette 1506 of 5 August 1966 and the National Parks Act of 1962.

Geographical Features

Location: Latitude: 28°35'S Longitude: 20°25'E

Nearest town and distance: Kakamas, 32 km

Area: 9 415 ha

Physical Features

Elevation: Lowest: 503 m Highest: 704 m

Highest Mountain: Swartrandte

Annual rainfall: 130 mm

Annual average temperature range: Minimum: 11°C Maximum: 27°C

Rainy season: Summer (January - April)

Soils: Soils are sandy, gravelly, dry and usually very shallow, litholitic, forming a thin compact crust 1-2 mm thick, often with a porous layer ("Schaumboden") with a foamlike structure some 5-10 mm thick in run-off areas. This structure renders the soil particularly dry and unsuitable for seed germination.

Description of Geomorphology: Alluvium, silt, grey gneiss, pink gneiss, quartz-rich granulite. Geological formations are reconstituted sedimentous rocks of the Kaaien Series, Kheis System and are part of the Archaean Complex.

Major rivers and streams: Orange River.

Other outstanding physical features: Augrabies Falls where the Orange River drops 56 m over a granite cliff into a ravine which extends westwards for 18 km and which contains some spectacular rapids. Secondary falls are formed when the river is in flood.

Vegetation and Flora

Vegetation types: Orange River Broken Veld (Veld Type 32) (Acocks 1975).

Description of vegetation: A rich variety of plant life has adapted itself to the environment in spite of the meagre rainfall. The quiver tree or "kokerboom" Aloe dichotoma, and many other aloe species are to be seen. Other species include Rhus lancea, Euphorbia avasmontana, Rhus viminalis, Rhigozum trichotomum, Schotia afra var angustifolia, Acacia mellifera subsp detinens, A karroo, A erioloba, Aristida diffusa var burkei, Olea africana and Acacia mellifera.

Economically important species of plants: Boscia albitrunca, Acacia erioloba (parts eaten by game and cattle).

Endemic species of plants: Several, including Aloe dichotoma.

Fauna

Endangered species: Mammals: dassie rat Petromus typicus, brush-tailed hairy-footed gerbil Gerbillurus vallinus, leopard Panthera pardus and aardwolf Proteles cristatus.

Dominant or important species of fauna: Mammals: chacma baboon Papio ursinus, vervet monkey Cercopithecus pygerythrus, klipspringer Oreotragus oreotragus and antbear Orycteropus afer. Rare birds are black stork Ciconia nigra, pygmy falcon Polihierax semitorquatus and rosyfaced lovebird Agapornis roseicollis.

Infrastructure

Visitor Facilities: Accommodation (52 beds) with ablution blocks and camping facilities.

Numbers: 39 607 per annum Potential: Maximum almost reached for overnight facilities. Daily visitors not limited.

Staff (and positions): Administrative - 11; Tourism - 10; Nature Conservation - 8; Technical - 4. Total - 33.

Budget: R439 000,00 per annum (including salaries).

Local Administration: The Warden, Augrabies Falls National Park, P O Box 10, Augrabies, 8874, South Africa.

Principal Reference Material

Werger M J A and B J Coetzee. A phytosociological and phytogeological study of Augrabies Falls National Park, Republic of South Africa. Koedoe 20, 11-52.

Pienaar U de V 1977. Phrynomerus annectus (Werner), a rare frog in the Augrabies Falls National Park. Koedoe 20, 181-182.

Rautenbach I L, Duane A Schlitter and G de Graaff 1979. Notes on the mammal fauna of the Augrabies Falls National Park and surrounding areas, with special reference to regional zoogeographical implications. Koedoe 22, 157-175.

A complete list of references is available from the Chief Director, National Parks Board, P O Box 787, Pretoria, 0001, South Africa.

Preparation: Dr G de Graaff and Miss D J van Rensburg, November 1983.

5 ADDO ELEPHANT NATIONAL PARK

Proclamation

Date Established: 17 June 1931

Decree Number: Proclamation 243 in Government Gazette 1963 of 3 July 1931 and the National Parks Act of 1962.

Geographical Features

Location: Latitude: 33°13'S Longitude: 25°45'E

Nearest town and distance: Port Elizabeth, 72 km

Area: 8 879 ha

Physical Features

Elevation: Lowest: 75 m Highest: 341 m

Highest Mountain: Zuurkop, Kenmore Beacon

Annual rainfall: 478 mm

Annual average temperature range: Minimum: 5°C Maximum: 29°C

Rainy season: Throughout the year with peaks in March and a lesser peak in August.

Soils: Soils are light red clayey loams derived from the Uitenhage Series which cover the greater portion of the park, with patches of aeolian soils covering the major tertiary deposits.

Description of Geomorphology: The area includes a series of low, undulating hills with a higher ridge to the east, and is geologically composed of sandstones and mudstones of the Sundays River stage of the Upper Cretaceous. Fossil invertebrates and fossil wood occur.

Major rivers and streams: None.

Other outstanding physical features: Cretaceous fossils (eg Ammonites).

Vegetation and Flora

Vegetation types: Valley Bushveld (Veld Type 23) (Acocks 1975).

Description of vegetation: 90% of the area is covered by dense scrub dominated by Portulacaria afra, thickly matted and from 1-4 m high. Other common species are Schotia afra, Euclea undulata, Capparis sepiaria var citrifolia, Azima tetracantha, Sarcostemma viminale, Rhoicissus digitata and Ptaeroxylon obliquum. Other plant associations are coastal bush of Sideroxylon inerme, Schotia afra and Pterocelastrus tricuspidatus; Karoo bushveld with low shrubs such as Pentzia globosa, Lampranthus spp and Ruschia spp; and a mixed scrub and grassland consisting of scattered clumps of Maytenus heterophylla, Rhus incisa and Grewia occidentalis in grassland of Themeda triandra, Panicum deustum and Digitaria eriantha.

Economically important species of plants: Portulacaria afra is an important fodder plant.

Fauna

Endangered species: Mammals: South African hedgehog Erinaceus frontalis, straw-coloured fruit bat Eidolon helvum and lesser woolly bat Kerivoula lanosa.

Dominant or important species of fauna: Mammals: elephant Loxodonta africana (120), buffalo Syncerus caffer (300), black rhinoceros Diceros bicornis (15), eland Taurotragus oryx (100), kudu Tragelaphus strepsiceros (200), bushbuck I scriptus (200), red hartebeest Alcelaphus buselaphus (40), grysbok Raphicerus melanotis and common duiker Sylvicapra grimmia (380). Ostrich Struthio camelus is numerous (70), whilst small mammals are well represented. A total of 170+ bird species has been recorded.

Infrastructure

Visitor Facilities: Restaurant and accommodation with ablution blocks (18 beds) and 15 camp sites. Floodlit elephant waterhole in front of restaurant. Majority of visitors do not stay overnight.

Numbers: 35 721 per annum Potential: Maximum almost reached for overnight facilities. Daily visitors not limited.

Staff (and positions): Administrative - 3; Technical Services - 4; Nature Conservation - 7; Tourism - 16. Total - 30. Temporary staff are employed for erecting and removal of fences.

Budget: R550 000,00 per annum (including salaries).

Local Administration: The Park Warden, Addo Elephant National Park, Private Bag X6027, Port Elizabeth, 6000, South Africa.

Other Information of Interest: The recruitment rate of elephant has been spectacular ever since the erection of the well-known elephant proof Armstrong fence - from some 20 odd individuals in 1953 to 124 individuals in 1983.

Principal Reference Material

Branch W and H H Braack (In press). Reptiles and amphibians of the Addo Elephant National Park.

Grobler J H and A J Hall-Martin 1983. A guidebook to the Addo Elephant National Park. National Parks Board, Pretoria.

Grobler J H and H H Braack (In press). A note on the mammals of the Addo Elephant National Park.

Grobler J H and H H Braack (In press). Additions to the checklist of birds of the Addo Elephant National Park.

Penzhorn B L 1969. A supplementary checklist of the birds recorded in the Addo Elephant National Park. Koedoe 12, 106-107.

Penzhorn B L and P F van Straaten 1976. Additions to the checklist of birds of the Addo Elephant National Park. Koedoe 19, 177-178.

Penzhorn B L and M C Olivier 1974. A systematic checklist of flowering plants of the Addo Elephant National Park. Koedoe 17, 121-136.

Penzhorn B L, P J Robbertse and M C Olivier 1973. The influence of the African elephant on the vegetation of the Addo Elephant National Park. Koedoe 17, 137-158.

Swanepoel P 1975. Small mammals of the Addo Elephant National Park. Koedoe 18, 103-130.

Toerien D K 1972. Geologie van die Addo-Olifant Nasionale Park. Koedoe 15, 67-76.

Preparation: Dr G de Graaff and Miss D J van Rensburg, November 1983.

6 MOUNTAIN ZEBRA NATIONAL PARK

Proclamation

Date Established: 14 June 1937

Decree Number: Proclamation 112 in Government Gazette 2452 of 2 July 1937 and the National Parks Act of 1962.

Geographical Features

Location: Latitude: 32°15'S Longitude: 25°41'E

Nearest town and distance: Cradock, 24 km

Area: 6 536 ha

Physical Features

Elevation: Lowest: 1 200 m Highest: 1 957 m
Highest Mountain: Bankenkop
Annual rainfall: 400 mm
Annual average temperature range: Minimum: -0,6°C Maximum: 30°C
Rainy season: Summer (October - March).

Soils: Beaufort Series of the Karoo System with dolerite intrusions.

Description of Geomorphology: The rock formations are sandstone, siltstone and mudstone from the lower stage Beaufort Series of the Karoo System and post-Karoo dolerite intrusions. A natural amphitheatre occurs on the northern slopes of the Bankberg, bisected by the Wilgerboom River.

Major rivers and streams: Wilgerboom River, which is perennial, while a number of springs occur in the area.

Other outstanding physical features: Rock paintings and panoramic views of the Karoo landscape on hiking trails.

Vegetation and Flora

Vegetation types: 2 400 ha False Karroid Broken Veld (Veld Type 37) and Karroid Merxmullera Mountain Veld replaced by Karoo (Veld Type 42) (Acocks 1975).

Description of vegetation: Unique vegetation with thick patches of Acacia karroo occurring together with various Rhus spp particularly along the Wilgerboom River and streams. High up in the ravines dense groves of Olea africana are present. Mainly dry grassland with plentiful scattered dwarf shrubs and forbs. Dense stands of trees and taller shrubs composed mainly of Acacia karroo, Celtis africana, Cussonia paniculata, Rhus spp and Maytenus heterophylla occur along watercourses and in sheltered areas. Aloes of note include Aloe broomii, A ferox and A striata.

Fauna

Endangered species: Mammals: Cape mountain zebra Equus zebra zebra, South African hedgehog Erinaceus frontalis, straw-coloured fruit bat Eidolon helvum, striped weasel Poecilogale albinucha, honey badger Mellivora capensis and spectacled dormouse Graphiurus ocularis. Birds: Cape eagle owl Bubo capensis, black stork Ciconia nigra, Cape vulture Gyps coprotheres (periodically), yellowbilled stork Mycteria ibis and blue korhaan Eupodotis caerulescens. Reptiles: veld monitor Veranus exanthematicus albigularis.

Dominant or important species of fauna: The park was established to protect the Cape mountain zebra Equus zebra zebra (which number over 200 at present) but herds of other species are also found: eland Taurotragus oryx (140), black wildebeest Connochaetes gnou (70), red hartebeest Alcelaphus buselaphus (70), blesbok Damaliscus dorcas phillipsi (86), springbok Antidorcas marsupialis (400), kudu Tragelaphus strepsiceros (20), mountain reedbuck Redunca fulvorufula (430), grey rhebok Pelea capreolus, klipspringer Oreotragus oreotragus, common duiker Sylvicapra grimmia and steenbok Raphicerus campestris. A total of 170 bird species has been

recorded. The only known protected breeding pair of booted eagles Hieraaetus pennatus in South Africa occur in the park. There is also a breeding population of the black eagle Aquila verreauxii.

Infrastructure

Visitor Facilities: Comfortable accommodation (78 beds) with ablution blocks and camping facilities (20 sites) and a hiking trail.

Numbers: 13 584 per annum Potential: Maximum reached.

Staff (and positions): Administrative - 5; Technical Services - 2; Nature Conservation - 10; Tourism - 18; Research and Information - 2. Total - 37.

Budget: R750 000,00 per annum (including salaries).

Local Administration: The Park Warden, Mountain Zebra National Park, Private Bag X66, Cradock, 5880, South Africa.

Other Information of Interest: Hiking trails take the tourist through ravines and up mountain ridges.

Principal Reference Material

Brooker M 1977. The archaeology of the Mountain Zebra National Park. Koedoe 20, 77-94.

Toerien D K 1972. Geologie van die Bergkwagga Nasionale Park. Koedoe 15, 67-82.

Van der Walt P T 1980. A phytosociological reconnaissance of the Mountain Zebra National Park. Koedoe 23, 1-32.

Grobler J H and P J Bronkhorst 1981. A preliminary check list of reptiles and amphibians in the Mountain Zebra National Park. Koedoe 24, 193-197.

Grobler J H and P J Bronkhorst 1981. Additions and amendments to the bird and mammal list of the Mountain Zebra National Park. Koedoe 24, 199-203.

Skead C J 1965. Report on the bird-life in the Mountain Zebra National Park, Cradock, C P 1962-1964. Koedoe 8, 1-40.

Nel J A J and J J L Pretorius 1971. A note on the smaller mammals of the Mountain Zebra National Park. Koedoe 14, 99-110.

Penzhorn B L 1970. A check list of the flowering plants in the herbarium of the Mountain Zebra National Park. Koedoe 13, 131-146.

Grobler J H and A J Hall-Martin 1982. A guide to the Mountain Zebra National Park. Publication of the National Parks Board of Trustees, Pretoria.

A complete list of references is available from the Chief Director, National Parks Board, P O Box 787, Pretoria, 0001, South Africa.

Preparation: Dr G de Graaff and Miss D J van Rensburg, November 1983.

7 GOLDEN GATE HIGHLANDS NATIONAL PARK

Proclamation

Date Established: 13 September 1963

Decree Number: Proclamation 259 in Government Gazette 599 of 13 September 1963 and the National Parks Act of 1962.

Geographical Features

Location: Latitude: 28°25'S Longitude: 28°30'E

Nearest town and distance: Bethlehem, 60 km

Area: 6 241 ha

Physical Features

Elevation: Lowest: 1 892 m Highest: 2 770 m

Highest Mountain: Ribbokkop

Annual rainfall: 765 mm

Annual average temperature range: Minimum: 4°C Maximum: 22°C

Rainy season: Summer (September - April).

Soils: Alluvium and river gravel, sandstone and mudstone.

Description of Geomorphology: The park lies amongst the foothills of the Maluti Mountains and is surrounded by massive outcrops of Red Beds and Cave Sandstone cliffs - the Stormberg Series of the Karoo System.

Major rivers and streams: Klein Caledon River.

Other outstanding physical features: Cathedral cave, rock paintings and vertebrate fossils.

Vegetation and Flora

Vegetation types: 3 751 ha Highland Sourveld (Veld Type 44(a)) and 2 490 ha Highland Sourveld to Cymbopogon-Themeda Veld Transition (Veld Type 56) (Acocks 1975).

Description of vegetation: A typical highland vegetation is found and virtually the whole area is dominated by grassland with an abundance of bulbous plants (geophytes), indicating the importance of fire as an environmental factor. Some 65 species of grasses have been identified, among them Agrostis spp, Andropogon spp, Merxmuellera spp, Eragrostis spp, Helictotrichon spp, Paspalum dilatatum and Rhynchelytrum setifolium. Woody plants include Protea roupelliae, Cussonia paniculata, Rhus spp, Diospyros spp and Asparagus spp. A wide variety of attractive flowering plants occur, including Agapanthus spp, Bulbine spp, Eucomis bicolor, Gladiolus spp, Hypoxis spp, Kniphofia triangularis and Zantedeschia oculata. Succulents include Aloe ecklonis, Crassula spp and Euphorbia spp. Plants with temperate affinities include Stoebe vulgaris, Erica spp and Cliffortia spp. Leucosidea sericea is the dominant tree species in ravines. Over 200 flowering plants occur as well as some 14 pteridophytes.

Fauna

Endangered species: Mammals: South African hedgehog Erinaceus frontalis and oribi Ourebia ourebi. Reptiles: water monitor Varanus niloticus and giant girdled lizard Cordylus giganteus.

Dominant or important species of fauna: Large mammals are plentiful and include black wildebeest Connochaetes gnou (180), blesbok Damaliscus dorcas phillipsi (440), springbok Antidorcas marsupialis (80), mountain reedbuck Redunca fulvorufula (\pm 150), grey rhebok Pelea capreolus (\pm 150), eland Taurotragus oryx (60) and Burchell's zebra Equus burchelli (80). 123 species of birds have been recorded. An important and spectacular raptor is the bearded vulture Gypaetus barbatus.

Infrastructure

Visitor Facilities: Two rest camps with huts and ablution blocks (270 beds), a restaurant and camping facilities (55 sites). Hiking trails have been established.

Numbers: 54 000 per annum Potential: Maximum almost reached for overnight facilities. Daily visitors not limited.

Staff (and positions): Administrative - 4; Technical Services - 31; Nature Conservation - 13; Tourism - 88; Research and Information - 4. Total - 140.

Budget: R900 000,00 per annum (including salaries).

Local Administration: The Park Warden, Golden Gate Highlands National Park, P O Golden Gate, 9708, South Africa.

Other Information of Interest: Guided tours, educational films and courses are frequently presented.

Principal Reference Material

Roberts B R 1969. The vegetation of the Golden Gate Highlands National Park. Koedoe 12, 15-28.

Liebenberg L C 1964. Die groter soogdiere wat vroeër dae voorgekom het in die omgewing van die Golden Gate Hooglandpark. Koedoe 7, 99-104.

Rautenbach I L 1976. A survey of the mammals occurring in the Golden Gate Highlands National Park. Koedoe 19, 133-144.

Spies J J 1969. Die geologiese en geomorfologiese geskiedenis van Golden Gate Hoogland Nasionale Park. Koedoe 12, 184-198.

Van Rensburg A P J 1968. Golden Gate - die geskiedenis van twee plase wat 'n Nasionale Park geword het. Koedoe 11, 83-138.

Preparation: Dr G de Graaff and Miss D J van Rensburg, November 1983.

8 TSITSIKAMMA FOREST AND COASTAL NATIONAL PARK

Proclamation

Date Established: 4 December 1964

Decree Number: Proclamation 324 in Government Gazette 963 of 4 December 1964 and the National Parks Act of 1962.

Geographical Features

Location: Latitude: 34°00' - 34°10'S Longitude: 23°30' - 24°20'E

Nearest town and distance: Humansdorp, 85 km

Area: 3 318 ha (2 840 ha coastal section and 478 ha forest section)

Physical Features

Elevation: Lowest: 35 m below sea level Highest: 220 m

Highest Mountain: Kaalkop

Annual rainfall: 1 000 mm

Annual average temperature range: Minimum: 11°C Maximum: 19°C

Rainy season: Throughout the year with lower rainfall during April - August.

Soils: Derivatives of sandstone, quartzite and tillite.

Description of Geomorphology: The park is situated on a plateau, the southern edge of which falls, abruptly, 120 m to the rocky almost beachless shoreline. The plateau consists largely of Table Mountain Sandstone of Palaeozoic age and has been incised by several rivers. Other rocks include shales and tillites of the same series.



Figure 7. The Tsitsikamma coastline. Fynbos communities cover the ridges and plateaux, while evergreen Afromontane forests occupy the slopes.

Major rivers and streams: Storms, Groot, Elands, Elandsbos, Lottering and Bloukrans Rivers.

Other outstanding physical features: Tsitsikamma indigenous forest, Storms River Mouth, intertidal marine life and Strandloper middens. Interesting archaeology.

Vegetation and Flora

Vegetation types: Knysna Forest (Veld Type 4) and Macchia (Veld Type 69) (Acocks 1975).

Description of vegetation: The forest represents a section of the largest southern outlier of the Afro-montane forest belt, surrounded and partly invaded by typical Cape fynbos. The dominant forest species include Podocarpus latifolius, P falcatus, Cassine crocea, Celtis africana, Ocotea bullata, Pterocelastrus tricuspidatus, Curtisia dentata, Olea capensis subsp macrocarpa, Platylophus trifoliatus, Ficus capensis and Sideroxylon inerme. Many Iridaceae occur including bugle-lily Watsonia spp and Gladiolus spp. The marine fauna includes both warm and cold water species.

Economically important species of plants: Podocarpus latifolius, P falcatus and Ocotea bullata.

Endemic species of plants: The park is situated in the fynbos biome, which includes several hundred plant species which are endemic to South Africa.

Fauna

Endangered species: Mammals: honey badger Mellivora capensis, leopard Panthera pardus and blue duiker Cephalophus monticola.

Dominant or important species of fauna: Mammals: vervet monkey Cercopithecus pygerythrus, Cape clawless otter Aonyx capensis, bushbuck Tragelaphus scriptus, rock dassie Procavia capensis and bushpig Potamochoerus porcus. Marine mammals are visitors to the bays and coves and include pygmy sperm whale Kogia breviceps, dwarf sperm whale Kogia simus, Blainville's beaked whale Mesoplodon densirostris, crabeater seal Lobodon carcinophagus, common dolphin Delphinus delphis, Indian Ocean bottlenosed dolphin Tursiops aduncus and southern right whale Balaena glacialis. Over 400 species of marine fish occur, almost 50% of which are endemic due to the location of the park between two major current systems. In addition there are over 210 species of birds. Snakes are common, the most dangerous being the boomslang Dispholidus typus.

Infrastructure

Visitor Facilities: Vehicles admitted to coastal park daily or on accommodation permit. Accommodation with ablution blocks and camping facilities available, including 100 camping sites. Hiking trail along coast, underwater trail and canoe trips. Open-air museum.

Numbers: 93 600 per annum Potential: Maximum almost reached for overnight facilities. Daily visitors not limited.

Staff: Administrative - 2; Technical services - 15; Nature Conservation - 21; Tourism - 91; Research and Information - 4. Total - 133.

Budget: R1 000 000,00 per annum (including salaries).

Local Administration: The Park Warden, Tsitsikamma Coastal and Forest National Park, P O Stormsrivier, 3608, South Africa.

Other Information of Interest: Hiking trails in the area are a main attraction to the public. Film shows and lectures are presented regularly.

Principal Reference Material

Carruthers V C and G A Robinson 1977. Notes on amphibia in the Tsitsikamma National Park. Koedoe 20, 115-124.

De Graaff G and J A J Nel 1970. Notes on the smaller mammals of the Eastern Cape National Parks. Koedoe 30, 147-150.

Tietz R M and G A Robinson 1974. Tsitsikamma Shore. Pretoria: National Parks Board of Trustees.

Toerien D K 1976. Geologie van die Tsitsikammakusstrook. Koedoe 19, 31-42.

Robinson G A (Undated). A guide to the Tsitsikamma Forest National Parks Board of Trustees.

Seagrief S C 1967. The seaweeds of the Tsitsikamma Coastal National Park. Pretoria: National Parks Board of Trustees.

Skead C J and R Liversidge 1967. Birds of the Tsitsikamma Forest and Coastal National Park, 1966. Koedoe 10, 43-62.

Smith J L B and Margaret M Smith 1966. Fishes of the Tsitsikamma Coastal National Park. Pretoria: National Parks Board of Trustees.

A complete list of references is available from the Chief Director, National Parks Board, P O Box 787, Pretoria, 0001, South Africa.

Preparation: Dr G de Graaff and Miss D J van Rensburg, November 1983.

9 BONTEBOK NATIONAL PARK

Proclamation

Date Established: 1931 at Bredasdorp, moved to Swellendam during 1960.

Decree Number: Proclamation 86 in Government Gazette 6653 of 24 March 1961 and the National Parks Act of 1962.

Geographical Features

Location: Latitude: 34°02'S Longitude: 20°25'E

Nearest town and distance: Swellendam, 6 km

Area: 2 786 ha

Physical Features

Elevation: Lowest: 60 m Highest: 200 m

Highest Mountain: Not applicable

Annual rainfall: 511 mm

Annual average temperature range: Minimum: 6°C Maximum: 32°C

Rainy season: 59% rainfall occurs during the winter months between April and October.

Soils: Immature brown earth and podzols, shallow lithosols and deep alluvial sand.

Description of Geomorphology: A series of gently undulating gravel terraces descending from a rocky plateau through sand and boulders to an alluvial plain. The flats in the south-east are surrounded by low hills and the Breede River, which forms the south-western boundary, provides the only water supply. 90% of the surface is gravel and alluvium but the cliffs along the river belong to the Witteberg Series of the Cape System.

Major rivers and streams: Breede River - perennial.

Other outstanding physical features: Pools in river beds, permanent and semi-permanent dams. Marshy areas and pans form during the rains in the eastern sandveld of the park.

Vegetation and Flora

Vegetation types: Coastal Rhenosterbosveld (Veld Type 46) (Acocks 1975).

Description of vegetation: The south-western Cape "flora capensis" region has been described as one of the richest floristic areas in the world. Over 470 plant species have been identified in the park, including 52 grass species. Vegetation primarily consists of Leucadendron spp and Elytropappus rhinocerotis bush, about a metre high, with Themeda triandra the most abundant grass. As a result of a burning programme initiated during 1975, the park is reverting from Macchia (fynbos) to grassland. Trees are largely confined to the banks of the Breede River where Podocarpus elongatus is the most important. Elsewhere there are scattered clumps of Acacia karroo. Dominant species include: Podocarpus elongatus, Carissa haematocarpa, Olea africana, Euclea racemosa, Sideroxylon inerme, Relhania squarrosa, Acacia karroo, Selago corymbosa, Cussonia spicata, Ehrharta calycina, Buddleia salviifolia, Lasiochloa longifolia, Rhus lucida, Merxmuellera disticha and Aloe ferox.

Economically important species of plants: Proteaceae for the cut flower industry and Podocarpus elongatus.

Endemic species of plants: The park is situated in the fynbos biome, which comprises several hundred species of plants which are endemic to South Africa.

Fauna

Endangered species: Mammals: aardwolf Proteles cristatus, straw-coloured fruit bat Eidolon helvum, honey badger Mellivora capensis, spectacled

dormouse Graphiurus ocularis and Verreaux's mouse Praomys verreauxii.
Birds: black stork Ciconia nigra and Cape vulture Gyps coprotheres.

Dominant or important species of fauna: The park was established to protect the bontebok Damaliscus dorcas dorcas, which now number 279. Many other species, some rare, are present including grey rhebok Pelea capreolus (180), springbok Antidorcas marsupialis (16) and Sharpe's grysbok Raphicerus sharpei (10). 186 bird species have been recorded in the park. The fish Barbus burchelli is found in the tributaries of the Breede River.

Infrastructure

Visitor Facilities: 15 camp sites and an information centre. Possible future rest camp.

Numbers: 10 559 per annum Potential: Future increase.

Staff (and positions): Nature Conservation - 6; Tourism - 4. Total - 10.

Budget: R100 000,00 per annum (including salaries).

Local Administration: The Park Warden, Bontebok National Park, P O Box 149, Swellendam, 6740, South Africa.

Principal Reference Material

Braack H H 1981. Lower vertebrates of the Bontebok National Park. Koedoe 24, 67-77.

Baron S T 1981. An updated list of birds of the Bontebok National Park. Koedoe 24, 79-98.

Braack H H 1981. A guide to the Bontebok National Park. Pretoria: National Parks Board of Trustees.

Braack H H 1981. Vertebrates of the Bontebok National Park. Koedoe 24, 67-77.

De Graaff G, P T van der Walt and L J van Zyl. Populasie samestelling van die bontebok Damaliscus dorcas dorcas in die Bontebok Nasionale Park, gedurende Januarie 1974. Koedoe 19, 67-74.

Grobler P J and J Marais 1967. Die Plantegroei van die Bontebok Nasionale Park, Swellendam (Deel I). Koedoe 10, 132-146.

Stuart C T and H H Braack 1978. Preliminary notes on the mammals of the Bontebok National Park. Koedoe 21, 111-117.

Van der Walt P T, L J van Zyl and G de Graaff 1976. Lewensloop van 'n Kaapse buffelbevolking Syncerus caffer in die Bontebok Nasionale Park. Koedoe 19, 189-199.

A complete list of references is available from the Chief Director, National Parks Board, P O Box 787, Pretoria, 0001, South Africa.

Preparation: Dr G de Graaff and Miss D J van Rensburg, November 1983.

DIRECTORATE OF FORESTRY, DEPARTMENT OF ENVIRONMENT AFFAIRS, RSA

The Directorate of Forestry of the South African Department of Environment Affairs was established in 1910. Their terms of establishment currently fall within the Forest Act (Act 72 of 1968) and the Mountain Catchment Areas Act (Act 63 of 1970). The Directorate of Forestry currently administers 115 areas. Forty data sheets are included in this publication, some of which cover more than one designated area. Some of these areas are not contiguous, as is indicated in Figure 2. The total area administered by the Directorate of Forestry covers 1 970 000 ha, made up of 1 350 000 ha State Forest land in the conservation forest category, and 620 000 ha proclaimed mountain catchment area on private land. A portion of the State Forests may be given additional status as protection forests, nature reserves or wilderness areas in terms of the Forest Act.

The budget for the 1982/83 financial year for management and research totalled R7,937 million (including salaries of management and research staff). The Directorate's staff totalled 14 336 (for 1982/83) which included 235 conservation and 45 research officers.

The management objectives within conservation areas administered by the Directorate of Forestry cover a wide range of options from strict protection to full-scale tourist use and timber exploitation. The different management goals are pursued within different zones of individual areas, and it is thus not possible to accurately allocate categories to each reserve - all are therefore grouped within Category IV in this Directory.

Headquarters address

The Director-General
Directorate of Forestry
Department of Environment Affairs
Private Bag X447
Pretoria
0001
South Africa

Areas included in the Directory (Category IV)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
<u>Western Cape Forest Region</u>			
10	Sederberg Mountain Catchment Area	126 375	41
11	Hawequas Mountain Catchment Area	115 910	42
12	Matroosberg Mountain Catchment Area	95 256	44
13	Hottentots Holland Mountain Catchment Area	84 936	45
14	Groot Winterhoek Mountain Catchment Area	81 188	47
15	Langeberg West Mountain Catchment Area	77 096	48
16	Langeberg East Mountain Catchment Area	71 300	50

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
17	Riviersonderend Mountain Catchment Area	69 453	52
18	Walker Bay State Forest	7 118	53
19	Sandveld State Forest	3 624	54
<u>Southern Cape Forest Region</u>			
20	Groot Swartberg/Swartberg East Mountain Catchment Area	121 002	56
21	Outeniqua Mountain Catchment Area	158 515	57
22	Anysberg/Klein Swartberg Mountain Catchment Area	58 785	59
23	Kammanassie Mountain Catchment Area	45 508	61
24	Knysna Indigenous Forests	44 230	63
25	Rooiberg Mountain Catchment Area	25 344	65
<u>Tsitsikamma Forest Region</u>			
26	Kouga/Baviaanskloof Mountain Catchment Area	172 208	67
27	Tsitsikamma Mountains	80 000	68
28	Groendal Wilderness Area	25 047	70
29	Tsitsikamma Indigenous Forest	15 651	71
30	Storms River Nature Reserve	13 700	73
31	Otterford State Forest	11 467	75
32	De Vasselot Nature Reserve	2 560	76
<u>Eastern Cape Forest Region</u>			
33	Alexandria State Forest	23 566	78
34	Suurberg State Forest	21 121	79
35	Bathurst State Forest	5 315	81
36	East London Coast State Forest	4 369	83
<u>Natal Forest Region</u>			
37	Drakensberg State Forests	190 000	84
38	Weza State Forest	9 000	87
<u>Zululand Forest Region</u>			
39	Sodwana/Cape Vidal State Forests	57 954	89
40	Dukuduku State Forest	15 055	91
41	Ntendeka Wilderness Area	5 230	93
42	Maphelana Nature Reserve	1 102	95
<u>Southern Transvaal Forest Region</u>			
43	Nelshoogte/Berlin State Forest	3 500	96
44	Uitsoek State Forest	2 270	98
<u>Eastern Transvaal Forest Region</u>			
45	Ceylon State Forest	3 500	99
46	Morgenzon State Forest	1 264	101

10 SEDERBERG MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1897

Decree Number: Government Notice 491 of 1897, Government Notice 1256 of 1973 and Government Notice 155 of 1978.

Geographical Features

Location: Latitude: 32°00' - 32°45'S Longitude: 18°50' - 19°25'E

Nearest town and distance: Clanwilliam, 4 km

Area: 126 375 ha (67 242 ha State Forest Wilderness Area and 59 133 ha private land)

Physical Features

Elevation: Lowest: 213 m Highest: 2 027 m

Highest Mountain: Sneeberg

Annual rainfall: 400 - 1 500 mm

Annual average temperature range: Minimum: 6°C Maximum: 19°C

Rainy season: Winter (May - September)

Soils: Highly leached acid sands with small pockets of sandy loams.

Description of Geomorphology: Rocky mountains with small valleys and some sandy plateaux. Also narrow kloofs and steep cliffs.

Major rivers and streams: Tributaries of the Olifants River.

Other outstanding physical features: Scenically beautiful.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 69) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Characteristic species are ericoid low evergreen shrubs, restioids and proteoid medium to tall shrubs with broad leathery leaves.

Economically important species of plants: Families which are harvested for the flower trade such as the Proteaceae, Ericaceae and Restionaceae, and Agathosma betulina for its oil.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: Mammals: leopard Panthera pardus, Cape gerbil Tatera afra, Cape spiny mouse Acomys subspinosus, Verreaux's mouse Praomys verreauxii, aardwolf Proteles cristatus, serval Felis serval, honey badger Mellivora capensis and spectacled dormouse Graphiurus ocellaris.

Amphibians: ghost frog Heleophryne rosei. Reptiles: Small-scaled leaf-toed gecko Phylodactylus microlepidotus and armadillo lizard Cordylus cataphractus. Fish: Clanwilliam yellowfish Barbus capensis, fiery redbfin Barbus phlegethon, Clanwilliam rock catfish Gephyroglanis gilli and Clanwilliam redbfin Barbus calidus. Birds: white stork Ciconia ciconia, kori bustard Ardeotis kori and protea canary Serinus leucopterus.

Dominant or important species of fauna: Grey rhebok Pelea capreolus, klipspringer Oreotragus oreotragus, chacma baboon Papio ursinus, caracal Felis caracal, African wildcat Felis libyca, common duiker Sylvicapra grimmia, steenbok Raphicerus campestris and grysbok Raphicerus melanotis.

Infrastructure

Visitor Facilities: Camp and caravan site, hiking trails.

Numbers: 10 500 per annum Potential: Not determined.

Staff (and positions): One professional, two technical, one first level supervisor and 40 labourers.

Budget: R93 760,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9005, Cape Town, 8000, South Africa.

Principal Reference Material

Andrag R H 1977. Studies in die Sederberg oor: (i) Die status van die Clanwilliam seder (Widdringtonia cedarbergensis Marsh) (ii) Buitelug-ontspanning. MSc Thesis, University of Stellenbosch.

Policy Memorandum: Sederberg Mountain Catchment Area. Directorate of Forestry, Cape Town.

Preparation: R H Andrag, August 1983.

11 HAWEQUAS MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1913

Decree Number: Government Notice 1201 of 1913 and Government Notice 2121 of 1981.

Geographical Features

Location: Latitude: 33°15' - 34°00'S Longitude: 19°0' - 19°25'E

Nearest town and distance: Franschoek, 2 km

Area: 115 910 ha (376 ha State Forest Nature Reserve, 64 634 ha State Forest and 50 900 private land)

Physical Features

Elevation: Lowest: 100 m Highest: 1 995 m
Highest Mountain: Du Toits Peak
Annual rainfall: 300 - 3 000 mm
Annual average temperature range: Minimum: 11°C Maximum: 24°C
Rainy season: Winter (April to September)

Soils: Highly leached acid sands with small pockets of sandy loams.

Description of Geomorphology: Dominated by sandstone mountains of the Cape folded belt. Very rocky terrain with narrow kloofs and steep cliffs.

Major rivers and streams: Tributaries of the Berg and Breede Rivers.

Other outstanding physical features: Scenically beautiful.

Vegetation and Flora

Vegetation types: Knysna Forest (Veld Type 4), Macchia (Veld Type 69) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: More than 99% of the area dominated by mountain fynbos. Characteristic families include the Ericaceae, Proteaceae and Restionaceae.

Economically important species of plants: Various Proteaceae, Ericaceae and Restionaceae and other species which are harvested for the flower trade.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: Mammals: leopard Panthera pardus, Lesueur's hairy bat Myotis lesueuri, Cape spiny mouse Acomys subspinosus, Verreaux's mouse Praomys verreauxii, honey badger Mellivora capensis and aardwolf Proteles cristatus. Reptiles and amphibians: geometric tortoise Psammobates geometricus and Cape dainty frog Cacosternum capense. Fish: Bergriver redbfin Barbus burgii. Birds: Booted eagle Hieraaetus pennatus, black stork Ciconia nigra, Cape eagle owl Bubo capensis, Victorin's warbler Bradypterus victorini and protea canary Serinus leucopterus.

Dominant or important species of fauna: Grey rhebok Pelea capreolus, klipspringer Oreotragus oreotragus, chacma baboon Papio ursinus, caracal Felis caracal and grysbok Raphicercus melanotis. The fish Burchell's redbfin Barbus burchelli also occurs.

Infrastructure

Visitor Facilities: Camp site and hiking trails.
Numbers: 7 500 per annum Potential: Not determined.

Staff (and positions): One professional, two technical, three first level supervisors and 70 labourers.

Budget: R322 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9005, Cape Town, 8000, South Africa.

Principal Reference Material

Policy Memorandum: Hawequas Mountain Catchment Area. Directorate of Forestry, Cape Town.

Preparation: R H Andrag, August 1983.

12 MATROOSBERG MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1977

Decree Number: Government Notice 2579 of 1977 and Government Notice 2418 of 1979.

Geographical Features

Location: Latitude: 33°38' - 33°16'S Longitude: 19°47' - 19°14'E
Nearest town and distance: Ceres, on boundary
Area: 95 256 ha (16 151 ha State Forest and 79 105 ha private land)

Physical Features

Elevation: Lowest: 400 m Highest: 2 249 m
Highest Mountain: Matroosberg
Annual rainfall: 400 mm (foothills) - 3 000 mm (high mountain peaks).
Annual average temperature range: Minimum: 6°C Maximum: 19°C
Rainy season: Winter (May to September).

Soils: Highly leached acid sands with small pockets of sandy loams.

Description of Geomorphology: Dominated by sandstone mountains of the Cape folded belt. Very rocky terrain with narrow kloofs and steep slopes.

Major rivers and streams: Tributaries of the Breede River.

Other outstanding physical features: Scenically beautiful.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 69), False Macchia (Veld Type 70), Coastal Rhenosterbosveld (Veld Type 46), Mountain Rhenosterbosveld (Veld Type 43) and Knysna Forest (Veld Type 4) (Acocks 1975).

Description of vegetation: The area is dominated by mountain fynbos. Characteristic families are Ericaceae, Restionaceae and Proteaceae.

Economically important species of plants: Various Proteaceae, Ericaceae and Restionaceae and other species which are harvested for the flower trade.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: Mammals: leopard Panthera pardus, fat mouse Steatomys pratensis and Verreaux's mouse Praomys verreauxii. Reptiles: Geometric tortoise Psammobates geometricus, Cape mountain lizard Lacerta australis, Fisk's housesnake Lamprophis fiskii. Birds: Cape vulture Gyps coprotheres, peregrine falcon Falco peregrinus, booted eagle Hieraaetus pennatus, martial eagle Polemaetus bellicosus, forest buzzard Buteo oreophilus, Cape eagle owl Bubo capensis, Victorin's warbler Bradypterus victorini and protea canary Serinus leucopterus.

Dominant or important species of fauna: Caracal Felis caracal, klipspringer Oreotragus oreotragus, chacma baboon Papio ursinus, grysbok Raphicerus melanotis and grey rhebok Pelea capreolus.

Infrastructure

Visitor Facilities: No facilities for general public but area used for mountaineering.

Numbers: 500 per annum Potential: Not determined.

Staff (and positions): One professional, one technical, one first level supervisor and 20 labourers.

Budget: R60 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9005, Cape Town, 8000, South Africa.

Principal Reference Material

Policy Memorandum: Matroosberg Mountain Catchment Area, Directorate of Forestry, Cape Town.

Preparation: R H Andrag, August 1983.

13 HOTTENTOTS HOLLAND MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1907

Decree Number: Government Notice 1163 of 1907, Government Notice 469 of 1979 and Government Notice 2569 of 1979.

Geographical Features

Location: Latitude: 33°49' - 34°23'S Longitude: 18°50' - 19°12'E

Nearest town and distance: Gordon's Bay, on boundary

Area: 84 936 ha (24 569 ha State Forest Nature Reserve, 42 835 ha State Forest and 17 532 ha private land)

Physical Features

Elevation: Lowest: Sea level Highest: 1 589 m

Highest Mountain: Victoria Peak

Annual rainfall: 600 mm (sea level) - 3 500 mm (mountain peaks)

Annual average temperature range: Minimum: 6°C Maximum: 19°C

Rainy season: Winter (May - August)

Soils: Highly leached acid sands with small pockets of sandy loams.

Description of Geomorphology: Dominated by sandstone mountains of the Cape folded belt. Very rocky terrain with narrow kloofs and steep cliffs.

Major rivers and streams: Tributaries of Eerste, Lourens, Palmiet, Breede and Berg Rivers.

Other outstanding physical features: Scenically beautiful.

Vegetation and Flora

Vegetation types: Coastal Macchia (Veld Type 47) and Macchia (Veld Type 69) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: More than 99% of the area is dominated by mountain fynbos. Characteristic families are Ericaceae, Restionaceae and Proteaceae.

Economically important species of plants: Various Proteaceae, Ericaceae, Restionaceae and other species which are harvested for the flower trade.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: Mammals: leopard Panthera pardus, Lesueur's hairy bat Myotis lesueuri, Cape gerbil Tatera afra, Cape spiny mouse Acomys subspinosus, Verreaux's mouse Praomys verreauxii, spectacled dormouse Graphiurus ocellatus, honey badger Mellivora capensis. Amphibians: ghost frog Heleophryne rosei. Fish: Berg river redbfin Barbus burgi. Birds: white stork Ciconia ciconia, kori bustard Ardeotis kori, black stork Ciconia nigra, Cape eagle owl Bubo capensis, Victorin's warbler Bradypterus victorini, African fish eagle Haliaeetus vocifer, peregrine falcon Falco peregrinus, forest buzzard Buteo oreophilus, protea canary Serinus leucopterus and Cape vulture Gyps coprotheres.

Dominant or important species of fauna: Grey rhebok Pelea capreolus, klipspringer Oreotragus oreotragus, steenbok Raphicerus campestris, chacma baboon Papio ursinus and grysbok Raphicerus melanotis.

Infrastructure

Visitor Facilities: Boland Hiking Trail with five huts.

Numbers: 4 428 per annum Potential: Not determined.

Staff (and positions): Two professional, four technical, six first level supervisors and 100 labourers.

Budget: R350 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9005, Cape Town, 8000, South Africa.

Principal Reference Material

Policy Memorandum: Hottentots Holland Mountain Catchment Area. Directorate of Forestry, Cape Town.

Preparation: R H Andrag, August 1983.

14 GROOT WINTERHOEK MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1913

Decree Number: Government Notice 235 of 1913 and Government Notice 2121 of 1981.

Geographical Features

Location: Latitude: 32°35' - 33°25'S Longitude: 18°55' - 19°14'E

Nearest town and distance: Tulbagh, 5 km

Area: 81 188 ha (30 369 ha State Forest and 50 819 ha private land)

Physical Features

Elevation: Lowest: 200 m Highest: 2 077 m

Highest Mountain: Groot Winterhoek

Annual rainfall: 400 mm (valleys) - 2 000 mm (high peaks).

Annual average temperature range: Minimum: 6°C Maximum: 19°C

Rainy season: Winter (May - September)

Soils: Highly leached acid sands with small pockets of sandy loams.

Description of Geomorphology: Dominated by sandstone mountains of the Cape folded belt. Very rocky with some steep cliffs and narrow kloofs.

Major rivers and streams: Tributaries of the Berg and Olifants Rivers.

Other outstanding physical features: Scenically beautiful.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 69), False Macchia (Veld Type 70) and Knysna Forest (Veld Type 4) (Acocks 1975).

Description of vegetation: The entire area can be classified as mountain fynbos with the exception of small relict forest patches. Characteristic families are Ericaceae, Restionaceae and Proteaceae.

Economically important species of plants: Various Proteaceae, Ericaceae and Restionaceae and other species which are harvested for the flower trade.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: Mammals: leopard Panthera pardus, Cape gerbil Tatera afra, Cape spiny mouse Acomys subspinosus, Verreaux's mouse Praomys verreauxii and spectacled dormouse Graphiurus ocellaris. Amphibians: ghost frog Heleophryne rosei. Reptiles: geometric tortoise Psammobates geometricus and armadillo lizard Cordylus cataphractus. Fish: Clanwilliam yellowfish Barbus capensis and Clanwilliam redbin Barbus calidus. Birds: Victorin's warbler Bradypterus victorini, peregrine falcon Falco peregrinus, forest buzzard Buteo oreophilus and protea canary Serinus leucopterus.

Dominant or important species of fauna: Rock dassie Procavia capensis, grey rhebok Pelea capreolus, klipspringer Oreotragus oreotragus, chacma baboon Papio ursinus, caracal Felis caracal and grysbok Raphicerus melanotis.

Infrastructure

Visitor Facilities: Limited to access points and hiking trails.

Numbers: 1 000 per annum Potential: Not determined.

Staff (and positions): One professional, one technical, one first level supervisor and 20 labourers.

Budget: R186 250,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9005, Cape Town, 8000, South Africa.

Principal Reference Material

Policy Memorandum: Groot Winterhoek Mountain Catchment Area. Directorate of Forestry, Cape Town.

Preparation: R H Andrag, August 1983.

15 LANGE BERG WEST MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1914

Decree Number: Government Notice 196 of 1914, Government Notice 2418 of 1979 and Government Notice 242 of 1981.

Geographical Features

Location: Latitude: 33°35' - 34°01'S Longitude: 19°39' - 20°44'E
Nearest town and distance: Montagu, 0,5 km
Area: 77 096 ha (3 259 ha State Forest, 11 429 ha State Forest Nature Reserve and 62 408 ha private land)

Physical Features

Elevation: Lowest: 122 m Highest: 1 710 m
Highest Mountain: Misty Point
Annual rainfall: 130 mm (foothills) - 2 500 mm (high mountain peaks).
Annual average temperature range: Minimum: 6°C Maximum: 19°C
Rainy season: All year round in the eastern parts and winter rainfall in the western parts.

Soils: Highly leached acid sands with small pockets of sandy loams.

Description of Geomorphology: Dominated by sandstone mountains of the Cape folded belt. Very rocky terrain with narrow kloofs and steep cliffs.

Major rivers and streams: Tributaries of the Breede River.

Other outstanding physical features: Scenically beautiful.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 69), False Macchia (Veld Type 70), Knysna Forest (Veld Type 4), Coastal Rhenosterbosveld (Veld Type 46), Mountain Rhenosterbosveld (Veld Type 43) and Karroid Broken Veld (Veld Type 26) (Acocks 1975).

Description of vegetation: More than 90% of the area is dominated by mountain fynbos. Characteristic families are Ericaceae, Restionaceae and Proteaceae.

Economically important species of plants: Various Proteaceae, Ericaceae and Restionaceae and others which are harvested for the flower trade.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: Mammals: leopard Panthera pardus. Reptiles: geometric tortoise Psammobates geometricus, Cape mountain lizard Lacerta australis and Fisk's house snake Lamprophis fiskii. Fish: Burchell's redbfin Barbus burchelli. Birds: Booted eagle Hieraaetus pennatus, protea canary Serinus leucopterus, peregrine falcon Falco peregrinus, martial eagle Polemaetus bellicosus, Cape vulture Gyps coprotheres, forest buzzard Buteo oreophilus, Cape eagle owl Bubo capensis and Victorin's warbler Bradypterus victorini.

Dominant or important species of fauna: Caracal Felis caracal, klipspringer Oreotragus oreotragus, grysbok Raphicerus melanotis, grey rhebok Pelea capreolus and chacma baboon Papio ursinus.

Infrastructure

Visitor Facilities: Swellendam Hiking Trail with six huts.
Numbers: 1 722 per annum Potential: Not determined.

Staff (and positions): One professional, one technical, one first level supervisor and 20 labourers.

Budget: R100 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9005, Cape Town, 8000, South Africa.

Other Information of Interest: Certain areas are intensively harvested for flowers. The most western occurrence of relatively large remnants of indigenous evergreen forest.

Principal Reference Material

Policy Memorandum: Langeberg West Mountain Catchment Area. Directorate of Forestry, Cape Town.

Preparation: R H Andrag, August 1983.

16 LANGEBERG EAST MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1896

Decree Number: Government Notice 459 of 1896, Government Notice 112 of 1978 and Government Notice 2121 of 1981.

Geographical Features

Location: Latitude: 34°44' - 34°02'S Longitude: 20°37' - 21°41'E

Nearest town and distance: Riversdal, 10 km

Area: 71 300 ha (14 200 ha State Forest Wilderness Area, 16 169 ha State Forest and 40 931 ha private land).

Physical Features

Elevation: Lowest: 61 m Highest: 1 637 m

Highest Mountain: Lemoenshoek Peak, Grootberg

Annual rainfall: 130 mm (foothills) - 2 500 mm (high mountain peaks).

Annual average temperature range: Minimum: 11°C Maximum: 24°C

Rainy season: All year round.

Soils: Derived from sandstone and quartzites of the Table Mountain Group, also from shales of the same group and of the Bokkeveld Series.

Description of Geomorphology: Dominated by sandstone mountains of the Cape folded belt. Very rocky terrain with narrow kloofs and steep cliffs.

Major rivers and streams: Tributaries of the Gouritz and Breede Rivers.

Other outstanding physical features: Scenically beautiful.

Vegetation and Flora

Vegetation types: Knysna Forest (Veld Type 4), Karroid Broken Veld (Veld Type 26), Coastal Rhenosterbosveld (Veld Type 46), Valley Bushveld (Veld Type 23), Mountain Rhenosterbosveld (Veld Type 43), Macchia (Veld Type 69) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: More than 90% of the area is dominated by mountain fynbos. Characteristic families are Ericaceae, Restionaceae and Proteaceae.

Economically important species of plants: Various Proteaceae, Ericaceae, Restionaceae and other species which are harvested for the flower trade.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: Mammals: leopard Panthera pardus. Reptiles: armadillo lizard Cordylus cataphractus. Fish: slender redbfin Barbus tenuis. Birds: protea canary Serinus leucopterus, Cape vulture Gyps coprotheres, peregrine falcon Falco peregrinus, forest buzzard Buteo oreophilus, Knysna warbler Bradypterus sylvaticus and Victorin's warbler Bradypterus victorini.

Dominant or important species of fauna: Grey rhebok Pelea capreolus, bushbuck Tragelaphus scriptus, caracal Felis caracal, klipspringer Oreotragus oreotragus, chacma baboon Papio ursinus and grysbok Raphicerus melanotis. Fish: small-scale redbfin Barbus asper and Burchell's redbfin Barbus burchelli.

Infrastructure

Visitor Facilities: Pristine wilderness. Facilities limited to access points and hiking trails.

Numbers: 700 per annum Potential: Unknown.

Staff (and positions): One professional, two technical, two first level supervisors and 40 labourers.

Budget: R61 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9005, Cape Town, 8000, South Africa.

Principal Reference Material

Policy Memorandum: Groot Winterhoek Mountain Catchment Area. Directorate of Forestry, Cape Town.

Preparation: R H Andrag, August 1983.

17 RIVIERSONDEREND MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1900

Decree Number: Government Notice 285 of 1900 and Government Notice 2121 of 1981.

Geographical Features

Location: Latitude: 33°52' - 34°07'S Longitude: 19°17' - 20°05'E

Nearest town and distance: Greyton, on boundary

Area: 69 453 ha (26 416 ha State Forest and 43 037 ha private land)

Physical Features

Elevation: Lowest: 200 m Highest: 1 654 m

Highest Mountain: Pilaarkop

Annual rainfall: 300 - 2 000 mm

Annual average temperature range: Minimum: 6°C Maximum: 19°C

Rainy season: Winter (April - September)

Soils: Highly leached acid sands with small pockets of sandy loams. Very rocky.

Description of Geomorphology: Dominated by sandstone mountains of the Cape folded belt. Very rocky with narrow kloofs and steep cliffs.

Major rivers and streams: Tributaries of the Breede River.

Other outstanding physical features: Scenically beautiful.

Vegetation and Flora

Vegetation types: Karroid Broken Veld (Veld Type 26), Macchia (Veld Type 69), False Macchia (Veld Type 70) and Coastal Rhenosterbosveld (Veld Type 46) (Acocks 1975).

Description of vegetation: Most of the area is dominated by mountain fynbos. Characteristic families are Ericaceae, Restionaceae and Proteaceae.

Economically important species of plants: Various Proteaceae, Ericaceae and Restionaceae and other species which are harvested for the flower trade.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: Mammals: leopard Panthera pardus. Fish: Burchell's redfin Barbus burchelli. Birds: booted eagle Hieraaetus pennatus, Cape vulture Gyps coprotheres, peregrine falcon Falco peregrinus, martial eagle

Polemaetus bellicosus, forest buzzard Buteo oreophilus, Cape eagle owl Bubo capensis, Victorin's warbler Bradypterus victorini and protea canary Serinus leucopterus.

Dominant or important species of fauna: Grey rhebok Pelea capreolus, klipspringer Oreotragus oreotragus, caracal Felis caracal, chacma baboon Papio ursinus and grysbok Raphicerus melanotis.

Infrastructure

Visitor Facilities: No facilities; visitors use management footpaths.
Numbers: ±300 per annum Potential: Not determined.

Staff (and positions): One professional, one technical, two first level supervisors and 35 labourers.
Budget: R220 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9005, Cape Town, 8000, South Africa.

Principal Reference Material

Policy Memorandum: Riviersonderend Mountain Catchment Area. Directorate of Forestry, Cape Town.

Preparation: R H Andrag, August 1983.

18 WALKER BAY STATE FOREST

Proclamation

Date Established: 1895
Decree Number: Government Notice 525 of 1895.

Geographical Features

Location: Latitude: 34°23' - 34°48'S Longitude: 19°17' - 19°44'E
Nearest town and distance: Hermanus, on boundary.
Area: 7 118 ha

Physical Features

Elevation: Lowest: 0 m Highest: 40 m
Highest Mountain: Not applicable
Annual rainfall: 450 - 700 mm
Annual average temperature range: Minimum: 12°C Maximum: 22°C
Rainy season: Winter (May - September)

Soils: Pure white calcareous drift sands with a very low nutrient content.

Description of Geomorphology: Low sand dunes partly covered with vegetation and partly open driftsands.

Major rivers and streams: Bordering on the estuaries of the Klein and Uitenkraal Rivers.

Other outstanding physical features: Undeveloped coastline.

Vegetation and Flora

Vegetation types: Coastal Macchia (Veld Type 47) (Acocks 1975).

Description of vegetation: Characteristic families are Ericaceae, Restionaceae and Proteaceae.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: None.

Dominant or important species of fauna: Common duiker Sylvicapra grimmia, steenbok Raphicerus campestris, bushbuck Iragelaphus scriptus, caracal Felis caracal and grysbok Raphicerus melanotis.

Infrastructure

Visitor Facilities: No provision for visitors.

Numbers: Nil Potential: Not determined.

Staff (and positions): Two professionals, one technical, two first level supervisors and 20 labourers.

Budget: R165 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9005, Cape Town, 8000, South Africa.

Principal Reference Material

Walsh B N 1968. Some notes on the incidence and control of driftsands along the Caledon, Bredasdorp and Riversdale coastline of South Africa. Bulletin 44, Department of Forestry, Government Printer, Pretoria.

Policy Memorandum: Walker Bay State Forest. Directorate of Forestry, Cape Town.

Preparation: R H Andrag, August 1983.

19 SANDVELD STATE FOREST

Proclamation

Date Established: 1966

Decree Number: Government Notice 2753 of 1979.

Geographical Features

Location: Latitude: 33°13' - 33°20'S Longitude: 18°05' - 18°25'E
Nearest town and distance: Ysterfontein, on boundary.
Area: 3 624 ha

Physical Features

Elevation: Lowest: 0 m Highest: 20 m
Highest Mountain: Not applicable
Annual rainfall: 360 mm
Annual average temperature range: Minimum: 12,5°C Maximum: 21,5°C
Rainy season: Winter (May - September)

Soils: White calcareous drift sands with a very low nutrient content.

Description of Geomorphology: Low sand dunes partly covered with vegetation and partly open driftsands.

Major rivers and streams: None.

Vegetation and Flora

Vegetation types: Coastal Macchia (Veld Type 47) (Acocks 1975).

Description of vegetation: Characteristic species are ericoid low evergreen shrubs, restioid reeds and proteoid medium to tall shrubs with broad leathery leaves.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: None.

Dominant or important species of fauna: Common duiker Sylvicapra grimmia, steenbok Raphicerus campestris, grysbok Raphicerus melanotis and ostrich Struthio camelus.

Infrastructure

Visitor Facilities: No provision for visitors.

Numbers: Nil. Potential: Unknown.

Staff (and positions): One professional, one technical, two first level supervisors and 33 labourers.

Budget: R169 180,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9005, Cape Town, 8000, South Africa.

Principal Reference Material

Policy Memorandum for driftsand reclamation at Ysterfontein and Elandsbaai. Directorate of Forestry, Cape Town.

Preparation: R H Andrag, August 1983.

20 GROOT SWARTBERG/SWARTBERG EAST MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1912

Decree Number: Government Notice 334 of 1912 and Government Notice 1938 of 1978.

Geographical Features

Location: Latitude: 33°16' - 33°28'S Longitude: 21°38' - 23°19'E

Nearest town and distance: Prince Alfred, 8 km

Area: 121 002 ha (99 010 ha demarcated State Forest and 21 992 ha private land proclaimed Mountain Catchment Area)

Physical Features

Elevation: Lowest: 650 m Highest: 2 085 m

Highest Mountain: Blesberg

Annual rainfall: 480 mm (Swartberg East) to 572 mm (Groot Swartberg).

Annual average temperature range: Minimum: 5-15°C Maximum: 18-30°C

Rainy season: All year round.

Soils: Predominantly shallow, rocky, poorly developed sandy soils overlying rock. Generally they are structureless, acid and have a low base saturation.

Description of Geomorphology: Basic structure of the mountains comprises oval domes, formed by strong north-south orientated pressure which folded the rocks of the Cape Super Group.

Major rivers and streams: Tributaries of the Olifants River.

Other outstanding physical features: Meiringspoort and Gamkaspoort, two river canyons.

Vegetation and Flora

Vegetation types: Karroid Broken Veld (Veld Type 26), Spekboomveld (Veld Type 25), Mountain Rhenosterbosveld (Veld Type 43) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Approximately 80% of the area is covered by fynbos communities, while Karoo communities occur over the remaining area. Fynbos communities are dominated by Protea shrublands, karoo communities by a heterogeneous mosaic of medium to sparse shrublands (high numbers of succulents), and rhenosterbosveld.

Economically important species of plants: Honey tea Cyclopia spp and flowers for the floral trade on a limited scale.

Endemic species of plants: Protea venusta, P montana, and Leucadendron dregei.

Fauna

Endangered species: Mammals: Cape spiny mouse Acomys subspinosus, Verreaux's mouse Praomys verreauxii, spectacled dormouse Graphiuris ocellaris, leopard Panthera pardus and honey badger Mellivora capensis. Birds: booted eagle Hieraaetus pennatus, martial eagle Polemaetus bellicosus, Cape eagle owl Bubo capensis, Victorin's warbler Bradypterus victorini and protea canary Serinus leucopterus. Fishes: slender redbfin B tenuis.

Dominant or important species of fauna: The typical large mammal spectrum of the southern Cape mountains occurs here, including common duiker Sylvicapra grimmia, steenbok Raphicerus campestris and grysbok R melanotis. The vervet monkey Cercopithecus pygerythrus occurs in wooded kloofs on the Swartberg East. Population densities: klipspringer Oreotragus oreotragus, (0,49/km²) and grey rhebok Pelea capreolus (0,75/km², but 4,6/km² after a fire). Key species are pollinators belonging to the families Nectariniidae (Nectarina spp) and Promeropidae (Cape sugar bird Promerops cafer) and seed dispersers (ant species).

Infrastructure

Visitor Facilities: None

Numbers: Nil Potential: Unknown.

Staff (and positions): Resident forester, assistant resident forester, two first level supervisors and 50 labourers at Swartberg State Forest. The area is the responsibility of the District Forest Officer in Knysna.

Budget: R340 000,00 per annum (including salaries), jointly for this area and for a portion of the Outeniqua Mountain Catchment Area.

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X12, Knysna, 6570, South Africa.

Principal Reference Material

Seydack A H W, I P Horne and R Gehrman 1982. Bestuursplan Groot-Swartberg. Directorate of Forestry, Knysna. Unpublished.

Seydack A H W and I P Horne 1980. Bestuursplan Swartberg-Oos. Directorate of Forestry, Knysna. Unpublished.

Preparation: A J Southwood, July 1983.

21 OUTENIQUA MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1936

Decree Number: Government Notice 294 of 1936 and private land pending declaration under the Mountain Catchment Areas Act 63 of 1970.

Geographical Features

Location: Latitude: 33°46' - 33°55'S Longitude: 21°39' - 23°26'E

Nearest town and distance: George, 10 km

Area: 158 515 ha (72 300 ha demarcated State Forest, 461 ha undemarcated State Forest and 85 754 ha proposed Mountain Catchment Area).

Physical Features

Elevation: Lowest: 400 m Highest: 1 521 m

Highest Mountain: Engelseberg

Annual rainfall: 860 mm, ranging from 1 100 mm on high peaks to 400 mm on northern foothills.

Annual average temperature range: Minimum: 8-15°C Maximum: 19-21°C

Rainy season: All year round.

Soils: Derived from sandstones and quartzites of the Table Mountain Group. Soils are moderately deep, rocky, loamy sands overlying hard rock or saprolite. Very acidic.

Description of Geomorphology: The Outeniqua Mountains are formed by a series of anticlines and synclines forming mountains and valleys of decreasing elevation extending to the Karoo.

Major rivers and streams: Gouritz and Keurbooms Rivers and tributaries of the Kammanassie River.

Vegetation and Flora

Vegetation types: Gouritz River Scrub variation of Valley Bushveld (Veld Type 23), Mountain Rhenosterbosveld (Veld Type 43) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Gouritz River Scrub is an extremely dense, semi-succulent, thorny scrub, about 2 m tall. Rhenosterbosveld is a shrubland dominated by Elytropappus rhinocerotis (rhenosterbos). Most of the area is covered by proteoid shrublands, heathlands and restioid shrublands.

Economically important species of plants: Various Proteaceae are harvested for the florist trade on a small scale.

Endemic species of plants: Endemics which are numerous in the Cape floral kingdom are well represented.

Fauna

Endangered species: Mammals: Verreaux's mouse Praomys verreauxii, Cape spiny mouse Acomys subspinosus, honey badger Mellivora capensis and leopard Panthera pardus. Birds: Victorin's warbler Bradypterus victorini and protea canary Serinus leucopterus.

Dominant or important species of fauna: The typical mammal spectrum of the southern Cape mountains occurs here and includes klipspringer Oreotragus oreotragus, grey rhebok Pelea capreolus, common duiker Sylvicapra grimmia, steenbok Raphicerus campestris and grysbok Raphicerus melanotis. Key

species are pollinators belonging to the families Nectariniidae (Nectarina spp) and Promeropidae (Cape sugar bird Promerops cafer) and seed dispersers (ant species). Fishes: eastern cape redfin Barbus afer, small redfin Barbus asper and Burchell's redfin Barbus burchelli.

Infrastructure

Visitor Facilities: None
Numbers: Nil Potential: Unknown.

Staff (and positions): Swartberg - two resident foresters, two first level supervisors and 53 labourers. Towerkop - one resident forester, two first level supervisors and 50 labourers. The area is the responsibility of the District Forest Officer in Knysna.

Budget: R276 000,00 per annum (including salaries), jointly for this area and the Kammanassie Mountain Catchment Area.

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X12, Knysna, 6570, South Africa.

Principal Reference Material

Southwood A J 1983. Policy Memorandum, Outeniqua Catchment Area. Directorate of Forestry, Knysna. Unpublished.

Bond W 1981. Vegetation gradients in Southern Cape Mountains. MSc Thesis, University of Cape Town.

Preparation: A J Southwood, July 1983.

22 ANYSBERG/KLEIN SWARTBERG MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1912

Decree Number: Government Notice 334 of 1912 and Government Notice 1938 of 1979.

Geographical Features

<u>Location:</u> Klein Swartberg	<u>Latitude:</u> 33°19' - 33°28'S
	<u>Longitude:</u> 20°52' - 21°38'E
Anysberg	<u>Latitude:</u> 33°29' - 33°32'S
	<u>Longitude:</u> 20°32' - 20°45'E

Nearest town and distance: Ladismith, 3 km

Area: 58 785 ha (23 010 ha demarcated State Forest and 35 775 ha private land proclaimed a Mountain Catchment Area).

Physical Features

Elevation: Lowest: 670 m Highest: 2 325 m
Highest Mountain: Seweweekspoortpiek

Annual rainfall: 654 mm (Klein Swartberg) and 370 mm (Anysberg).
Annual average temperature range: Minimum: 5-15°C Maximum: 18-32°C
Rainy season: All year round.

Soils: Derived from sandstones and quartzites of the Table Mountain Group. Shallow, rocky, poorly developed sandy loams. Leached and acid.

Description of Geomorphology: Oval, dome-shaped, asymmetrical folded mountains.

Major rivers and streams: This area is located in the drainage system of the Gouritz River.

Other outstanding physical features: Towerkop, a high mountain peak.

Vegetation and Flora

Vegetation types: Mountain Rhenosterbosveld (Veld Type 43), Karroid Broken Veld (Veld Type 26), Spekboomveld (Veld Type 25) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Two major communities can be identified: fynbos and karoo communities. Karoo communities are located on rocky, lower southern and northern foothills. A complex mosaic of small trees, shrubs and succulents is characteristic. The remainder of the mountains is covered by fynbos, dominated by Protea spp, Erica spp and Restio spp.

Economically important species of plants: Flowers, especially Protea spp are picked for the florist trade. Honey tea (Cyclopia spp) is harvested on a limited scale.

Endemic species of plants: Local speciation has occurred in the area and a number of endemic species are present, including Protea pruinosa and Leucospermum secundifolium.

Fauna

Endangered species: Mammals: Cape spiny mouse Acomys subspinosus, Verreaux's mouse Praomys verreauxii, spectacled dormouse Graphiurus ocellaris, leopard Panthera pardus and honey badger Mellivora capensis. Fishes: slender redbfin B tenuis. Birds: booted eagle Hieraaetus pennatus, martial eagle Polemaetus bellicosus, Cape eagle owl Bubo capensis, Victorin's warbler Bradypterus victorini and protea canary Serinus leucopterus.

Dominant or important species of fauna: Mammals: chacma baboon Papio ursinus, steenbok Raphicerus campestris, common duiker Sylvicapra grimmia, klipspringer Oreotragus oreotragus, grysbok R melanotis and grey rhebok Pelea capreolus. Key species are pollinators belonging to the families Nectariniidae (Nectarina spp) and Promeropidae (Cape sugar bird Promerops cafer) and seed dispersers (ant species).

Infrastructure

Visitor Facilities: None
Numbers: Nil Potential: Unknown.

Staff (and positions): Two resident foresters at Towerkop State Forest Station, one first level supervisor and 41 labourers. The area is the responsibility of the District Forest Officer at Knysna.

Budget: R258 000,00 per annum (including salaries), jointly for this area and the Rooiberg Mountain Catchment Area.

Local Administration: Regional Director, Directorate of Forestry, Private Bag X12, Knysna, 6570, South Africa.

Principal Reference Material

Seydack A H W, I P Horne and R Gehrman 1981. Bestuursplan, Klein-Swartberg/Anysberg. Directorate of Forestry, Knysna. Unpublished.

Seydack A H W and P B Odendaal 1980. Beleidsmemorandum Anysberg, Klein-Swartberg, Groot-Swartberg, Swartberg-Oos. Department of Environment Affairs, Knysna. Unpublished.

Preparation: A J Southwood, July 1983.

23 KAMMANASSIE MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1923

Decree Number: Government Notice 1531 of 1923 and Government Notice 1938 of 1978.

Geographical Features

Location: Latitude: 33°34' - 33°41'S Longitude: 22°27' - 23°01'E

Nearest town and distance: Uniondale, 8 km

Area: 45 508 ha (17 661 ha demarcated State Forest, 4 803 ha undemarcated State Forest and 23 044 ha Mountain Catchment Area).

Physical Features

Elevation: Lowest: 700 m Highest: 1 965 m

Highest Mountain: Mannetjiesberg

Annual rainfall: 276 mm - 815 mm, increasing with increasing altitude.

Annual average temperature range: Minimum: 5-15°C Maximum: 18-32°C

Rainy season: Late summer to autumn, and spring.

Soils: Derived from sandstones and quartzites of the Table Mountain Group. Shallow, infertile, acid, minimal B-horizon development, and low water retention capacity (lithosols).

Description of Geomorphology: Located in the Cape folded belt. Structurally a long, oval dome, asymmetrical with steep southern slopes.

Major rivers and streams: Located in the drainage region of the Olifants and Kammanassie Rivers.

Vegetation and Flora

Vegetation types: Mountain Rhenosterbosveld (Veld Type 43) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Valley thicket occurs on foothills and in large valleys: a mosaic of Acacia karroo, Olea africana, other trees or tall shrubs, dense thicket and shrubveld. The remainder of the mountain is predominantly covered by protea shrublands and knee height shrub-restio-grassveld.

Economically important species of plants: Various Protea species harvested for the florist trade.

Fauna

Endangered species: Mammals: Cape mountain zebra Equus zebra zebra, Cape spiny mouse Acomys subspinosus, Verreaux's mouse Praomys verreauxii, spectacled dormouse Graphiurus ocellaris, leopard Panthera pardus and honey badger Mellivora capensis. Birds: Victorin's warbler Bradypterus victorini and protea canary Serinus leucopterus.

Dominant or important species of fauna: The typical mammal spectrum of the southern Cape mountains occurs here. Two breeding herds of five and three animals each and also one stallion and one mare of the rare Cape mountain zebra Equus zebra zebra occur in the area. Population densities: klipspringer Oreotragus oreotragus (1,41/km²), grey rhebok Pelea capreolus (1/km²). Key species are pollinators belonging to the families Nectariniidae (Nectarina spp) and Promeropidae (Cape sugar bird Promerops cafer) and seed dispersers (ant species).

Infrastructure

Visitor Facilities: None

Numbers: Nil Potential: Unknown.

Staff (and positions): Resident forester and staff at Swartberg State Forest. Two first level supervisors and 53 labourers. The area is the responsibility of the District Forest Officer at Knysna.

Budget: R276 000,00 per annum (including salaries), jointly for this area and the Outeniqua Mountain Catchment Area.

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X12, Knysna, 6570, South Africa.

Principal Reference Material

Odendaal P B, I P Horne and W H Barnard 1979. Beleidsmemorandum, Kammanassie Bergopvanggebied. Directorate of Forestry, Knysna. Unpublished.

Southwood A J 1983. Bestuursplan, Kammanassie Bergopvanggebied. Directorate of Forestry, Knysna. Unpublished.

Preparation: A J Southwood, July 1983.

24 KNYSNA INDIGENOUS FORESTS

Proclamation

Date Established: 1894

Decree Number: Government Notice 1049 of 1894, Government Notice 316 of 1900 and Government Notice 714 of 1901.

Geographical Features

Location: Latitude: 33°46' - 34°06'S Longitude: 22°01' - 23°24'E

Nearest town and distance: Knysna, 10 km

Area: 44 230 ha (466 ha undemarcated State Forest, 26 922 ha demarcated State Forest and 16 842 ha private land).

Physical Features

Elevation: Lowest: Sea level Highest: 1 000 m

Highest Mountain: Spitskop Peak, Outeniqua Mountains

Annual rainfall: 650 mm at coast to 1 200 mm towards the mountains.

Annual average temperature range: Minimum: 11°C Maximum: 20°C

Rainy season: All year round with peaks in February/March and August/October.

Soils: Quartzite and sandstones of the Table Mountain Group have weathered to light textured, leached, acid sandy loams to sandy clayey loams. Shales have generally weathered deeply. Several superficial deposits have been laid down on the plateau area such as clay deposits, dune sands, fluvial washes, ferricrete, stonelines, talus beds and loess.

Description of Geomorphology: Severe north-south orientated compressive stresses produced the Cape Fold Belt with the resistant strata forming the prominent Outeniqua Mountain Range running from east to west.

Major rivers and streams: Kaaiman and Touws River and many others.

Other outstanding physical features: The southern Cape coastal lakes.

Vegetation and Flora

Vegetation types: Knysna Forest (Veld Type 4) (Acocks 1975).

Description of vegetation: Sites are generally ecologically complex and the following six forest types are approximate, artificial groupings of sites with similar features: (a) Very dry Scrub-Forest occurs on shallow soils and on hot, dry aspects with thorny shrubs such as Maytenus heterophylla, Carissa bispinosa, Scutia myrtina and Dovyalis rhamnoides. (b) Dry High-Forest occurs on well-drained or shallow soils with warm aspects and especially on steep slopes, with Cassine peragua, Rhus chirindensis, Maytenus acuminata and Canthium inerme. (c) Medium-moist High-Forest occurs on generally poorly drained soils, with Olea capensis subsp macrocarpa, Podocarpus latifolius and P. falcatus, Pterocelastrus tricuspidatus and Apodytes dimidiata. (d) Moist High-Forest occurs on moist, deep loamy soils on southerly aspects with Ocotea bullata, Maytenus peduncularis, Ilex mitis and Platylophus trifoliatus. (e) Wet High-Forest



Figure 8. Afromontane forest at Knysna. Veld Type 4.

occurs on cooler aspects with wet soils, often shallow, but with relatively good drainage where Cunonia capensis and Ocotea bullata form a main canopy. (f) Very wet Scrub-Forest occurs on steep, wet slopes with shallow soils where Cunonia capensis is the dominant species, while Ocotea bullata, Podocarpus latifolius and Virgilia oroboides also occur.

Economically important species of plants: Various species are harvested for the furniture trade, the most important being Ocotea bullata, Podocarpus latifolius, P. falcatus, Platylophus trifoliatus, Rapanea melanophloeos and Olinia ventosa. Rumohra adiantiforme is harvested for the florist trade.

Endemic species of plants: Strelitzia alba occurs between Knysna and Humansdorp, especially in the Grootrivier Pass.

Fauna

Endangered species: Mammals: leopard Panthera pardus, honey badger Mellivora capensis, blue duiker Cephalophus monticola and lesser woolly bat Kerivoula lanosa. Amphibians: Arum lily frog Hyperolius horstocki. Birds: Cape eagle owl Bubo capensis, Knysna warbler Bradypterus sylvaticus and Victorin's warbler B. victorini.

Dominant or important species of fauna: Conspicuous large mammals include bushbuck Tragelaphus scriptus, bushpig Potamochoerus porcus, chacma baboon Papio ursinus and caracal Felis caracal. Three elephants, Loxodonta africana, known as the Knysna elephants, live in the forest.

Infrastructure

Visitor Facilities: Outeniqua Hiking Trail and various day walks.

Numbers:

Hiking trail (visitor nights)	10 000 per annum
Day walks (visitors)	4 400 per annum
Fishing (visitors)	330 per annum

Potential: Hiking trail (visitor nights) 97 200 per annum.
Data for day walks and for visitors picnicking at the many picnic sites are not complete.

Staff (and positions): Nineteen resident foresters and ten labourers. The area is the responsibility of three District Forest Officers at Knysna.

Budget: R345 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X12, Knysna, 6570, South Africa.

Principal Reference Material

Phillips J F V 1931. Forest succession and ecology in the Knysna region. Government Printer, Pretoria.

Von Breitenbach F 1974. Southern Cape Forests and Trees. Government Printer, Pretoria.

Preparation: D van Dijk, August 1983.

25 ROOIBERG MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1934

Decree Number: Government Notice 289 of 1934 and Government Notice 1938 of 1978.

Geographical Features

Location: Latitude: 33°35' - 33°43'S Longitude: 21°20' - 21°40'E

Nearest town and distance: Ladismith, 15 km

Area: 25 344 ha (12 928 ha demarcated State Forest and 12 416 ha private land proclaimed a Mountain Catchment Area).

Physical Features

Elevation: Lowest: 600 m Highest: 1 490 m

Highest Mountain: Trigonometrical Beacon number 54

Annual rainfall: 200 mm increasing to 500 mm with altitude.

Annual average temperature range: Minimum: 5-15°C Maximum: 18-32°C

Rainy season: All year round.

Soils: Derived from sandstones and quartzites of the Table Mountain Group. Dominant soils are shallow, sandy, with minimal B horizon development (lithosols).

Description of Geomorphology: Extensively folded mountains.

Major rivers and streams: Falls in the catchment area of the Groot and Gamka Rivers.

Vegetation and Flora

Vegetation types: Mountain Rhenosterbosveld (Veld Type 43), Karroid Broken Veld (Veld Type 26) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Fynbos is characterized by sclerophyllous and small-leaved shrubs of the Ericaceae, Rutaceae etc, relatively broad-leaved proteoid shrubs (mostly Proteaceae), and sclerophyllous cylindrical or tufted or rhizomatous herbs, mostly Restionaceae. Karroid vegetation is characterized by narrow-leaved shrubs, succulents and small clumps of evergreen trees.

Economically important species of plants: Honey tea (Cyclopia spp) is harvested on a limited scale.

Endemic species of plants: Paranomus roodebergensis is endemic to this mountain range.

Fauna

Endangered species: Mammals: leopard Panthera pardus, Verreaux's mouse Praomys verreauxii, Cape spiny mouse Acomys subspinosus. Birds: booted eagle Hieraaetus pennatus, martial eagle Polemaetus bellicosus, Cape eagle owl Bubo capensis, Victorin's warbler Bradypterus victorini and protea canary Serinus leucopterus.

Dominant or important species of fauna: The typical large mammal spectrum of the southern Cape mountains occurs here and includes klipspringer Oreotragus oreotragus, grey rhebok Pelea capreolus, common duiker Sylvicapra grimmia, steenbok Raphicerus campestris and grysbok Raphicerus melanotis. Key species are pollinators belonging to the families Nectariniidae (Nectarina spp) and Promeropidae (Cape sugar bird Promerops cafer) and seed dispersers (ant species).

Infrastructure

Visitor Facilities: None
Numbers: Nil Potential: Unknown

Staff (and positions): Resident forester and staff at Towerkop State Forest, one first level supervisor and 41 labourers. The area is the responsibility of the District Forest Officer at Knysna.
Budget: R258 000,00 per annum (including salaries), jointly for this area and the Anysberg/Klein Swartberg Mountain Catchment Area.

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X12, Knysna, 6570, South Africa.

Principal Reference Material

Seydack A H W 1980. Management Plan, Rooiberg Mountain Catchment Area. Directorate of Forestry, Knysna. Unpublished.

Odendaal P B 1979. Policy Memorandum: Rooiberg Mountain Catchment Area. Directorate of Forestry, Knysna. Unpublished.

Preparation: A J Southwood, July 1983.

26 KOUGA/BAVIAANSKLOOF MOUNTAIN CATCHMENT AREA

Proclamation

Date Established: 1923

Decree Number: Government Notice 1973 of 1923.

Geographical Features

Location: Latitude: 33°28' - 33°50'S Longitude: 21°50' - 23°25'E

Nearest town and distance: Patensie, 10 km

Area: 172 208 ha (155 323 ha demarcated State Forest, 16 885 ha undemarcated State Forest and an additional 157 829 ha a proposed Wilderness Area).

Physical Features

Elevation: Lowest: 400 m Highest: 1 758 m

Highest Mountain: Cockscomb and Smutsberg

Annual rainfall: 547 mm (Kouga) to 451 mm (Baviaanskloof).

Annual average temperature range: Minimum: 5°C Maximum: 32°C

Rainy season: All year round.

Soils: Derived from sandstones and quartzites of the Table Mountain Group. Mainly leached and acid soils.

Description of Geomorphology: Topography of the area is extremely rugged - that of rejuvenated maturely dissected mountain land. Both ranges arose from anticlinal folding, which originated from the south.

Major rivers and streams: Kouga, Baviaanskloof, Groot, Duraas and Wit Rivers and various tributaries.

Other outstanding physical features: Baviaanskloof, a deeply eroded valley, in places virtually a canyon. The Cockscomb consists of tall rugged sandstone peaks. Paul Sauer Dam on Kouga River falls in the area.

Vegetation and Flora

Vegetation types: Valley Bushveld (Veld Type 23), Spekboomveld (Veld Type 25), Mountain Rhenosterbosveld (Veld Type 43), Karroid Broken Veld (Veld Type 26) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Valley Bushveld an extremely dense, semi-succulent, thorny scrub about 4 m high, with Euphorbia grandidens; Spekboomveld, a dense scrub dominated by Portulacaria afra; Mountain Rhenosterbosveld scrub dominated by Elytropappus rhinocerotis; Karroid Broken Veld characterized by narrow-leaved shrubs, succulents and small clumps of evergreen trees; Fynbos (False Macchia) is characterized by sclerophyllous and small-leaved shrubs of the Ericaceae and Rutaceae, relatively broad-leaved shrubs, mostly Proteaceae, and sclerophyllous cylindrical or rhizomatous herbs - mostly Restionaceae and Poaceae.

Economically important species of plants: Aloe ferox leaves are harvested for the sap and Cyclopia subternata used as tea.

Fauna

Endangered species: Mammals: honey badger Mellivora capensis, aardwolf Proteles cristatus, leopard Panthera pardus, striped weasel Poecilogale albinucha, Cape spiny mouse Acomys subspinosus, Verreaux's mouse Praomys verreauxii, spectacled dormouse Graphiurus ocellatus. Birds: 18 species rare or endangered. Reptiles: water monitor Varanus niloticus.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, grey rhebok Pelea capreolus, mountain reedbuck Redunca fulvorufula, kudu Tragelaphus strepsiceros and chacma baboon Papio ursinus.

Infrastructure

Visitor Facilities: Very primitive. Hiking on jeep tracks and footpaths (not marked). Fishing at undeveloped sites.

Numbers: 1 000 per annum Potential: 6 000 per annum.

Staff (and positions): Two resident foresters, two foremen and 59 labourers at Willowmore, Joubertina and Patensie for Baviaanskloof and Cockscomb Forest Stations respectively. Area is the responsibility of the District Forest Officer at Humansdorp.

Budget: R660 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X537, Humansdorp, 6300, South Africa.

Other Information of Interest: Bushman paintings in various caves.

Principal Reference Material

Some departmental reports.

Preparation: J L de V van Zyl, August 1983.

27 TSITSIKAMMA MOUNTAINS

Proclamation

Date Established: Established, but not yet proclaimed.

Decree Number: Proposals to declare this area a Mountain Catchment Area under the Mountain Catchment Areas Act 63 of 1970 are being compiled.

Geographical Features

Location: Latitude: 33°45' - 34°03'S Longitude: 23°20' - 24°30'E

Nearest town and distance: Joubertina, 3 km

Area: 80 000 ha (39 869 ha State Forest and 40 131 ha private land, to be proclaimed Mountain Catchment Area).

Physical Features

Elevation: Lowest: 1 300 m Highest: 1 675 m

Highest Mountain: Formosa Peak, Tsitsikamma Mountains

Annual rainfall: 800 mm

Annual average temperature range: Minimum: 10°C Maximum: 26°C

Rainy season: All year round.

Soils: Sandstones and quartzites derived from the Table Mountain Group. Soils are sandy, leached and acidic (lithosols).

Description of Geomorphology: Anticlinal, folded mountains, folding forces originated in the south.

Major rivers and streams: Krom, Krakeel and Louterwater Rivers.

Vegetation and Flora

Vegetation types: Knysna Forest (Veld Type 4) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Afromontane forest occurs in most protected valleys (Podocarpus, Ocotea and Cunonia forests). The remainder of the area is covered by proteoid shrublands, which vary from open, tall Protea nitida shrublands to closed, tall Protea mundii-Leucadendron eucalyptifolium shrublands.

Economically important species of plants: Protea neriifolia and P cynaroides

Fauna

Endangered species: Mammals: leopard Panthera pardus and blue duiker Cephalophus monticola. Birds: Victorin's warbler Bradypterus victorini.

Dominant or important species of fauna: The typical faunal spectrum of the southern Cape mountains occurs here. This includes a few klipspringer Oreotragus oreotragus and grysbok Raphicerus melanotis, as well as various small mammals. Birds include black eagle Aquila verreauxii and jackal buzzard Buteo rufofuscus as well as various Nectarina spp.

Infrastructure

Visitor Facilities: None

Numbers: Nil Potential: Unknown

Staff (and positions): One resident forester, one clerk, two foremen and 50 labourers at Formosa State Forest, Joubertina. Area is the responsibility of the District Forest Officer at Humansdorp.
Budget: R100 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X537, Humansdorp, 6300, South Africa.

Other Information of Interest: Management consists primarily of the preparation of fire breaks and the control of Hakea spp and Pinus pinaster.

Principal Reference Material

Unpublished departmental records.

Preparation: A J Southwood, 1983.

28 GROENDAL WILDERNESS AREA

Proclamation

Date Established: 1896

Decree Number: Government Notice 869 of 1896 and Government Notice 212 of 1976.

Geographical Features

Location: Latitude: 33°43'S Longitude: 25°18'E

Nearest town and distance: Uitenhage, 15 km

Area: 25 047 ha (21 793 ha State Forest Wilderness Area, 1 063 ha demarcated State Forest and 2 191 ha undemarcated State Forest).

Physical Features

Elevation: Lowest: 90 m Highest: 1 180 m

Highest Mountain: Strydomsberg

Annual rainfall: 500 - 800 mm

Annual average temperature range: Minimum: 11°C Maximum: 26°C

Rainy season: All year round.

Soils: Derived from sandstones and quartzites of the Table Mountain Group. Soils mostly sandy, acid and leached.

Description of Geomorphology: Northern portion of the area forms part of the eastern outliers of the Groot Winterhoek Mountains which fall steeply south to a plateau intersected by deep ravines.

Major rivers and streams: Swartkops River.

Other outstanding physical features: Groendal Dam falls within the Wilderness area.

Vegetation and Flora

Vegetation types: Valley Bushveld (Veld Type 23) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Valley Bushveld is restricted to lower lying areas and is a dense thicket from 1,5 m to 6 m in height. Euphorbia coerulescens is dominant. Fynbos can be divided into three groups: (a) high moist fynbos, occurring on steep moist slopes and dominated by Leucadendron eucalyptifolium; (b) Protea neriifolia tall fynbos adjacent to moist high fynbos and valley bushveld; (c) Leucadendron cuneiforme short fynbos, the most common fynbos, distinguished by L. cuneiforme and L. salignum and a ground layer dominated by grasses.

Fauna

Endangered species: Leopard Panthera pardus, blue duiker Cephalophus monticola and samango monkey Cercopithecus mitis.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, grey rhebok Pelea capreolus, mountain reedbuck Redunca fulvorufula and chacma baboon Papio ursinus.

Infrastructure

Visitor Facilities: Showers and toilets at office, and three hiking trails of 18, 8 and 10 km respectively. No overnight huts.

Numbers: 3 645 per annum Potential: 4 000 per annum.

Staff (and positions): Resident forester and staff of one clerk and 14 labourers. Area is the responsibility of the District Forest Officer at Humansdorp.

Budget: R70 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X537, Humansdorp, 6300, South Africa.

Other Information of Interest: Bushman paintings in a cave.

Principal Reference Material

Kruger F J 1974. Report on conservation management proposals. Groendal State Forest. Directorate of Forestry, unpublished report.

Preparation: J L de V van Zyl, August 1983.

29 TSITSIKAMMA INDIGENOUS FOREST

Proclamation

Date Established: 1890

Decree Number: Government Notice 701 of 1890 and Government Notice 116 of 1902.

Geographical Features

Location: Latitude: 33°48' - 34°05'S Longitude: 23°24' - 24°25'E
Nearest town and distance: Plettenberg Bay, 10 km
Area: 15 651 ha

Physical Features

Elevation: Lowest: Sea level Highest: 1 000 m
Highest Mountain: Formosa Peak, Tsitsikamma Mountains
Annual rainfall: 650 mm (coast) to 1 200 mm (mountain range).
Annual average temperature range: Minimum: 11°C Maximum: 20°C
Rainy season: All year round with peaks in February/March and August/October.

Soils: The Table Mountain Sandstone has weathered to sandy loams in the mountainous areas and the higher altitudes of the upper plateau and to loam soils throughout the lower plateau. These soils are acidic. Clayey soils are found in the lower plateau where the parent material belongs to the Bokkeveld Series.

Description of Geomorphology: Severe north-south orientated compressive stresses produced the so-called Cape Folded Belt with the resistant strata forming the prominent Tsitsikamma Mountain Range, running from east to west.

Major rivers and streams: Keurbooms, Bobbejaans, Groot, Bloukrans, Elandsbos, Kleinbos and Storms Rivers.

Vegetation and Flora

Vegetation types: Knysna Forest (Veld Type 4) (Acocks 1975).

Description of vegetation: Sites are generally ecologically complex and the following six forest types are approximate, artificial groupings of sites with similar features: (a) Very dry Scrub-Forest occurs on shallow soils and on hot, dry aspects with thorny shrubs such as Maytenus heterophylla, Carissa bispinosa, Scutia myrtina and Dovyalis rhamnoides. (b) Dry High-Forest occurs on well-drained or shallow soils with warm aspects and especially on steep slopes, with Cassine peragua, Rhus chirindensis, Maytenus acuminata and Canthium inerme. (c) Medium-moist High-Forest occurs on generally poorly drained soils, with Olea capensis subsp macrocarpa, Podocarpus latifolius and P falcatus, Pterocelastrus tricuspidatus and Apodytes dimidiata. (d) Moist High-Forest occurs on moist, deep loamy soils on southerly aspects with Ocotea bullata, Maytenus peduncularis, Ilex mitis and Platylophus trifoliatus. (e) Wet High-Forest occurs on cooler aspects with wet soils, often shallow, but with relatively good drainage where Cunonia capensis and Ocotea bullata form a main canopy. (f) Very wet Scrub-Forest occurs on steep, wet slopes with shallow soils where Cunonia capensis is the dominant species, while Ocotea bullata, Podocarpus latifolius and Virgilia oroboides also occur.

Economically important species of plants: Various species are harvested for the furniture trade, the most important being Ocotea bullata, Podocarpus latifolius, P falcatus, Platylophus trifoliatus, Rapanea melanophloeos and Olinia ventosa. Rumohra adiantiforme is harvested for the florist trade.

Endemic species of plants: Strelitzia alba occurs between Knysna and Humansdorp especially in the Grootrivier Pass.

Fauna

Endangered species: Mammals: leopard Panthera pardus, honey badger Mellivora capensis, blue duiker Cephalophus monticola and lesser woolly bat Kerivoula lanosa. Amphibians: Arum lily frog Hyperolius horstocki. Birds: Cape eagle owl Bubo capensis, Knysna warbler Bradypterus sylvaticus and Victorin's warbler Bradypterus victorini.

Dominant or important species of fauna: Conspicuous large mammals include bushbuck Tragelaphus scriptus, bushpig Potamochoerus porcus, chacma baboon Papio ursinus and caracal Felis caracal. Bird life is prolific and some restricted forest species occur.

Infrastructure

Visitor Facilities: Tsitsikamma Hiking Trail, a camp site and a day walk at Groot River.

Numbers: Hiking trail (visitor nights) - 12 163 per annum
Camping (visitor nights) - 11 392 per annum
Walks (visitors) - 15 659 per annum
Fishing (visitors) - 1 403 per annum
Mountain climbing (visitors) - 365 per annum
Picnic (visitors) - 845 per annum

Potential: Hiking trail (visitor nights) - 54 000 per annum

Staff (and positions): Resident foresters and staff at each of the six forest stations. The area is the responsibility of two District Forest Officers at Humansdorp.

Budget: R78 500,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X537, Humansdorp, 6300, South Africa.

Principal Reference Material

Phillips J F V 1931. Forest Succession and Ecology in the Knysna Region. Government Printer, Pretoria.

Von Breitenbach F 1974. Southern Cape Forest and Trees. Government Printer, Pretoria.

Preparation: D van Dijk, D J R Gous and A Seydack, August 1983.

30 STORMS RIVER NATURE RESERVE

Proclamation

Date Established: 1925

Decree Number: Not available.

Geographical Features

Location: Latitude: 33°51' - 33°58'S Longitude: 23°50' - 24°07'E
Nearest town and distance: Plettenberg Bay, 90 km
Area: 13 700 ha

Physical Features

Elevation: Lowest: 275 m Highest: 1 232 m
Highest Mountain: Bakonkop
Annual rainfall: 1 200 mm
Annual average temperature range: Minimum: 5°C Maximum: 18°C
Rainy season: All year.

Soils: Derived from sandstone and quartzites of the Table Mountain Group. Mainly leached, sandy, acid soils.

Description of Geomorphology: Foothills and southern slopes of the folded Tsitsikamma Mountains, high peaks with long radiating ridges.

Major rivers and streams: Storms, Kruis and Elands Rivers.

Vegetation and Flora

Vegetation types: Knysna Forest (Veld Type 4) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Podocarpus, Ocotea and Cunonia forests. Tall mid-dense Leucadendron-Berzelia shrubland.

Fauna

Endangered species: Mammals: honey badger Mellivora capensis, leopard Panthera pardus and blue duiker Cephalophus monticola. Birds: Victorin's warbler Bradypterus victorini and protea canary Serinus leucopterus.

Dominant or important species of fauna: Chacma baboon Papio ursinus, klipspringer Oreotragus oreotragus and caracal Felis caracal. Bird life is prolific and includes various Nectarina spp.

Infrastructure

Visitor Facilities: None
Numbers: Nil Potential: Unknown

Staff (and positions): Nine foresters, 12 foremen and 227 labourers at Storms River, Blue Lilliesbush and Witelsbos, all spending only a portion of their work time in this area. Areas are the responsibility of the District Forest Officer at Humansdorp.

Budget: R25 000,00 per annum (excluding salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X537, Humansdorp, 6300, South Africa.

Principal Reference Material

Unpublished departmental reports.

Preparation: A J Southwood, August 1983.

31 OTTERFORD STATE FOREST

Proclamation

Date Established: 1896

Decree Number: Government Notice 869 of 1896 and the Mountain Catchment Areas Act 63 of 1970.

Geographical Features

Location: Latitude: 33°40'S Longitude: 25°00'E

Nearest town and distance: Hankey, 20 km

Area: 11 467 ha

Physical Features

Elevation: Lowest: 100 m Highest: 1 106 m

Highest Mountain: Stinkhoutberg

Annual rainfall: 700 mm

Annual average temperature range: Minimum: 10°C Maximum: 27°C

Rainy season: All year round.

Soils: Derived from sandstones and quartzites of the Table Mountain Group. Soils are mainly sandy, acid and leached (lithosols).

Description of Geomorphology: A fairly low mountain range which arose from folding. The Elandsberg is the easternmost extension of the Baviaanskloof Mountains.

Major rivers and streams: Noagas, Boskloof, Heuningkloof, Diepkloof, Klein, Maartens and Lorie Rivers.

Vegetation and Flora

Vegetation types: False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: This is the most easterly remnant of typical fynbos, ie characteristic fynbos genera unmixed with grassy subtropical elements, especially in mesic proteoid communities. The dominant community is a Protea neriifolia shrubland.

Economically important species of plants: Protea neriifolia, P cynaroides, P repens and P eximia.

Endemic species of plants: Paranomus reflexus, member of the Proteaceae family.

Fauna

Endangered species: A chameleon Bradypodion taeniobronchum (possibly endemic).

Dominant or important species of fauna: A comparatively rare lacertid lizard of the Nucras spp occurs. Also occurring are chacma baboon Papio ursinus, vervet monkey Cercopithecus pygerythrus, klipspringer Oreotragus oreotragus and caracal Felis caracal.

Infrastructure

Visitor Facilities: None

Numbers: 5 per annum Potential: 2 500 per annum

Staff (and positions): Four resident foresters, five foremen, two clerks and 126 labourers at Otterford Forest Station. Area is the responsibility of the District Forest Officer in Humansdorp.

Budget: R6 000,00 per annum (excluding salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X537, Humansdorp, 6300, South Africa.

Other Information of Interest: The Forester and staff are also responsible for a plantation area of 6 000 ha adjoining this conservation area.

Principal Reference Material

Bond W 1981. Conservation areas in Longmore State Forest and vicinity. Directorate of Forestry, unpublished report.

Preparation: J L de V van Zyl, August 1983.

32 DE VASSELLOT NATURE RESERVE

Proclamation

Date Established: 21 June 1974

Decree Number: Government Notice 1053 of 1974.

Geographical Features

Location: Latitude: 33°58' - 34°00'S Longitude: 23°29' - 23°35'E

Nearest town and distance: Nature's Valley, 2 km

Area: 2 560 ha

Physical Features

Elevation: Lowest: Sea level Highest: 120 m

Highest Mountain: Not applicable

Annual rainfall: 1 011 mm

Annual average temperature range: Minimum: 5°C Maximum: 18°C

Rainy season: All year, with peaks in March, August and October.

Soils: Seasonally waterlogged soils (Nestleigh, Kroonstad) are dominant on the plateau, associated with dry soils on the verge of the plateau, with clayey (often structured) sub-soils (Estcourt, Sterkspruit, Swartland).

Description of Geomorphology: Soils are strongly influenced by deposits of marine clay on the coastal plateau with duplex soils.

Major rivers and streams: Sout, Brak and Groot Rivers.

Vegetation and Flora

Vegetation types: Knysna Forest (Veld Type 4), False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Indigenous forests occur in lower lying areas and kloofs, with the following dominant species occurring: Virgilia oroboides, Podocarpus latifolius, P. falcatus, Olinia ventosa, Rapanea melanophloeos and Sideroxylon inerme. Proteaceae, Ericaceae and Restionaceae are typical of the fynbos and include Protea neriifolia, P. cynaroides, Leucodendron salignum and Erica densifolia.

Fauna

Endangered species: Mammals: leopard Panthera pardus and blue duiker Cephalophus monticola. Birds: Victorin's warbler Bradypterus victorini.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, grysbok Raphicerus melanotis and klipspringer Oreotragus oreotragus. A number of pairs of African fish eagle Haliaeetus vocifer occur, and many bird species typical of the forest and fynbos habitats.

Infrastructure

Visitor Facilities: Hiking trail (day trips).

Numbers: 500 per annum Potential: Not determined.

Staff (and positions): Two resident foresters, three foremen and 50 labourers at Bloukrans and Keurbooms Rivers. Area under the control of the District Forest Officer at Humansdorp.

Budget: R30 000,00 per annum (excluding salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X537, Humansdorp, 6300, South Africa.

Principal Reference Material

Unpublished management plan for the area.

Preparation: D J R Gous, August 1983.

33 ALEXANDRIA STATE FOREST

Proclamation

Date Established: 1896

Decree Number: Government Notice 869 of 1896 and Government Notice 346 of 1915.

Geographical Features

Location: Latitude: 33°37' - 33°48'S Longitude: 25°52' - 26°42'E

Nearest town and distance: Alexandria, 8 km

Area: 23 566 ha

Physical Features

Elevation: Lowest: 0 m Highest: 362 m

Highest Mountain: Not applicable

Annual rainfall: 392 mm (Sundays River mouth) to 934 mm (Alexandria Forest Station).

Annual average temperature range: Minimum: 9,2°C Maximum: 25,5°C

Rainy season: Rain in every month with three peaks in March, May and September/October.

Soils: Mobile sand, tertiary limestone and aeolianite overlying the Cape System.

Description of Geomorphology: A system of ancient and recent both mobile and fixed dune ridges - some of which have been transformed into cliffs and sheets of dune rock.

Major rivers and streams: Bordered in the east by the Bushmans River and in the west by the Sundays River. Several blind streams end against main barrier dune.

Other outstanding physical features: Portion of area consists of a vast mobile dune system (possibly the best example of such a system in the world). Dune rock cliffs at Cape Padrone and Woody Cape are impressive.

Vegetation and Flora

Vegetation types: Alexandria Forest (Veld Type 2) and Eastern Province Thornveld (Veld Type 7) (Acocks 1975).

Description of vegetation: Predominant community is Alexandria Forest, the structure of which varies between thicket and forest proper. Community in younger dunes is dune thicket with isolated patches of coastal fynbos. The dune slacks support a characteristic dune slack community made up of 10-20 different species. The hummock dunes inland of high water mark are colonized by dune pioneers. Plant species list is available.

Fauna

Fauna: Endangered species: Leopard Panthera pardus.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, vervet monkey Cercopithecus pygerythrus, bushpig Potamochoerus porcus, large-spotted genet Genetta tigrina, grysbok Raphicerus melanotis, porcupine Hystrix africaeaustralis and black-backed jackal Canis mesomelas. Breeding colony of Damara terns Sterna balaenarum found in Alexandria dunefield.

Infrastructure

Visitor Facilities: None developed. Fishermen make considerable use of the beach. Unmarked forest paths are used by public. There is a picnic site in the forest.

Numbers: 500 per annum Potential: 750 per annum.

Staff (and positions): One District Forest Officer, one resident forester, two foremen and 72 labourers.

Budget: ±R350 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X432, King William's Town, 5600, South Africa.

Other Information of Interest: A section of the National Hiking Way System is being planned for the Alexandria State Forest to include both forest and beach.

Principal Reference Material

Stehle T C. Waaisandbestuursplan vir die Alexandriakusstaatsbos. Unpublished departmental report.

McLachlan A, P R Sieben and C Ascaray 1982. Survey of a major coastal dunefield in the eastern Cape. Zoology Department Report No 10. University of Port Elizabeth.

Preparation: M Burns, August 1983.

34 SUURBERG STATE FOREST

Proclamation

Date Established: 1896

Decree Number: Government Notice 869 of 1896.

Geographical Features

Location: Latitude: 33°17' - 33°23'S Longitude: 25°17' - 25°58'E

Nearest town and distance: Addo, 20 km

Area: 21 121 ha.

Physical Features

Elevation: Lowest: 250 m Highest: 970 m

Highest Mountain: Olifantskop

Annual rainfall: 722 mm

Annual average temperature range: Minimum: 4,7°C Maximum: 30,3°C

Rainy season: Rain throughout the year, peaks in early and late summer.

Soils: Sandy and clayey loams - shallow on the ridges and deeper in the valleys and on the lower slopes.

Description of Geomorphology: Major geological formations are the folded quartzite, sandstone and shales of the Witteberg Series and the tillite and shales of the Dwyka Series.

Major rivers and streams: The Kabouga and Wit Rivers.

Other outstanding physical features: The mountain folds are the most outstanding physical feature of the area.

Vegetation

Vegetation types: False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: The following communities have been identified: Tristachya-Themeda veld on ridges above 800 m, Festuca-Myrsine veld on southern moist slopes, Cliffortia veld on southern slopes, dry scrub forest on southern slopes and sheltered valleys, Themeda-Setaria veld on northern, drier slopes, Bobartia-Trachypogon veld on the broad ridge plateau and very dry scrub forest on the southern Suurberg foothills (northern and western aspects).

Fauna

Endangered species: Leopard Panthera pardus thought to occur.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, kudu Taurotragus strepsiceros, caracal Felis caracal, bushpig Potamochoerus porcus, common duiker Sylvicapra grimmia, chacma baboon Papio ursinus, black-backed jackal Canis mesomelas, grey rhebok Pelea capreolus and vervet monkey Cercopithecus pygerythrus.

Infrastructure

Visitor Facilities: Two marked day walks and picnic site. Main section open for hiking - no marked routes.

Numbers: 1 654 per annum Potential: Under-utilized at present.

Staff (and positions): One District Forest Officer, one resident forester and 12 labourers.

Budget: ±R57 500,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X432, King William's Town, 5600, South Africa.

Other Information of Interest: Efforts being made to declare the area a Wilderness Area.

Principal Reference Material

Stehle T C 1979. Suurbergstaatsbos Brandbeskermings- en Beheerde Brandplan. Unpublished departmental report.

Preparation: M Burns, August 1983.

35 BATHURST STATE FOREST

Proclamation

Date Established: 1897

Decree Number: Government Notice 182 of 1897.

Geographical Features

Location: Latitude: 33°16' - 33°33'S Longitude: 26°42' - 27°07'E

Nearest town and distance: Bathurst, 5 km

Area: 5 315 ha (986 ha Nature Reserve, 3 824 ha demarcated State Forest and 505 ha underdemarcated State Forest).

Physical Features

Elevation: Lowest: 0 m Highest: 827 m

Highest Mountain: Governorskop

Annual rainfall: 650 mm

Annual average temperature range: Minimum: 12,7°C Maximum: 23,3°C

Rainy season: Autumn and spring.

Soils: The dunes consist of unconsolidated aeolian sand with little profile development. The soils of the other areas of Bathurst consist of weakly developed stony soils on the slopes with deeper, well-drained alluvial soils in the valleys.

Description of Geomorphology: The major geological formation is the Bokkeveld Series, with pronounced dipping and folding. The terrain is hilly with steeply sloped valleys. Witteberg quartzite is evident at Beggar's Bush. There are both mobile and fixed coastal dunes with dune rock in places.

Major rivers and streams: Kowie River and various others.

Other outstanding physical features: The tidal Kowie River. The oxbow in the Kowie River which is visible from the viewpoint in the Waters Meeting Nature Reserve.

Vegetation and Flora

Vegetation types: Alexandria Forest (Veld Type 2), Valley Bushveld (Veld Type 23) and False Macchia (Veld Type 70).

Description of vegetation: Most of the vegetation is Valley Bushveld, represented by two basic variations - that of the hill tops and slopes and that found along the river and stream courses (defined as mesic woodland and thicket or Kaffrarian Succulent Thicket). Beggar's Bush, located on quartzite shale, supports a fynbos community with forest pockets. The dune vegetation contains typical pioneer, intermediate and climax dune thicket species (driftsand reclamation has been carried out using indigenous species and invasives are being eradicated). Plant species list available.

Endemic species of plants: Little information available. The following are south-east Cape endemics: Aloe ciliaris, Asparagus crassicaudus, Combretum caffrum, Euphorbia grandidens, Scadoxus puniceus and Strelitzia reginae.

Fauna

Endangered species: Leopard Panthera pardus thought to occur.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, bushpig Potamochoerus porcus, chacma baboon Papio ursinus and vervet monkey Cercopithecus pygerythrus.

Infrastructure

Visitor Facilities: Unmarked walks and three picnic sites in the Waters Meeting Nature Reserve. Trail being planned for area.

Numbers: 3 545 per annum Potential: Close to desired limit.

Staff (and positions): One District Forest Officer, one resident forester, one foreman and 42 labourers.

Budget: R155 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X432, King William's Town, 5600, South Africa.

Principal Reference Material

Heydorn A E F and J R Grindley 1982. Estuaries of the Cape, Part II. Synopses of Available Information on Individual Systems. Report No 10, Kowie, CSIR Research Report, 409 pp.

Lubke R A, G D Court, A R Palmer, St E Wilken and C Lang 1983. Report on the Conservation of the Riparian Woodland of the Valley Bushveld, (with specific objections to the construction of an off-channel reservoir on the Bathurst Stream to augment the fresh water supply to Port Alfred Municipality). Unpublished representation to the Minister of Environment Affairs.

Preparation: M Burns, August 1983.

36 EAST LONDON COAST STATE FOREST

Proclamation

Date Established: 1887

Decree Number: Government Notice 1029 of 1887 and Government Notice 1108 of 1904.

Geographical Features

Location: Latitude: 32°42' - 33°18'S Longitude: 27°26' - 28°23'E

Nearest town and distance: East London, 5 km

Area: 4 369 ha (889 ha Nature Reserves, 2 023 ha demarcated State Forest and 1 457 ha undemarcated State Forest).

Physical Features

Elevation: Lowest: 0 m Highest: 349 m

Highest Mountain: Not applicable

Annual rainfall: 862 mm

Annual average temperature range: Minimum: 10,2°C Maximum: 25,6°C

Rainy season: Rain in all months. Peaks in March and October.

Soils: Soils along the coast consist of unconsolidated dune sand with very limited profile development. Other soils (such as at Fort Grey and Fort Pato) are derived from Beaufort Sandstones and shales and doleritic intrusions. These soils can be grouped as red doleritic clays, black doleritic clays, and gray sandy loams.

Description of Geomorphology: Coastal strip consists of both mobile and fixed dune ridges aligned parallel to the coast with vegetation. Fort Grey and Fort Pato located within so-called coastal belt. Geological formation is mainly Beaufort Series of the Karoo System which has been cut by the Buffalo River valley.

Major rivers and streams: Buffalo and Keiskamma River mouths and various other rivers.

Vegetation and Flora

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) and Valley Bushveld (Veld Type 23) (Acocks 1975).

Description of vegetation: Coastal vegetation consists of pioneer dune communities and the various successional stages towards climax dune forest or dune thicket. The vegetation of Fort Pato and Fort Grey is a mixture of grassland, invasive thornveld and dry forest. A plant species list is available.

Endemic species of plants: Umtiza listeriana.

Fauna

Endangered species: Samango monkey Cercopithecus albogularis, tree dassie Dendrohydrax arboreus and blue duiker Cephalophus monticola.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, vervet monkey Cercopithecus pygerythrus, bushpig Potamochoerus porcus, porcupine Hystrix africaeaustralis, caracal Felis caracal and antbear Orycteropus afer. Birds are numerous and include a breeding pair of crowned eagle Stephanoaetus coronatus.

Infrastructure

Visitor Facilities: Walks in Nature Reserves, picnic sites along coast and caravan park at Double Mouth.

Numbers: 1 450 per annum Potential: Maximum almost reached.

Staff (and positions): One District Forest Officer, one resident forester, two foremen and 47 labourers.

Budget: ±R225 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X432, King William's Town, 5600, South Africa.

Other Information of Interest: The ruins of Fort Pato are located within the Fort Pato Nature Reserve. Several kilometres of unspoilt coastline under the control of the Department is a feature of the Border Region.

Principal Reference Material

Board C 1962. The Border Region, Natural Environment and Land Use in the Eastern Cape. Edited by E D Mountain and J V L Rennie, Oxford University Press, 238 pp.

Preparation: M Burns, August 1983.

37 DRAKENSBERG STATE FORESTS

Proclamation

Date Established: 1930

Decree Number: Gazette Notice 781 of 1973 and Gazette Notice 1563 of 1979.

Geographical Features

Location: Latitude: 29°40' - 30°55'S Longitude: 28°55' - 29°45'E

Nearest town and distance: From north to south: Winterton, 40 km, Mooi River, 50 km, Nottingham Road, 40 km, Himeville, 13 km and Underberg, 50 km.

<u>Area:</u> Cathedral Peak State Forest	31 500 ha
Monk's Cowl State Forest	20 500 ha
Highmoor State Forest	30 500 ha
Mkhomazi State Forest	41 000 ha
Cobham State Forest	39 000 ha
Garden Castle State Forest	27 500 ha
Total	<u>190 000 ha</u>

Physical Features

Elevation: Lowest: 1 350 m Highest: 3 377 m

Highest Mountain: Champagne Castle

Annual rainfall: 1 300 mm

Annual average temperature range: Minimum: 9°C Maximum: 16°C

Rainy season: Summer rainfall (80%), but with snowfalls and some rain in winter (20%).

Soils: Principally dystrophic, highly weathered, shallow ferriferous oxisols, highly acid, with low fertility, characterized by high (near toxic) levels of aluminium and manganese in the B horizon. Seepage and wet areas contain gleyed or organic soils. Detrital and valley bottom areas carry a variety of transported soils.

Description of Geomorphology: A mountain range of horizontally bedded strata. The underlying sedimentary layers (Molteno, Elliot and Clarens Formations) rise in clearly defined steps, constituting the foothills and the Little 'Berg. These are covered by basalt layers nearly two kilometres thick. The scarps of the Little and Main 'Berg were formed by valley head erosion, resulting in landscapes not found in any other mountain system.

Major rivers and streams: All the major tributaries of the Tugela, Mkhomazi and Mzimkulu Rivers.

Other outstanding physical features: The Drakensberg escarpment forms one of the major natural spectacles of the sub-continent.

Vegetation and Flora

Vegetation types: Highland Sourveld (Veld Type 44(a)), Themeda-Festuca Alpine Veld (Veld Type 58) and Southern Tall Grassveld (Veld Type 65) (Acocks 1975).

Description of vegetation: The only alpine vegetation to be found in southern Africa is found in the high-altitude areas of the Drakensberg and the Maluti mountains. A narrow belt of alpine vegetation occurs throughout the high areas of these reserves, with a wider belt of sub-alpine vegetation below this. The vegetation of the Alpine and Sub-alpine Belts consists of tussock grasslands, heathland and extensive watersource wetlands consisting of bogs and vleis. The Afro-montane Region vegetation is composed of forests and associated savannas, shrublands and both fire-climax and edaphic grasslands and related communities such as vleis and shallow-soil areas. The Drakensberg mountain archipelago has been identified as an important regional centre of endemism while the entire area is a localized centre of speciation of outstanding importance, with an estimated 300 endemics out of a total of about 1 800 plant species present. The Passerina, Erica and Cliffortia spp dwarf alpine heathlands found at between 2 900 and 3 400 m are dominated by Erica and ericoid species, and contain a number of endemic species not yet identified. The Passerina, Phillipia and Widdringtonia spp heathlands are found at altitudes of between ± 1 800 to 2 900 m. The high elevation Afro-alpine grassland communities lie at altitudes above 1 800 m, and occur on very shallow soils which frequently freeze, even in summer. The veld is characteristically short and dense. The Highland Sourveld dominants

include Themeda triandra, Tristachya leucothrix, Heteropogon contortus and Diheteropogon filifolius. Podocarpus forest dominants include P latifolius, Pterocelastrus echinatus, Celtis africana and Curtisia dentata.

Endemic species of plants: The approximately 300 endemic plants include a number of ericoid and asteraceous species. These are principally found in the alpine and sub-alpine communities. There are also a limited number of Afro-montane endemics present.

Fauna

Endangered species: Fourteen species of rare and endangered birds occur in the area. Endangered mammals include leopard Panthera pardus, serval Felis serval and oribi Ourebia ourebi.

Dominant or important species of fauna: Porcupine Hystrix africaeaustralis, bushbuck Tragelaphus scriptus, grey rhebok Pelea capreolus, mountain reedbuck Redunca fulvorufula, reedbuck Redunca arundinum, common duiker Sylvicapra grimmia, chacma baboon Papio ursinus, black-backed jackal Canis mesomelas, red hartebeest Alcelaphus buselaphus, klipspringer Oreotragus oreotragus, black wildebeest Connochaetes gnou and eland Taurotragus oryx. About 100 species of birds have been recorded in the area.

Infrastructure

Visitor Facilities: Primitive wilderness and quasi-wilderness experience may be obtained throughout. This includes mountaineering. The Giant's Cup Section of the National Hiking Way provides a total of 60 km of trail with four overnight huts. Camp facilities with ablution blocks are available at two forest stations (Cathedral Peak and Monk's Cowl). Primitive camp sites are also available at three other stations. There are many hotels and hutted camps adjacent to the state forests from which visitors may undertake walks or hikes. Access is through a number of entry gates. Many popular day or part day walks are available.

Numbers: 70 000 per annum Potential: 150 000 per annum.

Staff (and positions): The office of the Regional Director, Natal Forest Region, Pietermaritzburg houses resource management and planning staff (five professional and three technical officers). On each of the six stations, one or two technical management staff control approximately 25 000 to 30 000 ha each. A force of 6 to 12 guards per station and approximately 25 labourers is also maintained on each station. At Cathedral Peak a permanent research staff of three professional officers and three technical staff are maintained.

Budget: R750 000,00 per annum (including research and salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X9029, Pietermaritzburg, 3200, South Africa.

Other Information of Interest: This is the most important catchment area in Natal. Together with the Natal Parks Board areas and the Sehlabathebe National Park in Lesotho, a composite natural area of over 2 000 km² exists. The State forests and the Natal Parks Board areas together

constitute the largest natural area in Natal. Caves along the length of the Drakensberg are home to some important Stone Age rock art, in the form of Bushman paintings. Localized concentrations, such as in the Ndedema, and the high quality of the art work make these paintings a heritage of world significance.

Principal reference material

Hilliard O M 1978. Notes from the Royal Botanic Garden, 36(2), 407-425. Edinburgh.

Hilliard O M 1980. A preliminary list of plants endemic to the Drakensberg or, in Natal, confined to the Drakensberg. University of Natal.

Killick D J B 1963. Ecology of Cathedral Peak Area. Botanical Survey of South Africa Memoirs No 34, Botanical Research Institute, Pretoria.

Killick D J B 1978. Biogeography and Ecology of Southern Africa. In: Werger M J A (Ed). W Junk, The Hague.

White F 1978. Biogeography and Ecology of Southern Africa. In: Werger M J A (Ed). W Junk, The Hague.

Preparation: W R Bainbridge, D F Scott and I Gordon, April 1984.

38 WEZA STATE FOREST

Proclamation

Date Established: 1904

Decree Number: Government Notice 60.

Geographical Features

Location: Latitude: 30°31' - 30°41' S Longitude: 29°34' - 29°43'E

Nearest town and distance: Kokstad, 20 km

Area: Approximately 9 000 ha (this data sheet covers a portion of the Wesa State Forest).

Physical Features

Elevation: Lowest: 960 m Highest: 2 268 m

Highest Mountain: iNgeli Peak (iNgeli Mountain Range).

Annual rainfall: 1 000 mm increasing to 1 500 mm on iNgeli Mountain Range.

Annual average temperature range: Minimum: 9°C Maximum: 19°C

Rainy season: Summer (October to May).

Soils: On the slopes and foothills of the iNgeli Mountain Range the soils are doleritic and of good depth except along ridges and certain areas of sheet rock where they are shallow. Soils are typically yellow and apedal, freely drained and dystrophic.

Description of Geomorphology: The geological formations of Weza State Forest are classified as the Karoo System, Ecca Series, which consist of sandstones and shales. Numerous doleritic dykes and sills have intruded into the area to form the iNgeli Mountain Range and eastward-running ridges of the foothills.

Major rivers and streams: Various streams of which the Mtamvuna is the largest.

Other outstanding physical features: The iNgeli Mountain Range.

Vegetation and Flora

Vegetation types: Highland Sourveld (Veld Type 44(a)) and a small area of 'Ngongoni Veld (Veld Type 5) (Acocks 1975).

Description of vegetation: Dominant species of the Highland Sourveld include Themeda triandra, Tristachya hispida, Trachypogon capensis, Heteropogon contortus, Eragrostis chalcantha and Eragrostis capensis. Two major and a complex of minor Podocarpus forests also occur on the reserve. Afromontane forests are dominated by Podocarpus falcatus, P latifolius, P henkelii, Calodendron capense, Ocotea bullata, etc.

Economically important species of plants: Podocarpus spp, Ocotea bullata and other high forest trees.

Endemic species of plants: Dioscorea brownii and Macowania conferta. Streptocarpus johannis is endemic from Port St Johns to the iNgeli area.

Fauna

Endangered species: Serval Felis serval and samango monkey Cercopithecus albogularis (large populations in each main forest area). Various species of endangered birds occur in the area, including the Cape vulture Gyps coprotheres and several raptor species.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus (750), common duiker Sylvicapra grimmia (750), caracal Felis caracal, large spotted genet Genetta tigrina, large grey mongoose Herpestes ichneumon, water mongoose Atilax paludinosus, Cape clawless otter Aonyx capensis, chacma baboon Papio ursinus, vervet monkey Cercopithecus pygerythrus, reedbuck Redunca arundinum and grey rhebok Pelea capreolus. Bird life is abundant and includes a number of interesting raptor and forest species.

Infrastructure

Visitor Facilities: 92 km of National Hiking Way trail which includes four overnight huts. No visitor access during fire season (June to August) of adjacent Weza plantation.

Numbers: 2 100 per annum Potential: 25 000 per annum.

Staff (and positions): One special grade control forester, seven foresters, 18 foremen and 450 labourers at Weza Forest Station. The area is the responsibility of the District Forest Officer at iNgeli, based in Pietermaritzburg.

Budget: R2 000 000,00 per annum (including salaries) for the entire plantation area.

Local Administration: The Regional Director, Directorate of Forestry, Private Bag 9029, Pietermaritzburg, 3200, South Africa.

Other Information of Interest: Deposits of bauxite were discovered in the area but it is not known whether or not they are economically exploitable.

Principal Reference Material

Cyrus D P and N F Robson 1980. Bird Atlas of Natal. Pietermaritzburg, University of Natal Press.

Various unpublished departmental reports.

Preparation: S C Button, July 1983.

39 SODWANA/CAPE VIDAL STATE FORESTS

Proclamation

Date Established: 1956

Decree Number: Government Notice 1408 of 1956.

Geographical Features

Location: Latitude: 27°32' - 28°08'S Longitude: 32°25' - 32°40'E

Nearest town and distance: St Lucia, 40 km

Area: Cape Vidal State Forest - 10 684 ha
Sodwana State Forest - 47 270 ha

57 954 ha

Physical Features

Elevation: Lowest: 5 m Highest: 172 m

Highest Mountain: Not applicable

Annual rainfall: 1 157 mm

Annual average temperature range: Minimum: 17°C Maximum: 25°C

Rainy season: Summer, with 67% of rainfall from October to March.

Soils: Soil survey being undertaken at present.

Description of Geomorphology: Large coastal barrier dune system with dunes reaching a height of 172 m and separating the sea from a coastal lake-estuarinal system.

Major rivers and streams: None.

Other outstanding physical features: Borders on largest estuarinal system in Africa, Lake St Lucia. Contains inland fresh water lake. Spectacular high forested dunes.

Vegetation and Flora

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) (Acocks 1975).

Description of vegetation: Dune forest on coastal dune with Mimusops caffra, Diospyros natalensis and Ziziphus mucronata. Coastal grassland dominated by Themeda triandra, Aristida junciformis and hygrophilous species such as Sporobolus subtilis and Acroceras macrum. Swamp forest dominants include Barringtonia racemosa and Syzygium cordatum. Pans, reed and sedge swamp dominated by Eleocharis dregeana and Fuirena spp.

Economically important species of plants: Juncus krausii is used to make reedmats.

Fauna

Endangered species: Mammals: samango monkey Cercopithecus albogularis, thick-tailed bushbaby Galago crassicaudatus. Reptiles: veld monitor Varanus exanthematicus albigularis, water monitor Varanus niloticus, crocodile Crocodylus niloticus, Southern African python Python sebae natalensis and gaboon adder Bitis gabonica gabonica. Endangered birds include: pinkbacked pelican Pelecanus rufescens, white pelican Pelecanus onocrotalus, woollynecked stork Ciconia episcopus, Ayres' eagle Hieraaetus agresii and southern banded snake eagle Circaetus fasciolatus as well as various forest species, not rare within the forest, but threatened by loss of habitat elsewhere.

Dominant or important species of fauna: Reedbuck Redunca arundinum (5 000), hippopotamus Hippopotamus amphibius, bushpig Potamochoerus porcus, buffalo Syncerus caffer, waterbuck Kobus ellipsiprymnus and vervet monkey Cercopithecus pygerythrus.

Infrastructure

Visitor Facilities: No visitor facilities in the State Forest as such. Some developments may be carried out in the future.

Numbers: None Potential: Unknown.

Staff (and positions): Three professional, three technical and 20 labourers. (Combination of Forestry and Natal Parks Board personnel). Area is the responsibility of the District Forest Officer at Eshowe, and is served by a professional planning team from Pietermaritzburg.

Budget: R50 000,00 per annum (excluding salaries).

Local Administration: The Regional Director, Private Bag 506, Eshowe, 3815, South Africa.

Other Information of Interest: The Defence Force has rights to the area and uses it for weapons testing and training. This area contains one of the three prime dune conservation sites on the Natal coast as well as large expanses of hygrophilous grassland and a large undisturbed Phragmites-Papyrus swamp system.

Principal Reference Material

Taylor R H 1980. A land capability study for hippopotamuses at Lake St Lucia, Zululand. MSc Thesis, University of Natal.

Preparation: B Bishop, July 1983.

40 DUKUDUKU STATE FOREST

Proclamation

Date Established: 1930

Decree Number: Government Notice 1479 of 1930.

Geographical Features

Location: Latitude: 28°17' - 28°27' S Longitude: 32°14' - 32°24'E

Nearest town and distance: Mtubatuba, 16 km

Area: 15 055 ha (this data sheet covers a portion of the Dukuduku State Forest).

Physical Features

Elevation: Lowest: 4 m Highest: 70 m

Highest Mountain: Not applicable

Annual rainfall: 1 000 mm

Annual average temperature range: Minimum: 13,4°C Maximum: 30°C

Rainy season: Summer, with 60% of rainfall from October to March.

Soils: Fernwood dominant. Soil survey presently underway.

Description of Geomorphology: The area consists of a number of parallel dune ridges and troughs. Clayey soils occur on the eastern dunes and in the troughs. The rest of the soils are grey to red sands.

Major rivers and streams: Umfolozi River and Mpate stream (on borders).

Other outstanding physical features: Mfutululu Lake.

Vegetation and Flora

Vegetation types: The Typical Coast-belt Forest (Veld Type 1(a)) (Acocks 1975).

Description of vegetation: The area is dominated by coastal Lowland Forest with natural grassland tongues in between the forest patches. The average canopy height ranges between 12 and 18 metres. The dominant canopy species in the various forest communities are Strychnos decussata, S madagascariensis, Celtis africana, Trichilia dregeana, Harpephyllum caffrum, Hymenocardia ulmoides and Apodytes dimidiata in places. A very limited patch is dominated by Chrysophyllum viridifolium and Cavacoa aurea. Other species of interest are Manilkara discolor, Tapura fischeri, Croton sylvaticus, Balanites maughamii and Podocarpus falcatus. Swamp forest has

limited distribution in the area and it is dominated by Ficus trichopoda, Schefflera umbellifera, Voacanga thouarsii and Syzygium cordatum.

Economically important species of plants: Phragmites spp and Juncus kraussii for reed mats.

Fauna

Endangered species: Mammals: red duiker Cephalophus natalensis, samango monkey Cercopithecus albogularis, thick-tailed bushbaby Galago crassicaudatus. Birds: forest species, many of which appear in the South African Red Data Book, are well represented.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, nyala I angasi, porcupine Hystrix africaeaustralis, vervet monkey Cercopithecus pygerythrus, bushpig Potamochoerus porcus, reedbuck Redunca arundinum and hippopotamus Hippopotamus amphibius. This forest is an important breeding area for longcrested eagle Lophaetus occipitalis, crowned eagle Stephanoaetus coronatus, southern banded snake eagle Circaetus fasciolatus, black sparrowhawk Accipiter melanoleucos, broadbilled roller Eurystomus glaucurus and white-eared barbet Stactolaema leucotis. These birds have been recorded nesting or displaying in the area.

Infrastructure

Visitor Facilities: Picnic site only.

Numbers: Not determined Potential: Unknown.

Staff (and positions): One District Forest Officer, one resident forester and six forest guards, who spend a portion of their time in the natural area and the rest in the forestry plantation.

Budget: R20 000,00 per annum (excluding salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag 503, Eshowe, 3815, South Africa.

Other Information of Interest: The indigenous forest area will probably be declared a nature reserve in 1984/1985.

Principal Reference Material

Henkel J S, S St C Ballenden and A W Bayer 1936. An account of the plant ecology of the Dukuduku forest reserve and adjoining areas of the Zululand coast belt. Annals of the Natal Museum 8, 95-125.

Gordon I G 1983. 4th year report, College for Foresters: Saasveld, typescript.

Preparation: I Gordon, July 1983.

41 NTENDEKA WILDERNESS AREA

Proclamation

Date Established: 1905

Decree Number: Government Notice 53 of 1905 and Government Notice 1870 of 1975.

Geographical Features

Location: Latitude: 27°47'S - 27°54'S Longitude: 31°21'E - 31°27'E

Nearest town and distance: Vryheid, 62 km

Area: 5 230 ha.

Physical Features

Elevation: Lowest: 500 m Highest: 1 200 m

Highest Mountain: Not applicable

Annual rainfall: 1 500 mm

Annual average temperature range: Minimum: 14°C Maximum: 23°C

Rainy season: Summer (October - March).

Soils: Red ferriferous soils. Highly leached and deeply weathered acidic soils of mixed dolerite and sandstone origin.

Description of Geomorphology: Dolerite and sandstone cliffs bisect the area. Landscape above and below cliffs undulating. Cliffs subject to parallel retreat through granular disintegration and rock fall.

Major rivers and streams: None, only the headwaters of Umfolozi River.

Other outstanding physical features: Spectacular cliffs and waterfall.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) (Acocks 1975).

Description of vegetation: Cooper, who has just completed a survey of the forests of Natal, regards Ngome as an excellent example of a transitional forest from the Indian Ocean Coast Belt Type (Coastal Escarpment sub-type) to the Afro-Montane type (Mist Belt Mixed Podocarpus sub-type). The following have been recorded at Ngome: Protorus longifolia, Croton sylvaticus, Trichilia dregeana, Eugenia natalitia, Schefflera umbellifera, Rauvolfia caffra, Trema orientalis, Anastrabe integerrima, Harpephyllum caffrum, Trichocladus grandiflorus, Cassinopsis tinifolia and Dalbergia armata. On the other hand, trees more typical of the Mist Belt Mixed Podocarpus forests which occur at Ngome include: Xymalos monospora, Cryptocarya myrtifolia, Rinorea angustifolia, Ficus craterostoma, Podocarpus latifolius, Indigofera natalensis and Olea capensis subsp macrocarpa. The six most abundant large forest trees at Ngome are: Syzygium gerrardii, Combretum kraussii, Brachylaena discolor subsp transvaalensis, Cryptocarya myrtifolia, Rhus chirindensis and Zanthoxylum davyi. Highland Grassland of Acocks Veld Type 8 includes Themeda triandra,

Loudetia simplex, Tristachya leucothrix. Lowland Savanna Grasslands includes Themeda triandra, Eragrostis capensis and Cymbopogon excavatus.

Economically important species of plants: Local people utilized many of the plants found here for medicinal and other purposes. Valuable timber trees include species such as Podocarpus latifolius.

Endemic species of plants: Helichrysum ingomense, Schizochilus gerrardii and Brachystelma ingomense.

Fauna

Endangered species: Mammals: red duiker Cephalophus natalensis, samango monkey Cercopithecus albogularis, blue duiker Cephalophus monticola. Birds: white stork Ciconia ciconia, martial eagle Polemaetus bellicosus, forest buzzard Buteo oreophilus, wattled crane Grus carunculata, Gurney's sugarbird Promerops gurneyi, bald ibis Geronticus calvus and various others included in the South African Red Data Book.

Dominant or important species of fauna: Vervet monkey Cercopithecus pygerythrus, chacma baboon Papio ursinus, common duiker Sylvicapra grimmia, bushbuck Tragelaphus scriptus, porcupine Hystrix africaeaustralis and bushpig Potamochoerus porcus.

Infrastructure

Visitor Facilities: Management trails used by visitors.

Numbers: 100 per annum Potential: 300 per annum.

Staff (and positions): One professional, one technical and 15 labourers. Area falls under responsibility of the District Forest Officer at Eshowe. The area is served by a professional conservation planning team from Pietermaritzburg.

Budget: R31 100,00 per annum (excluding salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag 506, Eshowe, 3815, South Africa.

Other Information of Interest: Investigations underway to identify suitable land surrounding the area for acquisition and subsequent enlargement of the wilderness area.

Principal Reference Material

No published material of great value available.

Preparation: B Bishop, July 1983.

42 MAPHELANA NATURE RESERVE

Proclamation

Date Established: No information

Decree Number: Undemarcated State Forest, to be declared a Nature Reserve during 1984.

Geographical Features

Location: Latitude: 28°24' - 28°29' Longitude: 32°24' - 32°26'

Nearest town and distance: Kwambonambi, 50 km

Area: 1 102 ha

Physical Features

Elevation: Lowest: 0 m Highest: 188 m

Highest Mountain: 188 m

Annual rainfall: 1 288 mm

Annual average temperature range: Minimum: 17,5°C Maximum: 25,4°C

Rainy season: Summer (October - March), 60% of rainfall.

Soils: The soils consist of unconsolidated white to grey-brown sand with a topsoil pH of between 6,7 and 7.

Description of Geomorphology: Maphelana consists of a very high coastal barrier dune system separating the sea from a large coastal wetland area.

Major rivers and streams: Mfolozi River flowing along the western boundary.

Other outstanding physical features: Highest forested dune in South Africa.

Vegetation

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) (Acocks 1975).

Description of vegetation: The forest exhibits two clearly distinguishable communities due to the influence of salt sea spray. The most extensive of these is the Diospyros natalensis community, which covers the lee dune. The other occurs on the foredune where the salt spray damage is intense. Mimusops caffra and Strelitzia nicolai are the most conspicuous trees in the foredune.

Economically important species of plants: Small quantities of Phragmites australis but otherwise none recorded.

Fauna

Endangered species: Mammals: thick-tailed bushbaby Galago crassicaudatus and samango monkey Cercopithecus albogularis. Birds: cuckoo hawk Aviceda cuculoides, longcrested eagle Lophaetus occipitalis, Ayres' eagle Hieraetus agresii, crowned eagle Stephanoaetus coronatus, southern banded snake eagle Circaetus fasciolatus, African fish eagle Haliaeetus vocifer, crested guineafowl Guttera pucheroni, Delegorgue's pigeon Columbo delegorguei, green coucal Ceuthmochares aereus, Rudd's apalis Apalis ruddi,

Woodward's batis Batis fratrum, wattle-eyed flycatcher Platysteira peltata and green twinspot Mandingoa nitidula.

Dominant or important species of fauna: Vervet monkey Cercopithecus pygerythrus and bushbuck Tragelaphus scriptus. Bird life is prolific and includes many forest species.

Infrastructure

Visitor Facilities: None within the area, but there is a Natal Parks Board camp on the northern border.

Numbers: Nil Potential: Low.

Staff (and positions): One District Forest Officer, one forester on part-time basis and two forest guards. Area served by a conservation planning team from Pietermaritzburg.

Budget: R13 000,00 per annum (excluding salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag 503, Eshowe, 3815, South Africa.

Other Information of Interest: Maphelana is one of only three macro-dune areas on the Zululand coast. It is thought to be one of the best preserved dune forests in Natal and exhibits a high species richness. This area originally formed a part of a dune mining lease but, due to public pressure, the mining companies agreed not to mine the area.

Principal Reference Material

Weisser P J 1978. A vegetation study of the Zululand dune areas. Natal Town and Regional Planning Commission Report No 38, Pietermaritzburg.

Venter H J T 1976. An ecological study of the dune forest at Maphelana, Cape St Lucia, Zululand. Journal of South African Botany 42(2), 211-230.

Preparation: D R MacDevette, 29 July 1983.

43 NELSHOOGTE/BERLIN STATE FORESTS

Proclamation

Date Established: 1923

Decree Number: Government Notice 1958 of 1923 and Government Notice 756 of 1936.

Geographical Features

Location: Latitude: 25°30' - 25°55'S Longitude: 30°40' - 30°55'E

Nearest town and distance: Barberton (Nelshoogte), 40 km and Nelspruit (Berlin), 42 km.

<u>Area:</u>	Nelshoogte Nature Reserve	-	211 ha
	D R Hamilton Protea Nature Reserve	-	25 ha
	Starvation Creek Nature Reserve	-	353 ha
	Demarcated State land	-	2 911 ha
			<hr/>
			3 500 ha
			<hr/>

Physical Features

Elevation: Lowest: 855 m Highest: 1 717 m
Highest Mountain: Nelsberg
Annual rainfall: 1 144 mm (Berlin) to 1 099 mm (Nelshoogte).
Annual average temperature range: Minimum: 12°C Maximum: 21°C
Rainy season: Summer (September - April).

Soils: Avalon and Hutton forms. Hornblende granites of the Cape Valley type.

Description of Geomorphology: No information.

Major rivers and streams: Tributaries of the Elands River on Berlin and catchments for the Queens and Suidkaap Rivers on Nelshoogte.

Other outstanding physical features: Scenic viewpoints on the escarpment and cave system on Berlin State Forest.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8), Lowveld Sour Bushveld (Veld Type 9) and Lowveld (Veld Type 10) (Acocks 1975).

Description of vegetation: Lowveld bushveld on the lower areas passing into Lowveld Sour Bushveld on the slopes. Patches of indigenous forest in the cooler wet kloofs with dry scrub forest in the warmer dry kloofs. Montane grassveld on the higher slopes and on top of the escarpment. Dominant plant species include Nuxia floribunda, Celtis africana, Fagara davyi, Acacia caffra, Curtisia dentata, Cussonia spicata, Faurea galpinii, Diospyros whyteana, Ficus ingens and F. sycomorus. Various scarce plants are found in higher lying areas, eg Encephalartos laevifolius and E humilis.

Endemic species of plants: Encephalartos humilis and Protea roupelliae subsp hamiltonii.

Fauna

Endangered species: Leopard Panthera pardus, serval Felis serval, oribi Ourebia ourebi and red duiker Cephalophus natalensis.

Dominant or important species of fauna: The above endangered species, and bushbuck Tragelaphus scriptus, mountain reedbuck Redunca fulvorufula, klipspringer Oreotragus oreotragus, vervet monkey Cercopithecus pygerythrus, chacma baboon Papio ursinus, caracal Felis caracal and small-spotted genet Genetta genetta.

Infrastructure

Visitor Facilities: One picnic site at Nelshoogte.

Numbers: Less than 50 per annum Potential: Can be developed.

Staff (and positions): One professional forest officer doing planning from Regional Office at Nelspruit. Four plantation foresters carrying out burning on a rotational basis.

Budget: No figures available.

Local Administration: The Regional Director, Directorate of Forestry, Private Bag 11201, Nelspruit, 1200, South Africa.

Principal Reference Material

Various unpublished departmental reports.

Preparation: G H le Roux, August 1983.

44 UITSOEK STATE FOREST

Proclamation

Date Established: 1953

Decree Number: Government Notice 361 of 1953.

Geographical Features

Location: Latitude: 25°13' - 25°22'S Longitude: 30°32' - 30°39'E

Nearest town and distance: Nelspruit, 55 km

Area: 2 270 ha (723 ha Wonderkloof Nature Reserve, 47 ha Flora Nature Reserve and 1 500 ha demarcated State land).

Physical Features

Elevation: Lowest: 975 m Highest: 2 135 m

Highest Mountain: Makobolwane

Annual rainfall: 895 mm

Annual average temperature range: Minimum: 14°C Maximum: 28°C

Rainy season: Summer (September - April).

Soils: No information available.

Description of Geomorphology: No information available.

Major rivers and streams: Houtbosloop, a tributary of the Crocodile River.

Other outstanding physical features: Escarpment with rocky krantzies, patches of indigenous forest, kloofs and waterfalls.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8), Lowveld Sour Bushveld (Veld Type 9) and Lowveld (Veld Type 10) (Acocks 1975).

Description of vegetation: Three veld types follow one on the other up the kloof to the top of the escarpment. A wide variety of species occur in this area of which Encephalartos humulis is the most important. Prominent trees include Pterocarpus angolensis and Faurea speciosa. Indigenous forests are found in kloofs along the escarpment.

Endemic species of plants: Encephalartos humulis.

Fauna

Endangered species: Leopard Panthera pardus, serval Felis serval, oribi Ourebia ourebi and red duiker Cephalophus natalensis.

Dominant or important species of fauna: The above endangered species, and bushbuck Tragelaphus scriptus, mountain reedbuck Redunca fulvorufula, klipspringer Oreotragus oreotragus, vervet monkey Cercopithecus pygerythrus, chacma baboon Papio ursinus, caracal Felis caracal and small-spotted genet Genetta genetta. Birds: 97 species have been recorded. Two pairs of blue cranes Anthropoides paradisea breed in the area.

Infrastructure

Visitor Facilities: Picnic site only.

Numbers: 50 per annum Potential: High potential for development.

Staff (and positions): One professional forest officer at the Regional Office in Nelspruit, responsible for planning. Two plantation foresters carrying out rotational burning.

Budget: No figures available.

Local Administration: The Regional Director, Directorate of Forestry, Private Bag 11201, Nelspruit, 1200, South Africa.

Principal Reference Material

Various unpublished departmental reports.

Preparation: G H le Roux, August 1983.

45 CEYLON STATE FOREST

Proclamation

Date Established: 1935

Decree Number: Government Notice 485 of 1935 and Government Notice 856 of 1936.

Geographical Features

Location: Latitude: 25°00' - 25°10' S Longitude: 30°37' - 30°43' E
Nearest town and distance: Sabie, 10 km
Area: 3 500 ha

Physical Features

Elevation: Lowest: ± 1 525 m Highest: 2 285 m
Highest Mountain: Mount Anderson
Annual rainfall: 1 183 mm
Annual average temperature range: Minimum: 12°C Maximum: 21°C
Rainy season: Summer (September - April)

Soils: No information available.

Description of Geomorphology: No information available.

Major rivers and streams: Sabie and Blyde Rivers.

Other outstanding physical features: Various waterfalls in the area.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) (Acocks 1975).

Description of vegetation: Indigenous forests in kloofs, but mostly open grassland. Dominant species include Rapanea melanophloeos, Xymalos monospora, Podocarpus latifolius, Syzygium gerrardii, Combretum kraussii and Cussonia spicata in the forests. The grassland is Themeda triandra dominated with Loudetia simplex and Rendlia altera.

Fauna

Endangered species: Leopard Panthera pardus, oribi Ourebia ourebi and red duiker Cephalophus natalensis.

Dominant or important species of fauna: The above endangered species and bushbuck Tragelaphus scriptus, mountain reedbuck Redunca fulvorufula, klip-springer Oreotragus oreotragus, vervet monkey Cercopithecus pygerythrus, chacma baboon Papio ursinus, caracal Felis caracal and small-spotted genet Genetta genetta.

Infrastructure

Visitor Facilities: Hiking trail with overnight hut.

Numbers: 5 500 per annum Potential: 10 950 per annum.

Staff (and positions): One professional forest officer at the Regional Office in Nelspruit, responsible for planning. Three plantation foresters carrying out rotational burning.

Budget: No figures available.

Local Administration: The Regional Director, Directorate of Forestry, Private Bag 503, Sabie, 1260, South Africa.

Other Information of Interest: An investigation to have this area proclaimed a Nature Reserve is underway.

Principal Reference Material

None yet.

Preparation: G H le Roux, August 1983.

46 MORGENZON STATE FOREST

Proclamation

Date Established: 1978

Decree Number: Government Notice 2186 of 1978.

Geographical Features

Location: Latitude: 24°44' - 24°50' S Longitude: 30°41' - 30°46' E

Nearest town and distance: Pilgrims Rest, 20 km

Area: 1 264 ha

Physical Features

Elevation: Lowest: ± 1 300 m Highest: 2 035 m

Highest Mountain: Eldorado Peak

Annual rainfall: 773 mm

Annual average temperature range: Minimum: 12°C Maximum: 21°C

Rainy season: Summer (September - April).

Soils: No information available.

Description of Geomorphology: No information available.

Major rivers and streams: Blyde and Ohrigstad Rivers.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) (Acocks 1975).

Description of vegetation: Small patches of indigenous forest, but mostly open grassland. Dominant species include Rapanea melanophloeos, Xymalos monospora, Podocarpus latifolius, Syzygium gerrardii, Combretum kraussii, Cussonia spicata in the forests. The grassland is Themeda triandra dominated by Loudetia simplex and Rendlia altera.

Fauna

Endangered species: Leopard Panthera pardus, serval Felis serval, oribi Ourebia ourebi and red duiker Cephalophus natalensis.

Dominant or important species of fauna: The above endangered species and bushbuck Tragelaphus scriptus, mountain reedbuck Redunca fulvorufula, klipspringer Dreotragus oreotragus, vervet monkey Cercopithecus pygerythrus, chacma baboon Papio ursinus, caracal Felis caracal and small-spotted genet Genetta genetta.

Infrastructure

Visitor Facilities: None.

Numbers: No visitors in this area. Potential: Not determined.

Staff (and positions): One professional forest officer at the Regional Office in Nelspruit, responsible for planning. Two plantation foresters carrying out rotational burning.

Budget: No figures available.

Local Administration: The Regional Director, Directorate of Forestry, Private Bag 503, Sabie, 1260, South Africa.

Principal Reference Material

None yet.

Preparation: G H le Roux, August 1983.

47 SERALA STATE FOREST (INCLUDING WOLKBERG WILDERNESS AREA)

Proclamation

Date Established: 28 October 1977

Decree Number: Government Notice 5789 of 1977 (Section 7a of the Forest Act).

Geographical Features

Location: Latitude: 23°58' - 24°11'S Longitude: 30°0' - 30°10'E

Nearest town and distance: Pietersburg, 80 km

Area: 21 998 ha (17 390 ha State Forest Wilderness Area and 4 608 ha ordinary demarcated State Forest).

Physical Features

Elevation: Lowest: 795 m Highest: 2 050 m

Highest Mountain: Serala Kop

Annual rainfall: 500 - 1 350 mm

Annual average temperature range: Minimum: 7°C Maximum: 21°C

Rainy season: Summer (October - February).

Soils: Higher elevation: shallow soils of quartzitic material originating from Black Reef Series. The rest derived from granite-gneiss formation and very little dolomite.

Description of Geomorphology: Junction of northern Drakensberg and Strydpoort Mountain Ranges. Mountainous with deep valleys and high peaks.

Major rivers and streams: Mohlapiitze River (tributary of the Olifants River) and its tributaries.

Other outstanding physical features: Caves and Tufa formation, also many waterfalls.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) and Lowveld Sour Bushveld (Veld Type 9) (Acocks 1975).

Description of vegetation: Ten percent evergreen montane high forest with approximately 40 species, 8% semi-deciduous indigenous forest, thornveld, riparian forests, montane grassland with and without Protea spp, sub-montane wooded savanna with Faurea saligna, F speciosa and Pterocarpus angolensis.

Fauna

Endangered species: Leopard Panthera pardus and samango monkey Cercopithecus albogularis.

Dominant or important species of fauna: Mainly bushbuck Tragelaphus scriptus and common duiker Sylvicapra grimmia. More than 150 bird species have been recorded.

Infrastructure

Visitor Facilities: Showers, toilets and parking facilities at Serala. No hiking trails, but visitors allowed into area with a map indicating jeep tracks and management paths. Visitors may stay overnight in area, although no facilities provided.

Numbers: 893 per annum Potential: 3 000 per annum.

Staff (and positions): One resident and one assistant forester at Serala State Forest.

Budget: R115 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X2413, Louis Trichardt, 0920, South Africa.

Other Information of Interest: The Wolkberg Wilderness area is the only wilderness area set aside in accordance with the Forest Act in the Transvaal Province and it has representative communities of diverse vegetation types. It is very scenic and has the highest possible conservation status according to the Forest Act.

Principal Reference Material

Unpublished departmental reports.

Preparation: G M von dem Bussche, July 1983.

48 WOODBUSH/DE HOEK STATE FORESTS

Proclamation

Date Established: 1916

Decree Number: Government Notice 982 of 1916.

Geographical Features

Location: Latitude: 23°41' - 23°57'S Longitude: 29°59' - 30°05'E

Nearest town and distance: Tzaneen, 28 km

Area: 6 626 ha

Physical Features

Elevation: Lowest: 1 200 m Highest: 1 834 m

Highest Mountain: Pypkop

Annual rainfall: 1 884 mm

Annual average temperature range: Minimum: 10°C Maximum: 24°C

Rainy season: Summer (October - March).

Soils: Deep sandy loams derived from granite formations.

Description of Geomorphology: Most northern extension of Drakensberg Mountain Range with hilly country on the ridge and a steep escarpment.

Major rivers and streams: Helpmekaar and Broederstroom Rivers which form the Great Letaba River outside this area.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) (Acocks 1975).

Description of vegetation: Indigenous evergreen high forest with a few open patches on rocky outcrops. Major tree species include Podocarpus falcatus, P latifolius, Celtis africana, Combretum kraussii and Olea capensis. A checklist of the trees is available on request.

Fauna

Endangered species: Leopard Panthera pardus, samango monkey Cercopithecus albogularis and red duiker Cephalophus natalensis.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, common duiker Sylvicapra grimmia, bushpig Potamochoerus porcus and several other forest species. Birds are plentiful.

Infrastructure

Visitor Facilities: Dokolewa circular route of Magoebaskloof Hiking Trail.

Numbers: 1 200 per annum Potential: 6 000 per annum.

Staff (and positions): Two resident state foresters at De Hoek and Woodbush.

Budget: R15 000,00 for forest inventory and hiking trail (including part of salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X2413, Louis Trichardt, 0920, South Africa.

Other Information of Interest: The montane evergreen high forest of Woodbush and De Hoek is the largest indigenous forest in the Transvaal.

Principal Reference Material

Various unpublished departmental reports.

Preparation: G M von dem Bussche, August 1983.

49 ENTABENI STATE FOREST

Proclamation

Date Established: 1924

Decree Number: Government Notice 1615 of 1924.

Geographical Features

Location: Latitude: 22°59' - 23°03'S Longitude: 30°10' - 30°18'E

Nearest town and distance: Louis Trichardt, 45 km

Area: 1 924 ha (800 ha declared nature reserves: Ratomba, Veraskop and Entabeni and the proposed Matiwa Nature Reserve and 1 124 ha demarcated State Forest).

Physical Features

Elevation: Lowest: 700 m Highest: 1 469 m

Highest Mountain: Matiwa

Annual rainfall: 1 700 mm

Annual average temperature range: Minimum: 13°C Maximum: 25°C

Rainy season: Summer (October - March).

Soils: Sandy loams with quartzitic outcrops.

Description of Geomorphology: Soutpansberg Mountain Range in east-westerly direction with steep southern slopes.

Major rivers and streams: Latanandwa and Mutshindudi tributaries to Levubu River.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) (Acocks 1975).

Description of vegetation: High forest species such as Podocarpus latifolius, Celtis africana, Xymalos monospora, Cryptocarya liebertiana, Prunus africana, Trichilia dregeana, Croton sylvaticus, Cassipourea gerrardii, Combretum kraussii, Syzygium gerrardii, Cussonia spicata, Schefflera umbellifera, Olea capensis subsp macrocarpa and Nuxia floribunda.

Fauna

Endangered species: Leopard Panthera pardus, samango monkey Cercopithecus albogularis and red duiker Cephalophus natalensis.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, common duiker Sylvicapra grimmia and bushpig Potamochoerus porcus.

Infrastructure

Visitor Facilities: Soutpansberg Hiking Trail

Numbers: 1 400 per annum Potential: 6 000 per annum

Staff (and positions): One resident state forester at Entabeni and one research forester.

Budget: R21 000,00 per annum (including salaries).

Local Administration: The Regional Director, Directorate of Forestry, Private Bag X2413, Louis Trichardt, 0920, South Africa.

Other Information of Interest: The largest evergreen indigenous high forest in the Soutpansberg Mountain Range occurs in this area.

Principal Reference Material

Unpublished departmental reports.

Preparation: G M von dem Bussche, August 1983.

NATAL PARKS, GAME AND FISH PRESERVATION BOARD

The Natal Parks, Game and Fish Preservation Board was established in 1947 in terms of Section 4(1) of the Natal Parks, Game and Fish Preservation Ordinance (Ordinance 35 of 1947), as a semi-autonomous body funded by the Natal Provincial Administration. The Board administers 55 reserves totalling 393 979 ha, 22 of which are listed herein. This figure includes six public resort nature reserves totalling 18 338 ha and the Trafalgar and St Lucia marine reserves which together add a further 23 875 ha. The two marine reserves were established under the Sea Fisheries Act (Act 58 of 1973).

During the past decade, the Natal Parks Board has introduced the concept of conservancies, in which private landowners form cooperatives to ensure effective conservation management of their properties. There are at present 91 conservancies in Natal, covering 825 000 ha and including 1 305 landowners with 282 game guards.

The Board's budget for 1982/83 was R18,356 million, with a total staff of 3 291 including 1 713 conservation and research staff.

Many of the reserves qualify for national park status in terms of their management objectives, infrastructure, biotic diversity, size and legal standing. Foremost of these are Hluhluwe, Umfolozi, St Lucia, Mkuzi, Giant's Castle, Royal Natal and Ndumu. The first three of these reserves are the oldest existing game conservation areas in Africa, having being proclaimed in 1897. Only the peculiarities of the current administrative system pertaining to conservation areas other than those of the National Parks Board account for these famous conservation areas not being called national parks.

Headquarters address

The Director
Natal Parks, Game and Fish Preservation Board
P O Box 662
PIETERMARITZBURG
3200
South Africa

Areas listed in the Directory (Category IV and V)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
50	Umfolozi Game Reserve	47 753	109
51	St Lucia Game Reserve	36 826	111
52	Giant's Castle Nature Reserve	34 638	113
53	Itala Nature Reserve	25 896	115
54	Mkuzi Game Reserve	25 091	117
55	Hluhluwe Game Reserve	23 067	119

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
56	St Lucia Park	12 545	121
57	Ndumu Game Reserve	10 117	123
58	Royal Natal National Park and Rugged Glen Nature Reserve	8 856	125
59	Chelmsford Public Resort Nature Reserve (V)	6 845	127
60	Spioenkop Public Resort Nature Reserve (V)	4 562	128
61	Loteni Nature Reserve	3 984	129
62	Umtamvuna Nature Reserve	3 137	131
63	Albert Falls Public Resort Nature Reserve (V)	3 012	132
64	Weenen Nature Reserve	2 929	133
65	Midmar Public Resort Nature Reserve (V)	2 831	135
66	False Bay Nature Reserve	2 247	136
67	Kamberg Nature Reserve	2 232	138
68	Vernon Crookes Nature Reserve	2 189	139
69	Oribi Gorge Nature Reserve	1 809	141
70	Coleford Nature Reserve	1 272	143
71	Vergelegen Nature Reserve	<u>1 159</u>	144
	Subtotal	262 997	

50 UMFOLOZI GAME RESERVE

Proclamation

Date Established: 27 April 1897

Decree Number: First proclaimed as the Umfolosi Junction Reserve by Zululand Government Notice 12 of 1895 and subsequently as the Umfolozi Game Reserve on 27 April 1897, Government Notice 16 of 1897. Subsequent amendments were detailed in the following proclamations: Government Notice 322 of 1907, Provincial Notice 74 of 1916, Provincial Notice 57 of 1917, Provincial Notice 147 of 1920, Provincial Notice 231 of 1920, Provincial Notice 15 of 1930, Provincial Notice 140 of 1939, Provincial Notice 131 of 1941 and Proclamation 53 of 1962.

Geographical Features

Location: Latitude: 28°S Longitude: 32°E

Nearest town and distance: Mtubatuba, 30 km

Area: 47 753 ha

Physical Features

Elevation: Lowest: 100 m Highest: 550 m

Highest Mountain: Not applicable

Annual rainfall: 760 mm in the north and 1 250 mm in the east.

Annual average temperature range: Minimum: 22°C Maximum: 28°C

Rainy season: Summer (October - March).

Soils: There are three major soil associations: (a) Upland soil association: present in localities where run-off water drains away. These soils are usually stony, shallow (less than 50 cm deep) and leached. (b) Bottomland soil association: these occur in localities where run-off water drains away more slowly or tends to accumulate on valley bottoms, alluvial terraces or toe-slopes or pediments where they merge into a valley bottom. The soils are from one to several metres deep and are illuviated. (c) Riverine soil association: this formation consists of unconsolidated alluvia up to 5 m deep. These alluvia are unstable and are easily eroded. A fine alluvium of mixed sand and silt occurs along the Black and White Umfolozi Rivers.

Description of Geomorphology: Broken country with a complex geology, bisected by various streams and the White Umfolozi River.

Major rivers and streams: Black and White Umfolozi Rivers.

Vegetation and Flora

Vegetation types: 11 930 ha Zululand Thornveld (Veld Type 6) and 35 820 ha Lowveld (Veld Type 10) (Acocks 1975).

Description of vegetation: The woody vegetation consists mainly of Acacia mixed woodlands and associated species. The dominant Acacia species include Acacia burkei, A caffra, A grandicornuta, A nigrescens, A nilotica,

A robusta and A tortilis. There is thicket encroachment by Dichrostachys cinerea and other species. Phoenix reclinata is a locally dominant riverine species, frequently associated with Syzygium guineense and Phragmites mauritianus. The main grasses, also frequently occurring as local dominants, include Ithemeda triandra, Panicum maximum, P deustum, P coloratum, Urochloa mosambicensis, Chloris gayana, Bothriochloa insculpta, Digitaria spp and Sporobolus spp. Glossopteris fossils have been found.

Fauna

Endangered species: Blue duiker Cephalophus monticola, cheetah Acinonyx jubatus, brown hyaena Hyaena brunnea, samango monkey Cercopithecus albogularis, wild dog Lycaon pictus, aardwolf Proteles cristatus, leopard Panthera pardus, serval Felis serval, black rhinoceros Diceros bicornis, red duiker Cephalophus natalensis and crocodile Crocodylus niloticus.

Dominant or important species of fauna: Bourquin et al (1971) listed 48 species of mammals, 37 species of reptiles, ten species of fish and nine species of amphibians. 336 birds have been recorded and a list of 136 butterflies has been compiled. The main browsers, mixed feeders, grazers and predators include: kudu Tragelaphus strepsiceros, giraffe Giraffa camelopardalis, bushbuck I scriptus, klipspringer Oreotragus oreotragus, impala Aepyceros melampus, nyala I angasii, common duiker Sylvicapra grimmia, steenbok Raphicerus campestris, square-lipped rhinoceros Ceratotherium simum, buffalo Syncerus caffer, Burchell's zebra Equus burchelli, blue wildebeest Connochaetes taurinus, mountain reedbuck Redunca fulvorufula, waterbuck Kobus ellipsiprymnus, warthog Phacochoerus aethiopicus, lion Panthera leo and spotted hyaena Crocuta crocuta.



Figure 9. Umfolozi Game Reserve. Veld Type 10, Lowveld.

Infrastructure

Visitor Facilities: Wilderness trails with fenced camps, rest camp, game viewing and picnic sites.

Numbers: 19 500 per annum

Potential: Full capacity reached.

Staff (and positions): Management and Wilderness Trails - six senior and 100 junior staff; Game Capture - 60; Research - one senior; Tourism - four senior and 26 junior staff.

Budget: R130 775,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Umfolozi Game Reserve, P O Box 99, Mtubatuba, 3935, South Africa.

Principal Reference Material

Bourquin O, J Vincent and P M Hitchins 1971. The vertebrates of the Hluhluwe Game Reserve-Corridor (State Land) - Umfolozi Game Reserve Complex. The Lammergeyer, 14, 5-58.

Downing B H 1972. A plant ecological survey of the Umfolozi Game Reserve, Zululand. PhD Thesis, University of Natal.

Foster W E 1955. History of the Umfolozi Game Reserve. Cyclostyled Report, Natal Parks Board Library.

Henkel J S 1937. Report on the plant and animal ecology of the Hluhluwe Game Reserve with special reference to the tsetse flies. Natal Witness, Pietermaritzburg.

Mentis M T 1970. Estimates of natural biomasses of large herbivores in the Umfolozi Game Reserve area. Mammalia, 34(3), 363-393.

Porter R N 1972. Report on soil erosion associated with roads in the Hluhluwe Game Reserve. Mimeo, Natal Parks Board files.

Porter R N 1975. The production, utilization and effects of grazing on some of the pastures in the Umfolozi Game Reserve, Zululand. MSc Thesis, University of the Witwatersrand.

Vincent J 1970. The history of Umfolozi Game Reserve, Zululand, as it relates to management. The Lammergeyer, 11, 7-49.

Preparation: J H Grobler, July 1983.

51 ST LUCIA GAME RESERVE

Proclamation

Date Established: 27 April 1897

Decree Number: Government Notice 16 of 1897, Provincial Notice 74 of 1916, Provincial Notice 59 of 1917, Provincial Notice 108 of 1935, Provincial Notice 140 of 1939 and Proclamation 35 of 1939.

Geographical Features

Location: Latitude: 28°00' - 28°25'S Longitude: 32°25' - 32°30'E
Nearest town and distance: Mtubatuba, 25 km
Area: 36 826 ha

Physical Features

Elevation: Lowest: Sea level Highest: ± 10 m
Highest Mountain: Not applicable
Annual rainfall: 2 000 mm
Annual average temperature range: Minimum: 12-20°C Maximum: 20-30°C
Rainy season: Summer (October - April).

Soils: Recent wind blown sands and alluvial sediments. Pans and vleis have high peat and clay content.

Description of Geomorphology: Flat to undulating country around the St Lucia Lake system.

Major rivers and streams: Mkuze and Nyalazi Rivers.

Other outstanding physical features: The lagoon-estuary complex, the largest system of its kind in South Africa.

Vegetation and Flora

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) (Acocks 1975).

Description of vegetation: Coastal forest, thicket and grassland with large beds of Phragmites communis and mangroves lining the shore. Marine vegetation includes Zostera nana.

Fauna

Endangered species: Crocodile Crocodylus niloticus and various bird species. Almost all of Natal's surviving crocodiles Crocodylus niloticus are confined to this reserve.

Dominant or important species of fauna: Large mammals are for the most part found in the adjoining park. Hippopotamus Hippopotamus amphibius are however, plentiful. Over 350 species of birds, including the rare Woodward's batis Batis fratrum and Rudd's apalis Apalis ruddi. In addition there are two species of pelican Pelicanus onocrotalus and P rufescens and several species of stork including the saddlebilled stork Ephippiorhynchus senegalensis and yellowbilled stork Mycteria ibis.

Infrastructure

Visitor Facilities: Two camps with huts and camp sites. Boats available for hire as well as launch tours.

Numbers: 15 900 per annum Potential: Maximum at present.

Staff (and positions): Shared with St Lucia Park.

Budget: Covered by that for St Lucia Park.

Local Administration: The Officer-in-Charge, St Lucia Game Reserve, Charter's Creek, Post Bag 7205, Mtubatuba, 3935, South Africa.

Other Information of Interest: This is the largest lagoon-estuary complex in South Africa. The lakes are fed by five major rivers, the largest of which has been diverted into the sea to prevent siltation of the estuary mouth.

Principal Reference Material

Anon undated. Report of the commission of inquiry into the alleged threat to animal and plant life in the St Lucia Lake, 1964-1966. Government Printer, Pretoria.

Preparation: J H Grobler, June 1983.

52 GIANT'S CASTLE NATURE RESERVE

Proclamation

Date Established: 1903

Decree Number: First proclaimed on 29 October 1903, Government Notice 735 of 1903. Subsequently expanded by various other proclamations, most recently that of 2 January 1976, Proclamation 205 of 1976.

Geographical Features

Location: Latitude: 29°00'S Longitude: 29°30'E

Nearest town and distance: Estcourt, 40 km

Area: 34 638 ha

Physical Features

Elevation: Lowest: 1 380 m Highest: 3 451 m

Highest Mountain: Injasuti Peak

Annual rainfall: 800 mm

Annual average temperature range: Minimum: -15°C Maximum: 15-35°C

Rainy season: Summer (October - April).

Soils: The soils may be divided into ferriferous and acid hydromorphic types. The ferriferous soils predominate and are characteristic of well-drained uplands with high rainfall and relatively low temperatures. Leaching has been extreme, and fertility is therefore low. Red ferriferous soils, derived from igneous rocks (Drakensberg lavas and Karoo dolerite) are less acid (pH 5,6 - 6,0) and therefore probably have a higher base status than grey brown ferriferous types (pH 4,3 - 5,2) derived from secondary parent materials. Over large areas the ferriferous soils are shallow. Acid hydromorphic soils occur in wet bottomlands and have been considerably leached (pH 5 - 6).

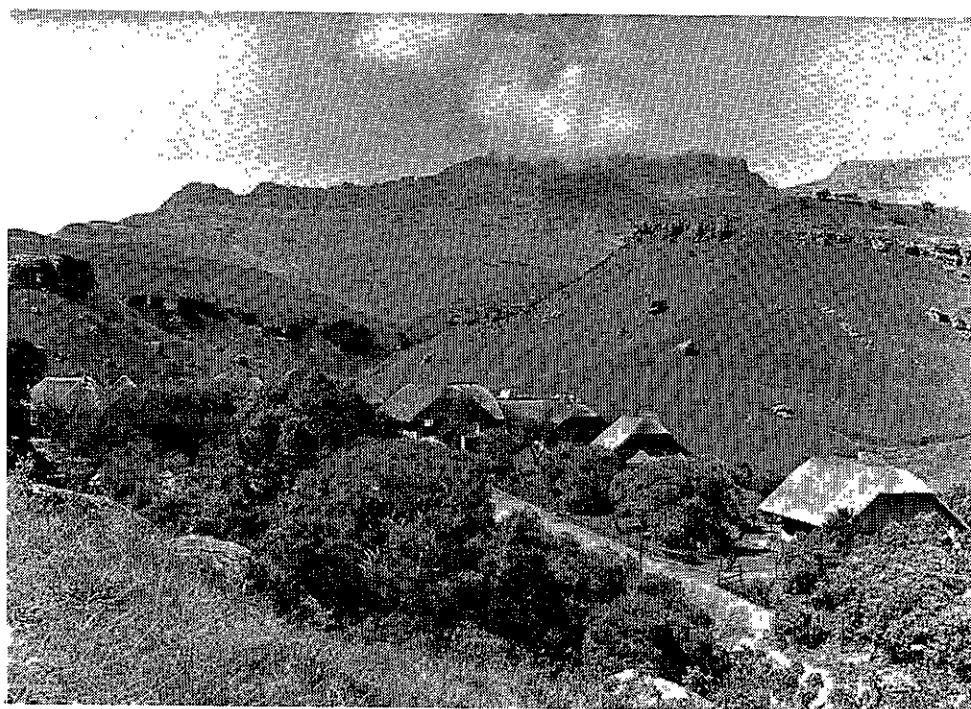


Figure 10. The rest camp at Giant's Castle Nature Reserve. Veld Type 58, Themeda-Festuca Alpine Veld and Veld Type 44(a), Highland Sourveld cover the mountain slopes.

Description of Geomorphology: A rugged area forming part of the Drakensberg Escarpment. Composed of basalt at the higher elevations, Cave sandstones and others forming the lower strata.

Major rivers and streams: Bushman's and Little Tugela Rivers.

Other outstanding physical features: Spectacular mountain scenery.

Vegetation and Flora

Vegetation types: 13 520 ha Themeda-Festuca Alpine Veld (Veld Type 58) and 20 764 ha Highland Sourveld (Veld Type 44(a)) (Acocks 1975).

Description of vegetation: Three vegetation zones may be recognized with climax vegetation as follows: (a) Montane Belt (1 280 - 1 830 m above sea level) Themeda triandra grassland, Hyparrhenia grassland, Miscanthidium-Cymbopogon grassland, Protea woodland, boulder-bed scrub, streambank scrub, Leucosidea-Buddleia scrub, Greyia-Cussonia consociates, cliff scrub, and Podocarpus latifolius forest. (b) Sub-alpine Belt (1 830 - 2 865 m above sea level) Themeda triandra grassland, temperate grassland, tall grassland, Rendlia altera grassland, Merxmuellera macowanii consociates, Cliffortia linearifolia scrub, Leucosidea sericea scrub, Buddleia salviifolia scrub, Protea woodland and Passerina-Philippia-Widdringtonia fynbos. (c) Alpine Belt (above 2 865 m above sea level) Merxmuellera-Festuca-Pentaschistis grassland and Erica-Helichrysum heath.

Fauna

Endangered species: Aardwolf Proteles cristatus, striped weasel Poecilogale albinucha, serval Felis serval and oribi Ourebia ourebi. The endangered bearded vulture Gypaetus barbatus also occurs, as well as the wattled crane Grus carunculata.

Dominant or important species of fauna: Large mammals include bushbuck Tragelaphus scriptus, eland Taurotragus oryx, common duiker Sylvicapra grimmia, reedbuck Redunca arundinum, mountain reedbuck R. fulvorufula, grey rhebok Pelea capreolus, blesbok Damaliscus dorcas phillipsi, klipspringer Oreotragus oreotragus, red hartebeest Alcelaphus buselaphus and black wildebeest Connochaetes gnou. The latter two species have been reintroduced. Small mammals are well represented. There are over 130 species of birds.

Infrastructure

Visitor Facilities: A small camp with huts and facilities for horse riding and two to three day guided tours. There is also a museum at the site of a former Bushman encampment and trout fishing may be pursued. Possibility of more mountain huts and trails, and enlargement of camping site.
Numbers: 15 500 per annum Potential: Full capacity reached with present facilities.

Staff (and positions): Management - four senior and 116 junior staff;
Tourism - three senior and 29 junior staff.
Budget: R35 390,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Giant's Castle Game Reserve, Private Bag 755, Estcourt, 3319, South Africa.

Other Information of Interest: Bushman paintings.

Principal Reference Material

Killick D J B 1963. An account of the plant ecology of the Cathedral Peak area of the Natal Drakensberg. Memoirs of the Botanical Survey of South Africa, 34.

Preparation: J H Grobler, June 1983.

53 ITALA NATURE RESERVE

Proclamation

Date Established: 1973
Decree Number: Proclamation 36 of 1973, Proclamation 157 of 1974, Proclamation 31 of 1975, Proclamation 61 of 1977, Proclamation 158 of 1979 and Proclamation 157 of 1982.

Geographical Features

Location: Latitude: 27°30'S Longitude: 31°25'E
Nearest town and distance: Louwsberg, 15 km
Area: 25 896 ha

Physical Features

Elevation: Lowest: 350 m Highest: 1 550 m
Highest Mountain: Louwsberg
Annual rainfall: 700 - 1 200 mm
Annual average temperature range: No information
Rainy season: Summer (September - March).

Soils: A soil report has been completed but is not yet available.

Description of Geomorphology: The area is heavily dissected by streams and varies from undulating grassland to steep rocky cliff faces.

Major rivers and streams: Pongola, Piraam, Ithala, mHululumbela and Ncence Rivers.

Other outstanding physical features: Deep gorges with forests and clear streams with a network of pools.

Vegetation and Flora

Vegetation types: Lowveld (Veld Type 10), North-Eastern Sandy Highveld (Veld Type 57) and Northern Tall Grassveld (Veld Type 64) (Acocks 1975).

Description of vegetation: (a) Montane types: grassland with Themeda triandra dominant, woodland with Ficus capensis, Euclea schimperi and Leucosidea sericea; (b) Riverine and scrub forest; (c) Woodlands: various types depending on utilization history. Dominants include Acacia davyi, A nilotica, A nigrescens, Combretum zeyheri, C apiculatum, Pterocarpus angolensis, Faurea saligna, Protea caffra, Spirostachys africana; (d) Grassveld types: sour and mixed plateau grasslands, vleis and secondary grasslands.

Fauna

Endangered species: Black rhinoceros Diceros bicornis, cheetah Acinonyx jubatus, crocodile Crocodylus niloticus, South African python Python sebae natalensis and pangolin Manis temminckii.

Dominant or important species of fauna: Large mammals have been introduced to the reserve and are now well represented. These include 18 species of antelopes and both species of southern African rhinoceroses. Small mammals are numerous.

Infrastructure

Visitor Facilities: One picnic site, two camp sites and overnight hiking trails.

Numbers: 2 500 per annum Potential: Not yet determined.

Staff (and positions): One warden, one senior ranger and 79 junior staff.
Budget: R27 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Itala Game Reserve, P O Box 42, Louwsburg, 3150, South Africa.

Principal Reference Material

Rautenbach et al 1981. Mammals of Itala Nature Reserve, Natal. The Lammergeyer 31, 21-37.

Preparation: J H Grobler, December 1983.

54 MKUZI GAME RESERVE

Proclamation

Date Established: 15 February 1912

Decree Number: First proclaimed on 15 February 1912, in terms of Provincial Notice 23 of 1912. Subsequent amendments are Provincial Notice 28 of 1912, Provincial Notice 74 of 1916, Provincial Notice 57 of 1917, Provincial Notice 266 of 1918, Provincial Notice 140 of 1939 and Provincial Notice 131 of 1941.

Geographical Features

Location: Latitude: 27°33' - 27°46'S Longitude: 32°06' - 32°23'E

Nearest town and distance: Mtubatuba, 110 km

Area: 25 091 ha

Physical Features

Elevation: Lowest: 40 m Highest: 400 m

Highest Mountain: Nhlonhlela Hill

Annual rainfall: 628 mm

Annual average temperature range: Minimum: 12-20°C Maximum: 25-34°C

Rainy season: Summer (October - April).

Soils: The complex geological formations, tectonic movements, natural and accelerated erosional processes over a very long period, have resulted in a great variety of soil forms and soil series ranging from light sandy soils in the Terminalia sericea sandveld areas to very heavy clay soils, for example, in the Acacia luederitzii floodplain areas.

Description of Geomorphology: The topography is mainly flat or gently undulating intersected by seasonal drainage lines alternating with low ridges. The western sector, comprised of the foothills of the Lebombo Mountains is rugged and rises to an altitude of approximately 305 m in the south with streams running into the Mkuze River and towards the Msunduzi River. The Mkuze River flows through an impressive gorge in the Lebombo Mountains, the lower end of the gorge being in the reserve. The eastern foothills of the Lebombo Mountains give way to gently undulating ridges, intersected by drainage lines, carrying water only after heavy rains.

Major rivers and streams: Msunduzi and Mkuzi Rivers and their tributaries.

Other outstanding physical features: Riparian vegetation with enormous and majestic Ficus sycomorus trees. The lower Mkuze floodplain complex and Nsumu pan with spectacular Acacia xanthophloea woodland. Complex geological formations with Cretaceous beds containing enormous ammonites, the Bumbeni geological complex and the Lebombo Rhyolite Interphase.

Vegetation and Flora

Vegetation types: 13 800 ha Coastal Forest and Thornveld (Veld Type 1) and 11 291 ha Lowveld (Veld Type 10) (Acocks 1975).

Description of vegetation: Seven principal vegetation communities are recognizable in the reserve. They intergrade to a greater or lesser degree according to differences in soil, water and topography. (a) Riparian forest: Riverine forest with Ficus sycomorus and Acacia xanthophloea; streambank and drainage line vegetation. (b) Acacia luederitzii and Euclea divinorum thicket with poor grass cover. (c) Acacia nigrescens woodland with Themeda triandra as an important grass. (d) Mixed Acacia woodland with A nilotica and A tortilis. The dominant grasses are Themeda triandra, Bothriachloa insculpta and Aristida congesta. (e) Sandveld communities: Sandveld dry deciduous Newtonia hildebrandtii forest and Pteleopsis myrtifolia thicket; Sandveld woodland with Terminalia sericea. (f) Combretum apiculatum woodland with Themeda triandra as an important grass. (g) Grasslands, consisting of floodplain and low-lying grasslands and upland grasslands.

Fauna

Endangered species: Black rhinoceros Diceros bicornis, cheetah Acinonyx jubatus, red duiker Cephalophus natalensis, striped weasel Poecilogale albinucha, aardwolf Proteles cristatus, suni Neotragus moschatus, leopard Panthera pardus, serval Felis serval and crocodile Crocodylus niloticus.

Dominant or important species of fauna: Large mammals are well represented and include Burchell's zebra Equus burchelli, square-lipped rhinoceros Ceratotherium simum, warthog Phacochoerus aethiopicus, giraffe Giraffa camelopardalis, kudu Tragelaphus strepsiceros, nyala I angasii, common duiker Sylvicapra grimmia, reedbuck Redunca arundinum, mountain reedbuck R fulvorufula, blue wildebeest Connochaetes taurinus, klipspringer Oreotragus oreotragus, steenbok Raphicerus campestris and impala Aepyceros melampus. Carnivores include spotted hyaena Crocuta crocuta and several endangered species.

Infrastructure

Visitor Facilities: A small camp with huts and some game viewing hides. Also various walks and trails available. Outdoor museum being planned.
Numbers: 18 400 per annum Potential: Full capacity reached.

Staff (and positions): Management - three senior and 70 junior staff; Research - one senior and three junior staff; Tourism - two senior and 30 junior staff.
Budget: R103 120,00 per annum (excluding salaries).

Local Administration: The Officer-in-charge, Mkuzi Game Reserve, P O Mkuzi, 3965, South Africa.

Principal Reference Material

Davies O 1967. Mkuzi Game Reserve. The apparent geomorphological surfaces. Report to Natal Parks Board following surveys in 1950 and 1967.

Dixon J E W 1964. Preliminary notes on the mammal fauna of the Mkuzi Game Reserve. The Lammergeyer 3(1), 40.

Goodman P S 1982. The dilemma of artificial water points in Mkuzi Game Reserve. Natal Parks Board Cyclostyled paper, 12 pp.

Goodman P S 1982. Some background information on Mkuzi Game Reserve. Natal Parks Board Cyclostyled paper, 11 pp.

Goodman P S 1982. A summary of the Geology and Geomorphology of Mkuzi Game Reserve. Natal Parks Board Cyclostyled paper, 3 pp.

Moll E T 1968. Some notes on the vegetation of Mkuzi Game Reserve. The Lammergeyer 8, 25-30.

Pooley A C 1965. A preliminary check list of the reptiles within the Mkuzi and Ndumu Game Reserve in Northern Zululand. The Lammergeyer 3(2), 41-55.

Preparation: J H Grobler, July 1983.

55 HLUHLUWE GAME RESERVE

Proclamation

Date Established: 27 April 1897

Decree Number: Government Notice 16 of 1897, Government Notice 322 of 1907, Provincial Notice 74 of 1916, Provincial Notice 57 of 1917, Provincial Notice 147 of 1920, Provincial Notice 231 of 1920, Provincial Notice 15 of 1930, Provincial Notice 140 of 1939, Provincial Notice 131 of 1941 and Proclamation 53 of 1967.

Geographical Features

Location: Latitude: 28°00'S Longitude: 32°00'E

Nearest town and distance: Mtubatuba, 51 km

Area: 23 067 ha

Physical Features

Elevation: Lowest: 100 m Highest: 550 m

Highest Mountain: Not applicable

Annual rainfall: 760 mm in north and 1 250 mm in the south and east.

Annual average temperature range: Minimum: 13-22°C Maximum: 25-33°C

Rainy season: Summer (October - April).

Soils: Complex soil composition.

Description of Geomorphology: Steeply undulating country with complex geology. It is bisected by two rivers, one of which is the Hluhluwe.

Major rivers and streams: Hluhluwe River flowing eastwards into Lake St Lucia.

Vegetation and Flora

Vegetation types: 4 620 ha Zululand Thornveld (Veld Type 6) and 18 477 ha Lowveld (Veld Type 10) (Acocks 1975).

Description of vegetation: About 20 000 ha occupied by drought-deciduous woodlands and thornveld. About 3 000 ha is occupied by lowland semi-deciduous forest with Acacia spp and Calodendron spp along the rivers and on the high ground at the northern end of the reserve.

Fauna

Endangered species: Black rhinoceros Diceros bicornis, cheetah Acinonyx jubatus, leopard Panthera pardus and red duiker Cephalophus natalensis.

Dominant or important species of fauna: Larger mammals include spotted hyaena Crocuta crocuta, lion Panthera leo, Burchell's zebra Equus burchelli, square-lipped rhinoceros Ceratotherium simum, warthog Phacochoerus aethiopicus, hippopotamus Hippopotamus amphibius, giraffe Giraffa camelopardalis, bushbuck Tragelaphus scriptus, kudu Taurotragus strepsiceros, nyala Taurotragus angasi, buffalo Syncerus caffer, common duiker Sylvicapra grimmia, waterbuck Kobus ellipsiprymnus, blue wildebeest Connochaetes taurinus and impala Aepyceros melampus. About 100 cheetah and 200 black rhinoceroses form significant populations of these vulnerable species. Bird life is plentiful and includes the marabou stork Leptoptilos crumeniferus, various vultures and the ground hornbill Bucorvus leadbeateri.

Infrastructure

Visitor Facilities: Camp with huts to accommodate 70 people.

Numbers: 44 500 per annum Potential: No further development planned at present.

Staff (and positions): Ten senior staff including three research, two tourism and two game capture specialists and 40 junior staff (game guards).

Budget: R127 990,00 per annum (excluding salaries)

Local Administration: The Officer-in-charge, Hluhluwe Game Reserve, P O Box 25, Mtubatuba, 3935, South Africa.

Principal Reference Material

Bourquin O, J Vincent and P M Hitchins 1971. The vertebrates of the Hluhluwe Game Reserve-Corridor (State Land) - Umfolozi Game Reserve Complex. The Lammergeyer, 14, 1-58.

Henkel J S 1937. Report on the plant and animal ecology of the Hluhluwe Game Reserve with special reference to the tsetse flies. Natal Witness, Pietermaritzburg.

Hitchins P M 1968. Records of plants eaten by mammals in the Hluhluwe Game Reserve. The Lammergeyer, 8, 31-39.

King L 1970. The geology of the Hluhluwe Game Reserve. Petros, 2, 16-19 (Journal of the Students' Geological Society, University of Natal, Durban).

Penner D F 1970. Report on a preliminary archaeological survey in Zululand Game reserves. Mimeo, Natal Parks Board files.

Ward C J 1962. A report on scrub control, Hluhluwe Game Reserve. The Lammergeyer, 2(1), 57-62.

Preparation: J H Grobler, July 1983.

56 ST LUCIA PARK

Proclamation

Date Established: 31 August 1939

Decree Number: Proclamation 35 of 1939, Proclamation 11 of 1944 and Proclamation 36 of 1957.

Geographical Features

Location: Latitude: 28°00'S Longitude: 32°30'E

Nearest town and distance: Mtubatuba, 29 km

Area: 12 545 ha

Physical Features

Elevation: Lowest: Sea level Highest: 30 m

Highest Mountain: Not applicable

Annual rainfall: 2 000 mm in the east falling to 800 mm in the west.

Annual average temperature range: Minimum: 14-21°C Maximum: 22-29°C

Rainy season: Summer (October - April).

Soils: Recent wind-blown sands and alluvial sediments. Pans and vleis have high peat and clay content.

Description of Geomorphology: Coastal dunes with steep seaward slopes give rise to an undulating terrain with flat lowlands in between.

Major rivers and streams: None.

Other outstanding physical features: Lake St Lucia, which covers about 300 km². This coastal lake is separated from the sea by a strip of land of two to 11 km in width.

Vegetation and Flora

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) (Acocks 1975).

Description of vegetation: About 600 ha freshwater marsh, 5 000 ha tropical deciduous lowland woodland and 1 000 ha swamp forest. Marshland is dominated by Phragmites communis and Cyperus papyrus, groundwater forest by Barringtonia racemosa and Syzygium cordatum and the woodland by Terminalia sericea, Acacia spp and Trichilia emetica. Sections of the lake shore are lined by mangroves.

Fauna

Endangered species: Leopard Panthera pardus, suni Neotragus moschatus, samango monkey Cercopithecus albogularis, red duiker Cephalophus natalensis and crocodile Crocodylus niloticus.

Dominant or important species of fauna: Mammals include nyala Tragelaphus angasi and reedbuck Redunca arundinum. There is a very rich avifauna of about 350 species. Reptiles include the rare Central African gaboon adder Bitis gabonica gabonica and crocodile Crocodylus niloticus. Seven major breeding grounds of the crocodile are known in the Park.

Infrastructure

Visitor Facilities: Two small camps with huts and two camp sites.

Numbers: 16 385 per annum (conservation area) and 120 000 per annum (recreation area). Potential: No information.

Staff (and positions): 13 senior staff (five management, two research, six tourist) and 25 junior staff (game guards).

Budget: R125 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-charge, St Lucia Park, Charter's Creek, Private Bag 7205, Mtubatuba, 3935, South Africa.

Principal Reference Material

Day J H, N A M Millard and G J Broekhuysen 1954. The ecology of South African estuaries - Part 4. The St Lucia system. Transactions of the Royal Society of South Africa, 34, 129-152.

Pooley E C 1973. Notes on the ecology of the Lake St Lucia crocodile population. Crocodiles, Proceedings of the 2nd meeting of crocodile specialists, IUCN publications new series, Supplementary paper 41, 81-90.

Preparation: J H Grobler, June 1983.

57 NDUMU GAME RESERVE

Proclamation

Date Established: 17 April 1924

Decree Number: Provincial Notice 96 of 1924. Subsequent amendments were Provincial Notice 140 of 1939, Provincial Notice 131 of 1941 and Proclamation 13 of 1947.

Geographical Features

Location: Latitude: 26°50' - 26°54'S Longitude: 32°09' - 32°21'E

Nearest town and distance: Mkuze, 100 km

Area: 10 117 ha (6 070 ha land and 4 047 ha water).

Physical Features

Elevation: Lowest: 25 m Highest: 175 m

Highest Mountain: Not applicable

Annual rainfall: 633 mm

Annual average temperature range: Minimum: 17°C Maximum: 28°C

Rainy season: Summer (October - March).

Soils: Ndumu Hill is composed of red sands while east of Ndumu Hill is another sandveld area composed of undulating pallid sands situated mostly above 30 m above sea level. The two sandveld areas together comprise about 1 151 ha. Lower down the slope there occurs grey compacted coarse sandy clay with a hard mottled layer at one metre depth. The flats comprising about 6 316 ha consist of reddish sandy clay with a compacted layer at about 1,2 m depth. The western area of 648 ha consists of reddish sandy clay of basaltic origin with an admixture of calcareous material.

Description of Geomorphology: Very flat with a few small hills. The reserve comprises part of the floodplains of the Usutu and Pongolo Rivers. Numerous shallow pans with permanent water.

Major rivers and streams: Usutu and Pongolo Rivers.

Other outstanding physical features: Nyamithi Pan with its large fever trees Acacia xanthophloea.

Vegetation and Flora

Vegetation types: 6 070 ha Lowveld (Veld Type 10) (Acocks 1975).

Description of vegetation: (a) Riverine and floodplain vegetation: the aquatic communities are characterized by abundant Nymphaea spp, Potamogeton spp and Cyperus papyrus. Tree species include Ficus sycomorus, Trichilia emetica, Rauvolfia caffra, Acacia xanthophloea and Syzygium guineense. (b) Drainage line communities: the tree communities occurring along seasonal stream banks include species such as Spirostachys africana, Schotia brachypetala and Acacia robusta. (c) Deciduous tree and shrub community: this community generally consists of bush clumps and scattered trees, three to eight metres high, among outcrops of rocks, on shallow sandy soil derived from rhyolite and characteristic of the Lebombo Mountain Range.

Characteristic species in the bush clumps include Pavetta edentula, Combretum apiculatum and C hereroense. (d) Acacia nigrescens woodland: A nigrescens woodland with trees ranging from 8 to 15 m high occurs among Cretaceous stony boulder bed outcrops and in areas with dark grey and reddish brown soils. (e) Thicket, scrub and woodland: this association consists of a large number of species growing mainly on reddish brown and grey clay soils. It includes Acacia tortilis woodland shrubs and grass with Panicum maximum common. On the sandy soils there are relict forest trees of Newtonia hildebrandtii. (f) Woodland and forest relict: this is a variable vegetation type with semi-evergreen forest and deciduous broad-leaved woodland species into which numerous thicket species have encroached. The woodland and forest species include trees such as Sclerocarya caffra, Albizia versicolor, Azelia quanzensis, Terminalia sericea, Newtonia hildebrandtii, Spirostachys africana and Balanites maughamii.

Fauna

Endangered species: Black rhinoceros Diceros bicornis, suni Neotragus moschatus, samango monkey Cercopithecus albogularis, crocodile Crocodylus niloticus, serval Felis serval, leopard Panthera pardus, red duiker Cephalophus natalensis and aardwolf Proteles cristatus.

Dominant or important species of fauna: Mammals include the square-lipped rhinoceros Ceratotherium simum, bushpig Potamochoerus porcus, hippopotamus Hippopotamus amphibius, bushbuck Tragelaphus scriptus, nyala I angasii, common duiker Sylvicapra grimmia, reedbuck Redunca arundinum, and impala Aepyceros melampus. Some 380 species of birds have been recorded.

Infrastructure

Visitor Facilities: A small camp with 7 huts.

Numbers: 1 600 per annum Potential: Not determined.

Staff (and positions): Management - three senior and 57 junior staff; Tourism - three senior and seven junior staff.

Budget: R93 660,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Ndumu Game Reserve, P O Ndumu, 3972, South Africa.

Principal Reference Material

De Moor P P, E Pooley, G Neville and J Barichievy 1977. The Vegetation of Ndumu Game Reserve, Natal: A Quantitative Physiognomic Survey. Annals of the Natal Museum, 23(1), 239-272.

Dixon J E W 1966. Notes on the mammals of Ndumu Game Reserve. The Lammergeyer 6, 24-40.

Dutton T P 1970. From smelting furnace to the Ndumu Game Reserve. The Lammergeyer 12, 37-40.

Pooley A C. A preliminary check list of the reptiles found within the Mkuzi and Ndumu Game Reserve. The Lammergeyer 3(2), 41-55.

Preparation: J H Grobler, June 1983.

58 ROYAL NATAL NATIONAL PARK AND RUGGED GLEN NATURE RESERVE

Proclamation

Date Established: 19 September 1916 by Executive Commission Resolution.
Decree Number: Proclamation 20 of 1943, Rugged Glen added by Proclamation 32 of 1950.

Geographical Features

Location: Latitude: 28°30'S Longitude: 29°00'E
Nearest town and distance: Bergville, 48 km
Area: 8 856 ha

Physical Features

Elevation: Lowest: 1 300 m Highest: 3 282 m
Highest Mountain: Mont-Aux-Sources
Annual rainfall: 1 448 mm
Annual average temperature range: No records; frost and snow occurs in winter months.
Rainy season: Summer (October - April).

Soils: The soils are leached, acidic and of low fertility. The marshy vleis characteristic of the bottomlands possess acid hydromorphic soils, rich in organic matter.

Description of Geomorphology: Part of the Drakensberg Escarpment, dominated by the Amphitheatre, a semicircle of high cliffs with a sheer drop of 613 m. The park also includes part of the Drakensberg foothills and one of the sources of the Tugela River.

Major rivers and streams: The Tugela River has its origin in the park.

Other outstanding physical features: Amphitheatre and Tugela Falls.

Vegetation and Flora

Vegetation types: 8 186 ha Highland Sourveld (Veld Type 44(a)) and 670 ha Themeda-Festuca Alpine Veld (Veld Type 58) (Acocks 1975).

Description of vegetation: The vegetation types fall into the following categories: (a) Grasslands: below 2 000 m, grassland occurs as an underlay to Protea woodland, above this altitude there are extensive pure grasslands. Grasses such as Themeda triandra dominate up to about 2 300 m above sea level after which temperate grasses such as Rendlia, Festuca and Merxmuellera become dominant. (b) Protea woodland: this is the next most extensive after grassland. Dominant trees are Protea multibracteata and P. roupelliae. (c) Evergreen mountain forest: this occurs in small patches, confined to rocky stream banks or sheltered valleys. Podocarpus latifolius is dominant. (d) Leucosidea-Buddleia scrub: patches of this vegetation type represent an early stage in the succession to forests. (e) Streambank woodland: dominants are Ilex mitis, Bowkeria verticillata and Salix woodii. (f) Rock and cliff scrub: this includes small trees and shrubs

such as Cyathea dregei, Cussonia paniculata and Greyia sutherlandii:
(g) Fynbos: at high altitudes (up to 2 750 m above sea level) a dense small tree or shrub community dominated by plants such as Passerina spp occurs.
(h) Erica-Helichrysum heath: dwarf shrub community at altitudes above 2 750 m above sea level.

Endemic species of plants: Protea nubigena.

Fauna

Endangered species: Mammals: aardwolf Proteles cristatus, brown hyaena Hyaena brunnea and striped weasel Poecilogale albinucha. Birds: bearded vulture Gypaetus barbatus and Cape vulture Gyps coprotheres.

Dominant or important species of fauna: Mammals are not present in very large numbers, however the black wildebeest Connochaetes gnou is of particular interest. Also present are mountain reedbuck Redunca fulvorufula, grey rhebok Pelea capreolus, blesbok Damaliscus dorcas phillipsi and klipspringer Oreotragus oreotragus. Over 180 bird species have been recorded.

Infrastructure

Visitor Facilities: There is an hotel on the reserve which can accommodate 120 people, and also a camp which can accommodate 60 people in cottages. There are two camp sites to accommodate 600 people. Tourist facilities include walking and climbing, swimming, horse riding and fishing.

Numbers: 66 600 per annum Potential: Full capacity has already been reached.

Staff (and positions): Conservation and Technical staff - 37; Hotel Staff - 120; Labourers - 105.

Budget: R44 060,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Royal Natal National Park, P O Mont-aux-Sources, 3353, South Africa.

Other Information of Interest: There are caves with bushman paintings on the reserve.

Principal Reference Material

Bews J W 1917. The plant ecology of the Drakensberg range. Annals of the Natal Museum 3, 511-565.

Edwards D 1967. A plant ecological survey of the Tugela River Basin. Memoirs of the Botanical Survey of South Africa, 36.

Killick D J B 1963. An account of the plant ecology of the Cathedral Peak area of the Natal Drakensberg. Memoirs of the Botanical Survey of South Africa, 34.

Phillips J F V 1973. The agricultural and related development of the Tugela Basin and its influent surrounds. Town and Regional Planning Report. Vol 19: Pietermaritzburg.

Stewart P G 1969. A management plan for Royal Natal National Park and Rugged Glen Nature Reserve. Natal Parks Board Report: Pietermaritzburg.

Preparation: J H Grobler, July 1983.

59 CHELMSFORD PUBLIC RESORT NATURE RESERVE

Proclamation

Date Established: 31 July 1975

Decree Number: Government Proclamation 73 of 1980.

Geographical Features

Location: Latitude: 27°57'S Longitude: 29°57'E

Nearest town and distance: Newcastle, 26 km

Area: 6 845 ha (3 989 ha land and 2 856 ha water).

Physical Features

Elevation: Lowest: 1 249 m Highest: 1 270 m

Highest Mountain: Not applicable

Annual rainfall: 900 mm

Annual average temperature range: No information available.

Rainy season: Summer (October - March).

Soils: Shallow soils on shale base.

Description of Geomorphology: Gently undulating, wooded hills with flat bottomed valleys.

Major rivers and streams: Ngagane River.

Other outstanding physical features: Chelmsford Dam, a large man-made impoundment.

Vegetation and Flora

Vegetation types: 3 989 ha Natal Sour Sandveld (Veld Type 66) (Acocks 1975).

Description of vegetation: Grassland with patches of mixed Acacia dominated woodlands.

Fauna

Endangered species: Oribi Ourebia ourebi.

Dominant or important species of fauna: Square-lipped rhinoceros Ceratotherium simum (6), Burchell's zebra Equus burchelli (80), red hartebeest Alcelaphus buselaphus (50), blesbok Damaliscus dorcas phillipsi (180), reedbuck Redunca arundinum (17), springbok Antidorcas marsupialis (200), steenbok Raphicerus campestris, common duiker Sylvicapra grimmia and black wildebeest Connochaetes gnou.

Infrastructure

Visitor Facilities: Horse riding, boat lockers, fishing and boating.
Numbers: 72 000 per annum Potential: Full capacity reached.

Staff (and positions): Two senior rangers, one ranger and two clerks.
Budget: R68 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Chelmsford Public Resort,
P O Box 3, Ballengeich, 2942, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: R de la Harpe, August 1983.

60 SPIOENKOP PUBLIC RESORT NATURE RESERVE

Proclamation

Date Established: 31 July 1975
Decree Number: Government Notice 101 of 1975.

Geographical Features

Location: Latitude: 28°41'S Longitude: 29°31'E
Nearest town and distance: Winterton, 17 km
Area: 4 562 ha (3 021 ha land and 1 541 ha water).

Physical Features

Elevation: Lowest: 1 060 m Highest: 1 146 m
Highest Mountain: Not applicable
Annual rainfall: 398 mm
Annual average temperature range: No information available.
Rainy season: Summer (October - March).

Soils: Shallow soils with a shale base.

Description of Geomorphology: Undulating hills with valleys.

Major rivers and streams: Tugela River.

Other outstanding physical features: Spioenkop Dam, a large man-made impoundment.

Vegetation and Flora

Vegetation types: 3 021 ha Southern Tall Grassveld (Veld Type 65) (Acocks 1975).

Description of vegetation: Mixed grassland (Eragrostis and Themeda spp) with Acacia caffra, A nilotica and A sieberana woodland.

Fauna

Endangered species: None.

Dominant or important species of fauna: Square-lipped rhinoceros Ceratotherium simum (3), giraffe Giraffa camelopardalis (4), kudu Tragelaphus strepsiceros (50), blue wildebeest Connochaetes taurinus (5), impala Aepyceros melampus (50), blesbok Damaliscus dorcas phillipsi (17), black wildebeest C gnou (65), Burchell's zebra Equus burchelli (85), eland Taurotragus oryx (30), red hartebeest Alcelaphus buselaphus (35), springbok Antidorcas marsupialis (45), steenbok Raphicerus campestris, common duiker Sylvicapra grimmia, reedbuck Redunca arundinum (20) and mountain reedbuck Redunca fulvorufula (30).

Infrastructure

Visitor Facilities: Horse riding, launch tours, tennis, badminton, table tennis, TV lounge, outdoor chess, swimming pools, historical tours, museum, overnight trail and game park walks.

Numbers: 34 000 per annum Potential: Full capacity reached.

Staff (and positions): One warden, one senior ranger, two rangers, one camp superintendent, one artisan and two clerks.

Budget: R106 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Spioenkop Public Resort, P O Box 140, Winterton, 3340, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: R de la Harpe, August 1983.

61 LOTENI NATURE RESERVE

Proclamation

Date Established: 2 April 1953

Decree Number: Proclamation 52 of 1958, Proclamation 134 of 1966 and Proclamation 62 of 1973.

Geographical Features

Location: Latitude: 29°55'S Longitude: 29°15'E

Nearest town and distance: Nottingham Road, 76 km

Area: 3 984 ha

Physical Features

Elevation: Lowest: 1 370 m Highest: 2 100 m
Highest Mountain: Seven high peaks, ± 2 000 m
Annual rainfall: 800 mm
Annual average temperature range: No information
Rainy season: Summer (October - March).

Soils: Due to the high rainfall and relatively low temperatures weathering is intense and, through percolation, the soils have been depleted of bases such as calcium, magnesium, sodium and potassium. All well-drained uplands are occupied by leached ferriferous soils. On the crests of the hills in the reserve, Mispah forms are dominant whilst on the mid- and footslopes, Clovelly and Hutton forms are dominant with Mispah rare. The marshy vleis characteristic of the bottomlands contain acid hydromorphic soils.

Description of Geomorphology: Situated in a valley among the steep slopes of the foothills of the Drakensberg, the landscape is rugged and is underlain by sandstone.

Major rivers and streams: Loteni River.

Other outstanding physical features: Rugged scenery and waterfalls.

Vegetation and Flora

Vegetation types: Highland Sourveld (Veld Type 44(a)) (Acocks 1975).

Description of vegetation: Seven broad vegetation types are recognized in the reserve but because of their subjective delineation, they can only represent a somewhat crude classification subject to correction. The seven types are as follows: (a) Themeda triandra grassland; (b) Protea open woodland; (c) Aloe spectabilis boulder scrub; (d) boulder bed scrub; (e) streambank scrub; (f) Greyia sutherlandii cliff scrub; and (g) evergreen mountain forest.

Fauna

Endangered species: Serval Felis serval, striped weasel Poecilogale albinucha, aardwolf Proteles cristatus and oribi Ourebia ourebi are the endangered mammals. The bearded vulture Gypaetus barbatus also occurs.

Dominant or important species of fauna: Mammals include eland Taurotragus oryx, reedbuck Redunca arundinum, mountain reedbuck R. fulvorufula, grey rhebok Pelea capreolus and klipspringer Oreotragus oreotragus. Over 150 species of birds have been recorded in the reserve.

Infrastructure

Visitor Facilities: A small camp with huts. Horses may be hired.
Numbers: 5 700 per annum Potential: No further plans for expansion.

Staff (and positions): The Officer-in-Charge; two senior and 15 junior staff - Tourism.

Budget: R20 500,00 per annum (excluding salaries).

Local Administration: The Officer-in-charge, Loteni Nature Reserve, P O Box 14, Himeville, 4585, South Africa.

Principal Reference Material

Bews J W 1917. The plant ecology of the Drakensberg range. Annals of the Natal Museum, 3, 511-565.

Edwards D 1967. A plant ecological survey of the Tugela River basin. Memoirs of the Botanical Survey of South Africa, 36.

MacVicar C N 1962. Soil studies in the Tugela Basin. PhD Thesis, University of Natal.

Scott J D 1951. A contribution to the study of the problems of the Drakensberg Conservation Area. Science Bulletin, 324. Department of Agriculture, Government Printer, Pretoria.

Preparation: J H Grobler, July 1983.

62 UMTAMVUNA NATURE RESERVE

Proclamation

Date Established: 25 June 1971

Decree Number: Proclamation 97 of 1971 and Proclamation 39 of 1983.

Geographical Features

Location: Latitude: 31°00'S Longitude: 30°10'E

Nearest town and distance: Port Edward, 5 km

Area: 3 137 ha

Physical Features

Elevation: Lowest: Sea level Highest: 300 m

Highest Mountain: Not applicable

Annual rainfall: 1 200 mm

Annual average temperature range: No recordings

Rainy season: Summer (October - April).

Soils: Sandy.

Description of Geomorphology: The reserve occupies the northern side of a steep gorge on the Umtamvuna River and also includes some sandy, grassland plains within its boundaries.

Major rivers and streams: Umtamvuna River.

Vegetation and Flora

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) (Acocks 1975).

Description of vegetation: About 1 500 ha are occupied by grassland. The remaining 1 500 ha support a lowland deciduous forest, an example of sub-tropical to temperate coastal forest. Encephalartos natalensis is a rare species present in the reserve.

Fauna

Endangered species: Blue duiker Cephalophus monticola.

Dominant or important species of fauna: Few large mammals survive; however, those which do, include bushbuck Tragelaphus scriptus. There is a large variety of bird species, some rare and endangered.

Infrastructure

Visitor Facilities: Visitors are few but there are some nature trails.
Numbers: 1 087 per annum Potential: 2 000 per annum.

Staff (and positions): One senior and ten junior staff (game guards).
Budget: R10 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Umtamvuna Nature Reserve, P O Box 25, Port Edward, 4295, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: J H Grobler, June 1983.

63 ALBERT FALLS PUBLIC RESORT NATURE RESERVE

Proclamation

Date Established: 31 July 1975
Decree Number: Government Notice 102 of 1975

Geographical Features

Location: Latitude: 29°26'S Longitude: 30°25'E
Nearest town and distance: Pietermaritzburg, 18 km
Area: 3 012 ha

Physical Features

Elevation: Lowest: 662 m Highest: 720 m
Highest Mountain: Not applicable
Annual rainfall: 702 mm
Annual average temperature range: No information available.
Rainy season: Summer (October - March).

Soils: Shallow soils with a shale base.

Description of Geomorphology: Undulating hills with valleys and lower lying open areas.

Major rivers and streams: Umgeni and Doornspruit Rivers.

Other outstanding physical features: Albert Falls Dam, a large man-made impoundment.

Vegetation and Flora

Vegetation types: Valley Bushveld (Veld Type 23) (Acocks 1975).

Description of vegetation: A mixed grassland (Eragrostis, Themeda and Aristida spp) with open woodland in places dominated by Acacia nilotica and A sieberana.

Fauna

Endangered species: Oribi Ourebia ourebi and wattled crane Grus carunculata.

Dominant or important species of fauna: Burchell's zebra Equus burchelli (12), impala Aepyceros melampus (20), blesbok Damaliscus dorcas phillipsi (30) and reedbuck Redunca fulvorufula (8). These species are mostly introduced.

Infrastructure

Visitor Facilities: Fishing, boating, walking, birdwatching, BMX track, scrambling track and horse riding.

Numbers: 70 000 per annum Potential: Full capacity reached.

Staff (and positions): Management - three senior and two junior staff; Tourism - one senior and three junior staff.

Budget: R103 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Albert Falls Public Resort, P O Box 31, Cramond, 3420, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: R de la Harpe, August 1983.

64 WEENEN NATURE RESERVE

Proclamation

Date Established: 1 April 1975

Decree Number: Proclamation 116 of 1975, Proclamation 85 of 1981 and Proclamation 51 of 1982.

Geographical Features

Location: Latitude: 29°S Longitude: 30°E
Nearest town and distance: Weenen, 8 km
Area: 2 929 ha

Physical Features

Elevation: Lowest: 1 000 m Highest: 1 240 m
Highest Mountain: Not applicable
Annual rainfall: 500 - 625 mm
Annual average temperature range: No records.
Rainy season: Summer (October - March).

Soils: The reserve falls into the Tugela Basin, the soils of which have been mapped. In summary, most of the reserve has been classified as stony land, steep land, land with very shallow soils or land that has been denuded of soil by gully erosion. Only a very small part of the reserve has not been eroded.

Description of Geomorphology: The reserve is situated on the Draycott Plain. In the south and south-east is a dolerite hill which is incised by numerous, mostly seasonal, streams while the west is bounded by a more precipitous escarpment.

Major rivers and streams: There are no major rivers and streams.

Vegetation and Flora

Vegetation types: Valley Bushveld (Veld Type 23) (Acocks 1975).

Description of vegetation: The reserve falls into Valley Bushveld, while Phillips (1972) classifies the area as a Sub-arid Riverine and Lowland Mixed Thicket and Short to Medium Woodland/Open Woodland (Bioclimatic Group No 10). In a more detailed study Edwards (1967) classified the area as marginal and transitional valley vegetation or more specifically as Interior Acacia karroo-A nilotica Thorn Veld. This woody vegetation type has invaded what Edwards (1967) terms Themeda-Hyparrhenia grassland. The grassland has been heavily utilized since 1890. This has resulted in serious deterioration, extensive Acacia karroo and A nilotica encroachment and in impoverished grass cover.

Fauna

Endangered species: Black rhinoceros Diceros bicornis.

Dominant or important species of fauna: The land was denuded and very severely eroded prior to conservation measures being taken. The mammalian fauna has been drastically depleted due to habitat deterioration and excessive hunting. The most important large mammals are buffalo Syncerus caffer introduced recently from the Addo Elephant National Park. Other large mammals included square-lipped rhinoceros Ceratotherium simum (6), giraffe Giraffa camelopardalis (4), Burchell's zebra Equus burchelli (40), red hartebeest Alcephalus buselaphus (20) and eland Taurotragus oryx (46). Various small antelope and other small mammals occur on the reserve. Over 60 species of birds have been recorded on the reserve.

Infrastructure

Visitor Facilities: Picnic sites only.

Numbers: 2 000 per annum Potential: Could be increased by a planned caravan park.

Staff (and positions): One senior ranger and 19 other graded and ungraded staff.

Budget: R12 590,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Weenen Nature Reserve, P O Box 122, Weenen, 3325, South Africa.

Principal Reference Material

Edwards D 1967. A plant ecological survey of the Tugela River basin. Memoirs of the Botanical Survey of South Africa, 36.

Phillips J F V 1972. The agricultural and related development of the Tugela Basin and its influent surrounds. Natal Town and Regional Planning Commission Reports, Vol 19.

West O 1951. The vegetation of Weenen County, Natal. Memoirs of the Botanical Survey of South Africa, 23.

Preparation: J H Grobler, July 1983.

65 MIDMAR PUBLIC RESORT NATURE RESERVE

Proclamation

Date Established: 21 March 1968

Decree Number: Government Notice 17 of 1974.

Geographical Features

Location: Latitude: 29°30'S Longitude: 30°12'E

Nearest town and distance: Howick, 5 km

Area: 2 831 ha (1 316 ha land and 1 515 ha water).

Physical Features

Elevation: Lowest: 1 040 m Highest: 1 138 m

Highest Mountain: Not applicable

Annual rainfall: 775 mm

Annual average temperature range: No available information.

Rainy season: Summer (October - March).

Soils: Rocky, shale based soil with shallow top soil.

Description of Geomorphology: Gently undulating grassy hills with lower lying open grassland and vleis.

Major rivers and streams: Umgeni River.

Other outstanding physical features: Midmar Dam, a large man-made impoundment.

Vegetation and Flora

Vegetation types: Southern Tall Grassveld (Veld Type 65) (Acocks 1975).

Description of vegetation: Mixed grassland, including species such as Eragrostis, Themeda and Aristida.

Fauna

Endangered species: Oribi Ourebia ourebi and wattled crane Grus carunculata.

Dominant or important species of fauna: Square-lipped rhinoceros Ceratotherium simum, Burchell's zebra Equus burchelli (52), blesbok Damaliscus dorcas phillipsi (28), red hartebeest Alcelaphus buselaphus (55), impala Aepyceros melampus (36), reedbuck Redunca fulvorufula (60), springbok Antidorcas marsupialis (22), black wildebeest Connochaetes gnou (23) and eland Taurotragus oryx (6). Virtually all these species were introduced.

Infrastructure

Visitor Facilities: Game park tours, boat tours, horse riding, museum, restaurant, boat hire, boat locker, swimming pool, bowls, squash, tennis, boating and fishing.

Numbers: 552 000 per annum Potential: Full capacity reached.

Staff (and positions): Management - four senior and five junior staff; Tourism - four senior and eight junior staff.

Budget: R250 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Midmar Public Resort, Private Bag, Howick, 3290, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: R de la Harpe, August 1983.

66 FALSE BAY NATURE RESERVE

Proclamation

Date Established: 1 June 1954

Decree Number: Proclamation 9 of 1944 and Proclamation 111 of 1952.

Geographical Features

Location: Latitude: 28°00'S Longitude: 32°15' - 32°22'E
Nearest town and distance: Hluhluwe, 8 km
Area: 2 247 ha

Physical Features

Elevation: Lowest: Sea level Highest: 30 m
Highest Mountain: Not applicable
Annual rainfall: 500 mm
Annual average temperature range: Minimum: 10-19°C Maximum: 23-30°C
Rainy season: Summer (October - April).

Soils: Soils are sandy and 17 soil series occur in the reserve.

Description of Geomorphology: The reserve comprises a narrow strip of shore along the western shore of Lake St Lucia, gently sloping up to flat or slightly undulating countryside.

Major rivers and streams: Hluhluwe and Mzinene Rivers.

Other outstanding physical features: This reserve is situated on Lake St Lucia, which covers about 300 km² and is the largest lagoon-estuary complex of its kind in South Africa.

Vegetation and Flora

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) (Acocks 1975).

Description of vegetation: Thicket to open woodland of a tropical drought-deciduous type. Notable species include Cleistanthus schlechteri, Newtonia hildebrandtii and Balanites maughamii.

Fauna

Endangered species: Pangolin Manis temminckii, serval Felis serval, suni Neotragus moschatus, red duiker Cephalophus natalensis and crocodile Crocodylus niloticus.

Dominant or important species of fauna: Mammals include warthog Phacochoerus aethiopicus, nyala Tragelaphus angasii, waterbuck Kobus ellipsiprymnus, reedbuck Redunca arundinum, blue wildebeest Connochaetes taurinus and impala Aepyceros melampus. Birds of interest include white pelican Pelecanus onocrotalus and Goliath heron Ardea goliath.

Infrastructure

Visitor Facilities: Campsites. Hunting and fishing is permitted within the reserve.

Numbers: 20 380 per annum Potential: Maximum at present.

Staff (and positions): Two senior staff and 15 junior staff (game guards).
Budget: R45 430,00 per annum (excluding salaries).

Local Administration: The Officer-in-charge, False Bay Park, P O Hluhluwe, 3960, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: J H Grobler, June 1983.

67 KAMBERG NATURE RESERVE

Proclamation

Date Established: 1 June 1951
Decree Number: Proclamation 38 of 1951.

Geographical Features

Location: Latitude: 29°15' - 29°25'S Longitude: 29°40' - 29°45'E
Nearest town and distance: Rosetta, 40 km
Area: 2 232 ha

Physical Features

Elevation: Lowest: 1 645 m Highest: 2 224 m
Highest Mountain: Gladstone's Nose
Annual rainfall: 1 077 mm
Annual average temperature range: Not recorded, drops well below zero and rises to nearly 40°C.
Rainy season: Summer (November - March).

Soils: The soils, derived largely from sandstone of the Upper Beaufort Beds are brown on the surface changing to a buff colour at greater depth and are classified as Lateritic Yellow Earths. Alluvial soils along the riverbanks are underlaid by coarse gravel.

Description of Geomorphology: Flat to undulating.

Major rivers and streams: Mooi River.

Other outstanding physical features: Large natural vlei.

Vegetation and Flora

Vegetation types: Highland Sourveld (Veld Type 44(a)) (Acocks 1975).

Description of vegetation: The reserve includes samples of several natural biotic communities. Most of the grasses are unpalatable on reaching maturity, and the grassland is referred to as "sourveld" and is only readily grazed for about five months, after burning in early spring. Leucosidea sericea (umtchitchi) grows in profusion along the stream banks while Protea spp occur in abundance below the sandstone cliffs. Greyia sutherlandii occurs to a limited extent in the sandstone belt. In some

situations the grassland seems to be invaded by Helichrysum spp, Buddleia salviifolia and Cliffortia nitidula during the intermediate successional stages. The principal grasses include Andropogon appendiculatus, Alloteropsis semialata, Elionurus argenteus, Harpechloa falx, Themeda triandra and Tristachya hispida.

Economically important species of plants: Specially protected plant species on the reserve include Protea roupelliae.

Fauna

Endangered species: Oribi Ourebia ourebi and bearded vulture Gypaetus barbatus.

Dominant or important species of fauna: Mammals include klipspringer Oreotragus oreotragus, common duiker Sylvicapra grimmia, reedbuck Redunca arundinum, mountain reedbuck R fulvorufula, grey rhebok Pelea capreolus and blesbok Damaliscus dorcas phillipsi (reintroduced).

Infrastructure

Visitor Facilities: A small camp with huts is available with facilities for trout fishing.

Numbers: 3 600 per annum Potential: No planned development.

Staff (and positions): Officer-in-Charge, camp superintendent, relief ranger and 30 junior staff.

Budget: R10 500,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Kamberg Nature Reserve, P O Rosetta, 3301, South Africa.

Principal Reference Material

Edwards D 1967. A plant ecological survey of the Tugela Basin. Memoirs of the Botanical Survey of South Africa, 36.

Scott J D 1951. A contribution to the study of the problems of the Drakensberg Conservation Area. Science Bulletin, 324. Government Printer, Pretoria.

Preparation: J H Grobler, July 1983.

68 VERNON CROOKES NATURE RESERVE

Proclamation

Date Established: 1972

Decree Number: Proclamation 254 of 1972.

Geographical Features

Location: Latitude: 30°15' - 30°19'S Longitude: 30°33' - 30°38'E

Nearest town and distance: Umzinto, 10 km

Area: 2 189 ha

Physical Features

Elevation: Lowest: 200 m Highest: 538 m

Highest Mountain: Not applicable

Annual rainfall: 1 000 mm

Annual average temperature range: Minimum: 9-19°C Maximum: 22-28°C

Rainy season: Mostly summer rains (September - March).

Soils: These are derived in the main from pink granite. Uranium bearing quartzites are also present. The north-eastern portion of the reserve is a flat plateau of Table Mountain Sandstone.

Description of Geomorphology: Series of steep-sided valleys and drainage lines which arise from an undulating plateau in the northern part.

Major rivers and streams: Streams flowing from the reserve form part of the Umzinto River catchment. Main streams are the Nyengdezi, Mzinyani, mHlanga and Umzinto Rivers.

Vegetation and Flora

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) (Acocks 1975).

Description of vegetation: (a) Forest and riverine forest: evergreen and partly deciduous. Protorus longifolia, Bequaertiodendron natalense, Milettia grandis, Vepris lanceolata, Rauvolfia caffra, Syzygium cordatum and Macaranga capensis; (b) Scrub and scrub forest: Albizia adianthifolia, Irema orientalis, Clerodendrum glabrum, Maesa lanceolata; (c) Grasslands and grassland/bushclump mosaic: Themeda triandra, Cymbopogon excavatus, Aristida junciformis, Pteridium aquilinum, Protorus longifolia and Phoenix reclinata; (d) Wetlands: swamp vlei with Phragmites communis and Cyperus spp.

Fauna

Endangered species: Southern African python Python sebae natalensis, red duiker Cephalophus natalensis, blue duiker Cephalophus monticola and oribi Ourebia ourebi.

Dominant or important species of fauna: A variety of species have been recorded, including the above endangered species.

Infrastructure

Visitor Facilities: Rustic camp.

Numbers: 5 500 per annum Potential: Not determined.

Staff (and positions): One senior ranger, part-time clerk and 40 junior staff.

Budget: R15 050,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, P O Box 624, Umzinto Station, 4201, South Africa.

Principal Reference Material

Bourquin O and S G Sawler 1980. The vertebrates of Vernon Crookes Nature Reserve. The Lammergeyer, 28, 20-32.

Preparation: J H Grobler, December 1983.

69 ORIBI GORGE NATURE RESERVE

Proclamation

Date Established: 22 March 1950

Decree Number: Proclamation 19 of 1950, Proclamation 35 of 1957 and Proclamation 167 of 1972.

Geographical Features

Location: Latitude: 30°41' - 30°45'S Longitude: 30°10' - 30°18'E

Nearest town and distance: Port Shepstone, 21 km

Area: 1 809 ha

Physical Features

Elevation: Lowest: 150 m Highest: 517 m

Highest Mountain: Not applicable

Annual rainfall: 1 120 mm

Annual average temperature range: Minimum: 13°C Maximum: 23°C

Rainy season: Summer (October - March).

Soils: On the basis of the parent rock, viz Table Mountain sandstone in the higher parts of the reserve and granite in and around the river-bed, the following three soil forms can be expected: Cartref form can be expected on the sandstone on the well-drained parts; in the wetter places the Cartref form may merge into a Longlands form, and on the eastern side of the reserve along the river a Glenrosa form, comprising an orthic A on a lithocutanic B horizon, can be expected.

Description of Geomorphology: King (1942) maintains that the Oribi and Murchison Flats (north and south of the reserve respectively) are structural plains or pseudo-peneplains which were formed by the weathering and erosion of a layer of softer rock on top of a harder one. Through this 500 m plateau, between these plains, the Umzimkulwana River has eroded a gorge through the Table Mountain sandstone down to the granite - the Oribi Gorge. The cliffs at the Rocks (at the westernmost point of the reserve) which face westwards, were caused by faulting. Pieces of broken sandstone can be seen in a strip 50 m wide along this fault.

Major rivers and streams: Umzimkulwana River.

Other outstanding physical features: Forested slopes of Oribi Gorge.

Vegetation and Flora

Vegetation types: Valley Bushveld (Veld Type 23) (Acocks 1975).

Description of vegetation: The vegetation types are as follows: (a) forest; (b) evergreen riverine thicket; (c) evergreen and deciduous (mixed) thicket; (d) evergreen sclerophyllous shrubland which includes Leucadendron spissifolium and Tarchonanthus trilobus; (e) induced open woodland with clumped trees; (f) dwarf-shrub grassland; (g) grassland; and (h) lithophytic communities.

Fauna

Endangered species: Blue duiker Cephalophus monticola, oribi Ourebia ourebi, samango monkey Cercopithecus albogularis, striped weasel Poecilogale albinucha and leopard Panthera pardus.

Dominant or important species of fauna: Other mammals are few but include the common duiker Sylvicapra grimmia and bushbuck Tragelaphus scriptus.

Infrastructure

Visitor Facilities: The rest camp has six fully equipped huts. There is a separate ablution block with toilets, baths, showers, wash basins with hot and cold water, and a kitchen where visitors' meals are prepared by the camp staff. There is also a common-room, equipped with a fireplace and a herbarium, and barbecue facilities. There are various nature trails which may be used freely by visitors. Fishing is permitted.

Numbers: 2 800 per annum Potential: Full capacity reached.

Staff (and positions): One senior ranger, one camp superintendent and 21 junior staff (management).

Budget: R5 410,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Oribi Gorge Nature Reserve, P O Plains, 4243, South Africa.

Principal Reference Material

Beater B E 1970. Soil Series of the Natal Sugar Belt. South African Sugar Association, Durban.

Bews J W 1920. The plant ecology of the Coast Belt of Natal. Natal Museum Annals, 4, 367-470.

Du Toit A L 1946. The geology of parts of Pondoland, East Griqualand and Natal. Department of Mines, Geological Survey, Pretoria.

Glen H F 1972. A contribution to the flora of the Oribi Gorge Nature Reserve, Natal South Coast. Honours Project, University of the Witwatersrand.

King L C 1942. South African Scenery: Textbook of Geomorphology. Oliver and Boyd, Edinburgh.

Preparation: J H Grobler, July 1983.

70 COLEFORD NATURE RESERVE

Proclamation

Date Established: 24 February 1948

Decree Number: Proclamation 72 of 1959.

Geographical Features

Location: Latitude: 30°S Longitude: 29°E

Nearest town and distance: Underberg, 27 km

Area: 1 272 ha

Physical Features

Elevation: Lowest: 1 410 m Highest: 1 650 m

Highest Mountain: Not applicable

Annual rainfall: 970 mm

Annual average temperature range: No records, falls to well below freezing and rises to well above 30°C.

Rainy season: Summer (November - March).

Soils: The soils have not been studied.

Description of Geomorphology: The major feature of the reserve is the Ingwangwana River, which flows south-south-eastwards through the south-eastern portion of the reserve. Its floodplain is fairly flat and narrow, rising up gently from the south bank to a series of low hills which overlook the Ndowana River. In the north-western section of the reserve (Sunnyside) the slope up from the Ingwangwana is much steeper, rising rapidly to high hills (1 650 m) with cliffs of Beaufort Sandstone on their south-eastern sides.

Major rivers and streams: Ingwangwana River and its major tributary, the Ndowana River.

Vegetation and Flora

Vegetation types: Highland Sourveld (Veld Type 44(a)) (Acocks 1975).

Description of vegetation: The vegetation consists of open grassland with a dense, fairly short sward. Typical grasses include Alloteropsis semialata, Andropogon appendiculatus, Elyonurus argenteus, Harpechloa falx, Monocymbium cerasiiforme, Themeda triandra and Tristachya hispida.

Fauna

Endangered species: Bearded vulture Gypaetus barbatus and wattled crane Grus carunculata.

Dominant or important species of fauna: Large mammals reestablished in the reserve are blesbok Damaliscus dorcas phillipsi, black wildebeest Connochaetes gnou, red hartebeest Alcelaphus buselaphus and eland Taurotragus oryx. Common duiker Sylvicapra grimmia and reedbuck Redunca arundinum also occur. Well over 100 species of birds occur on the reserve.

Infrastructure

Visitor Facilities: Rest camp with 40 beds, trout fishing, tennis, croquet, horse riding and walking.

Numbers: 2 775 per annum Potential: 14 600 per annum.

Staff (and positions): Management - two senior staff and 20 junior staff; Tourism - one senior staff and 14 junior staff.

Budget: R22 970,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Coleford Nature Reserve, P O Box 128, Underberg, 4590, South Africa.

Principal reference material

Management Plan of Natal Parks Board.

Preparation: J H Grobler, July 1983.

71 VERGELEGEN NATURE RESERVE

Proclamation

Date Established: 14 December 1967

Decree Number: Proclamation 110 of 1967, Proclamation 135 of 1970 and Proclamation 133 of 1976.

Geographical Features

Location: Latitude: 29°S Longitude: 30°E

Nearest town and distance: Himeville, 35 km

Area: 1 159 ha

Physical Features

Elevation: Lowest: 1 380 m Highest: 1 850 m

Highest Mountain: Not applicable

Annual rainfall: 1 330 mm

Annual average temperature range: No records, snowfalls frequent.

Rainy season: Summer (October - April).

Soils: Due to the high rainfall and relatively low temperatures weathering is intense and, through percolation, the soils have been depleted of bases such as calcium, magnesium, sodium and potassium. All well-drained uplands are occupied by leached ferriferous soils. On the crests of the hills in the reserve, Mispah forms are dominant whilst on the mid- and footslopes, Clovelly and Hutton forms are dominant. The marshy vleis characteristic of the bottomlands contain acid hydromorphic soils.

Description of Geomorphology: The terrain along the Mlahlangubo Stream valley is precipitous and scenic with steep slopes ascending into the Drakensberg range.

Major rivers and streams: Mkomazi River and Mlahlangubo Stream.

Vegetation and Flora

Vegetation types: Highland Sourveld (Veld Type 44(a)) (Acocks 1975).

Description of vegetation: The vegetation may be described as follows: (a) Grassland dominated by Themeda triandra; (b) Protea woodland dominated by Protea multibracteata and Protea roupelliae; (c) Boulder bed scrub: typical species are Leucosidea sericea and Bowkeria verticillata; (d) Streambank scrub includes a variety of species such as Halleria lucida, Leucosidea sericea, Rhus spp and Buddleia salviifolia and (e) Evergreen mountain forest with climax species Podocarpus latifolius.

Fauna

Endangered species: Mammals: oribi Ourebia ourebi. Birds: Cape vulture Gyps coprotheres, peregrine falcon Falco peregrinus and bearded vulture Gypaetus barbatus.

Dominant or important species of fauna: Thirteen species of mammals have been recorded in the reserve. The important mammals include bushbuck Tragelaphus scriptus, eland Taurotragus oryx, grey rhebok Pelea capreolus, reedbuck Redunca arundinum and mountain reedbuck Redunca fulvorufula. A considerable number of birds and several reptiles and amphibians have been recorded. Indigenous fish known to occur are Barbus natalensis and Amphilius natalensis.

Infrastructure

Visitor Facilities: The reserve is open to the public. Two two-bedroomed cottages are available and there are two picnic sites near the Mlahlangubo causeway. Trout fishing is possible and rod tickets may be purchased at the office or at Himeville and Loteni Nature Reserves. Hiking is permitted throughout the reserve and visitors may purchase permits to enter the adjoining State Forestry Land. Records have been kept of visitor numbers since January 1973.

Numbers: 800 per annum Potential: Numbers can be increased.

Staff (and positions): Officer-in-Charge and 16 junior staff.

Budget: R1 940,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Vergelegen Nature Reserve, P O Box 53, Himeville, 4585, South Africa.

Principal Reference Material

Killick D J B 1963. An account of the plant ecology of the Cathedral Peak area of the Natal Drakensberg. Memoirs of the Botanical Survey of South Africa, 34.

Preparation: J H Grobler, July 1983.

TRANSVAAL NATURE CONSERVATION DIVISION

The Nature Conservation Division of the Transvaal Provincial Administration was established in 1947 in terms of Ordinance 23 of 1949.

The Division currently administers 44 nature reserves of which 25 are listed in this Directory. The Division's budget for 1982/83 was R3,708 million (excluding salaries), with a total staff of 657, including 216 nature conservation officers and a research staff of 49.

The Division's conservation areas listed in this Directory are classified as Category IV. Several of these areas (Blyde River, Hans Merensky, Loskop Dam, Suikerbosrand) could, however, be classified as national parks under Category II.

Headquarters address

The Director
Nature Conservation Division
Transvaal Provincial Administration
Private Bag X209
PRETORIA
0001
South Africa

Areas listed in the Directory (Category IV)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
72	Blyde River Nature Reserve	22 664	149
73	Bloemhof Dam Nature Reserve	22 072	151
74	Loskop Dam Nature Reserve	14 800	152
75	Suikerbosrand Nature Reserve	13 337	154
76	Doorndraai Dam Nature Reserve	7 229	155
77	Pongola Nature Reserve	6 222	157
78	Verloren Valei Nature Reserve	6 055	159
79	Hans Merensky Nature Reserve	5 282	161
80	Langjan Nature Reserve	4 774	162
81	Rustenburg Nature Reserve	4 257	164
82	S A Lombard Nature Reserve	3 663	165
83	Hans Strijdom Nature Reserve	3 618	167
84	Messina Nature Reserve	3 571	168
85	Nooitgedacht Dam Nature Reserve	3 420	170
86	Boskop Dam Nature Reserve	3 160	171
87	Nylsvley Nature Reserve	3 121	172
88	Barberspan Nature Reserve	3 086	174
89	Percy Fyfe Nature Reserve	2 986	176
90	Ohrigstad Dam Nature Reserve	2 563	177
91	Wolwespruit Nature Reserve	2 333	179
92	Abe Bailey Nature Reserve	1 888	180

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
93	Vaalkop Dam Nature Reserve	1 873	182
94	Sterkspruit Nature Reserve	1 600	183
95	Happy Rest Nature Reserve	1 585	184
96	Wolkberg Caves Nature Reserve	<u>1 488</u>	186
	Subtotal	146 647	

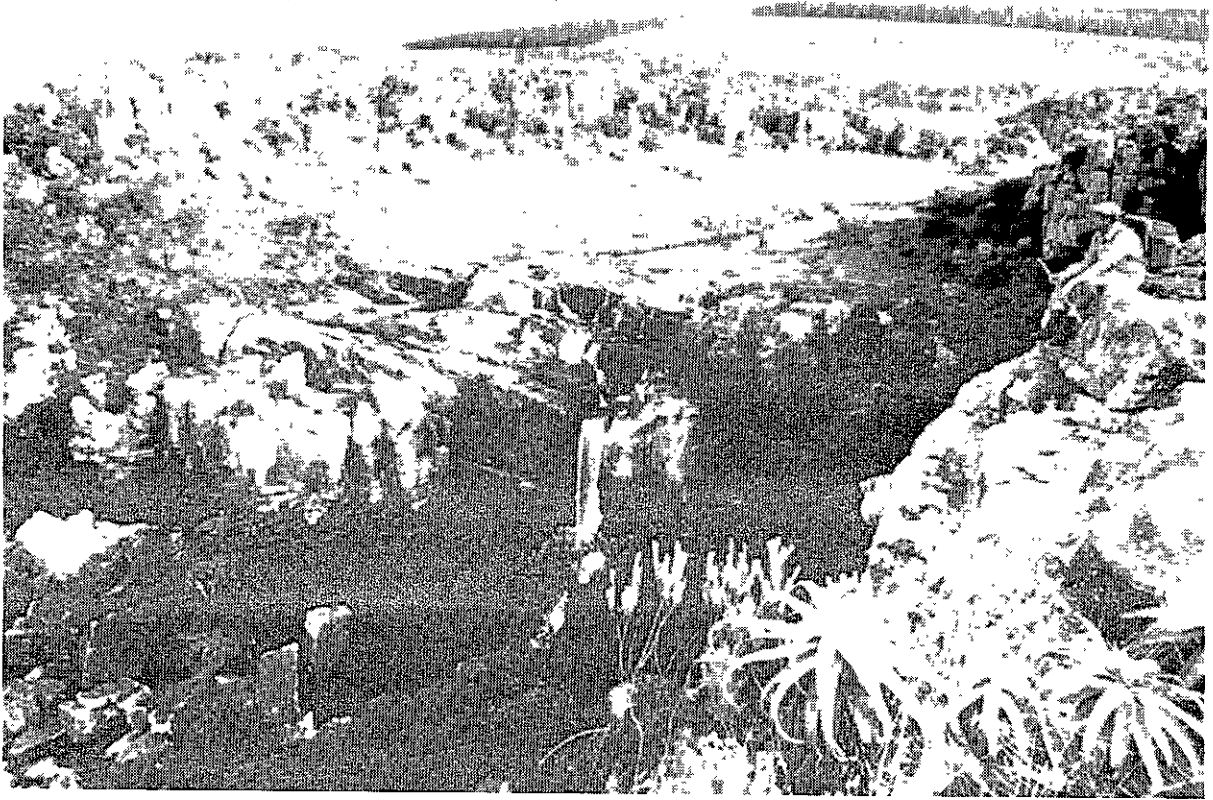


Figure 11. A waterfall in the Blyde River Nature Reserve.

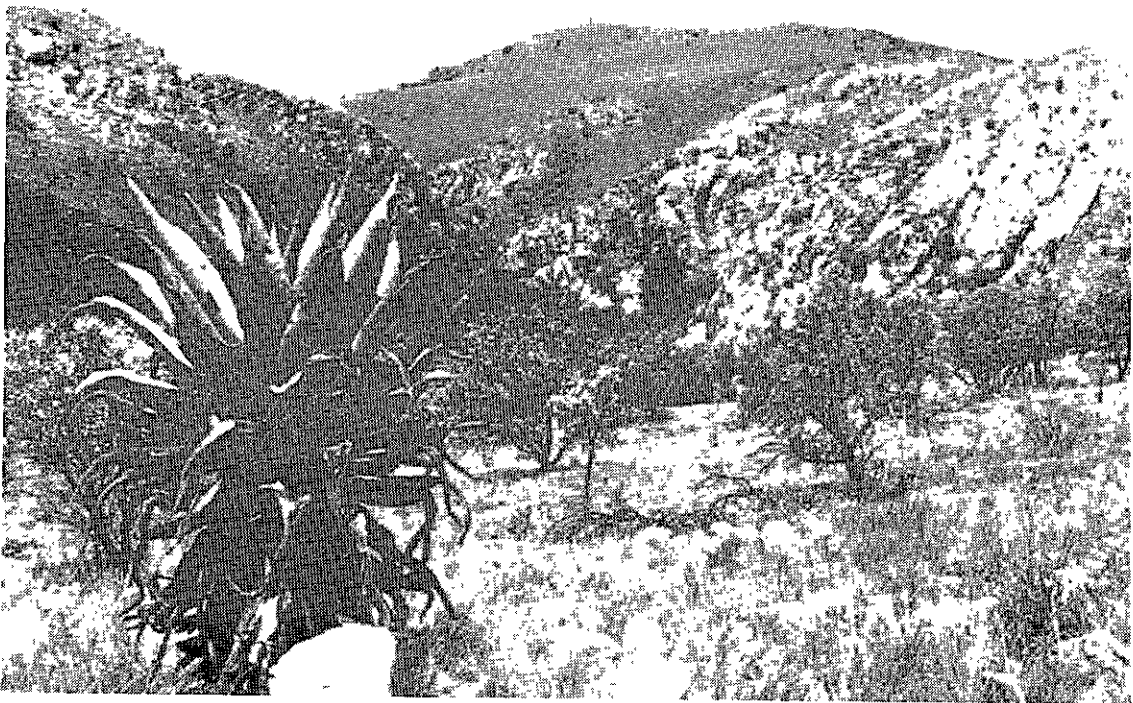


Figure 12. A kloof in the Magaliesberg, Rustenberg Nature Reserve. Veld Type 19, Sourish Mixed Bushveld.

72 BLYDE RIVER NATURE RESERVE

Proclamation

Date Established: 1965

Decree Number: Administrator's Notice 356 of 1965.

Geographical Features

Location: Latitude: 24°35'S Longitude: 30°50'E

Nearest town and distance: Graskop, 25 km

Area: 22 664 ha (22 401 ha land and 263 ha water).

Physical Features

Elevation: Lowest: 676 m Highest: 1 831,7 m

Highest Mountain: Drakensberg

Annual rainfall: 2 661 mm (God's Window), 1 231 mm (Bourke's Luck) and 650 mm (Swadini).

Annual average temperature range: Minimum: 9°C Maximum: 24°C

Rainy season: Summer (October - April).

Soils: No detailed information.

Description of Geomorphology: (a) Geology: quartzite krantzies and softer shales of the Wolkberg Series. A dolomite layer overlies the quartzite. (b) Geomorphology: the Eastern Transvaal Escarpment, deeply incised by the Blyde and Ohrigstad Rivers, forming the impressive canyon in the reserve. (c) Topography: the reserve is centred around a deeply incised canyon. A number of outstanding physical features occur. The escarpment forms the eastern boundary of the reserve.

Major rivers and streams: Blyde, Ohrigstad and Treur Rivers and Watervalspruit.

Other outstanding physical features: Potholes at the confluence of the Blyde and Treur Rivers, Blyde Canyon, Kadishi stream with tufa deposits. Outstanding topographic features include the Three Rondavels, The Pinnacle and Mariepskop, God's Window, Devil's Window and Quartzkop.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) and Lowveld Sour Bushveld (Veld Type 9) (Acocks 1975).

Description of vegetation: The reserve is characterized by the high montane grassland and scrubland areas dominated by Eragrostis sclerantha, E capensis, Loudetia simplex, Themeda triandra, Protea roupelliae, P caffra, P laetans, P rubropilosa, Lopholaena disticha, Erica drakensbergensis, Ekebergia pterophylla and Bequaertiodendron magalismsontanum and montane forests with Podocarpus latifolius, Diospyros whyteana, Rapanea melanophloeos. Halleria lucida and Apodytes dimidiata are found in the protected kloofs and higher mountain slopes. The foothills and low-lying valley areas are characterized by closed to open tall woodland communities

with Ptaeroxylon obliquum, Cussonia natalensis, Celtis africana, Rhus legati, Mimusops zeyheri, Parinari curatellifolia, Sclerocarya caffra, Faurea saligna, Lannea edulis, Catha edulis, Ficus ingens and Dombeya rotundifolia.

Endemic species of plants: The following are endemic to the Transvaal and occur in this reserve: Encephalartos inopinus, E cupidus, E laevifolius, E paucidentatus, Protea laetans, P rubropilosa, Aloe minima var blyderivierensis, Dombeya autumnalis, Gladiolus varius var micranthus, G vernus, Watsonia transvaalensis and Clivia caulescens.

Fauna

Endangered species: Mammals: leopard Panthera pardus, Meller's mongoose Rhynchogale melleri, Welwitsch's hairy bat Myotis welwitschii, South African hedgehog Erinaceus frontalis, four-toed elephant shrew Petrodromus tetradactylus, lesser bushbaby Galago senegalensis, thick-tailed bushbaby Galago crassicaudatus, samango monkey Cercopithecus albogularis, pangolin Manis temminckii, honey badger Mellivora capensis, striped weasel Poecilogale albinucha and African civet Civettictis civetta. Reptiles: veld monitor Varanus exanthematicus albigularis, water monitor Varanus niloticus, Southern African python Python sebae natalensis and dwarf chameleon Bradypodion pumlo transvaalensis. Birds: Cape vulture Gyps coprotheres and black sparrowhawk Accipiter melanoleucus.

Dominant or important species of fauna: The more important mammals are hippopotamus Hippopotamus amphibius, bushpig Potamochoerus porcus, mountain reedbuck Redunca fulvorufula and klipspringer Oreotragus oreotragus. Birds include black eagle Aquila verreauxii, bald ibis Geronticus calvus, crowned eagle Stephanoaetus coronatus, purple crested lourie Tauraco porphyreolophus and narina trogon Apaloderma narina. Reptiles include water snake Lycodonmorpus laevissimus fitzsimonsi, also rough-scaled plated lizard Gerrhosaurus major. Fish include: large-scale yellowfish Barbus marequensis, tilapia Oreochromis mossambicus, chubbyhead barb Barbus anoplus and southern red-breasted tilapia Tilapia rendalli.

Infrastructure

Visitor Facilities: Two resorts, picnicking, mountaineering, camping, horse riding, hiking, guided tours and birdwatching.

Numbers: 160 000 per annum Potential: 300 000 per annum.

Staff (and positions): 15 nature conservators and 88 labourers.

Budget: R450 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Blyde River Nature Reserve, P O Bourke's Luck, 1272, South Africa.

Other Information of Interest: The Blyde Canyon is one of the most impressive canyons in the world. It has been developed chiefly as a hiking area, with the Blyderivierspoort, Eerste Liefde and Muilhuis Hiking Trails.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

73 BLOEMHOF DAM NATURE RESERVE

Proclamation

Date Established: 1975

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 27°35'S Longitude: 25°52' - 26°05'E

Nearest town and distance: Bloemhof, 5 km

Area: 22 072 ha (12 850 ha land and 9 222 ha water).

Physical Features

Elevation: Lowest: 1 239 m Highest: 1 249 m

Highest Mountain: Not applicable

Annual rainfall: 508 mm

Annual average temperature range: Minimum: 10°C Maximum: 27°C

Rainy season: Summer (October - April).

Soils: Sandy in places. Predominantly loam soils. Kalahari sand on limestone.

Description of Geomorphology: This reserve is part of the Vaal River System. The topography is flat, lying on pre-Karoo rocks with a geology of shale and sandstone.

Major rivers and streams: The Vaal River which forms the southern border.

Vegetation and Flora

Vegetation types: Kalahari Thornveld (Veld Type 16) and Dry Cymbopogon-Themeda Veld (Veld Type 50) (Acocks 1975).

Description of vegetation: The vegetation is dominated by open short grassveld with clumps of Tarchonanthus camphoratus and small thickets of Ziziphus mucronata, Rhus lancea and Acacia karroo in the central areas and more dense thickets of A erioloba, A karroo and A heteronuera in the Kalahari Thornveld areas. Important grasses are Eragrostis obtusa, E lehmanniana, E tricophora, E curvula, Cymbopogon plurinodis and Panicum stapfianum.

Fauna

Endangered species: None.

Dominant or important species of fauna: Mammals: black wildebeest Connochaetes gnou, eland Taurotragus oryx, springbok Antidorcas marsupialis, gemsbok Oryx gazella, blesbok Damaliscus dorcas phillipsi and

red hartebeest Alcelaphus buselaphus. Fish: smallmouth yellowfish Barbus holubi, threespot barb B trimaculatus and sharptooth catfish Clarias gariepinus. There is a large waterfowl population. Noteworthy reptiles are the Cape cobra Naja nivea and serrated tortoise Psammobates oculifera.

Infrastructure

Visitor Facilities: Angling.

Numbers: 30 000 per annum Potential: 50 000 per annum.

Staff (and positions): Three nature conservators and 25 labourers.

Budget: R50 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Bloemhof Dam Nature Reserve, Private Bag X7, Bloemhof, 2660, South Africa.

Other Information of Interest: The reserve is still being developed and a large portion is not yet fenced. Visitor facilities are still rustic.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

74 LOSKOP DAM NATURE RESERVE

Proclamation

Date Established: 1954

Decree Number: Administrator's Notice 223 of 1954.

Geographical Features

Location: Latitude: 25°30'S Longitude: 29°20'E

Nearest town and distance: Groblersdal, 35 km

Area: 14 800 ha (12 448 ha land and 2 352 ha water).

Physical Features

Elevation: Lowest: 1 018 m Highest: 1 404 m

Highest Mountain: Not applicable

Annual rainfall: 664 mm

Annual average temperature range: Minimum: 14°C Maximum: 28°C

Rainy season: Summer (October - April).

Soils: The soils of the hills and slopes are comprised mainly of rocky lithosols whilst those of the bottomlands are deep red to yellow clay loams and mostly base saturated.

Description of Geomorphology: The landscape may be described as hilly with fairly steeply sloping valley sides and deeply incised drainage lines with

a relatively narrow alluvial deposition representing the bottomlands. To the south the reserve is dominated by the Nylstroom Series of the Waterberg System, the main geological materials being lava, sandstone, conglomerate, siltstone and greywacke. Underlying the northern region are felsite, pyroclasts and granopyre of the Bushveld Igneous Complex.

Major rivers and streams: Olifants River and Kerkplaas se Loop.

Vegetation and Flora

Vegetation types: Mixed Bushveld (Veld Type 18) and Sourish Mixed Bushveld (Veld Type 19) (Acocks 1975).

Description of vegetation: Physiognomically the hilltops and slopes are open savanna vegetation with a tall herbaceous layer - shrubs are scarce. Along drainage lines a narrow fringe of closed woodland occurs, whilst on the bottomlands in the north, a relatively dense thicket occurs. The vegetation can be structurally divided into 14 plant communities. The most dominant are Diplorhynchus condylocarpon, Enneapogon spp and Loudetia simplex open woodland; Combretum apiculatum-Acacia caffra-Themeda triandra open woodland and Burkea africana-Loudetia simplex open woodland.

Endemic species of plants: Gladiolus pole-evansii and Triaspis glaucophylla are endemic to the Transvaal and occur in this reserve.

Fauna

Endangered species: Mammals: brown hyaena Hyaena brunnea, African civet Civettictis civetta, leopard Panthera pardus, sable Hippotragus niger, South African hedgehog Erinaceus frontalis, straw-coloured fruit bat Eidolon helvum, lesser bushbaby Galago senegalensis, thick-tailed bushbaby Galago crassicaudatus, pangolin Manis temminckii, water rat Dasymys incomtus, honey badger Mellivora capensis, striped weasel Poecilogale albinucha, aardwolf Proteles cristatus and oribi Ourebia ourebi. Reptiles: veld monitor Varanus exanthematicus albigularis, water monitor Varanus niloticus, Southern African python Python sebae natalensis and crocodile Crocodylus niloticus. Birds: African fish eagle Haliaeetus vocifer, martial eagle Polemaetus bellicosus and peregrine falcon Falco peregrinus.

Dominant or important species of fauna: Mammals: mountain reedbuck Redunca fulvorufula, kudu Tragelaphus strepsiceros, square-lipped rhinoceros Ceratotherium simum, chacma baboon Papio ursinus, buffalo Syncerus caffer, impala Aepyceros melampus, blue wildebeest Connachaetes taurinus, Burchell's zebra Equus burchelli and nyala Nyalala angasii. Reptiles: pygmy sand snake Psammis angolensis. Fish: largescale yellowfish Barbus marequensis, sharptooth catfish Clarias gariepinus, butter catfish Eutropius depressirostris and redbreast tilapia Tilapia rendalli.

Infrastructure

Visitor Facilities: Public resort, shop, camping, huts, caravanning and swimming pool.

Numbers: 4 000 per annum Potential: 10 000 per annum.

Staff (and positions): Three nature conservators and 21 labourers.
Budget: R100 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Loskop Dam Nature Reserve, Private Bag X606, Groblersdal, 0470, South Africa.

Principal Reference Material

Theron G K 1973. 'n Plant-ekologiese studie van die Loskopdam Natuurreservaat. DSc Thesis, University of Pretoria.

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

75 SUIKERBOSRAND NATURE RESERVE

Proclamation

Date Established: 1974

Decree Number: Administrator's Notice 514 of 1974.

Geographical Features

Location: Latitude: 26°30'S Longitude: 28°15'E

Nearest town and distance: Heidelberg, 20 km

Area: 13 337 ha

Physical Features

Elevation: Lowest: 1 608 m Highest: 1 918 m

Highest Mountain: Suikerbosrand

Annual rainfall: 700 mm

Annual average temperature range: Minimum: 10°C Maximum: 25°C

Rainy season: Summer (October - April).

Soils: Poor and acidic - either stony or sandy.

Description of Geomorphology: This reserve forms part of the series of quartzite ridges along the Witwatersrand. The topography is mountainous.

Major rivers and streams: Non-perennial streams.

Vegetation and Flora

Vegetation types: Bankenveld (Veld Type 61(b)) (Acocks 1975).

Description of vegetation: Grassland with patches of woodland and shrubland. The dominant communities include Rhus pyroides thickets; Canthium gilfillanii-Aristida transvaalensis-Cymbopogon marginatus savanna, Eragrostis racemosa-Digitaria monodactyla grassland, Euclea crispa-Rhoicissus tridentata shrubland and Trachypogon spicatus-Themeda triandra grassland.

Endemic species of plants: Mossia intervallaris is endemic to the Transvaal and occurs in this reserve.

Fauna

Endangered species: Mammals: brown hyaena Hyaena brunnea, South African hedgehog Erinaceus frontalis, water rat Dasymys incomtus, striped weasel Poecilogale albinucha, aardwolf Proteles cristatus, leopard Panthera pardus and oribi Ourebia ourebi.

Dominant or important species of fauna: Mammals: eland Taurotragus oryx, black wildebeest Connochaetes gnou, red hartebeest Alcelaphus buselaphus, Burchell's zebra Equus burchelli, blesbok Damaliscus dorcas phillipsi and antbear Orycteropus afer. Reptiles and amphibians: cross-marked grass snake Psammophis crucifer, common egg-eater Dasypeltis scabra, guttural toad Bufo gutturalis, rattling kassina Kassina wealii, Transvaal crag lizard Pseudocordylus subviridis transvaalensis, rock agama Agama atra and spotted harlequin snake Homoroselaps lacteus.

Infrastructure

Visitor Facilities: Camping, hiking, picnic spots and environmental education facilities for youth groups.

Numbers: 30 000 per annum Potential: 100 000 per annum.

Staff (and positions): Ten nature conservators and 40 labourers.

Budget: R400 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Suikerbosrand Nature Reserve, Private Bag X616, Heidelberg, 2400, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

76 DOORNDRAAI DAM NATURE RESERVE

Proclamation

Date Established: 1973

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 24°20'S Longitude: 28°45'E

Nearest town and distance: Potgietersrus, 40 km

Area: 7 229 ha (6 652 ha land and 577 ha water).

Physical Features

Elevation: Lowest: 1 183 m Highest: 1 464 m
Highest Mountain: Not applicable
Annual rainfall: 611 mm
Annual average temperature range: Minimum: 13°C Maximum: 28°C
Rainy season: Summer (October - April).

Soils: A very poor, lithological soil of a sandy, rubbly nature.

Description of Geomorphology: Undulating, hilly terrain. The reserve lies in the Sterk River valley of the Waterberg, which consists of sandstone, granite and conglomerates.

Major rivers and streams: The Sterk River flows into the Doorndraai Dam.

Other outstanding physical features: Rock piles, the origin of which are not known. Archaeological artifacts in erosion gullies.

Vegetation and Flora

Vegetation types: Sour Bushveld (Veld Type 20) (Acocks 1975).

Description of vegetation: Open savanna of tall straight Faurea saligna, in a tall, tufted, wiry sour grassveld in the less rocky parts, a dense mixed bushveld in the rugged parts. Examples of trees: Acacia caffra, Protea caffra on southern slopes, Burkea africana on rocky soils, Terminalia sericea on sandy soils, Acacia karroo on plains. Also Combretum molle, C zeyheri and C apiculatum. Grasses: Themeda triandra, Heteropogon contortus, Aristida congesta and Cymbopogon excavatus.

Endemic species of plants: Aloe petrophila is endemic to the Transvaal and is found in the reserve.

Fauna

Endangered species: Mammals: leopard Panthera pardus, aardwolf Proteles cristatus, sable Hippotragus niger, brown hyaena Hyaena brunnea, tsessebe Damaliscus lunatus, South African hedgehog Erinaceus frontalis, lesser bushbaby Galago senegalensis, water rat Dasymys incomtus, honey badger Mellivora capensis, roan Hippotragus equinus, African civet Civettictis civetta, thick-tailed bushbaby Galago crassicaudatus and striped weasel Poecilogale albinucha. Reptiles: veld monitor Varanus exanthematicus albigularis, water monitor Varanus niloticus and Southern African python Python sebae natalensis. Birds: martial eagle Polemaetus bellicosus and African fish eagle Haliaeetus vocifer.

Dominant or important species of fauna: Mammals: giraffe Giraffa camelopardalis, blue wildebeest Connochaetes taurinus, kudu Tragelaphus strepsiceros, Burchell's zebra Equus burchelli, waterbuck Kobus ellipsiprymnus, impala Aepyceros melampus and antbear Orycteropus afer. Reptiles: Waterberg girdled lizard Cordylus warreni breyeri (endemic to Waterberg area) and serrated tortoise Psammobates oculifera. Fish: largescale yellowfish Barbus marequensis, canary largemouth Chetia flaviventris and redbreast tilapia Tilapia rendalli.

Infrastructure

Visitor Facilities: Camping, guided tours, boating, picnicking, fishing and birdwatching. Proposed visitor centre, nature trails and bus tours will increase visitor numbers.

Numbers: 34 000 per annum Potential: 40 000 per annum.

Staff (and positions): Three nature conservators and 38 labourers.

Budget: R100 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Doorndraai Dam Nature Reserve, P O Box 983, Potgietersrus, 0600, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

77 PONGOLA NATURE RESERVE

Proclamation

Date Established: 1979

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 27°20'S Longitude: 31°58'E

Nearest town and distance: Golela, 1 km

Area: 6 222 ha (5 762 ha land and 460 ha water).

Physical Features

Elevation: Lowest: 146 m Highest: 730 m

Highest Mountain: Lebombo Mountains

Annual rainfall: 617 mm

Annual average temperature range: Minimum: 15°C Maximum: 29°C

Rainy season: Summer (October - April).

Soils: Approximately half of the reserve consists of a steep west facing scarp and talus slope with poorly developed lithosols. The other half of the reserve consists primarily of a west facing sediment slope on which the dominant soils are red to dark brown clays.

Description of Geomorphology: The reserve borders on the Lebombo Mountain Range which is an elevated tract built of lavas dipping to the east. The escarpment consists mainly of rhyolites of the Jozini Formation.

Major rivers and streams: Pongola River.

Vegetation and Flora

Vegetation types: Zululand Thornveld (Veld Type 6), Lowveld (Veld Type 10) and Arid Lowveld (Veld Type 11) (Acocks 1975).

Description of vegetation: Open woodland communities on the low lying areas, high montane grassveld on the summits with grasslands, sparse woodland on the lower foothills and dense montane bush and kloof forest on the higher foothills and near summits. Dominant species of the summits are Aloe marlothii, A bainesii, Diospyros microphylla, Euphorbia grandidens, Croton sylvaticus and Diospyros whyteana. The foothills are represented by Acacia nigrescens, Euclea spp and a variety of grasses with Themeda triandra as dominant. The low lying areas are dominated by Acacia nigrescens, Sclerocarya caffra, A exuvialis, Ziziphus mucronata, Trichilia emetica, Spirostachys africana and Acacia schweinfurthii.

Fauna

Endangered species: Reptiles: Nile crocodile Crocodylus niloticus and Southern African python Python sebae natalensis.

Dominant or important species of fauna: Mammals: blue wildebeest Connochaetes taurinus, bushbuck Tragelaphus scriptus, nyala I angasi, impala Aepyceros melampus and hippopotamus Hippopotamus amphibius. Birds: crowned eagle Stephanoaetus coronatus, Goliath heron Ardea goliath, crested guineafowl Guttera pucherani, blackbellied korhaan Eupodotis melanogaster, Rudd's apalis Apalis ruddi and grey sunbird Nectarinia veroxii. Reptiles: flat gecko Afroedura spp (restricted), short-headed burrowing skink Scelotes brevipes and some thick-toed geckos Pachydactylus spp (uncommon). Fish: largescale yellowfish Barbus marequensis, threespot barb B trimaculatus, sharptooth catfish Clarius gariepinus and tigerfish Hydrocynus vittatus.

Infrastructure

Visitor Facilities: Being planned; reserve not open to the public.

Numbers: None Potential: Probably 5 000 per annum.

Staff (and positions): One nature conservator and 14 labourers.

Budget: R40 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Pongola Nature Reserve, P O Box 29, Golela, 3990, South Africa.

Other Information of Interest: This was possibly the first Game Reserve to have been proclaimed in Africa (1894). It was unfortunately deproclaimed in circa 1926, but reproclaimed in 1979.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

78 VERLOREN VALEI NATURE RESERVE

Proclamation

Date Established: 1984

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 25°18'S Longitude: 30°07'E

Nearest town and distance: Dullstroom, 15 km

Area: 6 055 ha

Physical Features

Elevation: Lowest: 2 150 m Highest: 2 316 m

Highest Mountain: Steenkampsberg

Annual rainfall: 1 025 mm

Annual average temperature range: Minimum: 5°C Maximum: 20°C

Rainy season: Summer (October - April).

Soils: No information currently available.

Description of Geomorphology: The area consists primarily of a plateau with a number of parallel dolerite and diabase ridges dissecting the area. A quartzite band dipping at 10° is protected by a series of dolerite dykes. Quartzite has been eroded to result in formation of permanent marshes or sponges which occur along drainage lines between these ridges.

Major rivers and streams: Tributaries of Crocodile, Elands and Steelpoort Rivers have their origins here.

Other outstanding physical features: Thirty-eight permanent sponges.

Vegetation and Flora

Vegetation types: North-Eastern Sandy Highveld (Veld Type 57) (Acocks 1975).

Description of vegetation: The vegetation contains a number of sub-alpine grassveld elements such as Digitaria tricholaenoides, Harpochloa falx, Rendlia altera, Stiburus conrathii, Koeleria cristata, Alloteropsis semialata and Festuca spp. In the marshy areas sedges especially Carex aethiopica and various Scirpus and Pycneus spp are dominant. The grass Leersia hexandra is locally common where there is open water, as are Polygonum lapathifolium and Gunnera perpensa. A few marshes support beds of the reed Phragmites australis.

Endemic species of plants: Cheilanthes sp nov, Aloe graciliflora, Agapanthus inapertus subsp pendulus, A inapertus subsp parviflorus, Eucomis vandermerwei, Moraea modesta, Riocreuxia aberrans and Streptocarpus latens.

Fauna

Endangered species: Mammals: oribi Ourebia ourebi. Birds: bald ibis Geronticus calvus, white stork Ciconia ciconia, black stork C nigra, Cape vulture Gyps coprotheres, black harrier Circus maurus, wattled crane Grus carunculata, Stanley's bustard Neotis denhami, Cape eagle owl Bubo capensis, Rudd's lark Mirafra ruddi, house martin Delichon urbica, palecrowned cisticola Cisticola brunnescens, yellowbreasted pipit Anthus chloris and Gurney's sugarbird Promerops gurneyi.

Dominant or important species of fauna: Mammals: mountain reedbuck Redunca fulvorufula, grey rhebok Pelea capreolus, spotted-necked otter Lutra maculicollis, Cape clawless otter Aonyx capensis and Hottentot golden mole Amblysomus hottentotus. Amphibians: bronze caco Cacosternum nanum, rattling kassina Kassina wealii, striped grass frog Ptychadena porosissima, spotted rana Rana grayi and gariep toad Bufo gariepensis. Reptiles: ocellated dwarf gecko Lygodactylus ocellatus, van Son's thick-toed gecko Pachydactylus capensis vansoni, Transvaal girdled lizard Cordylus vittifer, Transvaal crag lizard Pseudocordylus subviridus transvaalensis, common egg-eater Dasypeltis scabra and cross-marked grass snake Psammophis crucifer.

Infrastructure

Visitor Facilities: None

Numbers: None Potential: Limited hiking in future.

Staff (and positions): One nature conservator (part time).

Budget: R20 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Verloren Valei Nature Reserve, P O Box 98, Dullstroom, 1110, South Africa.

Other Information of Interest: This reserve was only recently acquired and is still being developed. The main objective of the reserve is the conservation of the wattled crane Grus carunculata, of which only a small number remain in South Africa, and the conservation of a wetland system.

Principal Reference Material

Tarboton W R and D Day 1980. The Wattled Crane. Fauna and Flora 36.

Tarboton W R In press. Breeding Behaviour of Stanley's Bustard. Bustard Studies.

Various unpublished internal reports.

Preparation: L Lötter, July 1984.

79 HANS MERENSKY NATURE RESERVE

Proclamation

Date Established: 1954

Decree Number: Administrator's Notice 223 of 1954.

Geographical Features

Location: Latitude: 23°42'S Longitude: 30°40'E

Nearest town and distance: Izaneen, 65 km

Area: 5 282 ha

Physical Features

Elevation: Lowest: 434 m Highest: 542 m

Highest Mountain: Black Hills

Annual rainfall: 650 mm

Annual average temperature range: Minimum: 15°C Maximum: 29°C

Rainy season: Summer (October - April).

Soils: Sandy with brackish patches and a more loamy soil against the ridges (unleached subtropical).

Description of Geomorphology: A relatively flat, slightly undulating topography. The eastern section is bordered by a low range of doleritic ridges known as the Black Hills.

Major rivers and streams: Great Letaba River and Mashavel Stream.

Other outstanding physical features: Island in the Letaba River and mineral thermal spring.

Vegetation and Flora

Vegetation types: Arid Lowveld (Veld Type 11) (Acocks 1975).

Description of vegetation: Predominantly closed Colophospermum mopane woodland and variations of Combretum apiculatum, Pterocarpus rotundifolia and C. apiculatum and Terminalia sericea woodland. Patches of open Terminalia sericea woodland and Acacia nigrescens woodland are found scattered in this reserve. Riverine vegetation is dominated by an Acacia tortilis-Ficus sycomorus-Syzygium guineense association. Kirkia acuminata scrubland is found on the Black Hills region.

Fauna

Endangered species: Mammals: honey badger Mellivora capensis, African civet Civettictis civetta, tsessebe Damaliscus lunatus, sable Hippotragus niger and cheetah Acinonyx jubatus. Reptiles: veld monitor Varanus exanthematicus albigularis and crocodile Crocodylus niloticus.

Dominant or important species of fauna: Mammals: impala Aepyceros melampus, steenbok Raphicerus campestris, kudu Tragelaphus strepsiceros,

giraffe Giraffa camelopardalis, Burchell's zebra Equus burchelli, blue wildebeest Connochaetes taurinus, warthog Phacochoerus aethiopicus, antbear Orycteropus afer and hippopotamus Hippopotamus amphibius. Reptiles: leopard tortoise Geochelone pardalis babcocki. Fish: redbreast tilapia Tilapia rendalli, silver labeo Labeo ruddi, Mocambique tilapia Oreochromis mossambicus and sharptooth catfish Clarias gariepinus. Birds: martial eagle Polemaetus bellicosus, thickbilled cuckoo Pachycoccyx audeberti and Stierling's barred warbler Camaroptera stierlingi.

Infrastructure

Visitor Facilities: Holiday resort, visitor centre, bus tours, walking trails and film shows.

Numbers: 34 000 per annum Potential: 40 000 per annum.

Staff (and positions): Four nature conservators and 16 labourers.

Budget: R120 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Hans Merensky Nature Reserve, Private Bag X502, Letsitele, 0885, South Africa.

Other Information of Interest: The reserve has sites of considerable ethnological interest. These include an iron smelting oven and the Tsonga Kraal Open Air Museum.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

80 LANGJAN NATURE RESERVE

Proclamation

Date Established: 1954

Decree Number: Administrator's Notice 223 of 1954.

Geographical Features

Location: Latitude: 22°50'S Longitude: 29°13'E

Nearest town and distance: Vivo, 20 km

Area: 4 774 ha

Physical Features

Elevation: Lowest: 775 m Highest: 824 m

Highest Mountain: Not applicable

Annual rainfall: 482 mm

Annual average temperature range: Minimum: 12°C Maximum: 35°C

Rainy season: Summer (October - April).

Soils: Kalahari sand on limestone.

Description of Geomorphology: The topography of the reserve is flat.
Geology - conglomerate, limestone and sandstone.

Major rivers and streams: Brak River.

Vegetation and Flora

Vegetation types: Arid Sweet Bushveld (Veld Type 14) (Acocks 1975).

Description of vegetation: Vegetation can be classified as short open woodland with patches of tall shrubland. Open woodland communities are represented by Combretum apiculatum, Sclerocarya caffra, Acacia nigrescens, Terminalia sericea, Grewia bicolor, Commiphora pyracanthoides, G flavescens, Digitaria eriantha and Enneapogon cenchroides. The shrublands are characterized by Boscia albitrunca, T prunioides, G bicolor, Urochloa mosambicensis and Tragus berteronianus. Patches of Acacia thickets with A nebrownii, A mellifera and A tortilis are found.

Fauna

Endangered species: Mammals: sable Hippotragus niger, leopard Panthera pardus, honey badger Mellivora capensis, South African hedgehog Erinaceus frontalis, pangolin Manis temminckii, lesser bushbaby Galago senegalensis, thick-tailed bushbaby Galago crassicaudatus, African civet Civettictis civetta and striped weasel Poecilogale albinucha. Reptiles: Southern African python Python sebae natalensis.

Dominant or important species of fauna: Mammals: bat-eared fox Otocyon megalotis, gemsbok Oryx gazella, giraffe Giraffa camelopardalis, red hartebeest Alcelaphus buselaphus, steenbok Raphicerus campestris, common duiker Sylvicapra grimmia and waterbuck Kobus ellipsiprymnus. Fish: threespot barb Barbus trimaculatus and Mocambique tilapia Oreochromis mossambicus. Reptiles and amphibians: African spotted skink Mabuya striata, black and yellow sand lizard Eremias lugubris, Smith's water tortoise Pelusios sinuatus, Jones's girdled lizard Cordylus tropidosternum jonesii, common variable skink Mabuya varia, striped long-tail lizard Nucras taeniolata ornata, spotted sandveld lizard Nucras intertexta and mole snake Pseudaspis cana. Birds: kori bustard Ardeotis kori and secretary bird Sagittarius serpentarius are some interesting species. Ostrich Struthio camelus also occurs.

Infrastructure

Visitor Facilities: A few huts. Camping allowed.

Numbers: 200 per annum Potential: 3 000 per annum.

Staff (and positions): One nature conservator and 11 labourers.

Budget: R40 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Langjan Nature Reserve, P O Box 15, Vivo, 0924, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

81 RUSTENBURG NATURE RESERVE

Proclamation

Date Established: 1967

Decree Number: Administrator's Notice 62 of 1967.

Geographical Features

Location: Latitude: 25°43'S Longitude: 27°12'E

Nearest town and distance: Rustenburg, 8 km

Area: 4 257 ha

Physical Features

Elevation: Lowest: 1 296 m Highest: 1 706 m

Highest Mountain: Magaliesberg

Annual rainfall: 700-800 mm

Annual average temperature range: Minimum: 11°C Maximum: 27°C

Rainy season: Summer (October - April).

Soils: Sandy, loam soils. Shallow litholitic soils on slopes and hills to deeper soils in vlei and basin areas.

Description of Geomorphology: The Magaliesberg Mountain Range on which the reserve is situated, is a homoclinal ridge formed of resistant quartzites dipping to the north. The reserve has an anticlinal ridge on the northern side and the valley is the result of an igneous intrusion. A major fault cuts through the reserve.

Major rivers and streams: Waterkloofspruit.

Other outstanding physical features: Waterfalls and potholes in well protected kloofs, as is characteristic of the Magaliesberg Mountains.

Vegetation and Flora

Vegetation types: Sourish Mixed Bushveld (Veld Type 19) (Acocks 1975).

Description of vegetation: Open savanna with a fairly tall and dense grassveld dominated by Cymbopogon plurinodis, Themeda triandra and Elionurus argenteus. The bush areas are dominated by Protea caffra and Acacia caffra. Dense bush occurs in the kloofs. Slopes and rocky areas with seasonal grassland and semi-deciduous trees eg Landolphia capensis and Bequaertiodendron magalismontanum. Marshy area dominated by dense Phragmites mauritianus.

Endemic species of plants: Aloe peglerae and Frithia pulcra are endemic to the Magaliesberg Mountain Range.

Fauna

Endangered species: Mammals: brown hyaena Hyaena brunnea, South African hedgehog Erinaceus frontalis, straw-coloured fruit bat Eidolon helvum, lesser bushbaby Galago senegalensis, spectacled dormouse Graphiurus ocellatus, honey badger Mellivora capensis, African civet Civettictis civetta, aardwolf Proteles cristatus, leopard Panthera pardus, sable Hippotragus niger and oribi Ourebia ourebi. Reptiles: veld monitor Varanus exanthematicus albigularis and Southern African python Python sebae natalensis. Birds: martial eagle Polemaetus bellicosus and peregrine falcon Falco peregrinus.

Dominant or important species of fauna: The following mammals occur on the reserve: mountain reedbuck Redunca fulvorufula, reedbuck Redunca arundinum, eland Taurotragus oryx and Burchell's zebra Equus burchelli. Reptiles: horned adder Bitis caudalis. Fish: chubbyhead barb Barbus anoplus, threespot barb B. trimaculatus, banded tilapia Tilapia sparrmanii and southern mouth brooder Pseudocrenilabrus philander.

Infrastructure

Visitor Facilities: Huts on hiking trails, camping, picnicking, bus tours, visitor centre, group camp and interpretative nature trail.

Numbers: 10 000 per annum Potential: 10 000 per annum.

Staff (and positions): Three nature conservators and 28 labourers.

Budget: R50 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Rustenburg Nature Reserve, P O Box 511, Rustenburg, 0300, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

82 S A LOMBARD NATURE RESERVE

Proclamation

Date Established: 1967

Decree Number: Administrator's Notice 62 of 1967.

Geographical Features

Location: Latitude: 27°35'S Longitude: 25°30'E

Nearest town and distance: Bloemhof, 10 km

Area: 3 663 ha

Physical Features

Elevation: Lowest: 1 244 m Highest: 1 268 m
Highest Mountain: Not applicable
Annual rainfall: 380 - 500 mm
Annual average temperature range: Minimum: 10°C Maximum: 27°C
Rainy season: Summer (October - April).

Soils: Vary from sandy-loam to brackish soils with a high clay content, overlying a white, calcareous formation. Ferriferous lateritic soil.

Description of Geomorphology: Geology: Ventersdorp System. Pans are common in the area. Four non-perennial pans occur. An ancient riverbed passes through the reserve.

Major rivers and streams: None.

Vegetation and Flora

Vegetation types: Dry Cymbopogon-Themeda Veld (Veld Type 50) (Acocks 1975).

Description of vegetation: Open grassland area. An alluvial area is dominated by Sporobolus iocladius. Grassland on deeper soil is dominated by Themeda triandra and Cymbopogon plurinodis. Old farm areas dominated by Eragrostis lehmanniana and Aristida species. A bushveld area is dominated by Tarchonanthus camphoratus. Old diamond diggings are dominated by Rhus lancea.

Fauna

Endangered species: South African hedgehog Erinaceus frontalis, Maquassie musk shrew Crocidura maquassiensis and Southern African python Python sebae natalensis.

Dominant or important species of fauna: Mammals: black wildebeest Connochaetes gnou, for which this is an important breeding area, springbok Antidorcas marsupialis, red hartebeest Alcelaphus buselaphus, blesbok Damaliscus dorcas phillipsi, gemsbok Dryx gazella, antbear Orycteropus afer and eland Taurotragus oryx. Birds: kori bustard Ardeotis kori, tawny eagle Aquila rapax and blacknecked grebe Podiceps nigricollis. Reptiles: Cape cobra Naja nivea and serrated tortoise Psammobates oculifer.

Infrastructure

Visitor Facilities: None
Numbers: 1 000 per annum Potential: 2 000 per annum.

Staff (and positions): One nature conservator and 16 labourers.
Budget: R30 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, SA Lombard Nature Reserve, P O Box 174, Bloemhof, 2660, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

83 HANS STRIJDOM NATURE RESERVE

Proclamation

Date Established: 1978

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 24°S Longitude: 27°47'E

Nearest town and distance: Ellisras, 50 km

Area: 3 618 ha (2 762 ha land and 856 ha water).

Physical Features

Elevation: Lowest: 864 m Highest: 1 323 m

Highest Mountain: Waterberg

Annual rainfall: 640 mm

Annual average temperature range: Minimum: 10°C Maximum: 27°C

Rainy season: Summer (October - April).

Soils: A very poor lithological soil.

Description of Geomorphology: This reserve is situated in the resistant red sandstone Waterberg Mountains and has a rugged, rocky appearance. The Mokolo River which rises on the plateau descends through a steep gorge, through the reserve and down to the Limpopo River.

Major rivers and streams: Mokolo and Malmanies Rivers and Bulspruit.

Vegetation and Flora

Vegetation types: Sour Bushveld (Veld Type 20) and Mixed Bushveld (Veld Type 18) (Acocks 1975).

Description of vegetation: Open savanna of tall Faurea saligna trees in a tall, tufted, wiry, sour grassveld in the less rocky parts, a dense mixed bushveld in the rugged parts. Trees and shrubs: Acacia caffra, Protea caffra, Dombeya rotundifolia, Lannea discolor, Vangueria infausta, Combretum molle, C zeyheri, C apiculatum. Grasses include Elionurus argenteus, Loudetia simplex, Diheteropogon amplexans.

Endemic species of plants: Euphorbia waterbergensis, Freylinia tropica, Grewia rogersii, Triaspis glaucophylla and Hibiscus waterbergensis are all endemic to the Transvaal and occur in this reserve.

Fauna

Endangered species: Mammals: sable Hippotragus niger, Sharpe's grysbok Raphicerus sharpei, brown hyaena Hyaena brunnea, roan Hippotragus equinus and pangolin Manis temminckii. Reptiles: crocodile Crocodylus niloticus and Southern African python Python sebae natalensis. Birds: martial eagle Polemaetus bellicosus and fish eagle Haliaeetus vocifer.

Dominant or important species of fauna: Mammals: kudu Tragelaphus strepsiceros and klipspringer Oreotragus oreotragus. Reptiles: lesser flat lizard Platysaurus guttatus minor, Jalla's sand snake Psammophis jallae (rare). Fish: largescale yellowfish Barbus marequensis, papermouth B mattozi, canary largemouth Chetia flaviventris and butter catfish Eutropius depressirostris.

Infrastructure

Visitor Facilities: Camping, picnicking, fishing, boating and skiing, motorboat tours and nature trails.

Numbers: 15 000 per annum Potential: 20 000 per annum.

Staff (and positions): Two nature conservators and 24 labourers.

Budget: R65 000,00 per annum (including salaries).

Local Administration: The Nature Conservation Officer, Hans Strijdom Nature Reserve, P O Box 473, Ellisras, 0555, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

84 MESSINA NATURE RESERVE

Proclamation

Date Established: 1980

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 22°24'S Longitude: 30°03'E

Nearest town and distance: Messina, 2 km

Area: 3 571 ha

Physical Features

Elevation: Lowest: 498 m Highest: 599 m

Highest Mountain: Not applicable

Annual rainfall: 350 mm

Annual average temperature range: Minimum: 17°C Maximum: 29°C

Rainy season: Summer (October - April).

Soils: Red-brown sandy soil - unleached subtropical.

Description of Geomorphology: This reserve descends into the Limpopo valley which is a wide plain with scattered inselbergs. The southern and south-eastern part of the reserve is covered by low sandstone hills separated by shallow valleys. The Sand River meanders along a wide sandy floor.

Major rivers and streams: Sand River.

Vegetation and Flora

Vegetation types: Mopani Veld (Veld Type 15) (Acocks 1975).

Description of vegetation: Short, fairly dense growth of shrubby Colophospermum mopane in a sparse and tufted grassveld. Also: Acacia tortilis, A nigrescens, Adansonia digitata, Combretum apiculatum, Sclerocarya caffra and Cadaba termitaria. Grasses: Eragrostis tricophora, Antheophora pubescens, Brachiaria nigropedata, Bothriochloa insculpta and Eragrostis superba.

Fauna

Endangered species: Mammals: brown hyaena Hyaena brunnea, leopard Panthera pardus, sable Hippotragus niger and Sharpe's grysbok Raphicerus sharpei. Birds: martial eagle Polemaetus bellicosus.

Dominant or important species of fauna: Mammals: steenbok Raphicerus campestris, waterbuck Kobus ellipsiprymnus, kudu Tragelaphus strepsiceros and impala Aepyceros melampus. Reptiles: Transvaal flat gecko Afroedura transvaalica (restricted), barking gecko Ptenopus g garulus (rare), Transvaal quill snouted snake Xenocalamus transvaalensis (rare). Birds: crested guineafowl Guttera pucherani, kori bustard Ardeotis kori and ground hornbill Bucorvus leadbeateri.

Infrastructure

Visitor Facilities: None (new reserve). Basic camping site will be established in the near future.

Numbers: 200 per annum Potential: 10 000 per annum.

Staff (and positions): One nature conservator and 18 labourers.

Budget: R40 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Messina Nature Reserve, P O Box 78, Messina, 0900, South Africa.

Other Information of Interest: Some of the oldest geological formations in the world occur in the Sand River. Baobab trees in this area have been declared National Monuments.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

85 NOOITGEDACHT DAM NATURE RESERVE

Proclamation

Date Established: 1980

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 25°58'S Longitude: 30°4'E

Nearest town and distance: Carolina, 15 km

Area: 3 420 ha (2 664 ha land and 756 ha water).

Physical Features

Elevation: Lowest: 1 547 m Highest: 1 656 m

Highest Mountain: Not applicable

Annual rainfall: 755 mm

Annual average temperature range: Minimum: 7°C Maximum: 22°C

Rainy season: Summer (October - April).

Soils: No information available.

Description of Geomorphology: This area is bevelled, lying across Karoo strata with a broad synclinal arrangement. Inclined sheets of dolerite often appear as low dark ridges. The abruptness of the escarpment is lost in this area, the escarpment quartzites having been thinned down by pre-Karoo erosion.

Major rivers and streams: Komati River and Vaalwaterspruit.

Vegetation and Flora

Vegetation types: Piet Retief Sourveld (Veld Type 63) (Acocks 1975).

Description of vegetation: Grassveld with patches of bush and scrub forest. Scolopia mundii, Leucosidea sericea, Pittosporum viridiflorum, Cephalanthus natalensis, Eulalia villosa, Tristachya hispida and Themeda triandra.

Fauna

Fauna: Endangered species: None.

Dominant or important species of fauna: Mammals: common duiker Sylvicapra grimmia. Fish: largescale yellowfish Barbus marequensis and carp Cyprinus

carpio. Reptiles: spotted harlequin snake Homoroselaps lacteus and southern brown egg eater Dasypeltis inornata.

Infrastructure

Visitor Facilities: Being planned. Rustic picnic and camping facilities.
Numbers: 7 000 per annum Potential: 15 000 per annum.

Staff (and positions): One nature conservator and 14 labourers.
Budget: R50 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Nooitgedacht Dam Nature Reserve, P O Box 325, Carolina, 1185, South Africa.

Other Information of Interest: Reserve still being developed.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

86 BOSKOP DAM NATURE RESERVE

Proclamation

Date Established: 1975
Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 26°32'S Longitude: 27°6'E
Nearest town and distance: Potchefstroom, 20 km
Area: 3 160 ha (2 787 ha land and 373 ha water).

Physical Features

Elevation: Lowest: 1 404 m Highest: 1 452 m
Highest Mountain: Not applicable
Annual rainfall: 600 mm
Annual average temperature range: Minimum: 9°C Maximum: 25°C
Rainy season: Summer (October - April).

Soils: Fertile but shallow soils on dolomitic formations. Brown to red-brown lateritic soil. Main soil forms are Glen Rosa and Mispah.

Description of Geomorphology: Flat to undulating countryside. Dolomite forms the basis of the geology.

Major rivers and streams: The Mooi River which flows into the Boskop Dam.

Vegetation and Flora

Vegetation types: Bankenveld (Veld Type 61) (Acocks 1975).

Description of vegetation: Open grassland with Themeda triandra and Cymbopogon spp predominant. Trees such as Rhus lancea and Celtis africana are found clumped and scattered on disturbed areas. Other grasses of consequence are Eragrostis chloromelas, Trichoneura grandiglumis, Tristachya rehmannii and Rhynchelytrum repens.

Fauna

Endangered species: None.

Dominant or important species of fauna: Mammals: black wildebeest Connochaetes gnou, eland Taurotragus oryx, red hartebeest Alcelaphus buselaphus, blesbok Damaliscus dorcas phillipsi, Burchell's zebra Equus burchelli and springbok Antidorcas marsupialis.

Infrastructure

Visitor Facilities: Angling and sailing. Visitor facilities preliminary at present, but to be developed in future.

Numbers: 25 000 per annum Potential: 30 000 per annum.

Staff (and positions): One nature conservator and 18 labourers.

Budget: R30 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Boskop Dam Nature Reserve, P O Box 24, Boskop, 2528, South Africa.

Other Information of Interest: Acquisition of land surface area not yet finalized. This is a major angling resort.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

87 NYLSVLEY NATURE RESERVE

Proclamation

Date Established: 1967

Decree Number: Administrator's Notice 281 of 1967.

Geographical Features

Location: Latitude: 24°39'S Longitude: 28°42'E

Nearest town and distance: Naboomspruit, 22 km

Area: 3 121 ha

Physical Features

Elevation: Lowest: 1 103 m Highest: 1 166 m
Highest Mountain: Not applicable
Annual rainfall: 608 mm
Annual average temperature range: Minimum: 12°C Maximum: 26,4°C
Rainy season: Summer (October - April).

Soils: Five main soil groups occur: (a) litholitic soils on felsite and sandstone outcrops; (b) non-calcareous, well-drained sandy soils overlying Waterberg and Karoo sandstones; (c) non-calcareous, poorly drained sandy soils at the margins of depressions; (d) calcareous alluvial soils on the margins of the Nyl floodplain; and (e) calcareous black clayey soils on the river margin bottomlands.

Description of Geomorphology: The reserve is situated on the margin of the Springbok Flats, a wide internal drainage basin, and is traversed by the Nyl River floodplain.

Major rivers and streams: Nyl River.

Other outstanding physical features: Nyl River floodplain.

Vegetation and Flora

Vegetation types: Mixed Bushveld (Veld Type 18) (Acocks 1975).

Description of vegetation: The vegetation patterns correspond with soil groupings. (a) Broadleaf deciduous woodlands and savannas dominated by Burkea africana, Ochna pulchra, Combretum molle, C apiculatum and Terminalia sericea occur on the deep sandy soils. (b) The poorly drained sandy soils are occupied by grasslands including Cymbopogon plurinodis, Iristachya rehmannii, Trachypogon spicatus etc. (c) The alluvial calcareous soils support microphyllous savannas and woodlands of Acacia spp, with Panicum maximum, Chloris virgata etc. (d) The self mulching soils carry Setaria woodii-Dichanthium papillosum grassland.

Fauna

Endangered species: Mammals: roan Hippotragus equinus, brown hyena Hyaena brunnea, lesser bushbaby Galago senegalensis, fat mouse Steatomys pratensis and honey badger Mellivora capensis, aardwolf Proteles cristatus and leopard Panthera pardus. Reptiles: veld monitor Varanus exanthematicus albigularis, water monitor Varanus niloticus and Southern African python Python sebae natalensis.

Dominant or important species of fauna: Dominant and interesting mammals include giraffe Giraffa camelopardalis, reedbuck Redunca arundinum, waterbuck Kobus ellipsiprymnus, blue wildebeest Connochaetes taurinus and Burchell's zebra Equus burchelli. Birds comprise the greater part of the fauna of this reserve. The following bird families occur: Ardeidae (17-20 spp) including little bittern Ixobrychus minutus and dwarf bittern Ixobrychus sturmi, Anatidae and Rallidae (12-19 spp) including Baillon's crane Porzana pusilla. Reptiles: Waterberg quill-snouted snake Xenocalamus bicolor australis, pygmy sandsnake Psammophis angolensis and serrated tortoise Psammobates oculifer.

Infrastructure

Visitor Facilities: Guided trails and guided vehicle tours. A small camp site.

Numbers: 400 per annum Potential: 3 000 per annum.

Staff (and positions): One nature conservator and 16 labourers.

Budget: R40 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Nylsvley Nature Reserve, P O Box 508, Naboomspruit, 0560, South Africa.

Other Information of Interest: Since 1974, part of the Nylsvley Nature Reserve has been the study area of the South African Savanna Ecosystem Project, a multi-disciplinary research project administered by the CSIR's Foundation for Research Development.

Principal reference material

Numerous publications pertaining to all levels of savanna ecosystem research, obtainable from the South African Savanna Ecosystem Project, FRD, CSIR, P O Box 395, Pretoria, 0001, South Africa.

Preparation: L Brookshaw, March/April 1983.

88 BARBERSPAN NATURE RESERVE

Proclamation

Date Established: 1954

Decree Number: Administrator's Notice 223 of 1954.

Geographical Features

Location: Latitude: 26°35'S Longitude: 25°35'E

Nearest town and distance: Delareyville, 15 km

Area: 3 086 ha (1 086 ha land and 2 000 ha water).

Physical Features

Elevation: Lowest: 1 345 m Highest: 1 360 m

Highest Mountain: Not applicable

Annual rainfall: 557 mm

Annual average temperature range: Minimum: 9°C Maximum: 27°C

Rainy season: Summer (October - April).

Soils: Shallow, alkaline and calcareous soils. Sandy in places.

Description of Geomorphology: The pan is connected with the Harts River by a channel and is the largest of a series of depressions along this channel.

Major rivers and streams: None.

Other outstanding physical features: The pan itself is a natural, shallow, alkaline lake which is perennial. Other pans in the vicinity are non-perennial.

Vegetation and Flora

Vegetation types: Dry Cymbopogon-Themeda Veld (Veld Type 50) (Acocks 1975).

Description of vegetation: Open Cymbopogon-Themeda grassveld with thickets of Acacia karroo, A grandicornuta, Rhus lancea, R pyroides and Diospyros lycioides. Dominant grasses are Themeda triandra, Cymbopogon plurinodis with Eragrostis lehmanniana, E superba and Heteropogon contortus. Aquatic vegetation is dominated by Potamogeton pectinatus whilst the marginal vegetation is comprised of rushes (Juncaceae) and sedges (Cyperaceae). Karroid encroachment notable on one shore.

Fauna

Endangered species: Mammals: South African hedgehog Erinaceus frontalis, striped weasel Poecilogale albinucha. Birds: Peregrine falcon Falco peregrinus, African fish eagle Haliaeetus vocifer, openbilled stork Anastomus lamelligerus, Goliath heron Ardea goliath, pinkbacked pelican Pelecanus rufescens, white pelican Pelecanus onocrotalus, Caspian tern Hydroprogne caspia and yellowbilled stork Mycteria ibis.

Dominant or important species of fauna: 347 species of birds, mostly waterfowl, have been recorded and comprise the greater part of the fauna of the reserve. Species include greater flamingo Phoenicopterus ruber, lesser flamingo Phoeniconaias minor, spurwinged goose Plectropterus gambensis, Egyptian goose Alopochen aegyptiacus, yellowbilled duck Anas undulata and redknobbed coot Fulica cristata. Mammals: blesbok Damaliscus dorcas phillipsi, red hartebeest Alcelaphus buselaphus, Burchell's zebra Equus burchelli and black wildebeest Connochaetes gnou. Reptiles: striped long-tail lizard Nucras taeniolata ornata, Cape thick-toed gecko Pachydactylus capensis capensis, aurora house snake Lamprophis aurora, leopard tortoise Geochelone pardalis babcocki, serrated tortoise Psemmobates oculifer and ring-necked spitting cobra Haemachatus haemachatus.

Infrastructure

Visitor Facilities: Angling, ablution blocks and camp sites.
Numbers: 4 000 per annum Potential: 6 000 per annum.

Staff (and positions): One nature conservator and 16 labourers.
Budget: R40 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Barberspan Nature Reserve, P K Barberspan, 2765, South Africa.

Other Information of Interest: One of the two wetlands in South Africa of international significance, as defined by the RAMSAR convention.

Principal Reference Material

Hutchinson G E et al 1932. A contribution to the hydrobiology of pans and other inland waters of South Africa. Arch Hydrobiology, 24, 1-136.

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

89 PERCY FYFE NATURE RESERVE

Proclamation

Date Established: 1954

Decree Number: Administrator's Notice 223 of 1954.

Geographical Features

Location: Latitude: 24°02'S Longitude: 29°10'E

Nearest town and distance: Potgietersrus, 25 km

Area: 2 986 ha

Physical Features

Elevation: Lowest: 1 378 m Highest: 1 513 m

Highest Mountain: Not applicable

Annual rainfall: 575 mm

Annual average temperature range: Minimum: 6°C Maximum: 34°C

Rainy season: Summer (October - April).

Soils: Sandy-loam. Grey ferriferous lateritic soil.

Description of Geomorphology: This reserve is located on the Pietersburg Plateau, a granite region. The reserve has an undulating topography with three inselbergs occurring in the southwest corner.

Major rivers and streams: Only non-perennial streams.

Vegetation and Flora

Vegetation types: Mixed Bushveld (Veld Type 18) and Sourish Mixed Bushveld (Veld Type 19) (Acocks 1975).

Description of vegetation: Open savanna with Acacia caffra dominant. Fairly tall dense grassveld dominated by Cymbopogon plurinodis, Themeda triandra, Hyparrhenia sp, Elyonurus argenteus and Acacia karroo, A robusta, A tortilis, Rhus lancea, Faurea saligna, Vangueria infausta, Ximenia caffra and Aloe marlothii.

Endemic species of plants: Euphorbia clivicola is endemic to the Transvaal and occurs in this reserve.

Fauna

Endangered species: Mammals: tsessebe Damaliscus lunatus, roan Hippotragus equinus, South African hedgehog Erinaceus frontalis, lesser bushbaby Galago senegalensis, honey badger Mellivora capensis, African civet Civettictis civetta and leopard Panthera pardus. Reptiles: Southern African python Python sebae natalensis. Birds: martial eagle Polemaetus bellicosus.

Dominant or important species of fauna: Mammals: waterbuck Kobus ellipsiprymnus, buffalo Syncerus caffer, steenbok Raphicerus campestris, Burchell's zebra Equus burchelli and antbear Orycteropus afer. Fish: Oreochromis mossambicus and largemouth bass Micropterus salmoides. Reptiles and amphibians: puff adder Bitis arietans, common platanna Xenopus laevis, bushveld short-headed frog Breviceps adpersus, common bullfrog Pyxicephalus adpersus and Cape river frog Rana fluscigula.

Infrastructure

Visitor Facilities: Camping, picnic areas, nature trails under supervision and bus tours.

Numbers: 1 000 per annum Potential: 3 000 per annum.

Staff (and positions): One nature conservator and 15 labourers.

Budget: R35 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Percy Fyfe Nature Reserve, Private Bag X2585, Potgietersrus, 0600, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

90 OHRIGSTAD DAM NATURE RESERVE

Proclamation

Date Established: 1954

Decree Number: Administrator's Notice 234 of 1954.

Geographical Features

Location: Latitude: 24°57'S Longitude: 30°38'E

Nearest town and distance: Lydenburg, 40 km

Area: 2 563 ha (2 463 ha land and 100 ha water).

Physical Features

Elevation: Lowest: 1 411 m Highest: 1 882 m

Highest Mountain: Not applicable

Annual rainfall: 690 mm

Annual average temperature range: Minimum: 9°C Maximum: 24,5°C
Rainy season: Summer (October - April).

Soils: No information available.

Description of Geomorphology: This reserve forms part of the Great Escarpment. Quartzite and shale are representative of the geology. The topography is mountainous with the Ohrigstad River forming a fertile valley.

Major rivers and streams: Ohrigstad River.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) (Acocks 1975).

Description of vegetation: Vegetation is represented by patches of short forest with Combretum kraussii, Diospyros whyteana, Apodytes dimidiata, Greyia radkoferi, Ekebergia pterophylla, Ilex mitis, Halleria lucida and Fagara capensis among the more conspicuous elements. The valley lowlands, lower foothills and upper mountain slopes are dominated too by patches of sparse to open short woodland. These areas are represented by Protea caffra, Acacia caffra, Cussonia spicata, Dovyalis zeyheri, A. karroo, Rhus pyroides, R. dentata, Rhamnus prinoides and Diospyros lycioides. The Escarpment plateau is characterized by grassland with Themeda triandra, Eragrostis racemosa, E. curvula, Hyparrhenia cymbaria and Trachypogon spicatus among the more dominant species. These areas are interspersed with Protea roupelliae.

Endemic species of plants: Clivia caulescens, Gladiolus rufomarginatus, Watsonia transvaalensis, W. wilmsii and Aloe minima var blyderivierensis are endemic to the Transvaal and occur in this reserve.

Fauna

Endangered species: Mammals: brown hyaena Hyaena brunnea, South African hedgehog Erinaceus frontalis, Welwitsch's bat Myotis welwitschii and oribi Ourebia ourebi. Reptiles: veld monitor Varanus exanthematicus albigularis, water monitor Varanus niloticus, Southern African python Python sebae natalensis and Swazi rock snake Lamprophis swazicus.

Dominant or important species of fauna: Mammals: bushbuck Tragelaphus scriptus, grey rhebok Pelea capreolus, klipspringer Oreotragus oreotragus, mountain reedbuck Redunca fulvorufula. Reptiles: Cape filesnake Mehelya capensis capensis (uncommon). Birds: martial eagle Polemaetus bellicosus, crowned eagle Stephanoaetus coronatus, rednecked francolin Francolinus afer, Cape eagle owl Bubo capensis and Gurney's sugarbird Promerops gurneyi. Fish: large-scale yellowfish Barbus marequensis, sharp-tooth catfish Clarias gariepinus and banded tilapia Tilapia sparmanii.

Infrastructure

Visitor Facilities: Huts and trails being planned, picnicking and camping.
Numbers: 2 000 per annum Potential: 7 000 per annum.

Staff (and positions): One nature conservator and 11 labourers.
Budget: R40 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Ohrigstad Dam Nature Reserve,
P O Lydenburg, 1120, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

91 WOLWESPRUIT NATURE RESERVE

Proclamation

Date Established: 1975

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 27°25'S Longitude: 26°15'E

Nearest town and distance: Leeudoringstad, 25 km

Area: 2 333 ha

Physical Features

Elevation: Lowest: 1 246 m Highest: 1 260 m

Highest Mountain: Not applicable

Annual rainfall: 508 mm

Annual average temperature range: Minimum: 10°C Maximum: 27°C

Rainy season: Summer (October - April).

Soils: Loam to sandy soils. Deep clayey soils along riverbanks.
Kalahari sand on limestone.

Description of Geomorphology: This reserve is part of the Vaal River System. The topography is flat, lying on pre-Karoo rocks with a geology of shale and sandstone. A number of islands occur in the river along the length of the reserve.

Major rivers and streams: Wolwespruit and Vaal Rivers.

Vegetation and Flora

Vegetation types: Kalahari Thornveld (Veld Type 16) (Acocks 1975).

Description of vegetation: Acacia savanna with Acacia erioloba, A tortilis, A mellifera, A luederitzii and Grewia flava. Grasses include Eragrostis superba, Cymbopogon plurinodis, Themeda triandra and Elyonurus argenteus. Shrubs occur along drainage lines, and thick riverine bush along river banks. Much of the reserve was in the past ploughed farmland resulting in pioneer grasses becoming established.

Fauna

Endangered species: None.

Dominant or important species of fauna: Mammals: blesbok Damaliscus dorcas phillipsi, Burchell's zebra Equus burchelli, red hartebeest Alcelaphus buselaphus, black wildebeest Connochaetes gnou and springbok Antidorcas marsupialis. Reptiles include Cape cobra Naja nivea and serrated tortoise Psammobates oculifer.

Infrastructure

Visitor Facilities: Caravanning, camping, picnicking and fishing.
Numbers: 4 000 per annum Potential: 10 000 per annum.

Staff (and positions): One nature conservator and 12 labourers.
Budget: R30 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Wolwespruit Nature Reserve, P O Box 237, Leeudoringstad, 2640, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

92 ABE BAILEY NATURE RESERVE

Proclamation

Date Established: 1982

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 26°20'S Longitude: 27°16'E

Nearest town and distance: Carletonville, 8 km

Area: 1 888 ha

Physical Features

Elevation: Lowest: 1 484,9 m Highest: 1 509,3 m

Highest Mountain: Not applicable

Annual rainfall: 600 mm

Annual average temperature range: Minimum: 9°C Maximum: 25°C

Rainy season: Summer (October - April).

Soils: Clayey-loam, reddish soil containing residual oxides of manganese and iron. Deep clay-soils in marshland area. Ferriferous lateritic soil.

Description of Geomorphology: This reserve is a flat grassy plain. Sinkholes occur commonly in the area. The geology is dolomitic.

Major rivers and streams: None.

Other outstanding physical features: Dolomitic sinkholes and caves.

Vegetation and Flora

Vegetation types: Bankenveld (Veld Type 61) (Acocks 1975).

Description of vegetation: Sparse, sour, strongly tufted grassveld, with Eragrostis racemosa, Digitaria tricholaenoides, Setaria flabellata, Heteropogon contortus, Eragrostis chloromelas, Elionurus argenteus and Themeda triandra. Marshland dominated by Phragmites australis and Typha capensis. Dolomitic outcrops are dominated by Celtis africana, Olea africana, Grewia spp, Rhus spp and Diospyros mespiliformis.

Fauna

Endangered species: None.

Dominant or important species of fauna: Mammals: springbok Antidorcas marsupialis, blesbok Damaliscus dorcas phillipsi, red hartebeest Alcelaphus buselaphus, Burchell's zebra Equus burchelli and black wildebeest Connochaetes gnou. Reptiles: spotted harlequin snake Homoroselaps lacteus (uncommon) and striped harlequin snake H dorsalis (rare).

Infrastructure

Visitor Facilities: Conservation education centre for children.

Numbers: No information available as education centre has not yet begun to function. Potential: 3 000 per annum.

Staff (and positions): One nature conservator and ten labourers.

Budget: R40 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Abe Bailey Nature Reserve, P O Box 13, Carletonville, 2500, South Africa.

Other Information of Interest: A proposal has been made to create an extended marshland to encourage birdlife in a floodplain area. The existing reserve is to be expanded when existing lease expires in 1987.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

93 VAALKOP DAM NATURE RESERVE

Proclamation

Date Established: 1983

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 25°18'S Longitude: 27°25'E

Nearest town and distance: Rustenburg, 60 km

Area: 1 873 ha (828 ha land and 1 045 ha water).

Physical Features

Elevation: Lowest: 1 009 m Highest: 1038 m

Highest Mountain: Not applicable

Annual rainfall: 680 mm

Annual average temperature range: Minimum: 11°C Maximum: 27°C

Rainy season: Summer (October - April).

Soils: Light red-coloured soils, varying from sandy to clay loam.

Description of Geomorphology: Flat country gently sloping towards the dam area. The geology of the area consists of granites and porphyry of the Bushveld Igneous Complex.

Major rivers and streams: Elands and Hex Rivers.

Vegetation and Flora

Vegetation types: Mixed Bushveld (Veld Type 18) (Acocks 1975).

Description of vegetation: Open mixed bushveld with a savanna type vegetation. Acacia caffra, A tortilis and A nigrescens are the dominant tree species.

Fauna

Fauna: Endangered species: None.

Dominant or important species of fauna: Mammals: impala Aepyceros melampus, kudu Tragelaphus strepsiceros, steenbok Raphicerus campestris and common duiker Sylvicapra grimmia. Fish: carp Cyprinus carpio and large-scale yellowfish Barbus marequensis.

Infrastructure

Visitor Facilities: Caravanning, camping, picnicking and boating.

Numbers: No information Potential: 10 000 per annum.

Staff (and positions): One nature conservator and four labourers.

Budget: R30 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Vaalkop Dam Nature Reserve, P O Box 1846, Rustenburg, 0300, South Africa.

Other Information of Interest: This reserve has only recently been acquired and is still undeveloped and unfenced.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

94 STERKSPRUIT NATURE RESERVE

Proclamation

Date Established: 1978

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 25°9'S Longitude: 30°33'E

Nearest town and distance: Lydenberg, 10 km

Area: 1 600 ha

Physical Features

Elevation: Lowest: 1 588 m Highest: 2 178 m

Highest Mountain: Not applicable

Annual rainfall: 690 mm

Annual average temperature range: Minimum: 9°C Maximum: 24,5°C

Rainy season: Summer (October - April).

Soils: The soil overall is poor and shallow throughout the area. It is mostly a reddish clay. Only near the streams and on the top of some plateaux does the soil improve and attain a greater depth. Here the soil is loamy.

Description of Geomorphology: This reserve forms part of the Great Escarpment which is an erosion scarp. The topography is mountainous. The area consists of fairly steep-sided kloofs with perennial streams. The tops of these kloofs are flat and are typical of the lower Transvaal eastern escarpment. Geology is quartzite, shale and tillite.

Major rivers and streams: Sterkspruit - Olifants River System.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) (Acocks 1975).

Description of vegetation: Short grassland on the foothills and plateau areas with stands of Protea caffra and P. roupelliae. Short montane thickets are found with Cussonia spicata, Euphorbia candelabrum var candelabrum, Acacia tortilis, Rhamnus prinoides and Ziziphus mucronata as conspicuous elements. Valley lowlands are characterized by sparse short scrubland and grasslands with Diospyros lycioides, Hypericum revolutum, Cussonia spicata, Protea caffra, Themeda triandra, Trachypogon spicatus, Eulalia villosa and Loudetia simplex among the more dominant species.

Endemic species of plants: Gladiolus calcaratus is endemic to the Transvaal and occurs in this reserve.

Fauna

Endangered species: Mammals: oribi Ourebia ourebi. Reptiles: Southern African python Python sebae natalensis.

Dominant or important species of fauna: Mammals: mountain reedbuck Redunca fulvorufula, klipspringer Oreotragus oreotragus and grey rhebok Pelea capreolus. Reptiles: spotted harlequin snake Homoroselaps lacteus. Fish: chubbyhead barb Barbus anoplus.

Infrastructure

Visitor Facilities: None, but hiking trails being planned.

Numbers: 100 per annum Potential: 2 000 per annum.

Staff (and positions): One nature conservator and 15 labourers.

Budget: R50 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Sterkspruit Nature Reserve, P O Box 340, Lydenburg, 1120, South Africa.

Other Information of Interest: This reserve is situated within a proclaimed mountain catchment area, the purpose of which is primarily water production. The entire valley of ±12 000 ha is also a proclaimed nature reserve and no afforestation is permitted. A management plan for the valley (which is mostly private land) is currently being prepared by the Transvaal Nature Conservation Division. The existing land-use is that of extensive cattle grazing.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

95 HAPPY REST NATURE RESERVE

Proclamation

Date Established: 1975

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 23°0'S Longitude: 29°44'E
Nearest town and distance: Louis Trichardt, 30 km
Area: 1 585 ha

Physical Features

Elevation: Lowest: 167 m Highest: 1 606 m
Highest Mountain: Soutpansberg
Annual rainfall: ±600 mm
Annual average temperature range: Minimum: 13°C Maximum: 25°C
Rainy season: Summer (October - April).

Soils: Soils are of a sandy, rubbly nature and are very poor and sour. Light brown sandy lithosol.

Description of Geomorphology: Sandstone strata dip strongly northward in the Soutpansberg where strike faulting has produced triplication of strata and ridges. The northern half of the reserve descends into the Soutpansberg, the south being flat. Lava, sandstone and conglomerate comprise the geology and faulting occurs.

Major rivers and streams: Non-perennial streams.

Vegetation and Flora

Vegetation types: Sour Bushveld (Veld Type 20) (Acocks 1975).

Description of vegetation: Vegetation can be classified as: (a) Montane grassveld on summit areas, eg Faurea saligna, Protea roupelliae, Enterospermum rhodesiacum and Buddleia saligna; (b) Dense tropical forest in kloofs, eg Schefflera umbellifera, Diospyros whyteana, D dichrophylla and Chionanthus battiscombei; (c) Short montane scrubland on rocky areas on summit eg Neorosea andongensis, Clutia pulchella and Canthium huillense; (d) Mountain bushland on foothills, eg Vangueria infausta, Sclerocarya caffra and Euphorbia candelabrum; (e) Open woodland on low-lying areas, eg Combretum zeyheri and Combretum molle.

Endemic species of plants: The following are endemic to the Transvaal and occur in the reserve: Felicia fruticosa, Encephalartos transvenosus, Cyrtanthus thorncroftii, Aloe vogtsii, Aloe soutpansbergensis, Zoutpansbergia caerulea and Linociera baltiscombei.

Fauna

Endangered species: Red duiker Cephalophus natalensis.

Dominant or important species of fauna: The following mammals occur on the reserve: rock dassie Procavia capensis, bushpig Potamochoerus porcus and klipspringer Oreotragus oreotragus.

Infrastructure

Visitor Facilities: Camping facilities for educational groups.
Numbers: ±12 000 per annum Potential: Maximum reached.

Staff (and positions): Two labourers. Area administered by the Northern Regional Office of the Transvaal Division of Nature Conservation. Environmental education led by the Department of Education.
Budget: R4 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Langjan Nature Reserve, P O Box 15, Vivo, 0924, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

96 WOLKBERG CAVES NATURE RESERVE

Proclamation

Date Established: 1969

Decree Number: Provincial Ordinance 12 of 1983.

Geographical Features

Location: Latitude: 24°06'S Longitude: 29°53'E

Nearest town and distance: Pietersburg, 60 km

Area: 1 488 ha

Physical Features

Elevation: Lowest: 1 536 m Highest: 1 846 m

Highest Mountain: Wolkberg

Annual rainfall: 900 - 1 950 mm

Annual average temperature range: Minimum: 8,5°C Maximum: 22,4°C

Rainy season: Summer (October - April).

Soils: Laterite and lateritic red soil.

Description of Geomorphology: This area consists of Black Reef quartzites which dip gently westwards. The reserve forms part of the Great Escarpment which is an erosion scarp. The reserve is mountainous, the steeper slopes occurring in the south.

Major rivers and streams: Non-perennial streams.

Other outstanding physical features: The Wolkberg Caves.

Vegetation and Flora

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) (Acocks 1975).

Description of vegetation: Sour grassveld, pure grassveld on mountain tops and scrubby thornveld. Shrubs include Vitex mombassae and Erica woodii. The more important trees are Erythrina lysistemon, Protea roupelliae and P welwitschii.

Fauna

Fauna: Endangered species: None.

Dominant or important species of fauna: Mammals: common duiker Sylvicapra grimmia, klipspringer Oreotragus oreotragus and mountain reedbuck Redunca fulvorufula. Birds: whitebacked night heron Gorsachius leuconotus, cuckoo hawk Aviceda cuculoides and whitenecked raven Corvus albicollis. Reptiles: Cape mountain adder Bitis atropos and spotted bush snake Philothamnus semivariegatus semivariegatus.

Infrastructure

Visitor Facilities: None, reserve not open to the public.

Numbers: Nil Potential: Unknown.

Staff (and positions): Two labourers. Administered from Regional Office.
Budget: R2 000,00 per annum (including salaries).

Local Administration: The Officer-in-Charge, Wolkberg Caves Nature Reserve, Wolkberg Sub-region, P O Box 217, Pietersburg, 0700, South Africa.

Principal Reference Material

Various unpublished internal reports.

Preparation: L Brookshaw, March/April 1983.

CAPE DEPARTMENT OF NATURE AND ENVIRONMENTAL CONSERVATION

The Cape Department of Nature and Environmental Conservation was established in 1956 under Ordinance 26 of 1957. This Department administers 99 areas, which include 33 provincial nature reserves and 66 local authority nature reserves, 13 of each are listed herein. The provincial nature reserves cover 105 500 ha and the local authority nature reserves 43 800 ha. The Department's budget for 1982/83 was R10,474 million, inclusive of salaries. The total staff complement of 440 includes 250 full-time labourers and 40 researchers.

All the reserves are included within Category IV.

Headquarters address

The Director
Cape Department of Nature and
Environmental Conservation
Private Bag X9086
Cape Town
8000
South Africa

Areas included in the Directory (Category IV)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
<u>Provincial Reserves</u>			
97	De Hoop Nature Reserve	17 846	190
98	Karoo Nature Reserve	14 000	193
99	Oviston Nature Reserve	13 000	194
100	Gamka Mountain Nature Reserve	9 428	196
101	Doornkloof Nature Reserve	8 765	197
102	Gamkapoort Nature Reserve	8 000	199
103	Hester Malan Nature Reserve	6 576	200
104	Andries Vosloo Kudu Reserve	6 493	203
105	Commando Drift Nature Reserve	5 983	205
106	Rolfontein Nature Reserve	4 749	206
107	Goukamma Nature Reserve	2 230	207
108	Vrolijkheid Nature Reserve	1 827	209
109	Thomas Baines Nature Reserve	1 003	210
	Subtotal	99 900	

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
<u>Subsidized Local Reserves</u>			
110	Cape of Good Hope Nature Reserve	7 675	212
111	Table Mountain Nature Reserve	2 904	214
112	Ladismith-Klein Karoo Nature Reserve	2 766	217
113	Spitskop Nature Reserve	2 740	218
114	Akkerendam Nature Reserve	2 301	220
115	Greyton Nature Reserve	2 220	221
116	Silvermine Nature Reserve	2 150	223
117	Paarl Mountain Nature Reserve	1 910	225
118	Mont Rochelle Nature Reserve	1 759	227
119	Somerset East-Bosberg Nature Reserve	1 650	229
120	Nietgenaamd Nature Reserve	1 577	230
121	Fernkloof Nature Reserve	1 446	232
122	Montagu Mountain Nature Reserve	<u>1 200</u>	234
	Subtotal	32 298	

97 DE HOOP NATURE RESERVE

Proclamation

Date Established: 1956

Decree Number: Partially proclaimed by Proclamation 409 in Gazette 3920 of 10 December 1976.

Geographical Features

Location: Latitude: 34°21' - 31'S Longitude: 20°19' - 38'E

Nearest town and distance: Bredasdorp, 60 km

Area: 18 763 ha

Physical Features

Elevation: Lowest: 611 m Highest: No information

Highest Mountain: Potberg Mountain

Annual rainfall: 400 mm

Annual average temperature range: Minimum: 13,3°C Maximum: 19,4°C

Rainy season: Winter (March - August).

Soils: Soils are predominately sandy and of aeolian origin (sand dunes along the coast) or derived from in situ weathering of sandstones and quartzites and sandy limestones. Soils are generally nutrient-poor and acid over sandstones and quartzites and base-rich (calcareous) over limestones.



Figure 13. De Hoop Nature Reserve. Veld Type 47, Coastal Macchia.

Description of Geomorphology: The reserve is characterized by a varied geology and physiography and includes the highest part of the isolated Potberg Mountain Range (siliceous quartzites of Palaeozoic age), a range of low calcareous sandstone (cf limestone) hills up to 200 m high of Mio-Pliocene age and marine/aeolian origin and a coastal plain of low, undulating limestone pavements and ridges interspersed with sandy flats. A broad zone of low vegetated dunes is present along the coast but a 1 000 ha area consists of shifting dunes.

Major rivers and streams: All streams are seasonal and flow only after heavy rains. Drainage over much of the plain and limestone hills is subterranean and numerous depressions with internal drainage are present. A large shallow lake, De Hoopvlei of 1 000 ha when full, lies partly within the reserve and is fed by a river which originates outside the reserve as well as springs along the edge of the lake.

Other outstanding physical features: A 12 km long coastline with a zone of shifting sand dunes and low limestone cliffs along the coast. A number of deep caves occur in the limestone, one of which seasonally holds a colony of more than 150 000 insectivorous bats.

Vegetation and Flora

Vegetation types: Coastal Rhenosterbosveld (Veld Type 46), Coastal Macchia (Veld Type 47) and Macchia (Veld Type 69) (Acocks 1975).

Description of vegetation: Typical fynbos communities, 50 cm to 2 m tall, with small-leaved shrublets (eg Ericaceae, and genera such as Phyllica, Muraltia, Aspalathus and Passerina), tufted restioids and sedges (eg Restionaceae and genera such as Ficinia and Tetraria) and broad-leaved sclerophyllous shrubs (especially Proteaceae) predominate. Species of the family Proteaceae occur as dominants and 26 species of this family are present in the reserve. Protea obtusifolia, Leucadendron meridianum and Leucospermum truncatum occur only on the limestone outcrops while P neriifolia, P repens and Leucadendron xanthoconus are some of the dominants in the mountain fynbos. P susannae and L galpinii occur on deep sandy soils in coastal fynbos. Limited patches of scrub thickets in which Sideroxylon inerme is the dominant tree, are also present especially along the edges of De Hoopvlei.

Economically important species of plants: Thatching reed (Thamnochortus spp) and numerous species of flowering plants especially Proteaceae which are utilized commercially on surrounding farmland as cut flowers but no harvesting of flora is allowed in the reserve.

Endemic species of plants: A number of plant species are endemic or near-endemic eg Brachysiphon mundii, Erica uysii, Aspalathus potbergensis, Protea aurea subsp potbergensis, Osteospermum elsiae and some as yet undescribed species. Numerous other species are regarded as threatened. At least another 30 taxa are endemic to the area between Agulhas and Cape Infanta.

Fauna

Endangered species: Cape mountain zebra Equus zebra zebra (± 20), bontebok Damaliscus dorcas dorcas (± 300) and honey badger Mellivora capensis. The southernmost breeding colony of Cape vulture Gyps coprotheres (50).

Dominant or important species of fauna: More than 40 mammal species have been recorded on the reserve. Dominant species include eland Taurotragus oryx (65), springbok Antidorcas marsupialis (230), grey rhebok Pelea capreolus, grysbok Raphicerus melanotis, steenbok R campestris, common duiker Sylvicapra grimmia and klipspringer Oreotragus oreotragus. More than 200 bird species have been recorded in the reserve. De Hoopvlei is an important wetland which supports a varied avifauna with particularly large populations of ducks, geese and coot. Dominant species include red-knobbed coot Fulica cristata, (max 24 200), yellow-billed duck Anas undulata (max 4 626), Cape shoveler Spatula capensis (max 3 000), Egyptian goose Alophochen aegyptiacus (max 2 166), lesser flamingo (max 1 715) and greater flamingo (max 1 473). A cave on the reserve is the most important breeding cave for Schreiber's long-fingered bat Miniopterus schreibseri in the south-western Cape Province and serves as an important roost for four other insectivorous bat species. A total summer population of more than 150 000 bats occurs. Southern right whales Balaena glacialis occur along the coast between April and January. In addition 35 reptile and 12 amphibian species have been recorded.

Infrastructure

Visitor Facilities: The reserve is at present open to the public for day use only, while recently an education centre was opened to accommodate environmental study groups of up to 60 people. It is planned to provide a hiking trail network, overnight hiking huts and comfortable overnight accommodation.

Numbers: 6 000 per annum Potential: Limit as yet undetermined.

Staff (and positions): One senior reserve manager, three assistant reserve managers and 30 labourers.

Budget: R55 000,00 per annum (excluding salaries, transport and major capital works)

Local Administration: The Officer-in-Charge, De Hoop Nature Reserve, Private Bag X16, Bredasdorp 7280, South Africa.

Other Information of Interest: An area of 41 000 ha on either side of the reserve has been expropriated for the establishment of a missile testing range which will not, however, involve the use of explosive devices. The existing reserve is to be extended to incorporate an additional 5 000 ha in the near future which will include nearly the entire De Hoopvlei within the reserve. An additional 15 000 ha between the existing reserve and Cape Infanta will be incorporated into the reserve but will also be used for low intensity testing of armaments by Armscor.

Principal Reference Material

Various unpublished internal reports.

African Wildlife 37(1), January/February 1983.

Preparation: G Kidson and C J Burgers, July 1984.

98 KAROO NATURE RESERVE

Proclamation

Date Established: 24 August 1979

Decree Number: Proclamation 192 of 1983.

Geographical Features

Location: Latitude: 32°10' - 32°20'S Longitude: 24°20' - 24°40'E

Nearest town and distance: Graaff-Reinet, 1 km

Area: ± 14 000 ha

Physical Features

Elevation: Lowest: 740 m Highest: 1 710 m

Highest Mountain: Drie Koppe

Annual rainfall: 320 mm

Annual average temperature range: Minimum: 11°C Maximum: 24°C

Rainy season: Summer (October - March).

Soils: Sandy soils of sandstone and dolerite origin.

Description of Geomorphology: Typical of Karoo landscape with dolerite sills capping steeply sloping sandstone koppies. Deep, alluvial soils are subject to erosion on the valley floors.

Major rivers and streams: Sondags and Pienaars Rivers.

Other outstanding physical features: Valley of Desolation (exposed dolerite dyke) and Spandaukop (classic Karoo mesa).

Vegetation and Flora

Vegetation types: Succulent Mountain Scrub (Veld Type 25), Karroid Merxmuellera Mountain Veld (Veld Type 60), False Central Lower Karoo (Veld Type 38), False Karroid Broken Veld (Veld Type 37) (Acocks 1975).

Description of vegetation: Original vegetation of the Karoo - the mountain veld consists of Portulacaria afra, Rhus spp, Maytenus spp, Themeda triandra, Heteropogon contortus and Eragrostis spp. Physiognomically, a bush-clump savanna. Lower slopes and plains characterized by karroid species: Pentzia, Mestoklema, Eberlanzia, Chrysocoma, Eragrostis and Aristida spp.

Endemic species of plants: Dioscorea elephantipes.

Fauna

Endangered species: Cape mountain zebra Equus zebra zebra (20 individuals introduced in 1981, population 24 in 1984).

Dominant or important species of fauna: Kudu Tragelaphus strepsiceros (\pm 240), common duiker Sylvicapra grimmia (45), klipspringer Oreotragus oreotragus (18), mountain reedbuck Redunca fulvorufula (42), black wildebeest Connochaetes gnou (20), blesbok Damaliscus dorcas phillipsi (17) and springbok Antidorcas marsupialis (32). Large waterfowl population.

Infrastructure

Visitor Facilities: Situated around historical town of Graaff-Reinet. Tourist facilities provided in town.

Numbers: 8 000 per annum Potential: 12 000 per annum.

Staff (and positions): Two senior staff and 20 labourers.

Budget: R18 000,00 per annum (excluding salaries).

Local Administration: Officer-in-Charge, Karoo Nature Reserve, P O Box 349, Graaff-Reinet, 6280, South Africa.

Other Information of Interest: The Valley of Desolation is a National Monument.

Principal Reference Material

Van Riet W F and J P Minnaar 1977. Graaff-Reinet 2000. Samevattende tussentydse verslag. Department of Architecture, University of Pretoria.

Various internal departmental reports.

Preparation: A R Palmer, June 1982.

99 OVISTON NATURE RESERVE

Proclamation

Date Established: 1968

Decree Number: Proclamation 276 of 1981.

Geographical Features

Location: Latitude: 30°38' - 30°45'S Longitude: 25°30' - 26°05'E

Nearest town and distance: Venterstad, 10 km

Area: \pm 13 000 ha

Physical Features

Elevation: Lowest: 1 320 m Highest: 1 530 m
Highest Mountain: Not applicable
Annual rainfall: 400 mm
Annual average temperature range: Minimum: 10°C Maximum: 23°C
Rainy season: Summer.

Soils: Shallow lithosols of dolerite and sandstone origin.

Description of Geomorphology: Generally flat, sloping to the north-west. In the west are numerous dolerite hills of 30 to 160 m in height.

Major rivers and streams: Orange River.

Other outstanding physical features: The reserve is situated on the banks of the H F Verwoerd Dam, a major man-made impoundment of 35 960 ha.

Vegetation and Flora

Vegetation types: False Upper Karoo (Veld Type 36) (Acocks 1975).

Description of vegetation: Grasses: Cymbopogon spp, Themeda triandra, Heteropogon contortus, Eragrostis spp and Aristida spp. Herbs: Pentzia spp, Chrysocoma tenuifolia and Eriocephalus spp. Shrubs: Rhus spp, Acacia karroo and Diospyros spp.

Fauna

Endangered species: No information.

Dominant or important species of fauna: Springbok Antidorcas marsupialis (4 000), steenbok Raphicerus campestris (300), Burchell's zebra Equus burchelli (30), mountain reedbuck Redunca fulvorufula (1 000), red hartebeest Alcelaphus buselaphus (30), black wildebeest Connochaetes gnou (400). This reserve is an important breeding area for all the above species.

Infrastructure

Visitor Facilities: Angling on a limited scale.
Numbers: 7 300 per annum Potential: 7 300 per annum.

Staff (and positions): Two senior staff and 15 labourers.
Budget: R20 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Oviston Nature Reserve, P O Box 7, Venterstad, 5990, South Africa.

Principal Reference Material

Various internal departmental reports.

Preparation: A R Palmer, June 1982.

100 GAMKA MOUNTAIN NATURE RESERVE

Proclamation

Date Established: 1970

Decree Number: In process of being proclaimed.

Geographical Features

Location: Latitude: 33°40' - 33°46'S Longitude: 21°48' - 21°59'E

Nearest town and distance: Oudtshoorn, 35 km

Area: 9 428 ha

Physical Features

Elevation: Lowest: 300 m Highest: 1 100 m

Highest Mountain: Bakenskop

Annual rainfall: 400 - 500 mm on summit

Annual average temperature range: Minimum: 5°C Maximum: 25°C

Rainy season: Mainly winter (May - October) with some summer precipitation.

Soils: Soils are predominately sandy, shallow and skeletal and developed over quartzites of the Table Mountain Group.

Description of Geomorphology: The reserve lies astride the eastern end of the Gamkaberg-Rooiberg Mountain Range, a semi-isolated east-west orientated range which forms part of the Cape Folded Belt. The mountain is formed by an anticline in the quartzites of the Table Mountain Group of Palaeozoic age (Silurian-Devonian). The Gamkaberg is rounded with fairly gentle slopes at the top but the northern slopes are deeply dissected by steep-sided ravines.

Major rivers and streams: Three major ravines drain to the north but all are temporary water courses.

Vegetation and Flora

Vegetation types: False Macchia (Veld Type 70) covers 70% of the reserve, but Succulent Mountain Scrub (Spekboomveld) (Veld Type 25) and Mountain Rhenosterbosveld (Veld Type 43) are also present on the lower northern and southern slopes respectively. Succulent Karoo (Veld Type 31) occurs in a small area on the northern plain (Acocks 1975).

Description of vegetation: Vegetation is characterized by sparse canopy cover, usually less than 70% and poorly discernible stratification. Many species of Proteaceae, Ericaceae and Restionaceae occur, as well as Elytropappus spp and Portulacaria afra.

Economically important species of plants: None known except flowering plants, especially Proteaceae, which are utilized as cut flowers elsewhere but no harvesting of flora is allowed in the reserve.

Endemic species of plants: No species are known to be endemic to the reserve itself but a few species are thought to be endemic to the Rooiberg-Gamkaberg Mountain Range as a whole. A few species which are regarded as threatened have been recorded in the reserve eg Leucospermum pluridens.

Fauna

Endangered species: Cape mountain zebra Equus zebra zebra (14) and leopard Panthera pardus. One breeding site of the booted eagle Hieraaetus pennatus.

Dominant or important species of fauna: Smaller antelope such as klipspringer Oreotragus oreotragus and grey rhebok Pelea capreolus are common as are chacma baboon Papio ursinus and rock dassie Procavia capensis. Smaller carnivores include caracal Felis caracal and Cape grey mongoose Herpestes pulverulentus. Black eagle Aquila verreauxii are seen regularly and breed in the reserve. Twenty-five mammal, 90 bird, 24 reptile (12 snake, ten lizard and two tortoise species) and eight amphibian species have been recorded in the reserve and immediate vicinity.

Infrastructure

Visitor Facilities: None. Visitors are allowed but access is on foot only and visitors are not encouraged. Guided walks are undertaken on request.
Numbers: 100 per annum Potential: Visitors not encouraged.

Staff (and positions): One ranger and seven labourers.

Budget: R16 400,00 per annum (excluding salaries, transport and major capital works).

Local Administration: The Officer-in-Charge, Gamka Mountain Nature Reserve, Private Bag X21, Oudtshoorn, 6620, South Africa.

Principal Reference Material

Lawson A B 1982. Notes on the mammals of the Gamka Mountain Reserve, Cape Province. Bontebok, 2(2), 1-8.

Various unpublished department reports.

Preparation: Dr A Boshoff, May 1982.

101 DOORNKLOOF NATURE RESERVE

Proclamation

Date Established: 1 April 1981

Decree Number: Proclamation 276 of 1981.

Geographical Features

Location: Latitude: 30°13' - 30°24'S Longitude: 24°55' - 25°03'E
Nearest town and distance: Petrusville, 50 km
Area: 8 765 ha

Physical Features

Elevation: Lowest: 1 260 m Highest: 1 480 m
Highest Mountain: Pen se Berg
Annual rainfall: 400 mm
Annual average temperature range: Minimum: 10°C Maximum: 23°C
Rainy season: Summer (October - February).

Soils: Shallow lithosols of dolerite and sandstone origin.

Description of Geomorphology: Numerous dolerite hills and ridges, divided by grassy plains.

Major rivers and streams: Orange River.

Other outstanding physical features: The reserve is situated on the banks of the P K le Roux Dam, a man-made impoundment.

Vegetation and Flora

Vegetation types: False Karroid Broken Veld (Veld Type 37) (Acocks 1975).

Description of vegetation: Grasses: Cymbopogon spp, Themeda triandra, Heteropogon contortus, Eragrostis spp and Aristida spp. Herbs: Pentzia spp, Chrysocoma tenuifolia, Eriocephalus spp and Felicia spp. Shrubs: Rhus spp, Acacia karroo and Diospyros spp.

Fauna

Endangered species: None.

Dominant or important species of fauna: Mountain reedbuck Redunca fulvo-
rufula (500) and common duiker Sylvicapra grimmia (50). Large waterfowl population.

Infrastructure

Visitor Facilities: Picnic sites
Numbers: 500 per annum Potential: 1 000 per annum.

Staff (and positions): One senior and ten junior staff.
Budget: R10 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Doornkloof Nature Reserve, P O Box 23, Vanderkloof, 8771, South Africa.

Principal Reference Material

Various internal departmental reports.

Preparation: A R Palmer, June 1982.

102 GAMKAPOORT NATURE RESERVE

Proclamation

Date Established: 1980

Decree Number: Not yet formally proclaimed as a nature reserve, but managed as such.

Geographical Features

Location: Latitude: 33°13' - 33°18'S Longitude: 21°31' - 21°46'E

Nearest town and distance: Prince Albert, 35 km

Area: 8 000 ha (6 950 ha land and 1 050 ha water).

Physical Features

Elevation: Lowest: 430 m Highest: 1 280 m

Highest Mountain: Elandsberg

Annual rainfall: 150 - 250 mm

Annual average temperature range: Minimum: 10°C Maximum: 22°C

Rainy season: Whole year.

Soils: The greater part of the area is underlain by shales and the soils are generally clayey. More sandy soils occur on quartzite outcrops.

Description of Geomorphology: The reserve lies at the northern side of the 1 500 - 2 000 m high Great Swartberg Mountains at the southern edge of the Great Karoo. A prominent east-west trending ridge (600 m high in the east to 1 200 m in the west), which is capped by erosion resistant quartzites of the Witteberg Group, runs through the reserve. It is separated from the Swartberg Mountains by a valley cut into the softer shale rocks of the Bokkeveld and Witteberg Groups (both Cape Supergroups: early to late Devonian period). To the north lie the plains of the Great Karoo which are underlain by rocks of the Karoo Sequence (mainly tillites of the Dwyka Formation and shales of the Ecca and Beaufort Groups: late Carboniferous to Triassic periods).

Major rivers and streams: The Dwyka and Gamka, two large rivers, which drain a large part of the Great Karoo, have their confluence at the northern side of the Swartberg Mountains and then flow southwards through a spectacular gorge. The Gamka Dam at the entrance to the gorge floods an area of 1 050 ha within the reserve. All other smaller streams are seasonal.

Other outstanding physical features: Fossils of trilobites, brachiopods and molluscs are common in rocks of the Bokkeveld Groups (Devonian: 395-345 ma).

Vegetation and Flora

Vegetation types: Karroid Broken Veld (Veld Type 26), Spekboomveld (Veld Type 25) and Succulent Karoo (Veld Type 31) with some Mountain Rhenosterbosveld (Veld Type 43) and False Macchia (Veld Type 70) (Acocks 1975).

Description of vegetation: Dwarf succulent shrublands with succulent mesems and small-leaved shrubs occur on the low-lying areas. Acacia karroo forms dense stands along watercourses and occasional tall shrubs such as Rhigozum obovatum, Euclea undulata and Pappea capensis occur on the hillsides. Spekboomveld with Portulacaria afra as dominant, occurs on north facing slopes of the Swartberg Mountains. On higher lying ridges of the Witteberg Group, small-leaved rhenosterbosveld shrublands occur with Elytropappus rhinocerotis and Eriocephalus spp. Dry mountain fynbos is also present on the highest quartzite ridges.

Fauna

Endangered species: Aardwolf Proteles cristatus occurs and African fish eagle Haliaeetus vocifer breed in the vicinity of Gamkapoort Dam.

Dominant or important species of fauna: Kudu Tragelaphus strepsiceros (15), grey rhebok Pelea capreolus, steenbok Raphicerus campestris, common duiker Sylvicapra grimmia and klipspringer Oreotragus oreotragus are the only antelope present.

Infrastructure

Visitor Facilities: None, but the public have access to Gamkapoort Dam for angling and boating.

Numbers: Unknown Potential: Unknown.

Staff (and positions): No full-time staff at present. Irregular visits by a Nature Conservator and six labourers from Gamka Mountain Reserve 150 km distant.

Budget: R 2 600,00 per annum (salaries, transport and major capital work excluded).

Local Administration: The Nature Conservator, Gamka Mountain Nature Reserve, Private Bag X21, Oudtshoorn, 6620, South Africa.

Principal Reference Material

None available.

Preparation: J J du Plessis and C J Burgers, September 1983.

103 HESTER MALAN NATURE RESERVE

Proclamation

Date Established: 1966

Decree Number: Not yet formally proclaimed as a nature reserve, but managed as such.

Geographical Features

Location: Latitude: 29°35' - 29°42'S Longitude: 17°55' - 18°03'E

Nearest town and distance: Springbok, 16 km

Area: 6 576 ha

Physical Features

Elevation: Lowest: 884 m Highest: 1 354 m
Highest Mountain: Carolusberg
Annual rainfall: 162 mm
Annual average temperature range: Minimum: 11°C Maximum: 23°C
Rainy season: Winter (May to September).

Soils: Shallow, medium to coarse loam soils derived from weathering of granitic-gneiss.

Description of Geomorphology: Prominent dome-shaped and rugged rocky hills with large boulders with sandy plains in between. The hills merge into a rugged plateau to the north.

Major rivers and streams: None.

Other outstanding physical features: Prominent rocky hills.

Vegetation and Flora

Vegetation types: Namaqualand Broken Veld (Veld Type 33) (Acocks 1975).

Description of vegetation: The most striking features of the Namaqualand vegetation are the seasonal variations in the ephemeral plant population densities and composition. The ephemerals, such as Dimorphotheca polyptera, Osteospermum amplexans, O. hyoseroides and Arctotis fastuosa form an important part of the vegetation cover in the winter. On the plains, the sparse ground cover is dominated by succulent mesems and Zygophyllum retrofractum shrublets. On the plateaux the ground cover is more dense and the vegetation consists of Ruschia robusta, Leipoldtia pauciflora, Eriocephalus ericoides, Galenia africana and Osteospermum sinuatum. Taller shrubs such as Diospyros ramulosa and Rhus undulata also occur. Trees, which formerly occurred on the hillsides, have been largely eliminated but occasional specimens of Pappea capensis may still be found and Aloe dichotoma is common on some of the hills.

Economically important species of plants: A number of succulents occur which are sought by collectors but no removal of flora is allowed.

Endemic species of plants: Gladiolus salteri and a Spiloxene sp nov.

Fauna

Endangered species: Hartmann's mountain zebra Equus zebra hartmannae (16), aardwolf Proteles cristatus and honey badger Mellivora capensis.

Dominant or important species of fauna: Springbok Antidorcas marsupialis (49) and gemsbok Oryx gazella (47) have been reintroduced. Klipspringer Oreotragus oreotragus (21), chacma baboon Papio ursinus, bat-eared fox Otocyon megalotis, Cape fox Vulpes chama, rock dassie Procavia capensis, common duiker Sylvicapra grimmia and steenbok Raphicerus campestris occur naturally. Thirty-one species of mammal have been recorded in the reserve. Ostrich Struthio camelus, black eagle Aquila verreauxii, karoo korhaan Eupodotis virgorsii, spotted dikkop Burhinus capensis and ground

woodpecker Geocolaptes olivaceus are some of the birds that are frequently seen. Forty-seven bird species have been recorded. At least 26 reptiles (eight snake, 15 lizard and three tortoise species) and three amphibians are known to occur in the reserve, eg armadillo lizard Cordylus cataphractus, rock agama Agama atra and Namaqualand padloper Homopus signatus.

Infrastructure

Visitor Facilities: Open for day use only. Hiking trails. A succulent nursery is open to the public.

Numbers: Unknown Potential: Unknown.

Staff (and positions): One reserve manager and one pupil nature conservator.

Budget: R15 200,00 per annum (excluding salaries, transport and major capital works).

Local Administration: The Officer-in-Charge, Hester Malan Nature Reserve, Private Bag XI, Springbok, 8240, South Africa.

Principal Reference Material

Dieckmann R C 1979. Notes on the smaller mammals of the Hester Malan Nature Reserve, Springbok, Namaqualand. South African Journal of Zoology 14(2), pp 85-89.

Dieckmann R C 1980. Ecology and breeding biology of the gemsbok Oryx gazella (Linneus, 1758) in the Hester Malan Nature Reserve. MSc Thesis, University of Pretoria.

Le Roux A 1984. Fito sosiologiese studie van die Hester Malan-natuurreservaat. MSc Thesis, University of Pretoria.

Norton P M 1980. The habitat and feeding ecology of the klipspringer Oreotragus oreotragus (Zimmermann, 1783) in two areas of the Cape Province. MSc Thesis, University of Pretoria.

Van Rooyen M W, N Grobbelaar and G K Theron 1979a. Phenology of the vegetation of the Hester Malan Nature Reserve in the Namaqualand Broken Veld, South Africa. 1. General observations. Journal of South African Botany 45, pp 279-294.

Van Rooyen M W, N Grobbelaar and G K Theron 1979b. Phenology of the vegetation in the Hester Malan Nature Reserve in the Namaqualand Broken Veld, South Africa. 2. The therophyte population. Journal of South African Botany 45(3), pp 433-452.

Preparation: K Müller, C J Burgers and A le Roux, July 1983.

104 ANDRIES VOSLOO KUDU RESERVE

Proclamation

Date Established: 1973

Decree Number: Proclamation 409 of 1976.

Geographical Features

Location: Latitude: 33°04' - 33°09'S Longitude: 26°37' - 26°49'E

Nearest town and distance: Grahamstown, 32 km

Area: 6 493 ha

Physical Features

Elevation: Lowest: 182 m Highest: 548 m

Highest Mountain: Graskop

Annual rainfall: 434 mm

Annual average temperature range: Minimum: 10°C Maximum: 23°C

Rainy season: Summer (October - March).

Soils: Clay soils of shale origin.

Description of Geomorphology: Eastern section traversed by numerous thickly wooded riverine valleys. Western section flatter, with some examples of exposed Ecca shales.

Major rivers and streams: Limited to a 500 m stretch of the Great Fish River, with non-perennial streams within the reserve boundaries.

Other outstanding physical features: Outstanding physical features include views of the meandering Fish River Valley and isolated dolerite sills within the boundaries.

Vegetation and Flora

Vegetation types: Fish River Scrub variation of the Valley Bushveld (Veld Type 23) (Acocks 1975).

Description of vegetation: The vegetation consists of species from five biogeographical regions: Capensis (Helichrysum spp, Selago spp); Karoo-Namib (Felicia spp, Chrysocoma spp); Pondoland-Tongaland (Portulacaria afra, Euclea undulata); Sudano-Zambeian (Themeda triandra, Eragrostis spp) and Afro-Montane (Hippobromus spp).

Endemic species of plants: Pachypodium bispinosum, P succulentum and Encephalartos trispinosus.

Fauna

Endangered species: None.

Dominant or important species of fauna: Kudu Tragelaphus strepsiceros (±1 000), common duiker Sylvicapra grimmia (±400) and buffalo Syncerus caffer (±50) - introduced.

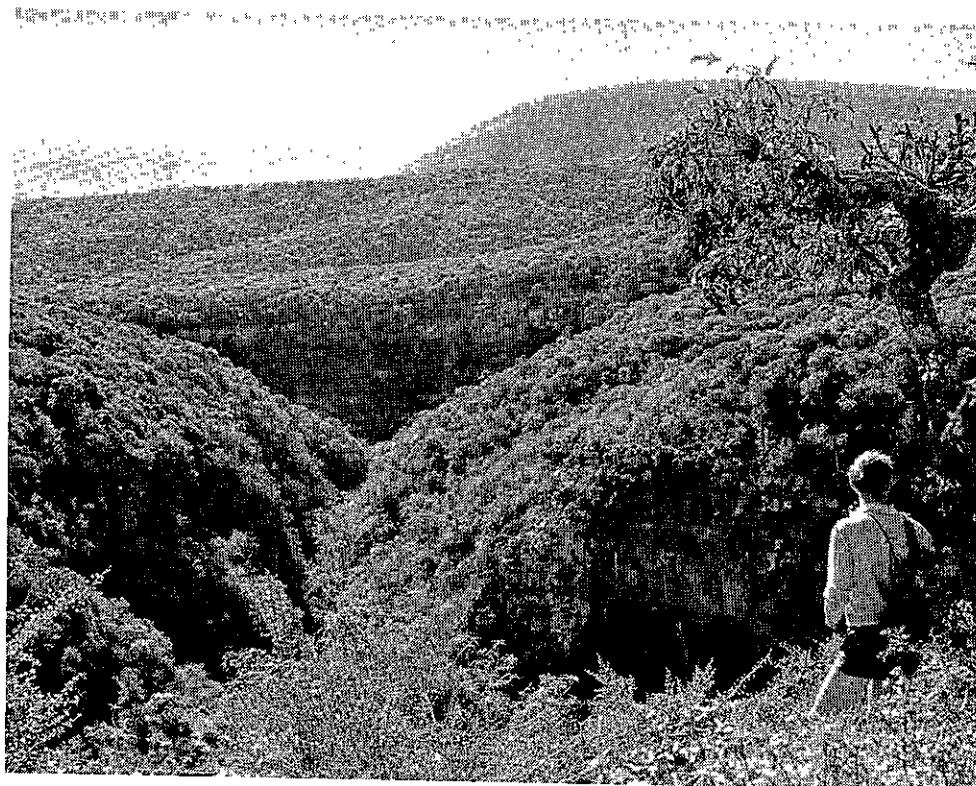


Figure 14. Deeply dissected landscape in the Andries Vosloo Kudu Reserve. Fish River Scrub variation of Valley Bushveld, Veld Type 23.

Infrastructure

Visitor Facilities: None - reserve is not open to the public.

Numbers: Nil Potential: Unknown.

Staff (and positions): Three senior staff and 27 labourers.

Budget: R44 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Andries Vosloo Kudu Reserve, Private Bag 1006, Grahamstown, 6140, South Africa.

Principal Reference Material

Allen-Rowlandson T S. The spatial organization of the greater kudu (*T strepsiceros*) in the Andries Vosloo Kudu Reserve. MSc Thesis, Rhodes University.

Palmer A R 1981. A study of the vegetation of the Andries Vosloo Kudu Reserve. MSc Thesis, Rhodes University.

Preparation: A R Palmer, May 1982.

105 COMMANDO DRIFT NATURE RESERVE

Proclamation

Date Established: 1978

Decree Number: Proclamation 172 of 1980.

Geographical Features

Location: Latitude: 32°02' - 32°12'S Longitude: 25°59' - 26°05'E

Nearest town and distance: Cradock, 50 km

Area: 5 983 ha

Physical Features

Elevation: Lowest: 1 010 m Highest: 1 384 m

Highest Mountain: Rooiberg

Annual rainfall: 343 mm

Annual average temperature range: Minimum: 10°C Maximum: 24°C

Rainy season: Summer (October - March).

Soils: Shallow lithosols and deep structureless alluvia.

Description of Geomorphology: Large dolerite massif, grassy plains and low dolerite ridges.

Major rivers and streams: Tarka River, Commando Drift Dam.

Vegetation and Flora

Vegetation types: False Karroid Broken Veld (Veld Type 37) (Acocks 1975).

Description of vegetation: Grasses: Enneapogon scoparius, Aristida congesta, Merxmuellera disticha, Cymbopogon spp, Themeda triandra, Eragrostis spp. Herbs: Pentzia spp, Eriocephalus spp, Chrysocoma spp, Felicia spp. Shrubs: Rhus spp, Acacia karroo, Diospyros spp.

Fauna

Endangered species: None.

Dominant or important species of fauna: Black wildebeest Connochaetes gnou (7), springbok Antidorcas marsupialis (20). Large waterfowl population.

Infrastructure

Visitor Facilities: Ablution blocks and camp sites. Angling permitted.

Numbers: 1 000 per annum Potential: 3 000 per annum.

Staff (and positions): One senior staff and 10 labourers.

Budget: R10 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Commando Drift Nature Reserve, P O Box 459, Cradock, 5880, South Africa.

Principal Reference Material

Various internal departmental reports.

Preparation: A R Palmer, June 1982.

106 ROLFORTEIN NATURE RESERVE

Proclamation

Date Established: 1970

Decree Number: In the process of being proclaimed.

Geographical Features

Location: Latitude: 30°00' - 30°05'S Longitude: 24°42' - 24°48'E

Nearest town and distance: Petrusville, 14 km

Area: 4 749 ha

Physical Features

Elevation: Lowest: 1 160 m Highest: 1 370 m

Highest Mountain: Renosterberg

Annual rainfall: 440 mm

Annual average temperature range: Minimum: 10°C Maximum: 23°C

Rainy season: Summer (October - February).

Soils: Shallow lithosols of dolerite and sandstone origin.

Description of Geomorphology: Numerous dolerite hills, interspersed with grassy plains.

Major rivers and streams: Orange River.

Other outstanding physical features: The reserve is situated on the banks of the P K le Roux Dam, a man-made impoundment.

Vegetation and Flora

Vegetation types: False Upper Karoo (Veld Type 36) (Acocks 1975).

Description of vegetation: Grasses: Cymbopogon spp, Themeda triandra, Heteropogon contortus, Eragrostis spp and Aristida spp. Herbs: Pentzia spp, Chrysocoma tenuifolia and Eriocephalus spp. Shrubs: Rhus spp, Acacia karroo and Diospyros spp.

Fauna

Endangered species: Cheetah Acinonyx jubatus and brown hyaena Hyaena brunnea, both introduced.

Dominant or important species of fauna: Red hartebeest Alcelaphus buselaphus (50), black wildebeest Connochaetes gnou (200), mountain reedbuck Redunca fulvorufula (600), Burchell's zebra Equus burchelli (50), gemsbok Oryx gazella (50) and eland Taurotragus oryx (200).

Infrastructure

Visitor Facilities: Day trips and hiking trails.

Numbers: 3 650 per annum Potential: 3 650 per annum.

Staff (and positions): Two senior staff and 15 labourers.

Budget: R20 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Rolfontein Nature Reserve, P O Box 23, Vanderkloof, 8771, South Africa.

Principal Reference Material

Jooste J F 1980. A study of the phytosociology and small mammals of the Rolfontein Nature Reserve, Cape Province. MSc thesis. Stellenbosch University.

Preparation: A R Palmer, June 1982.

107 GOUKAMMA NATURE RESERVE

Proclamation

Date Established: 1960

Decree Number: Not yet formally proclaimed as a nature reserve, but managed as such.

Geographical Features

Location: Latitude: 34°01' - 34°05'S Longitude: 22°50' - 22°59'E

Nearest town and distance: Knysna, 20 km

Area: 2 230 ha

Physical Features

Elevation: Lowest: 0 m Highest: 205 m

Highest Mountain: Not applicable, high sand dunes only.

Annual rainfall: ± 700 mm

Annual average temperature range: Minimum: 13°C Maximum: 20°C

Rainy season: Whole year.

Soils: Dune sand.

Description of Geomorphology: High undulating coastal sand dunes cover the greater part of the reserve and reach a height of 205 m above sea level. The reserve borders on the sea over a distance of 12 km but the intertidal zone (a sandy beach with some limestone outcrops and low cliffs) is not yet included in the reserve.

Major rivers and streams: Groenvlei, a coastal lake 3,7 km long and 0,9 km wide with a surface area of 250 ha, is almost entirely included in the reserve. It has no outlet to the sea and the water is brackish. The lake margin is fringed by dense Phragmites and Typha beds. The small Goukamma estuary (20 ha) and the lower portion of the Goukamma River is also included in the reserve.

Vegetation and Flora

Vegetation types: Coastal Macchia (Veld Type 47) (Acocks 1975).

Description of vegetation: Dune fynbos is the dominant vegetation in the reserve and various (from mid-high (1-2 m) to low (less than 50 cm)) sclerophyllous shrublands on an old stabilized dune field. Dominants include small-leaved shrubs such as Agathosma muirii, Metalasia muricata, Erica fourcadei and Passerina vulgaris as well as broad-leaved shrubs such as Pterocelastrus tricuspidatus, Cassine aethiopica, C. peragua, Rhus spp and Olea exasperata. Other smaller shrublets include Eroeda imbricata, Phyllica spp, Erica spp, Muraltia spp, Anthospermum aethiopicum, Helichrysum ericaefolium and Disparago kraussii. A herb layer of Ficinia spp, Tetraria spp, Restio eleocharis and grasses is also present. Various communities have been recognized in this vegetation including a Helichrysum teretifolium-Metalasia muricata community and Tetraria cuspidata-Restio eleocharis community. Closed evergreen sclerophyllous forest (3 - 6 m) tall with Sideroxylon inerme dominant also occurs. Other co-dominant shrubs and trees include Euclea racemosa, Cassine aethiopica and Chionanthus foveolata together with smaller shrubs such as Olea exasperata, Diospyros whyteana and Carissa bispinosa and climbers such as Rhoicissus digitata. On the littoral dunes grow Ammophila arenaria (an introduced alien), Arctotheca populifolia and Scaevola plumieri. Along Groenvlei extensive marshlands occur with a community along the edges in which the sedge Cladium mariscus is dominant to a dense Typha capensis-Phragmites australis community in deeper water and Scirpus littoralis in still deeper water. Submerged aquatic plants include Potamogeton pectinatus and Chara spp.

Fauna

Endangered species: Blue duiker Cephalophus monticola and bontebok Damaliscus dorcas dorcas (introduced outside its natural range).

Dominant or important species of fauna: Eland Taurotragus oryx have been reintroduced and grysbok Raphicerus melanotis, bushbuck Tragelaphus scriptus, bushpig Potamochoerus porcus and vervet monkey Cercopithecus pygerythrus occur naturally. More than 117 bird species have been recorded. At least 27 reptile species (one tortoise, one terrapin, ten lizard and 15 snake species) and eight amphibians occur. Ten estuarine fish species have been recorded in Goukamma Estuary and six species in Groenvlei of which four species are introduced aliens.

Infrastructure

Visitor Facilities: Picnic sites and fire places at Goukamma Estuary, 48 km of footpaths and angling in the sea, Goukamma River and Groenvlei. The reserve is open for day use only.

Numbers: 3 000 per annum Potential: Maximum attained.

Staff (and positions): Two nature conservators and 18 labourers.

Budget: R30 800,00 per annum (excluding salaries, transport and major capital works).

Local Administration: Department of Nature and Environmental Conservation, Southern Cape Regional Office, Private Bag 6546, George, 6530, South Africa.

Other Information of Interest: A feasibility study has been conducted on the possible reintroduction of hippopotamus Hippopotamus amphibius.

Principal Reference Material

Van der Merwe C V 1976. Plantekologiese aspekte en bestuursprobleme van die Goukammatuurreservaat. Unpublished MSc Thesis, University of Pretoria.

Preparation: J J du Plessis and C J Burgers, September 1983.

108 VROLIJKHEID NATURE RESERVE

Proclamation

Date Established: 1957

Decree Number: Proclamation 409 of 10 December 1976.

Geographical Features

Location: Latitude: 33°54' - 33°57'S Longitude: 19°52' - 19°57'E

Nearest town and distance: Robertson, 14 km

Area: 1 827 ha

Physical Features

Elevation: Lowest: 200 m Highest: 635 m

Highest Mountain: Elandsberg

Annual rainfall: ± 250 mm

Annual average temperature range: Minimum: 12°C Maximum: 21°C

Rainy season: Winter (March - September).

Soils: Soils derived from weathering of shales of the Bokkeveld Group.

Description of Geomorphology: Rugged, hilly topography.

Major rivers and streams: Only small seasonal watercourses. The Kiesies River flows along the western boundary of the reserve over a distance of 1,5 km.

Vegetation and Flora

Vegetation types: Karroid Broken Veld (Veld Type 26) and Mountain Rhenosterbosveld (Veld Type 43) (Acocks 1975).

Description of vegetation: Karroid vegetation occurs over the greater part of the reserve with rhenosterbosveld communities on some of the higher hills. The karroid communities are low (less than 50 cm high) open to sparse shrublands with a high proportion of shrubby succulents and dominated by Euphorbia mauritanica, Pentzia incana and various mesems, eg Ruschia and Drosanthemum species with scattered taller shrubs such as Rhus undulata. Acacia karroo grows along the seasonal water courses.

Fauna

Endangered species: Antbear Orycteropus afer and honey badger Mellivora capensis are occasional visitors.

Dominant or important species of fauna: The fauna of the reserve has been surveyed intensively. Forty species of mammals, 140 bird species, 21 reptile species (11 snake, seven lizard, two tortoise and one terrapin species) and eight amphibian species have been recorded. Springbok Antidorcas marsupialis and gemsbok Oryx gazella have been introduced but are outside their historic natural range. Smaller antelope are steenbok Raphicerus campestris, grysbok Raphicerus melanotis, common duiker Sylvicapra grimmia, klipspringer Oreotragus oreotragus and grey rhebok Pelea capreolus. The fish Barbus burchelli occurs in the Kiesies River.

Infrastructure

Visitor Facilities: Accommodation with sleeping quarters, kitchen and ablution facilities available for groups. Reserve open for day use only.
Numbers: 150 per annum Potential: Not determined.

Staff (and positions): Staff of the Vrolijkheid Research Station periodically undertake work in the reserve.
Budget: No separate budget for the reserve.

Local Administration: The Officer-in-Charge, Vrolijkheid Problem Animal Control Research Station, Private Bag 614, Robertson, 6705, South Africa.

Principal Reference Material

Van der Merwe C V 1977. Plantegroei-beskrywing van die Vrolijkheid-natuur-bewaringstasie. Unpublished report, Department of Nature and Environmental Conservation.

Stuart C T, N G Palmer and B M Munnik 1978. A preliminary report on the vertebrate fauna of the Cape Provincial Reserves. Cape Department of Nature and Environmental Conservation Research Report 1978: Mammals.

Preparation: C J Burgers and C V van der Merwe, July 1984.

109 THOMAS BAINES NATURE RESERVE

Proclamation

Date Established: 1963

Decree Number: Proclamation 294 of 1980.

Geographical Features

Location: Latitude: 33°22' - 33°25'S Longitude: 26°29' - 26°31'E
Nearest town and distance: Grahamstown, 12 km
Area: 1 003 ha

Physical Features

Elevation: Lowest: 300 m Highest: 500 m
Highest Mountain: Not applicable
Annual rainfall: 740 mm
Annual average temperature range: Minimum: 12°C Maximum: 21°C
Rainy season: Summer (August - October and February - March).

Soils: Clay soils derived from Bokkeveld shales and quartzitic soils from Witteberg quartzites.

Description of Geomorphology: The reserve is the immediate catchment area of the two water storage reservoirs supplying the town of Grahamstown with domestic water. Gently undulating hills, well covered with vegetation.

Major rivers and streams: Kariega and Palmiet Rivers.

Other outstanding physical features: Water surfaces of Settlers and Howisons Poort reservoirs included in the reserve.

Vegetation and Flora

Vegetation types: Valley Bushveld (Veld Type 23) (Acocks 1975).

Description of vegetation: The vegetation of the reserve can be divided into four distinct units: (a) Sclerophyllous scrub with Restio spp and Erica spp; (b) Pockets of forest with Podocarpus latifolius and Schotia latifolia; (c) Bushveld dominated by Scutia myrtina and (d) Riparian vegetation.

Economically important species of plants: Podocarpus latifolius.

Endemic species of plants: Oldenburgia arbuscula.

Fauna

Endangered species: Bontebok Damaliscus dorcas dorcas (17).

Dominant or important species of fauna: Eland Taurotragus oryx (20), buffalo Syncerus caffer (20), bushbuck Tragelaphus scriptus (30), common duiker Sylvicapra grimmia (35), mountain reedbuck Redunca fulvorufula (20), black wildebeest Connochaetes gnou (5) and square-lipped rhinoceros Ceratotherium simum (3).

Infrastructure

Visitor Facilities: Boating, picnicking and toilets.
Numbers: 3 600 per annum Potential: 4 800 per annum.

Staff (and positions): Two nature conservators and 10 labourers.
Budget: R20 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Thomas Baines Nature Reserve, Private Bag 1006, Grahamstown, 6140, South Africa.

Other Information of Interest: Ad hoc environmental education programmes for school children are run by the Albany Museum.

Principal Reference Material

Jessop J P and A Jacot-Guillarmod 1969. The vegetation of the Thomas Baines Nature Reserve. Journal of South African Botany, 35, 367-392.

Various unpublished departmental reports.

Preparation: A R Palmer, October 1983.

110 CAPE OF GOOD HOPE NATURE RESERVE

Proclamation

Date Established: 1939

Decree Number: Administrator's Notice 86 of 1939.

Geographical Features

Location: Latitude: 34°12' - 22'S Longitude: 18°22' - 30'E

Nearest town and distance: Simonstown, 11 km

Area: 7 675 ha

Physical Features

Elevation: Lowest: Sea level Highest: 366 m

Highest Mountain: Paulsberg (366 m) and Vasco da Gama Peak (266 m).

Annual rainfall: 300 - 700 mm

Annual average temperature range: Minimum: 10°C Maximum: 20°C

Rainy season: Winter (April - September) but some rain recorded every month.

Soils: Nutrient poor, acid, sandy lithosols, with an average pH of 3,5 to 5. Stabilized and calcified dunes occur in small localized areas. These support a specialized fynbos community.

Description of Geomorphology: The reserve occupies the extreme tip of the Cape Peninsula, with 250 m sea cliffs at Cape Point. The east and north is hilly and there is a central plateau sloping from east to west. The shore is rocky with sandy beaches and some dunes.

Major rivers and streams: None.

Other outstanding physical features: A small lake in the north and a brackish lagoon running parallel to the coast. The lake is fed by a spring and is permanent. The reserve borders on a 40 km coastline which is generally rocky with few sandy beaches. Spectacular cliffs are present on the False Bay coast and at Cape Point.

Vegetation and Flora

Vegetation types: Strandveld (Veld Type 34) and Macchia (Veld Type 69) (Acocks 1975).

Description of vegetation: Falls into four main groups: a) Coastal fynbos consisting of an open coast-shelf kapok-bush Eriocephalus type (260 ha), a scrubby dune type of Metalasia muricata, Leucadendron coniferum, Olea exasperata and Thamnochortus erectus (800 ha), the Coleonema type (97 ha) and the marshy Helichrysum-Scirpus type (22 ha); b) Inland fynbos comprising an upland mixed type of open dwarf scrub dominated by Aspalathus, Metalasia, Elegia, Salaxis, Leucospermum and Passerina spp (2 544 ha), a tall type mostly of Protea lepidocarpodendron (285 ha), a P nitida pseudo-savanna type (23 ha), a plateau type of Restionaceae and Leucadendron laureolum (1 260 ha), another restionaceous tussock-marsh type (1 275 ha), a Berzelia-Osmitopsis spp seepage steppe type (113 ha) and a Psoralea spp pseudo-savanna type (7 ha); c) Tall sclerophyllous scrub of Sideroxylon spp (165 ha) and a Maurocena-Chionanthus spp association; and d) Thickets of introduced Acacia and Pinus spp.

Economically important species of plants: Numerous species occur which are of importance for the cut flower trade but no utilization of flora is allowed in the reserve. The wood of exotic plant invaders such as Acacia cyclops is sold for fire wood.

Endemic species of plants: At least 12 plant species and a number of subspecies and varieties are endemic to the reserve: Pterygodium connivens, Gladiolus vigilans, Homoglossum merianellum var aureum, Bobartia gladiata subsp major, Restio dodii var dodii, Heliophila cinerea, Ruschia promontorii, Staavia dodii, Erica blancheana, E capensis, E clavisepala, E eburnea, E fontana, Leucadendron floridum and L macowanii. Many other Cape Peninsula endemics occur in the reserve as well as other rare plant species such as Mimetes hirtus, Witsenia maura and Audouinia capitata.

Fauna

Endangered species: Bontebok Damaliscus dorcas dorcas, Hartmann's mountain zebra Equus zebra hartmannae and Cape platanna Xenopus gilli.

Dominant or important species of fauna: Eland Taurotragus oryx (33) and red hartebeest Alcelaphus buselaphus (30) have been reintroduced and a number of other herbivores, which probably did not occur in the area originally, have also been introduced, notably Hartmann's mountain zebra Equus zebra hartmannae (33), bontebok Damaliscus dorcas dorcas (110) and springbok Antidorcas marsupialis (12). Smaller antelope such as grey rhebok Pelea capreolus, steenbok Raphicerus campestris and grysbok R melanotis also occur in small numbers as well as 50 to 60 ostriches Struthio camelus. About 15 species of amphibians and 38 species of reptiles (19 snake, 15 lizard and three tortoise species) are known to occur on the Cape Peninsula and the majority of these occur on the reserve.

Infrastructure

Visitor Facilities: Day use only is permitted. Picnic sites with ablution blocks and fire places have been provided at five sites along the coast and Cape Point is a popular look-out point. There is a restaurant and small visitor centre in the reserve. Visitors are allowed to walk over most the reserve and natural trails are under consideration. Facilities for launching boats are available and angling and skin diving are permitted.
Numbers: 350 000 per annum Potential: Not determined.

Staff (and positions): Chief Warden, senior ranger, three rangers, receptionist/secretary and 96 labourers.
Budget: R400 000,00 per annum (including salaries).

Local Administration: The Chief Warden, Cape of Good Hope Nature Reserve, P O Box 62, Simonstown, 7995, South Africa.

Other Information of Interest: The reserve extends only to the high water mark at present, but the varied 40 km coastline is of such conservation importance that the creation of a marine reserve along the coast should be regarded as being of the highest priority.

Principal Reference Material

Millar J C F 1970. The Cape of Good Hope Nature Reserve: A Report and Management Plan. Cyclostyled.

Taylor H C 1969. A vegetation survey of the Cape of Good Hope Nature Reserve. MSc thesis, University of Cape Town.

Taylor H C 1970. Recommendations for the Cape of Good Hope Nature Reserve. Typed manuscript.

Preparation: C J Burgers, D Clarke and staff of the Cape of Good Hope Nature Reserve, May 1982.

111 TABLE MOUNTAIN NATURE RESERVE

Proclamation

Date Established: 1963

Decree Number: Notice 24 in Provincial Gazette 3246 of 3 July 1964.

Geographical Features

Location: Latitude: 33°55' - 34°01'S Longitude: 18°21' - 18°27'E

Nearest town and distance: Cape Town is in the immediate vicinity.

Area: 2 904 ha

Physical Features

Elevation: Lowest: 100 m Highest: 1 087 m

Highest Mountain: Table Mountain itself, with the highest point at Maclear's Beacon.

Annual rainfall: 475 - 1 985 mm, depending on the locality, since mist from the south-easterly winds provides appreciable additional moisture on the summit plateau in summer.

Annual average temperature range: Minimum: 7°C Maximum: 23°C

Rainy season: Winter (May - September).

Soils: Mainly shallow, nutrient-poor, acidic soils derived from sandstone soils of the Table Mountain Series. There are also soils derived from granitic outcrops and shale bands.

Description of Geomorphology: The reserve includes much of Table Mountain, which forms the northern part of the Cape Peninsula mountain chain. The flat summit region of the mountain, known as the Upper Plateau, is bounded on the northern edge by almost sheer cliffs. On the southern side of the summit, the terrain slopes down gradually to form the Lower Plateau, directly south of which is a broad valley. Devil's Peak and Lion's Head, two peaks north of the summit, and Signal Hill are also included in the reserve.

Major rivers and streams: Disa Stream feeds a number of reservoirs on the Lower Plateau; no other streams of importance.

Other outstanding physical features: General ruggedness of terrain. An interleading cave system on the southern part of the Lower Plateau.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 69) (Acocks 1975).

Description of vegetation: Fynbos vegetation of the Cape Floral Kingdom occurs over most of the reserve. Patches of relict forest are found in the deeper valleys and gorges. Fynbos: relatively low, dense, drought-resistant sclerophyllous vegetation, typically lacking in dominant species and showing great diversity and richness. 1 470 plant species are known from the Table Mountain area. Certain families of plants are characteristic - Ericaceae, Proteaceae (broad-leaved) and Restionaceae (in tussocks). Typical fynbos species include Protea nitida, P lepidocarpodendron, Leucadendron salignum, Erica baccans, E plukenetii, E hispidula, Metalasia muricata and Thamnochortus dichotomus. Forest: 12 - 25 m in height, broad-leaved, evergreen. Important species include Kiggelaria africana, Rapanea melanophloeos, Diospyros whyteana, Virgilia oroboides, Curtisia dentata, Podocarpus latifolius, Hartogiella schinoides and Olea capensis.

Endemic species of plants: More than 100 plant species are endemic to the Cape Peninsula and at least three species, Erica pilulifera, E abietina and Staavia glutinosa, are endemic to Table Mountain. More than 50 rare and threatened plants also occur in the reserve. These include Staavia dregeana, Leucadendron argenteum, Thamnochortus nutans and Satyrium foliosum. Conservation action has been taken to safeguard these species.

Fauna

Endangered species: The ghost frog Heleophryne rosei is endemic to Table Mountain. Peripatopsis alba is only known from caves on the mountain and P leonina has only been recorded from the slopes of Signal Hill and may be extinct.

Dominant or important species of fauna: Because much of the reserve's original fauna has been exterminated, the species diversity (especially larger mammals) is today rather poor. However, there are still rock dassie Procavia capensis, chacma baboon Papio ursinus, grysbok Raphicerus melanotis, caracal Felis caracal, genets Genetta genetta, mongoose, porcupines and rodents, many reptiles and birds, including the black eagle Aquila verreauxii. The Wynberg Caves have an interesting and unique fauna of their own, including the rare Peripatopsis alba, certain arachnida, myriopoda, frogs, bats, pseudoscorpions and cave crickets.

Infrastructure

Visitor Facilities: Table Mountain can be considered among South Africa's foremost tourist attractions. A spectacular aerial cableway operates from the 350 m level to the summit, where a restaurant, toilets and viewing areas are provided. Only recreational activities such as hiking, rock climbing and picnicking are permitted and there is an extensive path network throughout the reserve. No overnight camping is allowed.

Numbers: 2 065 000 per annum Potential: No information.

Staff (and positions): Staff of the Parks and Forests Branch: One Principal Parks and Forests Officer, one Senior Parks and Forests Officer, two foresters, three law enforcement officers, six foremen and a number of radio operators, clerks, gangers, drivers, handymen, attendants and labourers.

Budget: R644 330,00 per annum (including salaries).

Local Administration: The Director: Parks and Forests, City Engineer's Department, P O Box 1694, Cape Town, 8000, South Africa.

Other Information of Interest: Magnificent views from the summit of the City of Cape Town and its suburbs, the Cape Peninsula (471 km² in extent), the Cape Flats and the mountains of the south-western Cape. Scenic drives encircle the Table Mountain complex.

Principal Reference Material

Adamson R S and T M Salter 1950. Flora of the Cape Peninsula. Juta and Co, Cape Town.

Hall A V and E R Ashton 1983. Threatened plants of the Cape Peninsula. Bolus Herbarium, University of Cape Town.

Hey D 1978. Report on the Future Control and Management of the Table Mountain and Southern Peninsula Mountain Chain. Pretoria: Government Printer.

Moll E J and B M Campbell 1976. Table Mountain - A Conservation and Management Report. Department of Botany, University of Cape Town.

Preparation: C Peterson and E R Ashton, December 1983.

112 LADISMITH-KLEIN KAROO NATURE RESERVE

Proclamation

Date Established: 2 April 1974

Decree Number: Provincial Notice 111 of 1974 and name changed by Provincial Notice 697 of 1983 (formerly known as Noukloof Nature Reserve).

Geographical Features

Location: Latitude: 33°30' - 33°34'S Longitude: 21°11' - 21°16'E

Nearest town and distance: Ladismith, 3 km

Area: 2 766 ha

Physical Features

Elevation: Lowest: 394 m Highest: 760 m

Highest Mountain: Ladismith Hill

Annual rainfall: ± 250 mm

Annual average temperature range: Minimum: 12°C Maximum: 24°C

Rainy season: Bi-modal, spring and autumn (March - April and August - September).

Soils: Shallow, stony soils on the hills and deeper clayey soils on the flats.

Description of Geomorphology: Hilly topography with prominent east-west trending ridges of quartzites of the Witteberg Group and a level plain over shales of the Bokkeveld Group in the southern part of the reserve.

Major rivers and streams: Only small seasonal watercourses.

Vegetation and Flora

Vegetation types: Succulent Mountain Scrub (Veld Type 25) and very limited areas of Karroid Broken Veld (Veld Type 26) and Mountain Rhenosterbosveld (Veld Type 43) (Acocks 1975).

Description of vegetation: Succulent Mountain Scrub, a 1-2 m high, open succulent shrubland with a 20-50 cm high sparse to mid-dense shrub understorey, occurs on the lower northern and southern slopes. Dominant species include Portulacaria afra, Euclea undulata, Carissa haematocarpa, Rhigozum obovatum, Rhus lucida and Nymania capensis with smaller shrublets such as Euphorbia mauritanica, Zygophyllum morgsana, Pteronia incana and succulent shrubby mesems, eg Ruschia spp. Mountain Rhenosterbosveld occurs on the higher ridge tops on both the southerly and northern aspects. It is typically a 1 m tall, closed, small-leaved shrubland with Elytropappus

rhinocerotis, Relhania squarrosa, Pentzia incana, Passerina obtusifolia, Cliffortia micrantha, Restio fruticosus, Eriocephalus africanus, Euryops rehmannii and Polygala bracteolata. Karroid Broken Veld communities, typically 50 cm high, mid-dense succulent shrublands, occur on the lower lying flat areas. Dominant species include Pteronia pallens, Galenia africana and succulent shrubby mesems, eg Ruschia and Drosanthemum spp.

Fauna

Endangered species: None.

Dominant or important species of fauna: Eland Taurotragus oryx (27) and springbok Antidorcas marsupialis (40) have been reintroduced. The only other smaller antelope are common duiker Sylvicapra grimmia and steenbok Raphicerus campestris.

Infrastructure

Visitor Facilities: None

Numbers: 600 per annum Potential: Unknown.

Staff (and positions): No permanent staff. Municipal personnel periodically undertake work in the reserve.

Budget: R10 000,00 per annum (including salaries).

Local Administration: The Town Clerk, Municipality of Ladismith, P O Box 30, Ladismith, 6885, South Africa.

Principal Reference Material

Levyns M R 1950. The relations of the Cape and Karoo floras near Ladismith, Cape. Transactions of the Royal Society of South Africa 32, 235-246.

Preparation: C J Burgers and D F Laidler, July 1984.

113 SPITSKOP NATURE RESERVE

Proclamation

Date Established: 30 October 1967

Decree Number: Provincial Notice 211 of 1967.

Geographical Features

Location: Latitude: 28°19' - 28°24'S Longitude: 21°08' - 21°12'E

Nearest town and distance: Upington, 12 km

Area: 2 740 ha

Physical Features

Elevation: Lowest: 850 m Highest: 923 m
Highest Mountain: There are only two prominent hills on a level plain.
Annual rainfall: ± 180 mm
Annual average temperature range: Minimum: 11°C Maximum: 27°C
Rainy season: Summer, with a peak in February-March.

Soils: Stony

Description of Geomorphology: Level featureless plain with two small hills.

Major rivers and streams: None.

Other outstanding physical features: Prominent hills (eg Spitskop).

Vegetation and Flora

Vegetation types: Orange River Broken Veld (Veld Type 32) (Acocks 1975).

Description of vegetation: Rhigozum trichotomum veld, typically a 1 m tall sparse shrubland with Boscia albitrunca, Acacia mellifera subsp detinens and Parkinsonia africana with smaller karroid shrublets and a sparse cover of grasses, eg Stipagrostis obtusa and S ciliata.

Fauna

Endangered species: None.

Dominant or important species of fauna: Gemsbok Oryx gazella (27), springbok Antidorcas marsupialis (270), eland Taurotragus oryx (12) and Burchell's zebra Equus burchelli (10) have been reintroduced. Also present are steenbok Raphicerus campestris, antbear Orycteropus afer and ostrich Struthio camelus.

Infrastructure

Visitor Facilities: The reserve is open for day use only. Picnic sites and 30 km of gravel road for game viewing. Look-out point with telescope on the top of Spitskop.

Numbers: 3 600 per annum Potential: Not determined.

Staff (and positions): One nature conservator and two gate guards.

Budget: R76 500,00 per annum (including salaries).

Local Administration: The Town Clerk, Municipality of Upington, Private Bag X6003, Upington, 8800, South Africa.

Principal Reference Material

None of great significance.

Preparation: C J Burgers, July 1984.

114 AKKERENDAM NATURE RESERVE

Proclamation

Date Established: 12 September 1962
Decree Number: Provincial Notice 153 of 1962.

Geographical Features

Location: Latitude: 31°23' - 28'S Longitude: 19°44' - 48'E
Nearest town and distance: Calvinia, 2 km
Area: 2 301 ha

Physical Features

Elevation: Lowest: 1 000 m Highest: 1 580 m
Highest Mountain: Hantamsberg Plateau
Annual rainfall: 200 - 300 mm
Annual average temperature range: Minimum: 10°C Maximum: 23°C
Rainy season: Transitional between summer and winter rainfall.

Soils: Soils derived from shales of the Ecca Groups (Karoo System) and Karoo dolerites on the plateau.

Description of Geomorphology: The Hantamsberg is a flat-topped inselberg 100 km in extent which forms a northern outlier of the Great Escarpment. The flat top of the mountain is formed by a thick sill of dolerite which lies on top of the more erodable shales in the Ecca Group. Vertical cliffs are formed by the dolerite around the edge of the mountain. The reserve lies at the southern side of the mountain and extends from the edge of the plateau to the level plain at the base.

Major rivers and streams: Only small streams and a reservoir.

Other outstanding physical features: The flat-topped form of the mountain and vertical cliffs is a striking landform type.

Vegetation and Flora

Vegetation types: Western Mountain Karoo (Veld Type 28) and Mountain Rhenosterbosveld (Veld Type 43) (Acocks 1975).

Description of vegetation: A form of Mountain Rhenosterbosveld with Elytropappus rhinocerotis occurs in the plateaux and upper slopes on dolerite. Low shrublands with Merxmuellera arundinacea, Pteronia incana, Euphorbia mauritanica, Eriocephalus spp and Pentzia incana occur on the mountain slopes. On the plains, dwarf succulent shrublands occur with Eberlanzia ferox dominant and some Ruschia muricata, Cephalophyllum spp and Galenia africana. Small trees such as Rhus lancea and Cliffortia arborea also occur in small numbers.

Endemic species of plants: Available records indicate that the Hantamsberg is an important centre of endemism. The following species have only been recorded from the Hantamsberg: Hesperantha hantamensis, H karooica,

H oligantha, H quadrangula, Diascia nutans, D macrophylla, Sutera divaricata, S stenopetola, Nemesia chrysolopha and Zaluzianskya nemesioides. A number of other rare plant species occur.

Fauna

Endangered species: Hartmann's mountain zebra Equus zebra hartmannae (4).

Dominant or important species of fauna: Springbok Antidorcas marsupialis (±200) and gemsbok Oryx gazella (±16) have been reintroduced to the reserve and Hartmann's mountain zebra Equus zebra hartmannae (±4), black wildebeest Connochaetes gnou (±16) and blesbok Damaliscus dorcas phillipsi (6) have also been introduced although the reserve lies outside their historic natural range. Smaller antelope include grey rhebok Pelea capreolus, steenbok Raphicerus campestris and common duiker Sylvicapra grimmia. At least 25 reptile species (13 snake, nine lizard and three tortoise species) and six frog species occur in this area for example the tent tortoise Psammobates tentorius and the south-western black spitting cobra Naja nigricollis woodii.

Infrastructure

Visitor Facilities: Picnic sites for day use only. Nature trails in the Hantam Mountains. Hotels and caravan park in Calvinia.

Numbers: ± 6 000 per annum Potential: Unknown.

Staff (and positions): One supervisor (part-time) and one labourer.

Budget: R19 200,00 per annum (including salaries).

Local Administration: The Town Clerk, Municipality of Calvinia, P O Box 28, Calvinia, 8190, South Africa.

Other Information of Interest: The Hantamsberg is of great phytogeographical interest since it is an outlier with elements of the floras of the Roggeveld Mountains as well as of the Nieuwoudtville-Cedarberg area.

Principal Reference Material

Various internal departmental reports.

Preparation: C J Burgers, A le Roux and W Lloyd, July 1984.

115 GREYTON NATURE RESERVE

Proclamation

Date Established: 13 May 1977

Decree Number: Provincial Notice 616 of 1977.

Geographical Features

Location: Latitude: 34°00' - 34°03'S Longitude: 19°35' - 19°41'E

Nearest town and distance: Greyton, 1 km

Area: 2 220 ha

Physical Features

Elevation: Lowest: 240 m Highest: 1 465 m
Highest Mountain: Uitkykkop, Perdekop and Abdolskop (peaks of the Riviersonderend Mountains).
Annual rainfall: 600 - 900 mm
Annual average temperature range: Minimum: 8°C Maximum: 20°C
Rainy season: Winter (April - September).

Soils: Soils are derived from weathering of sandstones and quartzites of the Table Mountain Group and are generally shallow, sandy, acid and low in nutrients.

Description of Geomorphology: The reserve lies on the steep southern slopes of the Riviersonderend Mountains which form part of the Cape Folded Belt, an anticline of siliceous quartzites of the Table Mountain Group of Ordovician-Silurian age. Rugged peaks and deep ravines are present.

Major rivers and streams: Two small perennial streams originate in the reserve and flow in deep ravines.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 69) (Acocks 1975).

Description of vegetation: Mountain fynbos communities, predominantly of a low restioid type occur over the greater part of the reserve. Taller Proteaceae such as Protea repens, P neriifolia and P nitida occur mainly on the lower slopes. Other Proteaceae include P lorifolia on the upper slopes, P coronata, P cynaroides, Leucadendron microcephalum, L salignum, L laureolum and Leucospermum cuneiforme.

Economically important species of plants: A number of species occur which are utilized as cut flowers in the wild flower trade. However, no harvesting of flora is allowed in the reserve.

Endemic species of plants: No species of plants are known to be endemic to the reserve itself but many species are endemic to the Riviersonderend Mountains, for example Endonema retzioides and E lateriflora of the endemic Cape family Penaeaceae.

Fauna

Endangered species: None known.

Dominant or important species of fauna: Only smaller mammals occur such as klipspringer Oreotragus oreotragus, grysbok Raphicerus melanotis and grey rhebok Pelea capreolus. At least 25 reptile species (one tortoise, eight lizard and 16 snake species) and nine frog species are found in this area.

Infrastructure

Visitor Facilities: A hiking trail crosses the mountain between the villages of MacGregor and Greyton. No other facilities have been provided but there is a municipal camping site near the boundary of the reserve. A mountain hut is being planned.

Numbers: Unknown Potential: Unknown.

Staff (and positions): Municipal workers periodically undertake work in the reserve.

Budget: R3 000,00 per annum by the Municipality, but thousands of Rands are spent by the Directorate of Forestry to control alien plant invaders.

Local Administration: The Town Clerk, Municipality of Greyton, P O Box 4, Greyton, 7233, South Africa.

Principal Reference Material

None specific.

Preparation: C J Burgers, July 1984.

116 SILVERMINE NATURE RESERVE

Proclamation

Date Established: 1965

Decree Number: Provincial Notice 634 in Provincial Gazette 3291 dated 5 July 1965.

Geographical Features

Location: Latitude: 34°03' - 34°08'S Longitude: 18°22' - 18°28'E

Nearest town and distance: Cape Town, 30 km

Area: 2 150 ha

Physical Features

Elevation: Lowest: 50 m Highest: 754 m

Highest Mountain: Noordhoek Peak

Annual rainfall: 875 - 1 294 mm

Annual average temperature range: Minimum: 5°C Maximum: 25°C

Rainy season: Winter (May - September).

Soils: Mainly shallow, nutrient-poor acidic soils.

Description of Geomorphology: The reserve encompasses mountain peaks, slopes, extensive plateaux and valleys. The Silvermine River flows in a small forested gorge through the central part of the reserve; it is joined by a tributary which has an impressive waterfall.

Major rivers and streams: Silvermine Stream.

Other outstanding physical features: The mountains in the eastern part include a number of caves, some of which penetrate deep into the mountainside.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 69) (Acocks 1975).

Description of vegetation: Low forest in isolated patches but mainly fynbos: a relatively low, diverse, dense, drought-resistant sclerophyllous vegetation. Certain plant families are characteristic - Ericaceae, Compositae, Proteaceae and Restionaceae. Typical species are Erica imbricata, Mimetes fimbriifolius, Leucadendron conocarpodendron and Thamnochortus dichotomus. Low Forest: evergreen broad-leaved, includes Phyllica buxifolia, Podocarpus latifolius, Cunonia capensis, Rapanea melanophloeos and Tarchonanthus camphoratus.

Endemic species of plants: Erica limosa, Restio communis, Erica urna-viridis, E paludicola and E sociorum are endemic to the Silvermine area. A number of threatened plants occur within the reserve such as Witsenia maura, Homoglossum merianellum var merianellum, Mimetes hirtus and Erica annectens. Management plans have been drawn up to ensure the continued survival of such species.

Fauna

Endangered species: None known within the reserve.

Dominant or important species of fauna: Not many species of the original Cape Peninsula fauna are left, but there are still grey rhebok Pelea capreolus, grysbok Raphicerus melanotis, caracal Felis caracal, porcupine Hystrix africaeaustralis and a number of smaller mammals, reptiles and amphibians.

Infrastructure

Visitor Facilities: Picnic areas are accessible by a number of good roads. An extensive network of paths exists throughout the reserve. No overnight camping is permitted.

Numbers: 80 000 per annum Potential: 100 000 per annum.

Staff (and positions): Staff of the Parks and Forests Branch, Cape Town Municipality: one Principal Parks and Forests Officer, one Senior Parks and Forests Officer, one forester, one law enforcement officer, two foremen, one clerk and a number of gangers, drivers, handymen, attendants and labourers.

Budget: R318 400,00 per annum (including salaries).

Local Administration: The Director of Parks and Forests, City Engineer's Department, P O Box 1694, Cape Town, 8000, South Africa.

Other Information of Interest: Magnificent views of the Cape Peninsula and the Atlantic and Indian Oceans can be obtained from many of the higher parts of the reserve.

Principal Reference Material

Nothing specifically on the Silvermine Reserve, but publications on the whole Cape Peninsula are applicable.

Preparation: C Peterson and E R Ashton, December 1983.

117 PAARL MOUNTAIN NATURE RESERVE

Proclamation

Date Established: 25 October 1963 as a National Monument by Government Notice 1616 under the National Monuments Act.

Decree Number: 13 May 1977 as a local nature reserve by Provincial Notice 617 under Cape Nature Conservation Ordinance 19 of 1974.

Geographical Features

Location: Latitude: 33°41' - 46'S Longitude: 18°54' - 58'E

Nearest town and distance: Paarl, 10 km

Area: 1 910 ha

Physical Features

Elevation: Lowest: 260 m Highest: 730 m

Highest Mountain: Paarl Mountain

Annual rainfall: ± 1 000 mm (range: 600 to 1 700 mm/yr)

Annual average temperature range: Minimum: 12°C Maximum: 22°C

Rainy season: Winter (May to August with a peak in July).

Soils: The soils are derived from in situ weathering of granite and are generally clayey and low in nutrients.

Description of Geomorphology: Paarl mountain is a low dome-shaped granite inselberg 4 000 ha in extent which is completely surrounded by cultivated lands and urban areas.

Major rivers and streams: All streams which drain the mountain are temporary and the three larger streams have been dammed.

Other outstanding physical features: Numerous granite outcrops and rounded boulders are scattered over the reserve and the three large granite domes, Paarl Rock, Bretagne and Gordon's Rock, are prominent landscape features.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 68) (Acocks 1975).

Description of vegetation: A dense form of Cape fynbos about 2 m tall with scattered small trees up to 4 m tall as emergents. Small patches of evergreen forest occur in sheltered places and small trees are locally dominant on granite outcrops. Proteaceae, broad-leaved sclerophyllous shrubs, such as Protea repens, P. burchellii and Leucadendron rubrum and a variety of fine-leaved shrubs form dense stands up to 2 m tall over most of the reserve. An open forest of the rare silver tree, Leucadendron argenteum, is present in a local 10 ha area. Small evergreen trees, which include Protea nitida, Olea europaea subsp africana and Maytenus oleoides, occur predominantly on granite outcrops.

Economically important species of plants: A Cyclopia sp which is used for brewing tea, Restio spp used for making brooms. Some flowering plants, especially Proteaceae, occur and are utilized commercially as cut flowers

outside conservation areas. Harvesting of flora is prohibited in the reserve.

Endemic species of plants: Leucospermum grandiflorum and Conophytum turrigerum are near endemics and other rare plants include Leucadendron argenteum and Schizodium longipetalum.

Fauna

Endangered species: None.

Dominant or important species of fauna: Most of the larger mammals which formerly occurred in this region have been exterminated but smaller mammals are still present eg rock dassie Procavia capensis, grysbok Raphicerus melanotis, porcupine Hystrix africaeaustralis, and a few caracal Felis caracal. Reintroduction of certain species eg grey rhebok Pelea capreolus will be considered in the future. A pair of black eagles Aquila verreauxii nest regularly in the reserve and occasional nesting by spotted dikkop Burhinus capensis has been reported.

Infrastructure

Visitor Facilities: The reserve is essentially for day-use only and no overnight accommodation is available. Limited overnight camping is allowed at a site on the periphery. Sport fishing is allowed in the reservoirs and picnic sites are provided.

Numbers: ± 4 200 vehicles per annum Potential: Not determined.

Staff (and positions): One reserve manager, one horticulturist and 18 labourers.

Budget: R134 000,00 per annum (including salaries).

Local Administration: The Town Clerk, Municipality of Paarl, P O Box 12, Paarl, 7622, South Africa.

Other Information of Interest: Paarl Mountain is best known for the three granite domes known today as Paarl, Bretagne and Gordon rocks. In 1657 Abraham Gabbema, the first white man to explore this area after the arrival of Jan van Riebeeck at the Cape in 1652, named the rocks "Diamond and Pearl" since the rocks sparkled in the sun after rain. The Hottentots knew the mountain by the name of Tortoise Mountain due to its shape. A monument to commemorate the origin and growth of the Afrikaans language has been erected on the slopes of the mountain.

Principal Reference Material

A brochure and map of the reserve is available from the Municipality.

Preparation: C J Burgers, May 1982.

118 MONT ROCHELLE NATURE RESERVE

Proclamation

Date Established: 12 November 1982

Decree Number: Provincial Notice 671 of 1982.

Geographical Features

Location: Latitude: 33°52' - 33°56'S Longitude: 19°08' - 19°12'E

Nearest town and distance: Franschoek, 3 km

Area: 1 759 ha

Physical Features

Elevation: Lowest: 360 m Highest: 1 575 m

Highest Mountain: Du Toitskop and Perdekop

Annual rainfall: 900 - 1 500 mm

Annual average temperature range: Minimum: 8°C Maximum: 20°C

Rainy season: Winter (May - August).

Soils: The soils are generally shallow, sandy, acid and low in nutrients and derived from weathering of sandstones and quartzites except locally on the lower slopes where clayey soils occur over granite and shales.

Description of Geomorphology: The reserve lies in the mountains of the Cape Folded Belt which consists of sandstones and quartzites of the Table Mountain Group of Ordovician age. High mountain peaks and deep ravines characterize the area.

Major rivers and streams: The Du Toit's River has its origin in the reserve and flows in a spectacular gorge.

Other outstanding physical features: The spectacular rugged mountain scenery is one of the reserve's most noteworthy features.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 69) (Acocks 1975).

Description of vegetation: Due to the rugged topography, a large number of habitats and a corresponding variety of mountain fynbos communities occur. The vegetation is typically less than 1 m tall and dominated by small-leaved shrubs of the Ericaceae, Compositae and Leguminosae and grasslike Restionaceae, with tall emergent broad-leaved shrubs such as Protea repens, P. laurifolia, Leucadendron rubrum, Leucospermum conocarpodendron and other Proteaceae. Protea nitida occur on rocky slopes and small trees such as Maytenus oleoides occur on rocky outcrops. Trees are, however, rare and occur mainly in sheltered situations such as along streams and in ravines where well-grown specimens of Cunonia capensis, Ilex mitis, Brabejum stellatifolium may be found. The flora is exceptionally rich in species as is indicated by the fact that more than 1 500 species have been recorded in the adjoining 25 000 ha Hottentotsholland Nature Reserve.

Economically important species of plants: Many plant species occur which are utilized as cut flowers by the wild flower industry, particularly Proteaceae and Ericaceae but no harvesting of flora is allowed in the reserve.

Endemic species of plants: None known to be endemic to the reserve but a number of species are endemic to the surrounding mountains and a number of rare species occur, for example Serruria zeyheri.

Fauna

Endangered species: Leopard Panthera pardus and honey badger Mellivora capensis.

Dominant or important species of fauna: The mountains of the western Cape do not harbour a large variety of wildlife. All the larger antelope that formerly occurred in this region have disappeared but smaller antelope such as klipspringer Oreotragus oreotragus and grysbok Raphicerus melanotis are commonly seen and grey rhebok Pelea capreolus occur. Chacma baboon Papio ursinus and rock dassie Procavia capensis are common. Smaller mammals such as porcupine Hystrix africaeaustralis and Cape clawless otter Aonyx capensis occur but are rarely seen. At least 28 reptile species (one tortoise, 15 snake and 12 lizard) and 11 frog species occur in this area.

Infrastructure

Visitor Facilities: A tarred road over the Franschoek Pass passes through the middle of the reserve but there are no facilities for visitors.

Numbers: Unknown Potential: Unknown.

Staff (and positions): No staff have yet been appointed by the Municipality but management (control of alien plant invaders and fire control) is undertaken by the Directorate of Forestry since the reserve forms part of a proclaimed Mountain Catchment Area.

Budget: Several thousand Rand is spent per annum by the Directorate of Forestry on control of alien invaders and fire control.

Local Administration: The Town Clerk, Municipality of Franschoek, P O Box 18, Franschoek, 7690, South Africa.

Other Information of Interest: The reserve borders on the Hottentots-holland Nature Reserve and falls within a proclaimed Mountain Catchment Area. The original route across the Franschoek Mountains was a track made by elephant and other game which could be used only by horsemen. In 1819 the first mountain pass was built but the route was too dangerous and in 1823 a new pass was constructed which was opened in 1825. This is the oldest constructed pass in South Africa which is still in use. A spectacular view of the Franschoek Valley is obtained from the top of the pass.

Principal Reference Material

A brochure on the Boland Hiking Trail covers part of the reserve and is available from the National Hiking Way Board, Private Bag X447, Pretoria, 0001, South Africa.

Preparation: C J Burgers, July 1984.

119 SOMERSET EAST-BOSBERG NATURE RESERVE

Proclamation

Date Established: 2 October 1967 and enlarged 8 October 1982.

Decree Number: Provincial Notice 182 of 1967 and Provincial Notice 573 of 1982.

Geographical Features

Location: Latitude: 32°41' - 32°43'S Longitude: 25°32' - 25°37'E

Nearest town and distance: Somerset East, on the boundary

Area: 1 650 ha

Physical Features

Lowest: 790 m Highest: 1 600 m

Highest mountain: Bosberg

Annual rainfall: 700 - 1 000 mm

Annual average temperature range: Minimum: 14°C Maximum: 28°C

Rainy season: Summer (October - March).

Soils: Loamy and clayey soils.

Description of Geomorphology: The reserve lies along the southern slopes of the Bosberg Mountain, a low mountain with steep slopes on the southern side. It consists of shale of the Bokkeveld Group and karoo dolerite.

Major rivers and streams: Only small streams.

Other outstanding physical features: The Rooikrantz hill, 80 to 100 m high in the north-eastern part of the reserve reflects the setting sun, hence the name (red rockface).

Vegetation and Flora

Vegetation types: Dohne Sourveld (Veld Type 44(b)) (Acocks 1975).

Description of vegetation: Dohne Sourveld forest on southern slopes and grassland on plateau. Forest species such as Olea europea subsp africana, Kiggelaria africana, Cassine aethiopica, Cussonia spicata, Celtis africana and Podocarpus falcatus. Fynbos patches occur on rocky outcrops on the grassy mountain top with Protea subvestita.

Fauna

Endangered species: Hartmann's mountain zebra Equus zebra hartmannae (12) have been introduced (outside their natural range).

Dominant or important species of fauna: Steenbok Raphicerus campestris, bushbuck Tragelaphus scriptus, chacma baboon Papio ursinus, bushpig Potamochoerus porcus and vervet monkey Cercopithecus pygerythrus occur. More than 60 bird species have been recorded. At least 25 reptile species (three tortoise, one terrapin, 12 snake and ten lizard species) and seven frog species occur here.

Infrastructure

Visitor facilities: Nature trail. Picnic sites and caravan park just outside the boundary of the reserve.

Numbers: Unknown Potential: Unknown.

Staff (and positions): One ranger and four labourers on a part-time basis.
Budget: R8 000,00 per annum (including salaries, but excluding major capital works, eg fencing).

Local Administration: The Town Clerk, Municipality of Somerset East, P O Box 21, Somerset East, 5850, South Africa.

Principal Reference Material

None specific.

Preparation: C van der Merwe, P W Esterhuysen (Town Clerk), July 1984.

120 NIETGENAAMD NATURE RESERVE

Proclamation

Date Established: 14 April 1978

Decree Number: Provincial Notice 352 of 1978.

Geographical Features

Location: Latitude: 33°23' - 33°27'S Longitude: 23°09' - 23°12'E

Nearest town and distance: Uniondale, 42 km

Area: 1 577 ha

Physical Features

Elevation: Lowest: 640 m Highest: 1 367 m

Highest Mountain: Slypsteenberg

Annual rainfall: 250 - 400 mm

Annual average temperature range: Minimum: 12°C Maximum: 23°C

Rainy season: Whole year.

Soils: Sandy soils derived from quartzites on the Slypsteenberg and more clayey soils with calcrete on conglomerates and shales on the hills and flats.

Description of Geomorphology: The northern part of the reserve lies against the southern slopes of a low mountain, the Slypsteenberg, which consists of quartzites of the Table Mountain Group. The rest of the reserve is a gently undulating plain with low hills underlain by conglomerates and shales of the Uitenhage and Bokkeveld Groups.

Major rivers and streams: Seasonal watercourses only.

Other outstanding physical features: A 135 m high hill of conglomerate with Bushman artefacts and rock paintings in caves. A hot spring with mineralized water at 42°C. The red conglomerate hills erode to form striking rock formations.

Vegetation and Flora

Vegetation types: Karroid Broken Veld (Veld Type 26), False Macchia (Veld Type 70), Mountain Rhenosterbosveld (Veld Type 43) and Spekboomveld (Veld Type 25) (Acocks 1975).

Description of vegetation: A dry form of mountain fynbos occurs on the Slypsteenberg with 14 species of Proteaceae. Extensive communities of Elytropappus rhinocerotis occur in the foothills with small trees particularly Euclea undulata. The rest of the reserve is karroid veld with low karroid shrubs such as Eriocephalus ericoides, Pentzia incana, Chrysocoma tenuifolia and shrubby succulents such as Ruschia spp, Crassula spp, Delosperma pageanum and Drosanthemum delicatulum. Aloe ferox, Euclea undulata and Acacia karroo occur as dominants in places.

Economically important species of plants: The sap of Aloe ferox is used for medicinal purposes but no utilization is allowed in the reserve. Osteospermum sinuatum, which occurs naturally on the reserve is also propagated for distribution of seed to farmers since the plant is valued for its high potential as a fodder plant.

Fauna

Endangered species: None known.

Dominant or important species of fauna: Grey rhebok Pelea capreolus (20), steenbok Raphicerus campestris (150), common duiker Sylvicapra grimmia (120), grysbok Raphicerus melanotis (70) and klipspringer Oreotragus oreotragus (40) are the only antelope. Chacma baboon Papio ursinus, rock dassie Procavia capensis, black eagle Aquila verreauxii and blue crane Anthropoides paradisea occur. At least 33 reptile species (18 snake, ten lizard, four tortoise and one terrapin) and six frog species occur, eg the mountain tortoise Geochelone pardalis.

Infrastructure

Visitor Facilities: Accommodation available at the hot springs: six rooms in one building with bedding and kitchen. Caravan and picnic area. Facilities for organized groups available, 12 to 50 people. Educational programme for school and youth groups are run on request in conjunction with the Department of Education. An existing building at the hot springs is being converted into a dormitory to house up to 140 children and an interpretive display centre. Hiking trails have been constructed.

Numbers: ± 14 000 per annum Potential: ± 40 000 per annum.

Staff (and positions): One Senior District Nature Conservation Officer, one reserve manager and six labourers.

Budget: R30 000,00 per annum (including salaries).

Local Administration: The Secretary, Klein Karoo-Langkloof Divisional Council, P O Box 127, Oudtshoorn, 6620, South Africa.

Principal Reference Material

None specific.

Preparation: B J van Niekerk, August 1983.

121 FERNKLOOF NATURE RESERVE

Proclamation

Date Established: 14 September 1971

Decree Number: Provincial Notice 391 of 1971.

Geographical Features

Location: Latitude: 34°22' - 34°25'S Longitude: 19°13' - 19°18'E
Nearest town and distance: Hermanus, on the border.
Area: 1 446 ha

Physical Features

Elevation: Lowest: 60 m Highest: 823 m
Highest Mountain: Aasvoëlkop and Platberg
Annual rainfall: 400 - 900 mm
Annual average temperature range: Minimum: 12°C Maximum: 20°C
Rainy season: Winter (April - September).

Soils: Sandy soils derived from the weathering of quartzites of the Table Mountain Group are acid and have a low nutrient status. Podzols are common. Peaty soils occur in seepage areas.

Description of Geomorphology: The reserve lies at the eastern end of the Klein River Mountains, a coastal range formed by quartzites of the Table Mountain Group, and extends from the upper to the lower slopes. The lower southern slopes are steep and deep ravines are present.

Major rivers and streams: Only small streams occur of which the Mossel River is perennial. A small reservoir has been built in the latter kloof.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 69) (Acocks 1975).

Description of vegetation: A great variety of mountain fynbos communities and a rich flora occur in the reserve with the families Proteaceae, Ericaceae and Restionaceae well represented. Six of the seven endemic Cape families occur in the reserve and are even dominant locally in seepage fynbos communities with species such as Brunia alopecuroides (Bruniaceae), Roridula gorgonias (Roridulaceae), Grubbia rosmarinifolia (Grubbiaceae)

together with Erica fastigiata and Osmitopsis asteriscoides. Stilbe rupestris (Stilbaceae), Sonderothamnus speciosus (Penaeaceae) and Retzia capensis (Retziaceae) also occur. Proteaceae are well represented and Protea compacta, P longifolia, Aulax umbellata and Leucadendron microcephalum occur as dominants in some communities. Thirty-five Erica species occur in the reserve such as the rare E aristata. Small patches of forest occur in some of the ravines with Cunonia capensis, Rapanea melanophloeos, Olinia ventosa and Curtisia dentata.

Economically important species of plants: Many species occur which are utilized as cut flowers in the wild flower trade such as Protea cynaroides, P compacta, Phaenocoma prolifera, Helichrysum vestitum, Brunia lanuginosa, B nodiflora, Staavia radiata and various Erica species, but no harvesting of flora is allowed in the reserve.

Endemic species of plants: A number of plant species are endemic to the Klein River Mountains of which the following occur in the reserve: Leucospermum gracile, Mimetes palustris, Erica lanuginosa, E aristata, E foliacea var galpinii, Brachysiphon rupestris, Thaminophyllum latifolium and Moraea vallisavium.

Fauna

Endangered species: None known.

Dominant or important species of fauna: Smaller antelope such as klipspringer Oreotragus oreotragus, grysbok Raphicerus melanotis and grey rhebok Pelea capreolus occur in small numbers. More than 75 bird species have been recorded including black eagle Aquila verreauxii, African fish eagle Haliaeetus vocifer and Cape sugarbird Promerops cafer. At least ten species of reptile (four snake, five lizard and one tortoise) and five species of amphibian are known to occur in the reserve.

Infrastructure

Visitor Facilities: A 5 km mountain road has been constructed along the ridge of the western part of the reserve with magnificent panoramic views across Hermanus and the sea. The rest of the reserve is accessible on foot by means of a 50 km long system of nature trails. A visitor and interpretive centre has been constructed. The curator provides guided tours on request and a single hut with accommodation for two persons has been built on the upper slopes of the mountain.

Numbers: Many day visitors, numbers not recorded. Potential: Unknown.

Staff (and positions): Curator and eight labourers.

Budget: R27 000,00 per annum (including salaries).

Local Administration: The Town Clerk, Municipality of Hermanus, P O Box 20, Hermanus, 7200, South Africa.

Principal Reference Material

Rourke J P 1976. Fernkloof Nature Reserve - a sanctuary for montane fynbos. Veld and Flora, September 1976.

Preparation: C J Burgers, July 1984.

122 MONTAGU MOUNTAIN NATURE RESERVE

Proclamation

Date Established: 5 December 1972

Decree Number: Provincial Notice 470 of 1972.

Geographical Features

Location: Latitude: 33°46' - 33°49'S Longitude: 20°04' - 20°08'E

Nearest town and distance: Montagu, adjacent to reserve

Area: 1 200 ha

Physical Features

Lowest: 200 m Highest: 800 m

Highest mountain: Peaks of the Langeberg.

Annual rainfall: 400 - 700 mm varying with altitude.

Annual average temperature range: Minimum: 10°C Maximum: 23°C

Rainy season: Winter (April - August).

Soils: Soils are shallow, sandy and low in nutrients.

Description of Geomorphology: The reserve lies on the northern side of the Langeberg Mountain Range which is formed by an anticline of the Cape Folded Belt of mountains. The sandstones and quartzites of the Table Mountain Group which form the range have undergone marked folding and overfolding. In the narrow Kogmanskloof Gorge, which cuts through the mountain range in the centre of the reserve, the folded strata are spectacularly exposed as high cliffs particularly in the centre of the range. The remainder of the reserve is also dissected by spectacular ravines.

Major rivers and streams: A major river, which drains part of the Little Karoo, flows through the Langeberg Mountain Range in the spectacular Kogmanskloof Gorge. A smaller tributary, the Kiesies River, flows through another 2 km long gorge, the Badskloof, in the north-eastern part of the reserve.

Other outstanding physical features: A hot mineral spring occurs in the Badskloof at the northern boundary of the reserve.

Vegetation and Flora

Vegetation types: Macchia (Veld Type 69) (Acocks 1975).

Description of vegetation: Dry mountain fynbos on the lower northern slopes and more mesic fynbos on the upper slopes with Proteaceae such as Protea nitida, P lorifolia and P repens. On steep north-facing cliff faces, on the lower slopes, succulents such as Aloe mitriformis and Crassula spp are dominant.

Economically important species of plants: Various species of Proteaceae occur which are utilized as cut flowers in the wild flower trade but no utilization is allowed in the reserve.

Endemic species of plants: Gladiolus stephaniae, Hermannia disticha and Aspalathus joubertiana subsp glabripetala have only been recorded in the reserve.

Fauna

Endangered species: Leopard Panthera pardus still occur in this mountain range.

Dominant or important species of fauna: Only smaller antelope occur in the reserve and include klipspringer Dreotragus oreotragus, grey rhebok Pelea capreolus and grysbok Raphicercus melanotis. Rock dassie Procavia capensis and chacma baboon Papio ursinus are frequently seen. Eighty species of birds have been recorded to date and at least 21 reptile species (two tortoise, 12 snake and seven lizard) and nine frog species are known to occur in the area. The crag lizard Pseudocordylus microlepidotus and rock agama Agama agama are most frequently seen. The high cliffs provide nesting sites for birds of prey such as the black eagle Aquila verreauxii. Barbus burchellii occurs in the Kogmanskloof River.

Infrastructure

Visitor Facilities: A resort with bungalows and caravan sites has been developed at the hot mineral spring just outside the boundary of the reserve. Picnic sites have been provided at Keurkloof in the Kogmanskloof Gorge for day use only and a recreation area at the boundary of the reserve within the town of Montagu. A 2 km trail through the Badskloof is a very popular walk and other trails to the top of the mountain are being planned.
Numbers: ± 8 000 per annum Potential: Unknown.

Staff (and positions): One nature conservation officer and six labourers.
Budget: R32 000,00 per annum (including salaries).

Local Administration: The Town Clerk, Montagu Municipality, P O Box 24, Montagu, 6720, South Africa.

Other Information of Interest: A blockhouse was built by the British during the South African War (1899-1902) to guard a tunnel in the middle of Kogmanskloof which still provides the only access route through the kloof. The home of a renowned writer/poet from Montagu, the Yssenhuis, has been converted into a small museum. An historic water mill nearby has also been restored.

Principal Reference Material

Various internal departmental reports.

Preparation: C J Burgers, N Esterhuysen and R Johnstone-Roberston, July 1984.

ORANGE FREE STATE NATURE CONSERVATION DIVISION

The Orange Free State Nature Conservation Division was established in 1964 by decision of the Orange Free State Provincial Council Executive Committee. The Division administers 13 areas, six of which are included in this volume. The total area of these reserves is 141 321 ha, which includes 74 866 ha of water surface in several major impoundments. The Division's budget for 1982/83 was R2,266 million which included salaries. A total of 339 staff members are employed by the Division, of which 65 are conservation staff and 15 are research staff.

The conservation areas are listed as Category IV. Controlled hunting by the public is allowed in Tussen-die-Riviere Game Reserve.

Headquarters address:

The Director
Orange Free State
Nature Conservation Division
P O Box 507
BLOEMFONTEIN
9300
South Africa

Areas listed in the Directory (Category IV)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
123	Tussen-die-Riviere Game Farm	22 000	237
124	Sandveld Nature Reserve	14 700	239
125	Willem Pretorius Game Reserve	12 005	240
126	Verwoerd Dam Nature Reserve	11 237	242
127	Soetdoring Nature Reserve	6 173	244
128	Koppies Dam Nature Reserve	4 325	245
	Subtotal	70 440	

123 TUSSEN-DIE-RIVIERE GAME FARM

Proclamation

Date Established: 17 November 1972

Decree Number: Administrator's Notice 224 of 17 November 1972.

Geographical Features

Location: Latitude: 30°30'S Longitude: 26°15'E

Nearest town and distance: Bethulie, 18 km

Area: 22 000 ha

Physical Features

Elevation: Lowest: 1 250 m Highest: 1 520 m

Highest Mountain: Heuningkop

Annual rainfall: 450 mm

Annual average temperature range: Minimum: 0°C Maximum: 31°C

Rainy season: Summer (January - March).

Soils: Mainly clay.



Figure 15. "Klipstapels" in the Tussen-die-Riviere Game Farm.

Description of Geomorphology: Flat areas interrupted by low hills with two rivers running through the area.

Major rivers and streams: Orange and Caledon Rivers.

Other outstanding physical features: The confluence of the above mentioned rivers is found on the reserve.

Vegetation and Flora

Vegetation types: False Upper Karoo (Veld Type 36) (Acocks 1975).

Description of vegetation: Karroid veld dominated by Pentzia globosa, Chrysocoma tenuifolia, Eragrostis lehmanniana and Cynodon hirsutus. Koppie scrub dominated by Rhus erosa and Euclea crispa.

Fauna

Endangered species: Hartmann's mountain zebra Equus zebra hartmannae (13).

Dominant or important species of fauna: Mammals: eland Taurotragus oryx (420), black wildebeest Connochaetes gnou (800), blesbok Damaliscus dorcas phillipsi (1 730), mountain reedbuck Redunca fulvorufula (320), springbok Antidorcas marsupialis (2 550), Burchell's zebra Equus burchelli (180), gemsbok Oryx gazella (220), impala Aepyceros melampus (720), red hartebeest Alcelaphus buselaphus (270), kudu Tragelaphus strepsiceros (160), blue wildebeest Connochaetes taurinus (170), square-lipped rhinoceros Ceratotherium simum (8) and steenbok Raphicerus campestris (240). Ostrich Struthio camelus (220) also occurs on the reserve.

Infrastructure

Visitor Facilities: Sport hunting and game viewing.

Numbers: 500 per annum Potential: 10 000 per annum.

Staff (and positions): Management - one senior staff, three junior staff and 30 labourers.

Budget: R61 500,00 per annum (excluding salaries).

Local Administration: The Senior Nature Conservator, Tussen-die-Riviere Game Farm, P O Box 16, Bethulie, 9992, South Africa.

Other Information of Interest: Controlled hunting of surplus game by the public is allowed.

Principal Reference Material

Werger M J A 1973. An account of the plant communities of Tussen-die-Riviere Game Farm OFS, Bothalia 11, 165-176.

Provincial Administration of the Orange Free State. Nature Conservation, Annual Report 1975/1976.

Preparation: G F Barkhuizen, June 1982.

124 SANDVELD NATURE RESERVE

Proclamation

Date Established: 9 May 1980

Decree Number: Administrator's Notice 71 of 9 May 1980.

Geographical Features

Location: Latitude: 27°40'S Longitude: 25°45'E

Nearest town and distance: Bloemhof, 10 km

Area: 14 700 ha

Physical Features

Elevation: Lowest: 1 232 m Highest: 1 248 m

Highest Mountain: Not applicable

Annual rainfall: 480 mm

Annual average temperature range: Minimum: 0°C Maximum: 32°C

Rainy season: Summer (January - March).

Soils: Sand.

Description of Geomorphology: Flat plains.

Major rivers and streams: Vaal River.

Other outstanding physical features: The reserve borders on the Bloemhof Dam in the Vaal River. The dam consists of 23 000 ha open water. The water is used for angling and boating. The dam serves as a reservoir for the Vaalhartz Irrigation Scheme.

Vegetation and Flora

Vegetation types: Kalahari Thornveld (Veld Type 16) (Acocks 1975).

Description of vegetation: Thorn savanna dominated by Acacia erioloba, with Brachiaria nigropedata, Themeda triandra and Stipagrostis uniplumis. Open grassveld dominated by Stipagrostis uniplumis, Aristida meridionalis, Panicum kalahareense, Eragrostis gummiflua, Urelytrum squarrosum and Eragrostis lehmanniana.

Fauna

Endangered species: None

Dominant or important species of fauna: Mammals: eland Taurotragus oryx (80), red hartebeest Alcelaphus buselaphus (80), springbok Antidorcas marsupialis (210), Burchell's zebra Equus burchelli (6), gemsbok Oryx gazella (40), giraffe Giraffa camelopardalis (2). Ostrich Struthio camelus also occurs on the reserve.

Infrastructure

Visitor Facilities: Angling, boating and camping.

Numbers: 8 000 per annum Potential: 20 000 per annum.

Staff (and positions): Management - one senior staff, three junior staff and 21 labourers.

Budget: R47 300,00 per annum (excluding salaries).

Local Administration: The Senior Nature Conservator, Sandveld Nature Reserve, P O Box 414, Bloemhof, 2660, South Africa.

Principal Reference Material

Viljoen A J 1979. Die plantekologie van die Sandveld-natuurreservaat. Hoopstad. MSc Thesis, University of the Orange Free State, 98 pp.

Preparation: G F Barkhuizen, June 1982.

125 WILLEM PRETORIUS GAME RESERVE

Proclamation

Date Established: 18 December 1970

Decree Number: Administrator's Notice 227 of 18 December 1970.

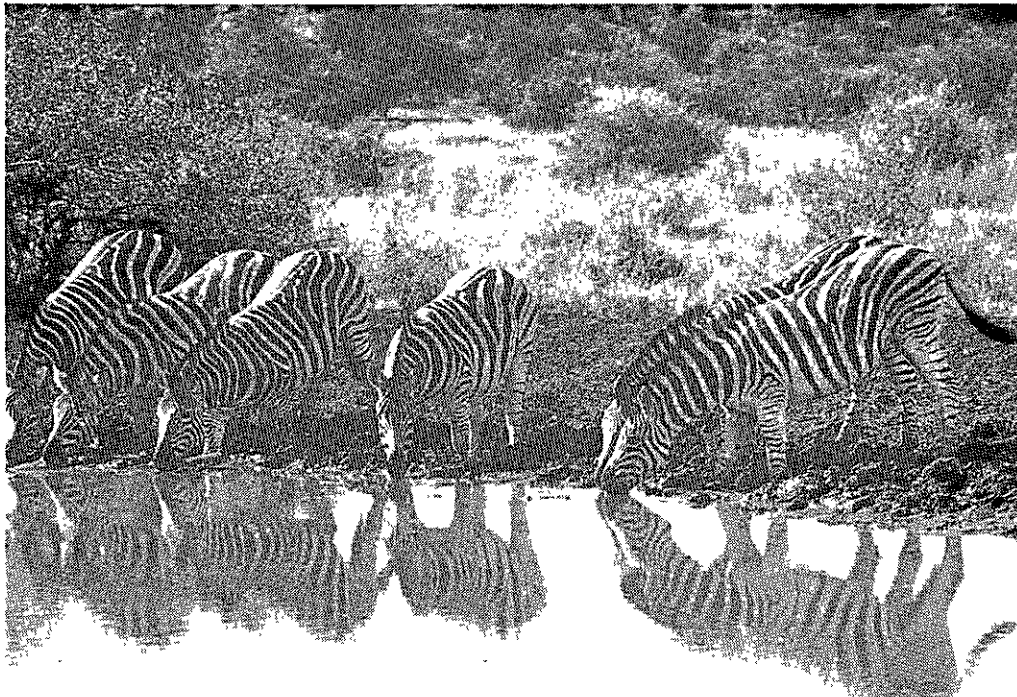


Figure 16. Burchell's zebra at a waterhole in the Willem Pretorius Game Reserve.

Geographical Features

Location: Latitude: 28°20'S Longitude: 27°15'E
Nearest town and distance: Winburg, 30 km
Area: 12 005 ha (9 234 ha land and 2 771 ha water).

Physical Features

Elevation: Lowest: 1 375 m Highest: 1 510 m
Highest Mountain: Doringberg
Annual rainfall: 575 mm
Annual average temperature range: Minimum: -0,4°C Maximum: 30,6°C
Rainy season: Summer (January - March).

Soils: Mainly clay.

Description of Geomorphology: Flat areas stretching from river banks interrupted by low koppies and hills.

Major rivers and streams: Sand River.

Other outstanding physical features: The reserve is situated around the Allemanskraal Dam which is 2 771 ha in extent. The dam is used for open-air recreational activities such as angling and boating.

Vegetation and Flora

Vegetation types: Transitional Cymbopogon-Themeda Veld (Veld Type 49) (Acocks 1975).

Description of vegetation: Grassveld dominated by Cymbopogon plurinodis, Themeda triandra and Eragrostis chloromelas. Thornveld dominated by Acacia karroo. Koppie scrub dominated by Olea africana, Rhus erosa, Celtis africana and Grewia occidentalis.

Fauna

Endangered species: Hartmann's mountain zebra Equus zebra hartmannae (25).

Dominant or important species of fauna: Mammals: black wildebeest Connochaetes gnou (590), eland Taurotragus oryx (120), blesbok Damaliscus dorcas phillipsi (420), red hartebeest Alcelaphus buselaphus (90), springbok Antidorcas marsupialis (1 200), Burchell's zebra Equus burchelli (50), gemsbok Oryx gazella (60), mountain reedbuck Redunca fulvorufula (190), buffalo Syncerus caffer (67), kudu Tragelaphus strepsiceros (40), giraffe Giraffa camelopardalis (30), bushbuck T scriptus (4), square-lipped rhinoceros Ceratotherium simum (30) and impala Aepyceros melampus (120). Ostrich Struthio camelus (260) also occurs on the reserve.

Infrastructure

Visitor Facilities: Public resort and recreation facilities.
Numbers: 60 000 per annum Potential: 80 000 per annum.

Staff (and positions): Management: one senior staff, four junior staff and 28 labourers.

Budget: R65 585,00 per annum (excluding salaries).

Local Administration: The Senior Nature Conservator, P O Willem Pretorius Game Reserve, 9451, South Africa.

Other Information of Interest: Ghoya Ruins: The Ghoya were among the first Bantu to settle in the Orange Free State. Ruins of Ghoya settlements are to be seen on nearly all the hill tops in the game reserve. One such settlement on Bekkersberg has been restored. A settlement consists of several huts which are loosely linked.

Principal Reference Material

Roberts B R 1963. Onderzoek in die plantegroei van die Willem Pretorius Wildtuin. Koedoe 6, 137-166.

Bourquin O 1973. Utilisation and aspects of Management of the Willem Pretorius Game Reserve. Journal of the Southern African Wildlife Management Association, 3(2), 65-73.

Preparation: G F Barkhuizen, June 1982.

126 VERWOERD DAM NATURE RESERVE

Proclamation

Date Established: 6 July 1979

Decree Number: Administrator's Notice 96 of July 1979.

Geographical Features

Location: Latitude: 30°40'S Longitude: 25°45'E

Nearest town and distance: Springfontein, 40 km

Area: 11 237 ha

Physical Features

Elevation: Lowest: 1 265 m Highest: 1 369 m

Highest Mountain: Not applicable

Annual rainfall: ± 450 mm

Annual average temperature range: Minimum: 0°C Maximum: 31°C

Rainy season: Summer (January - March).

Soils: Clay.

Description of Geomorphology: Flat areas adjacent to H F Verwoerd Dam.

Major rivers and streams: Orange River.

Other outstanding physical features: The reserve borders on the H F Verwoerd Dam, a major impoundment on the Orange River which has created a man-made lake of 35 960 ha. Used for angling, boating and yachting.

Vegetation and Flora

Vegetation types: False Upper Karoo (Veld Type 36) (Acocks 1975).

Description of vegetation: Karroid veld dominated by Pentzia globosa, Chrysocoma tenuifolia, Eragrostis lehmanniana. Koppie scrub dominated by Rhus erosa.

Fauna

Endangered species: None.

Dominant or important species of fauna: Mammals: black wildebeest Connochaetes gnou (195), blesbok Damaliscus dorcas phillipsi (240), red hartebeest Alcelaphus buselaphus (8), springbok Antidorcas marsupialis (1 430) and mountain reedbuck Redunca fulvorufula (390). A small number of ostrich Struthio camelus are also present.

Infrastructure

Visitor Facilities: The Hendrik Verwoerd Dam Holiday Resort borders on the H F Verwoerd Dam. Accommodation consists of modern two and three-bedroomed rondavels. There is a caravan park, an 18-hole golf course, swimming pool and tennis courts.

Numbers: Game Reserve not open to the public. Potential: 6 000 per annum.

Staff (and positions): Management - one senior staff, four junior staff and 23 labourers.

Budget: R50 000,00 per annum (excluding salaries).

Local Administration: The Senior Nature Conservator, Verwoerd Dam Nature Reserve, P O Box 18, Verwoerd Dam, 9922, South Africa.

Other Information of Interest: A fish hatchery is under construction on the banks of the Orange River approximately 3 km below the H F Verwoerd Dam. Active fish culture will be started in the near future. It is expected that there will be a good demand for the fingerlings that can be produced here.

Principal Reference Material

Provincial Administration of the Orange Free State. Nature Conservation, Annual Report 1975/1976.

Preparation: G F Barkhuizen, June 1982.

127 SOETDORING NATURE RESERVE

Proclamation

Date Established: 28 July 1978

Decree Number: Administrator's Notice 96 of 28 July 1978.

Geographical Features

Location: Latitude: 28°52'S Longitude: 26°0'E

Nearest town and distance: Bloemfontein, 40 km

Area: 6 173 ha (4 117 ha land and 2 056 ha water).

Physical Features

Elevation: Lowest: 1 250 m Highest: 1 291 m

Highest Mountain: Not applicable

Annual rainfall: 560 mm

Annual average temperature range: Minimum: 0,3°C Maximum: 29,8°C

Rainy season: Summer (January - March).

Soils: Clay and sand.

Description of Geomorphology: Flat plains with a few low hills.

Major rivers and streams: Modder River.

Other outstanding physical features: The reserve is situated around the Krugersdrift Dam, which consists of 2056 ha open water. The dam is mainly used for angling.

Vegetation and Flora

Vegetation types: False Upper Karoo (Veld Type 36) and Dry Cymbopogon-Themeda Veld (Veld Type 50) (Acocks 1975).

Description of vegetation: Grassveld dominated by Themeda triandra, karroid veld dominated by Felicia muricata, riparian bush dominated by Acacia karroo, koppie scrub dominated by Rhus ciliata or Olea africana.

Fauna

Fauna: Endangered species: None.

Dominant or important species of fauna: Mammals: black wildebeest Connochaetes gnou (260), eland Taurotragus oryx (4), blesbok Damaliscus dorcas phillipsi (185), red hartebeest Alcelaphus buselaphus (20), springbok Antidorcas marsupialis (600), Burchell's zebra Equus burchelli (6), gemsbok Oryx gazella (10), impala Aepyceros melampus (150). A number of ostrich Struthio camelus (21) occur on the reserve.

Infrastructure

Visitor Facilities: Angling and picnicking.

Numbers: 1 100 per annum Potential: 20 000 per annum.

Staff (and positions): Management: one senior staff, four junior staff and 23 labourers.

Budget: R61 000,00 per annum (excluding salaries).

Local Administration: The Senior Nature Conservator, Soetdoring Nature Reserve, P O Box 517, Bloemfontein, 9300, South Africa.

Other Information of Interest: A predator park in the Soetdoring Nature Reserve consists of two 45 ha camps, one for lion and the other for cheetah, and is open to the public.

Principal Reference Material

Provincial Administration of the Orange Free State. Nature Conservation, Annual Report 1975/1976.

Preparation: G F Barkhuizen, June 1982.

128 KOPPIES DAM NATURE RESERVE

Proclamation

Date Established: 12 March 1976

Decree Number: Administrator's Notice 45 of 12 March 1976.

Geographical Features

Location: Latitude: 27°15'S Longitude: 27°45'E

Nearest town and distance: Koppies, 13 km

Area: 4 325 ha (2 965 ha land and 1 360 ha water).

Physical Features

Elevation: Lowest: 1 400 m Highest: 1 415 m

Highest Mountain: Not applicable

Annual rainfall: 610 mm

Annual average temperature range: Minimum: -1,6°C Maximum: 30°C

Rainy season: Summer (January - March).

Soils: Loam.

Description of Geomorphology: Flat plains.

Major rivers and streams: Renoster River.

Other outstanding physical features: The reserve is situated around the Koppies Dam, 1 360 ha open water in extent. The dam is used for open-air recreational activities such as angling and boating.

Vegetation and Flora

Vegetation types: Dry Cymbopogon-Themeda Veld (Veld Type 50) (Acocks 1975).

Description of vegetation: Grassveld dominated by Themeda triandra and Cymbopogon plurinodis. Riparian thornveld dominated by Acacia karroo.

Fauna

Endangered species: None.

Dominant or important species of fauna: Mammals: black wildebeest Connochaetes gnou (85) and springbok Antidorcas marsupialis. Ostrich Struthio camelus also occurs on the reserve.

Infrastructure

Visitor Facilities: Angling, boating and camping.

Numbers: 10 400 per annum Potential: 62 400 per annum.

Staff (and positions): Management - one senior staff, three junior staff and 18 labourers.

Budget: R61 750,00 per annum (excluding salaries).

Local Administration: The Senior Nature Conservator, Koppies Dam Nature Reserve, P O Box 151, Koppies, 9540, South Africa.

Principal Reference Material

Provincial Administration of the Orange Free State. Nature Conservation, Annual Report 1975/1976.

Preparation: G F Barkhuizen, June 1982.

NATIONAL STATES, RSA

Conservation agencies within the self-governing, but not yet independent National States of Lebowa, Gazankulu, Qwa-qwa, Kangwane, KwaNdebele and KwaZulu have been established since the early seventies, each in terms of acts pertaining to the affairs of the National State concerned.

Because the consolidation of the land areas planned to fall within the States is not yet complete, some conservation areas which will be part of National States in future and which are at present held by the South African Development Trust (SADT), are administered by the Nature Conservation Subdirectoriate of the South African Department of Cooperation and Development. Other areas are administered by the respective nature conservation divisions of the National States. In addition, various other portions of land, both on SADT land and in National States, have been set aside for conservation.

The total area of land conserved within National States, but not necessarily yet proclaimed, currently approximates 250 000 ha. The combined budget of the conservation agencies involved exceeds R4 million per annum, including salaries. The combined staff complement of these agencies approximates 360, excluding labourers, with a total of about 30 research staff.

The seven areas listed herein all presently qualify for Category IV status.

Headquarters address

General enquiries can be directed to

The Deputy Director : Nature Conservation
Department of Cooperation and Development
P O Box 384
PRETORIA
0001
South Africa

who will route these through to the National State concerned.

Areas listed in the Directory (Category IV)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
129	Tembe Elephant Park, KwaZulu	29 878	248
130	Manyeleti Game Reserve, on SADT land	22 772	249
131	Lekgalameetse Nature Reserve, on SADT land	18 125	251
132	Blouberg Nature Reserve (East), on SADT land	6 848	252
133	F C Erasmus Trust Forest, on SADT land	6 680	254
134	Blouberg Nature Reserve (West), Lebowa	4 450	255
135	Potlake Nature Reserve, Lebowa	2 928	256
	Subtotal	91 681	

129 TEMBE ELEPHANT PARK

Proclamation

Date Established: 21 October 1983

Decree Number: KwaZulu Government Notice 73 of 1983.

Geographical Features

Location: Latitude: 26°51'S Longitude: 32°24'E

Nearest town and distance: KwaNgwanase, 38 km

Area: 29 878 ha

Physical Features

Elevation: Lowest: 34 m Highest: 100 m

Highest Mountain: Not applicable

Annual rainfall: 700 mm

Annual average temperature range: Minimum: 8°C Maximum: 34°C

Rainy season: Summer (October - March).

Soils: Grey to pale red sandy soils.

Description of Geomorphology: Low sand ridges on the Mozambique coastal plain. Recent geological period.

Major rivers and streams: Mozi Drainage.

Vegetation and Flora

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) and Lowveld (Veld Type 10) (Acocks 1975).

Description of vegetation: Sandforest thickets: Newtonia hildebrandtii, Cleistanthus schlechteri, Dialium schlechteri and Pteleopsis myrtifolia. Swamp: Phragmites mauritianus, Typha capensis and Cyperus spp. The park incorporates the most southerly range of some plant species, eg Afzelia quanzensis.

Economically important species of plants: Phragmites mauritianus is used for building material and Hyphaene natalensis for lala wine.

Fauna

Endangered species: Suni Neotragus moschatus.

Dominant or important species of fauna: Elephant Loxodonta africana (±120) migrate across the border between Mozambique and KwaZulu. These are the last naturally occurring elephants in KwaZulu. Other mammals include hippopotamus Hippopotamus amphibius (7), common duiker Sylvicapra grimmia and reedbuck Redunca arundinum. Various small mammals, eg rodents, occur in the area.

Infrastructure

Visitor Facilities: None, but a rustic camp is being planned.
Numbers: None yet. Potential: Unknown.

Staff (and positions): One warden, four nature conservation officers, 30 game scouts and labourers (excluding tourism staff).
Budget: R200 000,00 per annum (excluding salaries).

Local Administration: The Regional Conservation Officer, Bureau of Natural Resources, P O Box 43, KwaNgwanase, 3973, South Africa.

Principal Reference Material

Bruton M N and K H Cooper 1980. Studies on the Ecology of Maputaland. Cape and Transvaal Printers, Natal Branch of the Wildlife Society, Durban, 560 pp.

Tinley K L and W S van Riet 1981. Tongaland - zonal ecology and rural landuse proposals. Unpublished report.

Preparation: C Brink, January 1984.

130 MANYELETI GAME RESERVE

Proclamation

Date Established: 15 December 1967.
Decree Number: Government Notice 340 of 1967 as amended.

Geographical Features

Location: Latitude: 24°29' - 24°42'S Longitude: 31°21' - 31°36'E
Nearest town and distance: Acornhoek, 45 km
Area: 22 772 ha

Physical Features

Elevation: Lowest: 366 m Highest: 488 m
Highest Mountain: Not applicable
Annual rainfall: 582 mm
Annual average temperature range: Minimum: 14,9°C Maximum: 28,5°C
Rainy season: Summer (October - April).

Soils: Poor, well drained, sandy soils on granite ridges with richer clayey soils in the valleys. Arcadia soil type developing from dolerite in poorly drained areas and Shortlands soil type on better drained slopes.

Description of Geomorphology: Archaean granites are exposed in most areas. A large dolerite dyke runs from north to south in the west of the area. A few smaller intrusions of dolerite occur.

Major rivers and streams: Nwaswitsontsor River.

Vegetation and Flora

Vegetation types: Lowveld (Veld Type 10) (Acocks 1975).

Description of vegetation: Seven plant communities are distinguished: Perotis patens-Terminalia sericea association, Euclea divinorum-Acacia nigrescens association, Themeda triandra-Acacia gerrardii association, Euclea divinorum-Albizia harveyi association, Themeda triandra-Setaria woodii association, Cardiospermum corindum-Acacia nigrescens association, Spirostachys africana-Diospyros mespiliformis association.

Fauna

Endangered species: Cheetah Acinonyx jubatus, aardwolf Proteles cristatus and sable Hippotragus niger.

Dominant or important species of fauna: The park has large numbers of mammals including impala Aepyceros melampus (several thousand), reedbuck Redunca arundinum (350), blue wildebeest Connachaetes taurinus (350), Burchell's zebra Equus burchelli (230), giraffe Giraffa camelopardalis (130), kudu Iragelaphus strepsiceros (260), waterbuck Kobus ellipsiprymnus (150), buffalo Syncerus caffer (170), square-lipped rhinoceros Ceratotherium simum (30), elephant Loxodonta africana and lion Panthera leo. Both elephant and lion wander in and out of the park.

Infrastructure

Visitor Facilities: 19 standard rondavels, 15 luxury rondavels and 6 dormitories for school groups. Hiking trails are being developed.

Numbers: 27 000 per annum Potential: Unknown.

Staff (and positions): One senior management, six junior administrative and 20 junior management staff. There is a fluctuating force of labourers of about 25.

Budget: R350 000,00 per annum (including labourers' salaries).

Local Administration: The Manager, Manyeleti Game Reserve, P O Manyeleti, 1362, South Africa.

Other Information of Interest: A restaurant and shop complex is run by a private concern. The reserve is operated primarily as an education facility for the National State of Gazankulu, which will take over the reserve in 1985.

Principal Reference Material

Bredenkamp G J and G K Theron 1980. Die Plantegroei van die Manyeleti-wildtuin - 'n Plant sosiologiese en plant ekologiese studie.

Preparation: C J Meintjes, 23 May 1983.

131 LEKGALAMEETSE NATURE RESERVE

Proclamation

Date Established: 1979

Decree Number: Proclamation 461 of 1984.

Geographical Features

Location: Latitude: 24°05'S Longitude: 30°15'E

Nearest town and distance: Tzaneen, 40 km

Area: 18 125 ha

Physical Features

Elevation: Lowest: 800 m Highest: 1 853 m

Highest Mountain: Mogokolo

Annual rainfall: 740 to 1 280 mm increasing with altitude.

Annual average temperature range: Minimum: 4°C Maximum: 34°C

Rainy season: Summer and early autumn (November - March).

Soils: Six macrosoil associations are mapped. These are mostly acid, leached clays with rocks and some deep alluvial loamy to clayey soils.

Description of Geomorphology: Spectacular mountains with steep slopes, gorges and amphitheatres falling to flatter land in the lowveld parts of the reserve.

Major rivers and streams: Ngwabitsi, Mohlapiitse and Selati Rivers.

Vegetation and Flora

Vegetation types: Lowveld Sour Bushveld (Veld Type 9) and North-Eastern Mountain Sourveld (Veld Type 8) (Acocks 1975).

Description of vegetation: Ranges from open bushveld with Trichilia emetica, Combretum erythrophyllum, Parinari curatellifolia, Ficus spp through scrub forest with Syzygium cordatum, Ficus capensis, Acacia ataxacantha, A davyi and Polystachya spp, Mystacidium venosum, to montane forest with trees, shrubs and lianoid plants. Dominants here include Xymalos monospora, Trichilia dregeana, Maesa lanceolata and Ilex mitis. The summits are covered by open grassland with Themeda triandra dominant. This reserve includes a forest of Encephalartos transvenosus and a high altitude scrub forest reminiscent of the Cape flora. The reserve has 79 recorded plant species which are listed as threatened.

Endemic species of plants: Euphorbia restricta, Cyrtanthus thorncroftii, Kniphofia coralligemma, Encephalartos eugene-maraisii, E inopinus are all endemic to the Transvaal Escarpment.

Fauna

Endangered species: Mammals: leopard Panthera pardus, samango monkey Cercopithecus albogularis and Meller's mongoose Rhyncogale melleri. Reptiles: dwarf chameleon Bradypodion spp and leaf-toed gecko Phylodactylus spp.

Dominant or important species of fauna: Mammals include bushbuck Tragelaphus scriptus and common duiker Sylvicapra grimmia. Over 200 species of birds have been recorded, including rare or restricted forest species. Lepidoptera are very numerous and include rare species and several new species not yet described. A frog Breviceps spp, endemic to the Transvaal escarpment, is found here.

Infrastructure

Visitor Facilities: Presently under construction, but will eventually comprise wilderness trails and camps as well as main high density tourist camps.

Numbers: None. Potential: Not determined.

Staff (and positions): Three senior staff, 12 junior staff and a fluctuating labour force of about 15-20.

Budget: R192 500,00 per annum (excluding senior staff salaries).

Local Administration: The Deputy Director: Nature Conservation, Department of Cooperation and Development, P O Box 384, Pretoria, 0001, South Africa.

Other Information of Interest: Extensions to the Reserve have been proposed. These would increase the area to ±42 000 ha.

Principal Reference Material

Van Riet W 1981 and 1983. Planning proposals for The Downs. Internal report, unpublished.

Preparation: K Lane, February 1984.

132 BLOUBERG NATURE RESERVE (EAST)

Proclamation

Date Established: 1977

Decree Number: Government Notice 1725 of 1983.

Geographical Features

Location: Latitude: 23°02'S Longitude: 29°05'E

Nearest town and distance: Pietersburg, 150 km

Area: 6 848 ha

Physical Features

Elevation: Lowest: 844 m Highest: 1 453 m
Highest Mountain: Unnamed summit of Blouberg massif.
Annual rainfall: 340 - 400 mm
Annual average temperature range: Minimum: 8°C Maximum: 27°C
Rainy season: Summer (October - March).

Soils: Reddish, sandy loams.

Description of Geomorphology: Most of the reserve is mountain and mountain slope. The remaining peripheral area is flat land. There are numerous high cliffs.

Major rivers and streams: None, but small springs and streams from the mountain flow for much of the year.

Vegetation and Flora

Vegetation types: Arid Sweet Bushveld (Veld Type 14) (Acocks 1975).

Description of vegetation: Mixed woodland with some forest remaining on the upper mountain slopes. Some dense thicket at the foot of the mountain. A vegetation survey has not been carried out but dominants are likely to be as for Blouberg Nature Reserve (West).

Fauna

Endangered species: Leopard Panthera pardus, brown hyaena Hyaena brunnea and Cape vulture Gyps coprotheres.

Dominant or important species of fauna: Mammals include impala Aepyceros melampus, waterbuck Kobus ellipsiprymnus and kudu Tragelaphus strepsiceros. Birds are well represented and include one of southern Africa's largest breeding colonies of Cape vulture Gyps coprotheres.

Infrastructure

Visitor Facilities: None.

Numbers: None. Potential: Unknown.

Staff (and positions): Two senior management, five junior management staff and a fluctuating labour force of about 15.

Budget: R90 000,00 per annum (including labourers' wages).

Local Administration: The Chief Commissioner's Office, Northern Areas, Private Bag X9322, Pietersburg, 0700, South Africa.

Other Information of Interest: It is planned to enlarge this reserve in order to link up with the Blouberg Nature Reserve (West) at the south-eastern end of the Blouberg massif.

Principal Reference Material

Unpublished departmental reports.

Preparation: K Lane, February 1984.

133 F C ERASMUS TRUST FOREST

Proclamation

Date Established: 1977

Decree Number: Proclamation 1592 of 12 August 1977.

Geographical Features

Location: Latitude: 24°51' - 24°56'S Longitude: 31°06' - 31°12'E

Nearest town and distance: Acornhoek, 24 km

Area: 6 600 ha

Physical Features

Elevation: Lowest: 457 m Highest: 843 m

Highest Mountain: Not applicable

Annual rainfall: ± 900 mm

Annual average temperature range: Minimum: 10°C Maximum: 20°C

Rainy season: Summer.

Soils: Migmatite, gneiss and ultra morphic rocks.

Description of Geomorphology: The reserve slopes from the western side towards the east for a short way. The remainder of the reserve, the biggest part, is undulating.

Major rivers and streams: Saringwa River.

Vegetation and Flora

Vegetation types: Lowveld Sour Bushveld (Veld Type 9) (Acocks 1975).

Description of vegetation: Important grasses are Themeda triandra and Loudetia simplex. Tree cover is extremely well developed in this reserve with many very large specimens of Pterocarpus angolensis. Trichilia emetica, Parinari curatellifolia, Acacia sieberana and A caffra also occur. The well developed tree canopy is almost closed in some places.

Economically important species of plants: Kiaat Pterocarpus angolensis.

Fauna

Endangered species: Python sebae.

Dominant or important species of fauna: Reptiles and amphibians are well represented and include South African Red Data Book species such as the monitors, Veranus spp. Birds seem to be well represented but a serious survey has not been made. No mammal survey as yet, but very few large mammals remaining.

Infrastructure

Visitor Facilities: None.

Numbers: None. Potential: Unknown.

Staff (and positions): Two labourers engaged to prevent illegal tree cutting in the reserve.

Budget: No information.

Local Administration: The Deputy Director: Nature Conservation, Department of Cooperation and Development, P O Box 384, Pretoria 0001, South Africa.

Principal Reference Material

Amphibian and reptile checklist, incomplete bird checklist and internal departmental reports.

Preparation: K Lane, November 1984.

134 BLOUBERG NATURE RESERVE (WEST)

Proclamation

Date Established: October 1982

Decree Number: Government Notice R4 of 1983.

Geographical Features

Location: Latitude: 23°00' - 23°06'S Longitude: 28°50' - 28°56'E

Nearest town and distance: Pietersburg, 152 km

Area: 4 450 ha

Physical Features

Elevation: Lowest: 981 m Highest: 1 804 m

Highest Mountain: Blouberg

Annual rainfall: 310 - 630 mm

Annual average temperature range: Minimum: 2°C Maximum: 31°C

Rainy season: Summer (October - March).

Soils: Reddish, sandy loams over calcrete ridges. Portsmouth, Shorocks and Mudén are the main soil forms.

Description of Geomorphology: Mostly flat land but mountainous in the south-east.

Major rivers and streams: None.

Vegetation and Flora

Vegetation types: Arid Sweet Bushveld (Veld Type 14) (Acocks 1975).

Description of vegetation: Mixed woodland with well developed tree cover. Dominants include Combretum apiculatum, Commiphora mollis, C marlothi, Sclerocarya caffra, Acacia tortillis, Faurea saligna, Euphorbia ingens, A nigrescens, A tortilis and Lannea discolor.

Fauna

Endangered species: None.

Dominant or important species of fauna: Mammals include impala Aepyceros melampus (± 200), kudu Tragelaphus strepsiceros, eland Taurotragus oryx, gemsbok Oryx gazella, red hartebeest Alcelaphus buselaphus and various small mammals. A small number of ostrich Struthio camelus also occur.

Infrastructure

Visitor Facilities: Picnic sites and game viewing roads. Reserve not yet open to the public.

Numbers: None. Potential: Unknown.

Staff (and positions): Three senior staff and eight labourers.

Budget: \pm R75 000,00 per annum (including labourers' wages).

Local Administration: The Director: Nature Conservation, Department of Agriculture and Environment Affairs, Private Bag X01, Chuniespoort, 0745, Lebowa, South Africa.

Other Information of Interest: It is planned to enlarge this reserve in order to link up with the Blouberg Nature Reserve (East) at the south-eastern end of the Blouberg massif.

Principal Reference Material

Unpublished departmental reports.

Preparation: J de Beer, 4 July 1983.

135 POTLAKE NATURE RESERVE

Proclamation

Date Established: August 1977

Decree Number: Government Notice R5 of 1983.

Geographical Features

Location: Latitude: 24°13' - 24°16'S Longitude: 29°53' - 29°58'E

Nearest town and distance: Pietersburg, 85 km

Area: 2 928 ha

Physical Features

Elevation: Lowest: 409 m Highest: 1 183 m
Highest Mountain: Legobwe
Annual rainfall: 430 mm
Annual average temperature range: Minimum: 18,4°C Maximum: 30°C
Rainy season: Summer (September - March).

Soils: Large areas of bare rock. Otherwise mixed sandy or clayey loams.

Description of Geomorphology: About 50% is mountain and mountain slopes and the remainder is flat land.

Major rivers and streams: The Olifants River touches the western boundary.

Other outstanding physical features: Reserve divided by mountain.

Vegetation and Flora

Vegetation types: Arid Sweet Bushveld (Veld Type 14) (Acocks 1975).

Description of vegetation: Acacia woodland, dominant species include Acacia tortilis, A grandicornuta, A mellifera, Albizia adianthifolia, Ehretia rigida, Boscia foetida, Commiphora pyracanthoides, B albitrunca, Capparis spp and Maerua spp. Grasses include Themeda triandra, Cymbopogon plurinoides, Eragrostis spp, Aristida congesta and Digitaria spp.

Fauna

Endangered species: Sable Hippotragus niger.

Dominant or important species of fauna: Except for a few impala and kudu, all large mammals were introduced: impala Aepyceros melampus (150), kudu Tragelaphus strepsiceros (25), blue wildebeest Connochaetes taurinus (30), eland Taurotragus oryx (20), gemsbok Oryx gazella (20), waterbuck Kobus ellipsiprymnus (20), giraffe Giraffa camelopardalis (6), Burchell's zebra Equus burchelli (20) and red hartebeest Alcelaphus buselaphus (70). Ostrich Struthio camelus (34) also occurs.

Infrastructure

Visitor Facilities: An interpretation centre, kiosk, picnic sites and wilderness trails are scheduled for completion in 1985.

Numbers: None. Potential: Considerable education and recreational potential.

Staff (and positions): Management - one senior and two junior staff and seven labourers.

Budget: R150 000,00 per annum (excluding salaries).

Local Administration: The Director: Nature Conservation, Department of Agriculture and Environment Affairs, Private Bag X01, Chuniespoort, 0745, Lebowa, South Africa.

DEPARTMENT OF TRANSPORT, RSA

The Prince Edward Islands, comprising Marion Island (46°53'S, 37°45'E) and Prince Edward Island (46°36'S, 37°57'E), lie about 2 300 km south-east of Cape Town in the South Indian Ocean, only a few degrees north of the Antarctic Polar Front. South African sovereignty over these islands was declared on 12 January 1948.

The maintenance of a permanent South African presence on these islands, in the form of annually relieved teams of scientists and technicians involves many different academic, scientific, technical and administrative institutions in the Government and semi-Government sectors.

The Sea Birds and Seals Protection Act (Act 46 of 1973) provides protection to most individual species of seabirds and seals found at these islands. This Act, in the case of the Prince Edward Islands, is administered by the Minister of Transport. The Act does not, however, provide for the protection of the terrestrial or marine environments of these islands. This does not mean to say that these environments are, therefore, totally unprotected. By virtue of South Africa's membership of the Antarctic Treaty, CCAMLR (Commission for the Conservation of Antarctic Marine Living Resources) and SCAR (Scientific Committee on Antarctic Research of the International Council of Scientific Unions), various Treaty, CCAMLR and SCAR sponsored conservation orientated agreements and recommendations therefore apply either directly or in spirit to these islands.

Headquarters address

The Director-General: Transport
Antarctic Division
Department of Transport
Private Bag X193
PRETORIA
0001
South Africa

Areas listed in the Directory (Category I)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
136	Prince Edward Islands	<u>39 000</u>	260
	Subtotal	39 000	

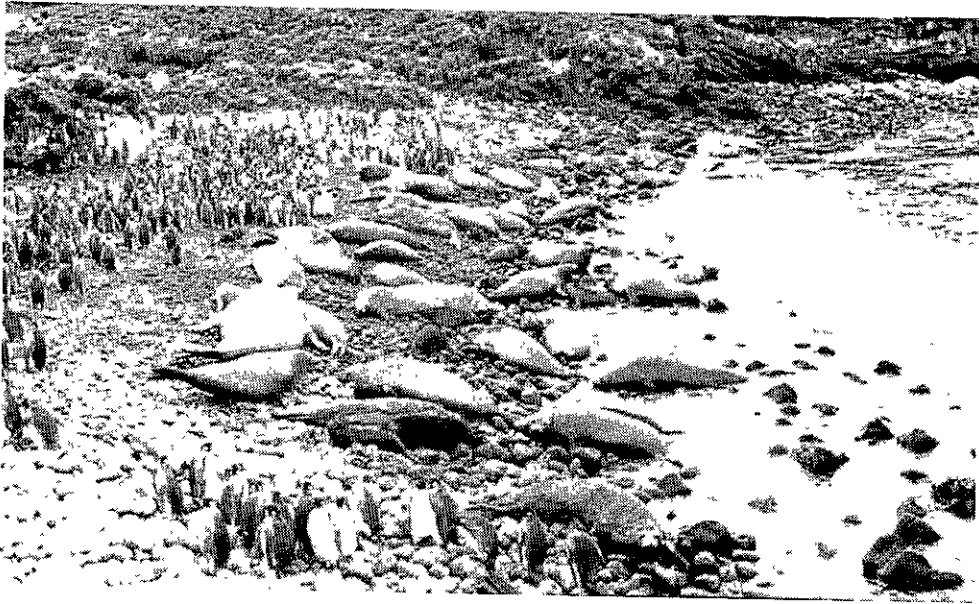


Figure 17. Elephant seals and King penguin on a boulder beach, Marion Island.

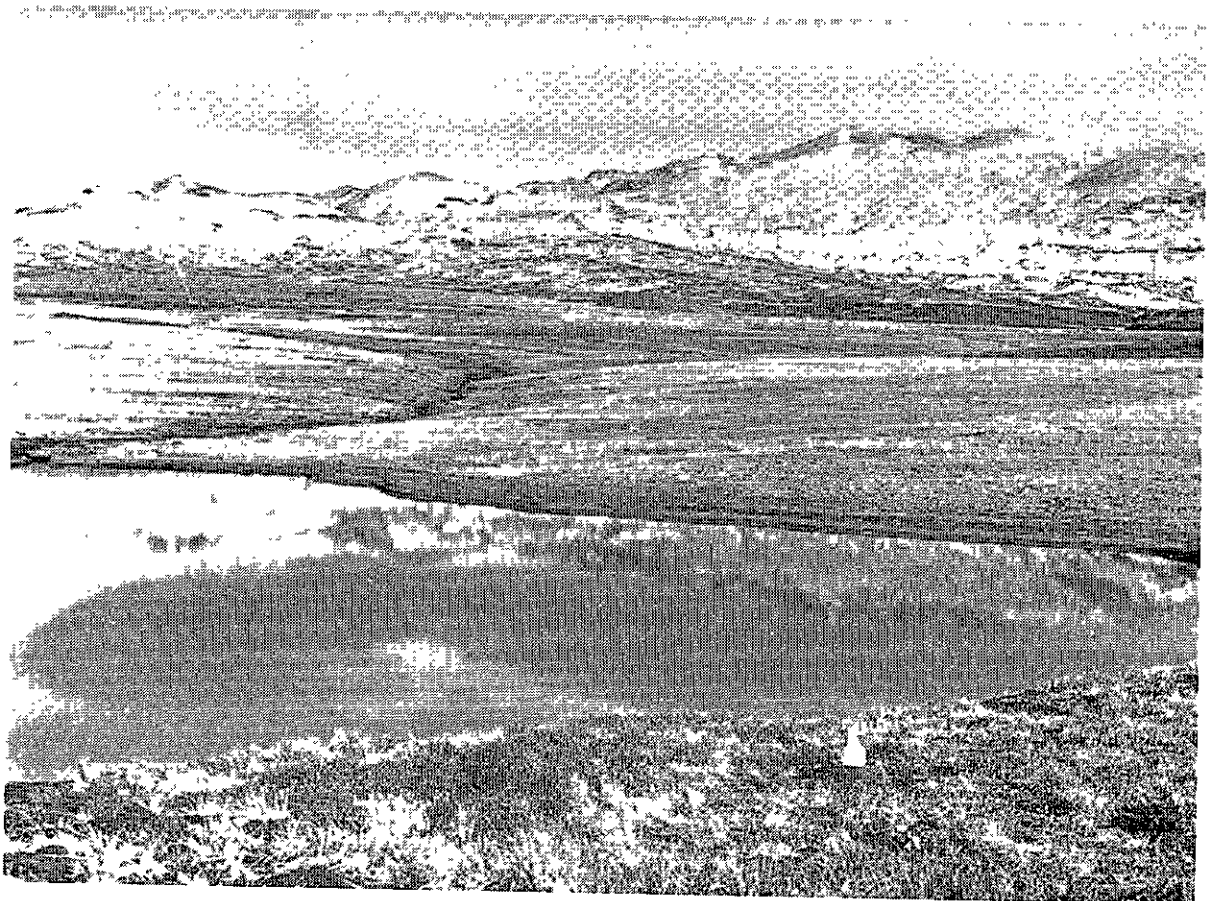


Figure 18. A lake on the gently rolling mires of Marion Island's coastal plain.

136 PRINCE EDWARD ISLANDS (MARION AND PRINCE EDWARD)

Proclamation

Date Established: December 1947 (Prince Edward) and January 1948 (Marion).
Decree Number: Prince Edward Islands Act No 43 of 1948 and the Sea Birds and Seals Protection Act 46 of 1973.

Geographical Features

Location: Latitude: Marion: 37°45'E Prince Edward 37°57'E
Longitude: Marion: 46°53'S Prince Edward 46°36'S
Nearest town and distance: Cape Town, 2 300 km
Area: 39 000 ha (Marion 30 000 ha and Prince Edward 9 000 ha)

Physical Features

Elevation: Lowest: Sea level Highest: 1 280 m
Highest Mountain: State President Swart Peak
Annual rainfall: 2 580 mm
Annual average temperature range: Minimum: -8°C Maximum: 10°C
Rainy season: Non-seasonal. Rain or snow throughout the year.

Soils: Mainly peats with some shallow mineral "rawmark" soils on higher areas exposed to extremes of wind and temperature.

Description of Geomorphology: Volcanic in origin. Three main physiographic zones - central highland, escarpment zone and coastal plain. Islands believed to be closely associated volcanoes with coalescing shields.

Major rivers and streams: One perennial stream (Van den Boogaardt Stream) and many smaller erratically flowing streams.

Other outstanding physical features: True oceanic islands with a tundra-type climate and vegetation and regular high winds ("roaring forties"). Passed over by two to three frontal systems per week.

Vegetation and Flora

Vegetation types: The terrestrial vegetation is characterized by presence of "mire" with peat forming bryophytes, closed communities of tussock-forming grasses, cushion-forming flowering plants and herbfield communities with large-leaved perennial species.

Description of vegetation: Five main ecological communities: (a) Salt spray complex: Tillaea moschata and Cotula plumosa halophytic herbfields; (b) Biotic complex: Poa cookii tussock grassland; (c) Swamp complex: Agrostis magellanica mires; (d) Slope complex: Acaena adscendens herbfield, Blechnum penna marina fernbrake, Azorella selago herbfields; (e) Wind desert complex: Azorella selago fjaeldmark.

Economically important species of plants: None in modern times. Kerguelen cabbage Pringlea antiscorbutica was used as a source of ascorbic acid

(Vitamin C) by sealers and shipwreck survivors in the 16th to 19th centuries.

Endemic species of plants: There are only 22 indigenous vascular plants of which one, Elaphoglossum randii, is endemic to these two islands. A further six are endemic to the Kerguelen province, including Polystichum marionense, Ranunculus moseleyi, Poa cookii and Pringlea antiscorbutica. Complete lists are available of the 72 species of musci (mosses), 36 species of hepatics (liverworts) and 50 species of lichens. A high incidence of local and provincial endemism exists in the Hepaticae.

Fauna

Endangered species: Six species of seabirds are listed in the latest South African Red Data Book: greatwinged petrel Pterodroma macroptera, softplumaged petrel Pterodroma mollis, common diving petrel Pelecanoides urinatrix, grey shearwater Procellaria cinerea, antarctic tern Sterna vittata, Kerguelen tern Sterna virgata. The first four are burrow breeders in the category "threatened" due to predation by feral cats. The two tern species are in the "rare" category. Southern elephant seals Mirounga leonina and sub-Antarctic fur seals Arctocephalus tropicalis were severely depleted by exploitation at the turn of the century but populations are now well recovered. Several penguin species were exploited in the past but are also now well recovered.

Dominant or important species of fauna: Population estimates are available for most species other than the burrowing petrels. The islands are important breeding platforms for all species of seabirds and marine mammals that visit them.

Infrastructure

Visitor Facilities: None - visitors (ie tourists) not encouraged as the facilities and support/rescue services are fully committed to the National Antarctic Research Programme.

Numbers: None Potential: None.

Staff (and positions): The scientific and meteorological station is manned continuously. Up to 12 scientists are present (biologists, geologists, physicists) during the summer months, usually fewer during winter. A basic support team of eight personnel (radio operators, mechanics, medics, etc) man the station and are replaced once annually.

Budget: Average annual research budget is approximately R300 000,00 about 85% of which is spent on biological work. The full cost of maintaining the station on Marion Island is in the region of R1 500 000,00 per annum.

Local Administration: (a) South African Scientific Committee for Antarctic Research, c/o FRD, CSIR, P O Box 395, Pretoria, 0001. (b) Antarctic Section, Department of Transport, Private Bag X193, Pretoria, 0001.

Other Information of Interest: A conservation policy for the Prince Edward Islands is presently being developed. National as well as international interests are to be given due recognition in the formulation of the policy.

Principal Reference Material

Gremmen N J M 1982. The vegetation of the subantarctic islands Marion and Prince Edward. W Junk. The Hague. 145 pp.

Van Zinderen Bakker E M, J M Winterbottom and R A Dyer (eds) 1971. Marion and Prince Edward Islands: a report on the South African biological and geological expedition. 1965-1966. A A Balkema, Cape Town.

South African Journal of Antarctic Research. Vol 8, 1978.

A full and extensive scientific bibliography is available on request.

Preparation: P R Condy, August 1983.

REPUBLIC OF BOPHUTHATSWANA

Nature conservation responsibilities in the Republic of Bophuthatswana are vested in their National Parks Board, formed in 1984. There are currently two national parks, totalling 57 380 ha, whilst a further two are planned for proclamation in the near future. The 1982/83 budget totalled R3,234 million, with a staff complement of 202, including a conservation staff of 126 and research staff of seven.

The two conservation areas listed are included in Category II - national parks.

Headquarters address

The Director
National Parks Board
Private Bag X2078
MAFIKENG
8670
Republic of Bophuthatswana

Areas listed in the Directory (Category II)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
137	Pilanesberg National Park	50 000	265
138	Borakalalo National Park	<u>7 380</u>	267
	Subtotal	57 380	

137 PILANESBERG NATIONAL PARK

Proclamation

Date Established: 8 December 1979

Decree Number: Act pending.

Geographical Features

Location: Latitude: 25°15'S Longitude: 27°05'E

Nearest town and distance: Mogwase, 3 km

Area: 50 000 ha

Physical Features

Elevation: Lowest: 1 050 m Highest: 1 675 m

Highest Mountain: Pilanesberg, 1 675 m

Annual rainfall: 650 mm

Annual average temperature range: Minimum: 4°C Maximum: 32°C

Rainy season: Summer (October - March).

Soils: Highly variable - hydromorphic loams and clays on valley floor and pediments, deep well drained loams on the steep slopes and shallow rocky lithosols on the flattened crests.

Description of Geomorphology: The Pilanesberg is an isolated, almost perfectly circular series of concentric hills and ring valleys composed of a unique suite of alkaline volcanic rocks. The outermost ring of hills rises abruptly, 300 to 600 m, above the surrounding flat plains. Apart from the Pilanesberg there are only two other large Alkaline Ring Complexes in the world, one in the USSR and one in Greenland.

Major rivers and streams: All surface water originates from sources within the reserve's boundaries, ie the Pilanesberg is an independent rainfall catchment area with no streams or rivers entering the system from outside. No major rivers arise in the catchment and all drainage is in the form of ephemeral streams.

Vegetation and Flora

Vegetation types: Sour Bushveld (Veld Type 20) (Acocks 1975).

Description of vegetation: A mosaic of pediment grasslands Trachypogon spicatus-Elionurus muticus; secondary grasslands Cynodon dactylon-Rhynchelytrum repens; valley thickets Acacia mellifera-Acacia tortilis; Xerocline savannas Combretum apiculatum-Chrysopogon montanus; mesocline savannas Acacia caffra-Faurea saligna and pediment savannas Acacia karroo-Acacia caffra-Faurea saligna.

Economically important species of plants: Apart from the wide spectrum of plants used as food for livestock or as herbal medicines by the local Tswana people, there are no known economically important plant species.



Figure 19. Preparing to burn firebreaks, Pilanesberg National Park.



Figure 20. Environmental education course, Pilanesberg National Park.

Endemic species of plants: Erythrophysa transvaalensis (less than 250 known specimens, most of which occur in Pilanesberg).

Fauna

Endangered species: Cheetah Acinonyx jubatus, pangolin Manis temminckii, black rhinoceros Diceros bicornis, brown hyaena Hyaena brunnea and leopard Panthera pardus.

Dominant or important species of fauna: Large mammals include square-lipped rhinoceros Ceratotherium simum (240), mountain reedbuck Redunca fulvorufula (1 250) and red hartebeest Alcelaphus buselaphus (600).

Infrastructure

Visitor Facilities: Rustic camp with all facilities including food and bedding to accommodate eight people. Tented camp with beds, bedding and ablution blocks for 30 people. 150 km visitor road network.
Numbers: 29 000 per annum Potential: 100 000 per annum.

Staff (and positions): Administration - three senior staff; Tourism - one senior and 15 junior staff; Conservation - six senior and 120 junior staff; Education - four senior staff; Technical - 46 junior staff; Research and information - five senior and two junior staff; Total - 202.
Budget: R3 234 360,00 (including salaries).

Local Administration: Pilanesberg National Park, P O Box 1201, Mogwase, 0302, Bophuthatswana.

Other Information of Interest: The Pilanesberg National Park operates a mobile film unit which provides lectures and film shows to schools, and reaches approximately 50 000 school children per year.

Principal Reference Material

Farrell and Van Riet 1978. Pilanesberg National Park, Bophuthatswana. Planning and Management Proposals for Department of Agriculture. Republic of Bophuthatswana.

Collinson R F H and P S Goodman 1982. An assessment of range condition and large herbivore carrying capacity of the Pilanesberg Game Reserve, with guidelines and recommendations for management. Inkwe 1, 54 pp.

Preparation: J L Anderson and R F Collinson, May 1983.

138 BORAKALALO NATIONAL PARK

Proclamation

Date Established: 1970
Decree Number: Act pending.

Geographical Features

Location: Latitude: 25°10'S Longitude: 27°55'E
Nearest town and distance: Brits, 80 km
Area: 7 380 ha

Physical Features

Elevation: Lowest: 1 000 m Highest: 1 167 m
Highest Mountain: Not applicable
Annual rainfall: 600 - 750 mm
Annual average temperature range: Minimum: 3°C Maximum: 33°C
Rainy season: Summer (October - April).

Soils: Predominantly sandy loams.

Description of Geomorphology: Bushveld igneous complex.

Major rivers and streams: Pienaars River.

Other outstanding physical features: A large dam, Klipvoor Dam, approximately 10 km long and up to 1 km wide. Dam water used for irrigation. Highly eutrophic, toxic to very large mammals (square-lipped rhinoceros Ceratotherium simum) over a long period of time. The dam supports a very high biomass of Sarotherodon species. It has good potential for sustained harvesting either as a food resource or for recreation. There are good populations of piscivorous birds. A reasonable potential for recreational boating.

Vegetation and Flora

Vegetation types: Mixed Bushveld (Veld Type 18) (Acocks 1975).

Description of vegetation: Open woodland to thicket. Dominant trees include Combretum apiculatum, C imberbe, Terminalia sericea and Sclerocarya caffra.

Economically important species of plants: Grasses are potentially important as fodder for game and livestock.

Fauna

Endangered species: None.

Dominant or important species of fauna: Impala Aepyceros melampus (1 000), blue wildebeest Connochaetes taurinus (150), Burchell's zebra Equus burchelli (75), giraffe Giraffa camelopardalis (25), kudu Tragelaphus strepsiceros (75) and waterbuck Kobus ellipsiprymnus (20). Other mammal species include steenbok Raphicerus campestris, mountain reedbuck Redunca fulvorufula, common duiker Sylvicapra grimmia, bushbuck Tragelaphus scriptus and klipspringer Oreotragus oreotragus.

Infrastructure

Visitor Facilities: Picnic areas. Visitor accommodation under development.

Numbers: 15 000 per annum Potential: 20 000 per annum.

Staff (and positions): Two senior and 20 junior staff, all related to management.

Budget: R1 588 000,00 (including salaries).

Local Administration: Klipvoor Dam, Borakalalo National Park, P O Atlanta, 0262, Bophuthatswana.

Principal Reference Material

Manson J 1979. Borakalalo Nature Reserve: Origin, status and the Department of Agriculture's planning and management policy. Department of Agriculture, Republic of Bophuthatswana, Typed Report.

Preparation: J L Anderson and R F Collinson, May 1983.

REPUBLIC OF CISKEI

The bulk of the Ciskei's conservation effort is devoted to the conservation of indigenous forests. Eight of the nine proclaimed indigenous forests are listed herein. Many of these form part of larger State Forests, of which some parts are under plantation. The indigenous forests are administered by the Forestry Boards of the Ciskeian Department of Agriculture and Forestry, which was established in 1973 in terms of the Ciskeian Forestry Act (Act 6 of 1976). The total area of indigenous forests administered is 25 004 ha, and the 1984/85 budget was R509 700,00 which excludes salaries.

The Tsolwana Game Park is administered by the Office of the Presidency, Ciskei.

All the conserved areas are included within Category IV.

Headquarters address

The Director-General
Department of Agriculture and Forestry
Private Bag X501
ZWELITSHA
5600
Republic of Ciskei

Areas listed in the Directory (Category IV)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
139	Tsolwana Game Park	7 557	271
140	Pirie Forest, including Evelyn Valley	5 239	272
141	Rabula Forest	3 884	274
142	Zingcuka Forest	3 731	275
143	Cwengcwe Forest	3 276	276
144	Cata Forest	1 592	278
145	Izeleni Forest	1 330	279
146	Dontsa Forest	<u>1 209</u>	280
	Subtotal	27 818	

139 TSOLWANA GAME PARK

Proclamation

Date Established: April 1977

Decree Number: Ciskeian Forestry Act of 1976 (Act 6 of 1976).

Geographical Features

Location: Latitude: 32°8' - 32°13'5' Longitude: 26°26' - 26°34'E

Nearest town and distance: Tarkastad, 27 km

Area: 7 557 ha

Physical Features

Elevation: Lowest: 1 350 m Highest: 1 866 m

Highest Mountain: 1 866 m

Annual rainfall: 460 mm

Annual average temperature range: No information.

Rainy season: Summer and autumn (September and October; February to April).

Soils: Steep, stony and shallow. Deep soils in valleys. Dark grey structured top horizon and clayey structured B Horizon (Duplex).

Description of Geomorphology: No information available.

Major rivers and streams: Swart Kei.

Vegetation and Flora

Vegetation types: Dry Cymbopogon-Themeda Veld (Veld Type 50) (Acocks 1975).

Description of vegetation: Karoo communities with Acacia karroo, Chrysocoma tenuifolia, Felicia filifolia, Senecio spp, Helichrysum spp, Rhus erosa, and grassland communities with Cymbopogon plurinodis, Themeda triandra, Eragrostis curvula, E plana and Aristida junciformis.

Fauna

Endangered species: Cape mountain zebra Equus zebra zebra (25) and bontebok Damaliscus dorcas dorcas (20).

Dominant or important species of fauna: Mountain reedbuck Redunca fulvorufula (±1 500), grey rhebok Pelea capreolus (50-100), springbok Antidorcas marsupialis (600), steenbok Raphicerus campestris (150-200), European fallow deer Cervus dama (150), eland Taurotragus oryx (110), red hartebeest Alcelaphus buselaphus (100), gemsbok Oryx gazella (90), black wildebeest Connochaetes gnou (56), giraffe Giraffa camelopardalis (3), kudu Tragelaphus strepsiceros (40) and buffalo Syncerus caffer (5). Various small mammals occur on the reserve, also many forest species of birds, some restricted.

Infrastructure

Visitor Facilities: Four fully equipped homesteads, one dancing boma and one outdoor school.

Numbers: 32 beds at present Potential: Not yet determined.

Staff (and positions): One manager, one assistant manager, two hostesses, one nature conservation officer, one tourist officer, one clerk, ten game guards, 12 TW workers and 20 temporary workers.

Budget: R238 272,00 per annum (including salaries).

Local Administration: The Director General, Department of Agriculture and Forestry, Private Bag X501, Zwelitsha, 5600, Ciskei.

Other Information of Interest: Hunting of surplus game has improved considerably during the last three years, providing an income of over R130 000,00. All surplus meat from hunting is sold to rural people living close to Tsolwana.

Principal Reference Material

A Resource Survey by A R Palmer and other studies by Mentis (1974) and Tinley (1976).

Preparation: C L Tinley, 14 June 1983.

140 PIRIE FOREST (INCLUDING EVELYN VALLEY)

Proclamation

Date Established: 1922

Decree Number: Government Notice 558 of 1922 and Ciskeian Forestry Act of 1976 (Act 6 of 1976).

Geographical Features

Location: Latitude: 32° 43'S Longitude: 27° 16'E

Nearest town and distance: King William's Town, ± 22 km

Area: 5 239 ha (including plantation).

Physical Features

Elevation: Lowest: 540 m Highest: 1 300 m

Highest Mountain: Little Mt Kemp

Annual rainfall: Up to 1 800 mm

Annual average temperature range: No information.

Rainy season: Summer and autumn (September and October; February to April).

Soils: No information available.

Description of Geomorphology: Very steep sloping pediment with cliffs.

Major rivers and streams: Buffalo River.

Other outstanding physical features: Rock faces, notably McNaughten's Krantz, Sandile's Krantz and Murray's Krantz.

Vegetation and Flora

Vegetation types: Döhne Sourveld (Veld Type 44(b)) (Acocks 1975).

Description of vegetation: Excellent high forest typical of eastern Cape. Dominant species include Podocarpus falcatus, P latifolius, Rapanea melanophloeos, Calodendrum capense, Xymalos monospora and Nuxia floribunda.

Economically important species of plants: Podocarpus latifolius and P falcatus.

Fauna

Endangered species: Samango monkey Cercopithecus albogularis.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, common duiker Sylvicapra grimmia, bushpig Potamochoerus porcus, vervet monkey Cercopithecus pygerythrus and porcupine Hystrix africaeaustralis. Bird life is prolific and includes various forest species, some restricted.

Infrastructure

Visitor Facilities: National Hiking Way trails and overnight hut, managed by the Ciskei National Tourist Bureau. Also numerous footpaths.

Numbers: 1 500 per annum Potential: 5 000 per annum.

Staff (and positions): Managed by Government Forester of the Isidenge Plantation (RSA).

Budget: R4 000,00 per annum (excluding salaries) for maintenance of trail.

Local Administration: The Director General, Department of Agriculture and Forestry, Private Bag X501, Zwelitsha, 5600, Ciskei.

Other Information of Interest: The Pirie Forest and Evelyn Valley adjoins the Maden and Rooikrans Dams and the Pirie trout hatchery. One of the few forest railways in southern Africa was operated in the Pirie Forest some 70 years ago.

Principal Reference Material

Various unpublished internal reports.

Preparation: R G P Schurr, 6 June 1983.

141 RABULA FOREST

Proclamation

Date Established: 1912

Decree Number: Government Notices 396 of 1912 and 97 of 1915 and Ciskeian Forestry Act of 1976 (Act 6 of 1976).

Geographical Features

Location: Latitude: 32°44'S Longitude: 27°12'E

Nearest town and distance: Keiskammahoek, 6 km

Area: 3 884 ha

Physical Features

Elevation: Lowest: 730 m Highest: 1 289 m

Highest Mountain: Mt Charybdis

Annual rainfall: ±900 mm

Annual average temperature range: No information.

Rainy season: Summer and autumn (September and October; February to April).

Soils: No information available.

Description of Geomorphology: Very steep slopes with numerous incised valleys.

Major rivers and streams: Minor tributaries of the Rabula River which flows into the Keiskamma River.

Vegetation and Flora

Vegetation types: Döhne Sourveld (Veld Type 44(b)) (Acocks 1975).

Description of vegetation: Drier type of high forest with Podocarpus falcatus, P latifolius, Rapanea melanophloeos, Celtis africana and Calodendrum capense.

Economically important species of plants: Podocarpus latifolius and P falcatus.

Fauna

Endangered species: Samango monkey Cercopithecus albogularis.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, common duiker Sylvicapra grimmia and vervet monkey Cercopithecus pygerythrus. Also various interesting bird species.

Infrastructure

Visitor Facilities: None at present.

Numbers: No information. Potential: Not determined.

Staff (and positions): No information.

Budget: No information.

Local Administration: The Director General, Department of Agriculture and Forestry, Private Bag X501, Zwelitsha, 5600, Ciskei.

Other Information of Interest: This area consists of numerous (43) widely scattered forests ranging in size from four to over 1 000 ha, all forming part of the Rabula State Forest. The plantation area of some 430 ha and the total area of 4 836 ha was under control of the South African Department of Forestry up to 31 March 1973.

Principal Reference Material

Departmental reports only.

Preparation: R G P Schurr, 3 June 1983.

142 ZINGCUKA FOREST

Proclamation

Date Established: 1913

Decree Number: Government Notices 1204 of 1913 and 315 of 1916 and Ciskeian Forestry Act of 1976 (Act 6 of 1976).

Geographical Features

Location: Latitude: 32°40'S Longitude: 27°00'E

Nearest town and distance: Hogsback, ± 10 km

Area: 3 731 ha

Physical Features

Elevation: Lowest: 700 m Highest: 1 650 m

Highest Mountain: Hogsback

Annual rainfall: ± 1 200 mm

Annual average temperature range: No information.

Rainy season: Summer and autumn (September and October; February to April).

Soils: No information available.

Description of Geomorphology: Very steep sloping pediment and incised valleys in the upper reaches of the Amatola Basin.

Major rivers and streams: Tributaries that flow into the Keiskamma River outside the reserve.

Vegetation and Flora

Vegetation types: Dohne Sourveld (Veld Type 44(b)) (Acocks 1975).

Description of vegetation: Mainly moist high forest including dominant species such as Podocarpus falcatus, P latifolius, Rapanea melanophloeos, Vepris undulata, Celtis africana and Calodendrum capense.

Economically important species of plants: Podocarpus falcatus, P latifolius, to an extent Rapanea melanophloeos and Olea capensis subsp macrocarpa.

Fauna

Endangered species: Samango monkey Cercopithecus albogularis.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, common duiker Sylvicapra grimmia, bushpig Potamochoerus porcus, vervet monkey Cercopithecus pygerythrus and porcupine Hystrix africaeaustralis. Interesting bird life in the indigenous forests, with some restricted bird species occurring.

Infrastructure

Visitor Facilities: Picnic sites under construction. Hiking trails being planned.

Numbers: None at present. Potential: Not determined.

Staff (and positions): No information.

Budget: No information.

Local Administration: The Director General, Department of Agriculture and Forestry, Private Bag X501, Zwelitsha, 5600, Ciskei.

Other Information of Interest: This area forms part of the Zingcuka State Forest, which consists of about 40 forests ranging in size from 8 ha to over 1 000 ha, including some 8 000 ha of plantation. The area was formerly known as Schwarzwald or Wolf River, and was taken over from the South African Department of Forestry in 1973.

Principal Reference Material

Various unpublished internal reports.

Preparation: R G P Schurr, 3 June 1983.

143 CWENGCWE FOREST

Proclamation

Date Established: 1926

Decree Number: Government Notice 2053 of 1926 and Ciskeian Forestry Act of 1976 (Act 6 of 1976).

Geographical Features

Location: Latitude: 32°42'S Longitude: 27°18'E
Nearest town and distance: Stutterheim, ± 22 km
Area: 3 276 ha (including plantation).

Physical Features

Elevation: Lowest: 550 m Highest: 885 m
Highest Mountain: Not applicable
Annual rainfall: ± 1 200 mm
Annual average temperature range: No information.
Rainy season: Summer and autumn (September and October; February to April)

Soils: No information available.

Description of Geomorphology: Relatively gentle slopes with few incised valleys.

Major rivers and streams: Cwengcwe River, a tributary of the Buffalo River.

Other outstanding physical features: Murray's Krantz.

Vegetation and Flora

Vegetation types: Dohne Sourveld (Veld Type 44(b)) (Acocks 1975).

Description of vegetation: Typical high forest of the eastern Cape, including Podocarpus latifolius, P falcatus, Rapanea melanophloeos, Calodendrum capense and Celtis africana.

Economically important species of plants: Podocarpus latifolius, P falcatus and Rapanea melanophloeos.

Fauna

Endangered species: Samango monkey Cercopithecus albogularis.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, common duiker Sylvicapra grimmia, bushpig Potamochoerus porcus, vervet monkey Cercopithecus pygerythrus and porcupine Hystrix africaeaustralis. Various bird species characteristic of the indigenous forests of this area also occur here.

Infrastructure

Visitor Facilities: Walking trails and footpaths only.
Numbers: No information. Potential: Not determined.

Staff (and positions): No information.
Budget: No information.

Local Administration: The Director General, Department of Agriculture and Forestry, Private Bag X501, Zwelitsha, 5600, Ciskei.

Principal Reference Material

Departmental reports only.

Preparation: R G P Schurr, 6 June 1983.

144 CATA FOREST

Proclamation

Date Established: 1913

Decree Number: Government Notices 1204 of 1913 and 1240 of 1913 and Ciskeian Forestry Act of 1976 (Act 6 of 1976).

Geographical Features

Location: Latitude: 32°34'S Longitude: 27°08'E

Nearest town and distance: Keiskammahoek, 16 km

Area: 1 592 ha

Physical Features

Elevation: Lowest: 910 m Highest: 1 300 m

Highest Mountain: Amatola Mountain

Annual rainfall: ± 1 100 mm

Annual average temperature range: No information.

Rainy season: Summer and autumn (September and October; February to April).

Soils: No information available.

Description of Geomorphology: Steep to very steep sloping pediment and incised valleys of the Mnyameni and Cata Streams.

Major rivers and streams: Mnyameni and Cata Streams that flow into the Gxulu River which is a tributary of the Keiskamma River.

Vegetation and Flora

Vegetation types: Dohne Sourveld (Veld Type 44(b)) (Acocks 1975).

Description of vegetation: Podocarpus falcatus, P latifolius, Rapanea melanophloeos and Celtis africana.

Economically important species of plants: Podocarpus latifolius, P falcatus and to a lesser extent Rapanea melanophloeos.

Fauna

Endangered species: Samango monkey Cercopithecus alboocularis.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, common duiker, Sylvicapra grimmia and vervet monkey Cercopithecus

pygerythrus. Prolific bird life which includes some restricted forest species.

Infrastructure

Visitor Facilities: None. Trails with overnight facilities being planned.
Numbers: No information. Potential: Not yet determined.

Staff (and positions): No information.
Budget: No information.

Local Administration: The Director General, Department of Agriculture and Forestry, Private Bag X501, Zwelitsha, 5600, Ciskei.

Other Information of Interest: This area forms a portion of the Cata State Forest, with a plantation area of 300 ha and a total area of 4 020 ha. It consists of scattered forests ranging in size from 8 ha to 1 545 ha and was under the control of the South African Department of Forestry up to 31 March 1973.

Principal Reference Material

Departmental reports only.

Preparation: R G P Schurr, 3 June 1983.

145 IZELENI FOREST

Proclamation

Date Established: 1917
Decree Number: Government Notice 1183 of 1917 and Ciskeian Forestry Act of 1976 (Act 6 of 1976).

Geographical Features

Location: Latitude: 32°40'S Longitude: 27°25'E
Nearest town and distance: Stutterheim, 27 km
Area: 1 330 ha

Physical Features

Elevation: Lowest: 700 m Highest: 885 m
Highest Mountain: Not applicable
Annual rainfall: ±1 000 mm
Annual average temperature range: No information.
Rainy season: Summer and Autumn (September and October; February to April).

Soils: No information available.

Description of Geomorphology: Steep sloping pediment and incised valleys of the Izeleni River.

Major rivers and streams: Izeleni River which flows into the Yellowwoods River.

Vegetation and Flora

Vegetation types: Döhne Sourveld (Veld Type 44(b)) (Acocks 1975).

Description of vegetation: Ranges from high forest to dry scrub forest.
Dominant species: Podocarpus latifolius, P falcatus, Curtisia dentata, Xymalos monospora, Rapanea melanophloeos, Olea capensis subsp macrocarpa, Erythrina caffra, Vepris undulata, Cussonia spicata and Trichocladus crinitus.

Economically important species of plants: Podocarpus latifolius and P falcatus.

Fauna

Endangered species: Red duiker Cephalophus natalensis.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus and some small mammals. Various bird species occur in the indigenous forests.

Infrastructure

Visitor Facilities: None

Numbers: Nil Potential: Not determined.

Staff (and positions): No information.

Budget: No information.

Local Administration: The Director General, Department of Agriculture and Forestry, Private Bag X501, Zwelitsha, 5600, Ciskei.

Other Information of Interest: This forest is part of the Izeleni State Forest which includes 430 ha of plantation and covers a total area of 1 814 ha. This area was taken over from the Republic of South Africa in October 1978. No exploitation of indigenous timber has taken place over the past 10 years or longer.

Principal Reference Material

Departmental reports only.

Preparation: R G P Schurr, 3 June 1983.

146 DONTSA FOREST

Proclamation

Date Established: 1913

Decree Number: Government Notices 1204 of 1913 and 97 of 1915 and Ciskeian Forestry Act of 1976 (Act 6 of 1976).

Geographical Features

Location: Latitude: 32°35'S Longitude: 27°13'E
Nearest town and distance: Keiskammahoek, ± 18 km
Area: 1 209 ha

Physical Features

Elevation: Lowest: 850 m Highest: 1 616 m
Highest Mountain: Mt Thomas
Annual rainfall: ± 1 100 mm
Annual average temperature range: No information.
Rainy season: Summer and autumn (September and October; February to April).

Soils: No information available.

Description of Geomorphology: Steep to very steep sloping pediment with numerous incised valleys.

Major rivers and streams: MnQukwane, Ngobozana and Gwiligwili Streams flowing into the Keiskamma River.

Vegetation and Flora

Vegetation types: Döhne Sourveld (Veld Type 44(b)) (Acocks 1975).

Description of vegetation: Mainly high forest comprising Podocarpus falcatus, P latifolius, Rapanea melanophloeos, Olea capensis subsp macrocarpa and Xymalos monospora.

Economically important species of plants: Podocarpus falcatus, P latifolius and Rapanea melanophloeos.

Fauna

Endangered species: Samango monkey Cercopithecus alboocularis.

Dominant or important species of fauna: Bushbuck Tragelaphus scriptus, common duiker Sylvicapra grimmia and vervet monkey Cercopithecus pygerythrus. Interesting bird life characteristic of the indigenous forests.

Infrastructure

Visitor Facilities: None, trails with overnight huts being planned.
Numbers: No information. Potential: Not yet determined.

Staff (and positions): No information.
Budget: No information.

Local Administration: The Director General, Department of Agriculture and Forestry, Private Bag X501, Zwelitsha, 5600, Ciskei.

Other Information of Interest: This area consists of numerous (±40) scattered forests ranging from four to 940 ha in size, all forming part of the Dontsa State Forest with a total area of 3 012 ha. 322 ha is under plantation. Was under the control of the South African Department of Forestry up to 31 March 1973.

Principal Reference Material

Departmental reports.

Preparation: R G P Schurr, 3 June 1983.

REPUBLIC OF TRANSKEI

The Division of Nature Conservation of the Transkei Department of Agriculture and Forestry was established in 1971 in terms of the Transkei Nature Conservation Act (Act 6 of 1971). The Division currently administers seven conservation areas, totalling 25 000 ha, two of which are listed herein, as well as 1 200 forest reserves with a total area of 73 000 ha. All but one of the seven conservation areas borders on the coastline. The 1982/83 budget of the Division was R323 000,00 for the conservation areas and R360 000,00 for the forest reserves, both figures including salaries. Staff administering the conserved areas total 36, with 120 for the forest reserves. No permanent research staff is employed, but the University of Transkei undertakes research in these areas.

The Division's reserves are classified as Category II (Dwesa) and IV (Cwebe).

Headquarters address

The Director
Department of Agriculture and Forestry
Private Bag X5002
UMTATA
Republic of Transkei

Areas listed in the Directory (Category II and IV)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
147	Dwesa Nature Reserve	3 900	284
148	Cwebe Nature Reserve	<u>2 140</u>	285
	Subtotal	6 040	

147 DWESA NATURE RESERVE

Proclamation

Date Established: 25 July 1975

Decree Number: Government Gazette 28 of 25 July 1975.

Geographical Features

Location: Latitude: 32°12' - 32°20'S Longitude: 28°48' - 28°58'E
(Dwesa and Cwebe Nature Reserves adjoin each other and this latitude/longitude includes both. A river forms a theoretical boundary).

Nearest town and distance: Idutywa, 60 km

Area: 3 900 ha

Physical Features

Elevation: Lowest: Sea level Highest: 300 m

Highest Mountain: Dwesa Hill, 300 m

Annual rainfall: + 875 mm

Annual average temperature range: Minimum: 15°C Maximum: 21°C

Rainy season: Summer (February - April and September - November).

Soils: Dominantly Fernwood and Nomanci forms with relative deep clays, loams and sands.

Description of Geomorphology: Topography rises step-wise from the coast to 300 m, and is composed of Karoo sediments of Ecca shales and sandstones. The area is drained by a number of rivers.

Major rivers and streams: Mbashee River, Mendu River and Kobola Stream.

Other outstanding physical features: Dwesa Nature Reserve is situated along 8 km of sea-frontage of the Indian Ocean.

Vegetation and Flora

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) and Valley Bushveld (Veld Type 23) (Acocks 1975).

Description of vegetation: This area is transitional between the temperate and subtropical forest types. Coastal vegetation includes Mimusops caffra, Brachylaena discolor, Scaevola thunbergii and Rapanea melanophloeos. Stenotaphrum secundatum, Themeda triandra and Cymbopogon excavatus are the dominant grasses. Heywoodia lucens, Celtis africana, Podocarpus latifolius, and on sandy soils Milletia grandis and Buxus natalensis, are the dominant trees in the areas of high forest. The Valley Bushveld has Acacia karroo as a dominant tree species.

Economically important species of plants: Podocarpus latifolius, Buxus macowanii and Ptaeroxylon obliquum.

Endemic species of plants: Heywoodia lucens, Encephalartos spp and Aloe spp.

Fauna

Endangered species: Leopard Panthera pardus (2) and blue duiker Cephalophus monticola (±150).

Dominant or important species of fauna: Square-lipped rhinoceros Ceratotherium simum (8), reedbuck Redunca arundinum (8), buffalo Syncerus caffer (6), warthog Phacochoerus aethiopicus (50), eland Taurotragus oryx (36), red hartebeest Alcelaphus buselaphus (30), bushbuck Tragelaphus scriptus (±150), blesbok Damaliscus dorcas phillipsi (200) and bushpig Potamochoerus porcus (±50). The bird life is prolific and diverse and includes some restricted forest species.

Infrastructure

Visitor Facilities: Eight log cabins and two rustic wilderness huts.
Numbers: 6 000 per annum Potential: 8 760 per annum.

Staff (and positions): Two senior staff and six junior staff as well as casual labourers.
Budget: R45 000,00 per annum (excluding salaries).

Local Administration: The Officer-in-Charge, Dwesa Nature Reserve, Department of Agriculture and Forestry, Private Bag X5002, Umtata, Transkei, South Africa.

Principal Reference Material

Various comprehensive unpublished departmental reports.

Preparation: W Qaba, June 1983.

148 CWEBE NATURE RESERVE

Proclamation

Date Established: 25 July 1975
Decree Number: Government Gazette 28 of 25 July 1975.

Geographical Features

Location: Latitude: 32°12' - 32°20'S Longitude: 28°48' - 28°58'E
(Dwesa and Cwebé Nature Reserves adjoin each other and this latitude/longitude includes both. A river forms a theoretical boundary).
Nearest town and distance: Umtata, 80 km
Area: 2 140 ha

Physical Features

Elevation: Lowest: Sea level Highest: 240 m
Highest Mountain: Not applicable
Annual rainfall: 870 mm

Annual average temperature range: Minimum: 15°C Maximum: 21°C
Rainy season: Summer (February - April and September - November).

Soils: Fernwood and Nomanci forms of clays, loams and sands.

Description of Geomorphology: Topography rises gradually from the coast to 240 m, and is composed of Karoo sediments. The area is drained by two rivers.

Major rivers and streams: Mbashee and Mbanjane Rivers.

Other outstanding physical features: Situated along 4 km of sea frontage.

Vegetation and Flora

Vegetation types: Coastal Forest and Thornveld (Veld Type 1) and Valley Bushveld (Veld Type 23) (Acocks 1975).

Description of vegetation: The area is transitional between the temperature and subtropical forest types. Coastal vegetation includes Mimusops caffra, Brachylaena discolor, Scaevola thunbergii, Rapanea melanophloeos. Stenotaphrum secundatum, Themeda triandra and Cymbopogon excavatus are the dominant grasses. Heywoodia lucens, Celtis africana, Podocarpus latifolius and on sandy soils Millettia grandis and Buxus natalensis are the dominant trees in the areas of high forest. The Valley Bushveld has Acacia karroo as a dominant tree species.

Economically important species of plants: Podocarpus latifolius, Buxus macowanii and Ptaeroxylon obliquum.

Endemic species of plants: Heywoodia lucens, Encephalartos spp and Aloe spp.

Fauna

Endangered species: Leopard Panthera pardus and blue duiker Cephalophus monticola (10).

Dominant or important species of fauna: Mountain reedbuck Redunca fulvorufula (15), impala Aepyceros melampus (3) and bushbuck Tragelaphus scriptus (5). The bird life is very diverse because of diversity of habitat. Some restricted species related to lowland forest occur.

Infrastructure

Visitor Facilities: A hotel is situated inside the reserve and a camp site is being planned.

Numbers: 900 per annum Potential: 1 440 per annum.

Staff (and positions): Two senior staff, six junior staff as well as casual labourers.

Budget: R20 000,00 per annum (excluding salaries).

Local Administration: Cwebe Nature Reserve, via Elliotdale, Transkei, South Africa.

Principal Reference Material

Various comprehensive unpublished departmental reports.

Preparation: W Qaba, June 1983.

REPUBLIC OF VENDA

The Nature Conservation Division of the Venda Department of Agriculture and Forestry was established in 1979 in terms of the Venda Nature Conservation Act (Act 10 of 1973). Currently only one conservation area, Nwanedi National Park, is administered by this Division. The 1982/83 budget for administering this area approximates R80 000,00 which included salaries, but excluded expenses for running the rest camp. A total of nine staff is employed by this Division. There are currently no permanent research staff employed.

Headquarters address

The Secretary
Department of Agriculture and Forestry
Private Bag X2247
SIBASA
Republic of Venda

Areas listed in the Directory (Category II)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
149	Nwanedi National Park	<u>3 200</u>	289
	Subtotal	3 200	

149 NWANEDI NATIONAL PARK

Proclamation

Date Established: 27 June 1980

Decree Number: Government Notice 43 of 1980.

Geographical Features

Location: Latitude: 22°37'S - 22°40'S Longitude: 30°22'E - 30°27'E

Nearest town and distance: Tshipise, 50 km

Area: 3 200 ha

Physical Features

Elevation: Lowest: 590 m Highest: 918 m

Highest Mountain: Gumela

Annual rainfall: 250 mm

Annual average temperature range: Minimum: 12°C Maximum: 35°C

Rainy season: Summer (October - May).

Soils: Sandy (from Waterberg Sandstones), mainly very rocky with little soil.

Description of Geomorphology: The park is situated in a valley.

Major rivers and streams: Nwanedzi and Luphephe Rivers.

Other outstanding physical features: The park is situated around dams in both of the above rivers. A series of waterfalls and pools form the most impressive physical features.

Vegetation and Flora

Vegetation types: Mopani Veld (Veld Type 15) and Acacia nigrescens-Combretum apiculatum-Kirkia wilmsii Veld (Veld Type 18(a)) (Acocks 1975).

Description of vegetation: Very thick bush with tall trees along river banks, including the following species: Adina microcephala, Diospyros spp, Xanthocercis zambesiaca, Colophospermum mopane, Commiphora spp, Terminalia prunioides and Adansonia digitata. Shrubs: Grewia spp, Maytenus undata and Ehretia rigida. Grasses: Aristida spp and Panicum maximum. A checklist of the trees is available on request.

Fauna

Endangered species: Cheetah Acinonyx jubatus, leopard Panthera pardus and brown hyaena Hyaena brunnea.

Dominant or important species of fauna: Eland Taurotragus oryx (7), nyala Tragelaphus angesii (15), waterbuck Kobus ellipsiprymnus (7), klipspringer Oreotragus oreotragus, giraffe Giraffa camelopardalis, square-lipped rhinoceros Ceratotherium simum (6), kudu Tragelaphus strepsiceros (150), bushbuck I scriptus, blue wildebeest Connochaetes taurinus (27), impala Aepyceros melampus (200) and common duiker Sylvicapra grimmia.

Infrastructure

Visitor Facilities: Furnished huts with kitchen and bathroom, small shop and slipway for boats. Hiking and fishing allowed.

Numbers: 20 000 per annum Potential: 40 000 per annum.

Staff (and positions): One senior foreman, six rangers and ten casual labourers.

Budget: R80 000,00 per annum (excluding rest camp and including salaries).

Local Administration: The Manager, Nwanedi National Park, Private Bag X2247, Sibasa, 0970, Venda, South Africa.

Other Information of Interest: A rest camp is being developed in this exceptionally scenic area. The size of the park is to be increased considerably in the near future.

Principal Reference Material

Hecht T 1980. Age, growth and mortality of the Butter Catfish Eutropius depressirostris (Schilbeidae: pisces) in the Lephephe/Nwanedzi impoundment, Venda (South Africa). Journal of the Limnological Society of Southern Africa, 6(1), 39-45.

Preparation: S Mitchell, May 1983.

KINGDOM OF LESOTHO

Nature Conservation in Lesotho is the responsibility of the Conservation Division of the Ministry of Agriculture. Only one conservation area has been proclaimed, Sehlabathebe National Park.

Information on the staffing and budget of the Conservation Division is not available.

The single conserved area is included in this Directory.

Headquarters address

The Director
Lesotho National Parks
Conservation Division
Ministry of Agriculture
P O Box 92
MASERU
Lesotho

Areas listed in the Directory (Category II)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
150	Sehlabathebe National Park	<u>6 805</u>	292
	Subtotal	6 805	

150 SEHLABATHEBE NATIONAL PARK

Proclamation

Date Established: 1951

Decree Number: Game Preservation Proclamation 33 of 1951 and Lesotho Government Gazette Notice 34 of 1970.

Geographical Features

Location: Latitude: 29°55'S Longitude: 29°08'E

Nearest town and distance: Sehlabathebe, bordering on park.

Area: 6 805 ha

Physical Features

Elevation: Lowest: 2 200 m Highest: 2 600 m

Highest Mountain: High peaks of the Drakensberg Mountain Range.

Annual rainfall: + 1 300 mm

Annual average temperature range: Minimum: 9°C Maximum: 16°C

Rainy season: 80% summer rainfall (October - February) but with snowfalls and some winter rain.

Soils: Dystrophic, weathered, shallow ferriferous oxisols acid and with low fertility. B horizon contains high levels of aluminium and manganese. Gleyed soils present in seepage and wet areas, with variety of transported soils in valleys.

Description of Geomorphology: Characterized by mountains and grassveld punctuated by striking outcrops of sandstone which are a result of the contact between the Cave Sandstone and the Drakensberg Basalts at 2 380 m. This is considerably higher than elsewhere in Lesotho and is probably responsible for greater exposure of the rock and weathering into caves, pillars, arches and potholes.

Major rivers and streams: Park dissected by the Tsoelikana River.

Other outstanding physical features: The park is situated high up in the strikingly beautiful Drakensberg Mountain Range.

Vegetation

Vegetation types: Themeda-Festuca Alpine Veld (Veld Type 58) Acocks 1975.

Description of vegetation: The area consists essentially of species-rich highveld of subalpine grasslands entirely within what is generally regarded as the subalpine zone of southern Africa. There are also patches of wet meadow and marshland at all altitudes and small areas of dwarf shrub heaths on steep and rocky ground. Aquatic vegetation is well represented in the Tsoelikana River and its oxbow lakes, in rock pools produced by differential weathering of the Cave Sandstone where Aponogeton ranunculiflorus (discovered in 1970) is present and in shallow ephemeral pans. There are scattered tall shrubs of Polemanna montana, Rubus ludwigii, Rhus spp, Leucosidea sericea, Euryops spp and Helichrysum spp on

cliff ledges, rocky ground and other sites protected from fire and browsing animals. However, these form actual open scrub only on one or two high ledges on Thaba Ntso outside the boundary. Only two small plants of Protea spp survive in the park area although near the park there is Protea savanna grassland. Checklist of plants available.

Fauna

Endangered species: Oribi Ourebia ourebi and probably some small mammals. Birds include the threatened bald ibis Geronticus calvus and bearded vulture Gypaetus barbatus. The Tsoelikana river harbours the threatened minnow-like fish Oreodaimon qathlambae, once thought to be extinct.

Dominant or important species of fauna: Few game. Mammals include resident population of four black wildebeest Connochaetes gnou, rhebok Pelea capreolus, mountain reedbuck Redunca fulvorufula, occasional eland Taurotragus oryx and oribi Ourebia ourebi which stray into the area from Natal and leave when the winter snow arrives. Also chacma baboon Papio ursinus and black-backed jackal Canis mesomelas.

Infrastructure

Visitor Facilities: Visitor access is encouraged. Access is by horse or four wheel drive vehicles. Accommodation at the park lodge. Horses available for hire. Landing strip at Ha Paulus for light aircraft.

Numbers: No information. Potential: No information.

Staff (and positions): No information.

Budget: No information.

Local Administration: Lesotho National Parks, Conservation Division, Ministry of Agriculture, P O Box 92, Maseru, Lesotho.

Principal Reference Material

Crush D and J Crush 1983. A State of Independence. The Geographical Magazine 55(1), 24-29.

McVean D N 1977. Nature Conservation in Lesotho. IUCN/WWF Report.

Duggan A (Ed) 1983. Game Parks and Nature Reserves of Southern Africa. Reader's Digest publication, Cape Town.

Preparation: Information drawn largely from the IUCN's Directory of Afrotropical Protected Areas, December 1984.

KINGDOM OF SWAZILAND

The Mlilwane and Hlane Nature Reserves were conservation areas from the early and late 1960's respectively, before the formation in 1972 of the Swaziland National Trust Commission. This Commission, advised by the Food and Agriculture Organization (FAO) of the United Nations, has as its responsibility the preservation of the Swazi heritage, including nature. It therefore oversees nature conservation in Swaziland. There are six protected areas included in this Directory, two of which are described within a single data sheet. The status and use of these areas varies according to the traditions and needs of the people of Swaziland.

Headquarters address

Swaziland National Trust Commission
P O Box 100
LOBAMBA
Swaziland

Areas listed in the Directory (Category IV)

<u>Map No</u>		<u>Hectares</u>	<u>Page No</u>
151	Malolotja Nature Reserve	18 000	295
152	Mlawula and Ndzindza Nature Reserves	17 500	297
153	Hlane Game Reserve	14 164	299
154	Mkhaya Nature Reserve	6 000	300
155	Mlilwane Wildlife Sanctuary	4 545	302
	Subtotal	60 209	

151 MALOLOTJA NATURE RESERVE

Proclamation

Date Established: 1977

Decree Number: Legal Notice 22 of 1977 under the National Trust Commission Act.

Geographical Features

Location: Latitude: 26°00'S Longitude: 31°03'E

Nearest town and distance: Mbabane, + 20 km

Area: 18 000 ha

Physical Features

Elevation: Lowest: 615 m Highest: 1 828 m

Highest Mountain: Ngwenya Hills

Annual rainfall: + 1 800 mm

Annual average temperature range: Minimum: 12°C Maximum: 21°C

Rainy season: Summer, with a peak in January/February, and a dry season of variable severity.

Description of Geomorphology: Highland area dissected by tributaries of the Komati River. Features include the steep-sided Komati Gorge. Malolotja Falls (highest in Swaziland) and the abandoned Ngwenya iron ore mine: an immense pit with terraced sides and deep pools of water at the bottom. Extensive vleis and bog areas remain intact on the southern margin of the park. Two large valley sedge peat areas occur.

Major rivers and streams: Tributaries of the Komati River, notably the Mhlangompepa and headwaters of the Malolotja and Umbuluzi Rivers.

Vegetation

Vegetation types: Lowland Sour Bushveld (Veld Type 9) and Piet Retief Sourveld (Veld Type 63) (Acocks 1975).

Description of vegetation: Grassland predominates over all aspects of the rounded hill and valley terrain on substrates with either seasonal waterlogging or extreme seasonal moisture relations. Thicket/forest is confined to incised valley heads, rocky outcrops, sinkholes and streambanks, all with better soil moisture relations. The herbaceous bogs support a large diversity of plants including abundant sedges, orchids and lilies. A flowering sequence in which each species or group of species exhibit a temporary visual dominance is typical of these acid bog communities. There are three main sourveld grass types forming a topographic gradient: a) montane grassveld on the highest parts of the Ngwenya range including montane grasses such as Festuca and Merxmuellera; b) highveld grassland of the Piet Retief type including Alloteropsis semialata, Brachiaria serrata, Harporchloa falx, Koeleria capensis, Tristachya hispida and Urelytrum squarrosus dotted with termite mounds that are colonized by the nitrophilous kweek grass Cynodon dactylon; and c) medium to tall grassland in moist sites and on valley floors comprising

species of Andropogon, Setaria and thatch grass Hyparrhenia. The three main savanna systems include a high altitude Protea roupelliae treveld with crowns reaching 3 m in height, a savanna at medium to low altitudes including trees spaced more than three crown diameters apart such as Bequaertiodendron magalismontanum, Ekebergia pterophylla, Faurea spp, Protea spp and Pterocarpus angolensis. The valleys contain savanna trees and shrubs such as Acacia sieberana, A karroo, Euphorbia ingens, Sclerocarya caffra and Bauhinia galpinii. All stages of development from scrub-thicket Acacia ataxacantha-Bauhinia galpinii to forest occur with narrow lines of tall Breonadia microcephala trees which form a riverine forest in some areas.

Endemic species of plants: Three cycad species which are endemic to Africa: Encephalartos paucidentatus, E laevifolius and E heenanii. Other endemics include a small tree Cassipourea swaziensis occurring on rocky outcrops and confined totally to western Swaziland, and stemless herbs with tube-shaped flowers, Streptocarpus davyi, S dunnii and S denticulatus.

Fauna

Endangered species: Oribi Ourebia ourebi.

Dominant or important species of fauna: Mammals include grey rhebok Pelea capreolus, mountain reedbeek Redunca fulvorufula, bushbuck Iragelaphus scriptus, Burchell's zebra Equus burchelli, square-lipped rhinoceros Ceratotherium simum, buffalo Syncerus caffer, blue wildebeest Connochaetes taurinus, impala Aepyceros melampus, red hartebeest Alcelaphus buselaphus, black wildebeest Connochaetes gnou and blesbok Damaliscus dorcas phillipsi from South Africa. Birds include two resident colonies of bald ibis Geronticus calvus. The rare Swazi rock snake Lamprophis swazicus also occurs.

Infrastructure

Visitor Facilities: Open to the public. A small, attractive rest camp has been completed.

Numbers: Too soon to assess. Potential: Not yet established.

Staff (and positions): One senior warden, one warden, six game rangers and about 30 labourers.

Budget: R120 000,00 per annum (excluding salaries).

Local Administration: Swaziland National Trust Commission, PO Box 100, Lobamba, Swaziland.

Other Information of Interest: On the northwest side of the abandoned Ngwenya iron ore mine pit is a smaller mine from which red haematite pigment was removed over 40 000 years ago. Middle stone-age artefacts have been found in abundance in the area.

Principal Reference Material

Reilly T E and Elizabeth A Reilly 1977. The State of Nature Conservation in Swaziland: Past and Present. Supplement to Koedoe 20, 152-170.

FAO 1973. Report to the Government of Swaziland on the Establishment of National Parks, based on the work of I R Grimwood. United Nations Development Programme, Report No TA 3172, Rome.

Various unpublished internal reports, eg an extensive survey in September 1979 of nationally protection-worthy areas.

Preparation: T E Reilly, December 1984.

152 MLAWULA AND NDZINDZA NATURE RESERVES

Proclamation

Date Established: 1980
Decree Number: No information.

Geographical Features

<u>Location:</u>	<u>Latitude:</u> 26°12'S	<u>Longitude:</u> 32°00'E
<u>Nearest town and distance:</u>	Simunye, + 10 km	
<u>Area:</u>	Mlawula Nature Reserve	12 000 ha
	Ndzindza Nature Reserve	5 500 ha
	Total	17 500 ha

Physical Features

Elevation: Lowest: 150 m Highest: 660 m
Highest Mountain: Lebombo Mountains
Annual rainfall: Between 510 and 890 mm
Annual average temperature range: Minimum: + 5°C Maximum: + 35°C
Rainy season: Summer (October - February).

Soils: 50% rock outcrops and stoney ground (raw, mineral soil), 20% shallow grey sand to sandy loam on hard rock (lithosolic), 15% shallow brown or black loam to clay (lithosolic) and 15% other soil types (nine in total).

Description of Geomorphology: 95% rhyolite and one major valley of basalt (5%).

Major rivers and streams: Black Mbuluzi River and its tributaries and the Mlawula River.

Vegetation

Vegetation types: Lowveld (Veld Type 10) (Acocks 1975).

Description of vegetation: Ravine, riverine and mountain forest respectively with semi-deciduous, tall moist vegetation, evergreens with Breonadia microcephala, tall, dry and stunted dry vegetation dominated by Androstachys johnsonii and lowveld dry drainage dominated by Spirostachys africana. Savanna vegetation ranges from sour to mixed (incorporating

extensive stoneveld, boulderveld, rockface and summit veld), bushclump (termitaria based and well represented on summit veld), broadleaf (dry, Combretum dominated) and thornveld (sour, sweet and mixed, incorporating limited saline panveld).

Endemic species of plants: Encephalartos lebomboensis, E umbuluziensis, E villosus (the most northerly known locality), Aloe keithii and Euphorbia keithii. The area also supports a number of plant species unrecorded elsewhere in Swaziland.

Fauna

Endangered species: Samango monkey Cercopithecus albogularis, Sharpe's grysbok Raphicerus sharpei, oribi Ourebia ouribi, leopard Panthera pardus, the very rare snakes Amblyodipsas concolor and Leptotyphlops telloi and the dwarf catfish Chiloglanis emarginatus. Various regionally endangered bird species also occur in the area.

Dominant or important species of fauna: The above endangered species as well as klipspringer Oreotragus oreotragus, spotted hyaena Crocuta crocuta and some other large mammals. Varied bird life with the varied vegetation.

Infrastructure

Visitor Facilities: None yet. Camp being planned.

Numbers: Nil Potential: Not yet assessed.

Staff (and positions): One senior warden, one warden, 12 game rangers and 30 labourers.

Budget: R90 000,00 per annum (excluding salaries).

Local Administration: c/o Mlilwane Wildlife Sanctuary, P O Box 33, Mbabane, Swaziland.

Other Information of Interest: The Mlawula and Ndzindza Nature Reserves are contiguous with the Hlane Game Reserve. This area also contains sites of historical and archaeological significance.

Principal Reference Material

Reilly T E and Elizabeth A Reilly 1977. The State of Nature Conservation in Swaziland: Past and Present. Supplement to Koedoe 20, 152-170.

FAO 1973. Report to the Government of Swaziland on the Establishment of National Parks, based on the work of I R Grimwood. United Nations Development Programme, Report No TA 3172, Rome.

Various unpublished internal reports, eg an extensive survey in September 1979 of nationally protection-worthy areas.

Preparation: T Greyling/T E Reilly, December 1984.

153 HLANE GAME RESERVE

Proclamation

Date Established: 1967. First acquired by the King in the 1940's as a private ranch.

Decree Number: Proclaimed in 1967 under the Game Act.

Geographical Features

Location: Latitude: 29°14'S Longitude: 31°55'E

Nearest town and distance: Simunye, + 10 km

Area: 14 164 ha (contiguous with the Mlawula and Ndzindza Nature Reserves).

Physical Features

Elevation: Lowest: 210 m Highest: 330 m

Highest Mountain: Not applicable

Annual rainfall: 890 mm per annum

Annual average temperature range: Minimum: + 5°C Maximum: + 35°C

Rainy season: Summer (October - February).

Soils: The soils are very diverse. There are intermittent patches of 12 soil types of which none is over 20% of the total.

Description of Geomorphology: The geology consists of 50% basalt, 20% sandstone, shale and coal, 10% cave sandstone, 10% molteno sandstone and 10% dolerite.

Major rivers and streams: The Black Mbuluzi River, which forms part of the north and north-west boundaries.

Vegetation

Vegetation types: Lowveld (Veld Type 10) (Acocks 1975).

Description of vegetation: Extensive savanna thornveld and mixed broadleaf savanna with Acacia nigrescens, A nilotica, A senegal and Dichrostachys spp. Riverine thicket dominated by Phoenix reclinata, and Nuxia spp, also Combretum imberbe. Herbaceous species include impala lily Adenium swazicum. Evergreen shrubland and deciduous thicket dominated respectively by Euclea spp and Spirostachys africana.

Fauna

Endangered species: Cheetah Acinonyx jubatus.

Dominant or important species of fauna: Over 10 000 mammals including Burchell's zebra Equus burchelli, blue wildebeest Connochaetes taurinus, kudu Tragelaphus strepsiceros, waterbuck Kobus ellipsiprymnus, steenbok Raphicerus campestris and common duiker Sylvicapra grimmia. Reintroduced animals include white rhinoceros Ceratotherium simum and giraffe Giraffa camelopardalis.

Infrastructure

Visitor Facilities: Basic camp site facilities are available and Landrover tours can be arranged.

Numbers: No information. Potential: No information.

Staff (and positions): One warden and a team of rangers.

Budget: No information.

Local Administration: Mlilwane Wildlife Sanctuary, P O Box 33, Mbabane, Swaziland.

Other Information of Interest: The reserve, which belongs to the king, who keeps it in trust for the nation, contains the Royal Hunting Reserve. The Butimba, a week-long hunt in an area adjacent to the Royal Hunting Reserve at Hlane, takes place each year. Hundreds of Swazis in traditional dress, led by the king, enter the area with spears, knobkierries and guns. All game killed is given to the king. The Swaziland game rangers regard this annual event as a valuable way of emphasizing traditional values.

A road through the reserve from Lomahasha to Manzini is to be upgraded to a highway. It will effectively divide the reserve into two parts and degrade it as a sanctuary.

Principal Reference Material

Reilly T E and Elizabeth A Reilly 1977. The State of Nature Conservation in Swaziland: Past and Present. Supplement to Koedoe 20, 152-170.

FAO 1973. Report to the Government of Swaziland on the Establishment of National Parks, based on the work of I R Grimwood. United Nations Development Programme, Report No TA 3172, Rome.

Various unpublished internal reports, eg an extensive survey in September 1979 of nationally protection-worthy areas.

Preparation: T Greyling/T E Reilly, December 1984.

154 MKHAYA NATURE RESERVE

Proclamation

Date Established: 1981.

Decree Number: Proclaimed as a Nature Reserve by Notice 123 under the National Trust Commission Act.

Geographical Features

Location: Latitude: 31°45'S Longitude: 26°37'E

Nearest town and distance: Big Bend, + 30 km

Area: 6 000 ha

Physical Features

Elevation: Lowest: 200 m Highest: 360 m
Highest Mountain: Not applicable
Annual rainfall: 550 mm per annum
Annual average temperature range: Minimum: 10°C Maximum: 40°C
Rainy season: Summer.

Soils: Sandy granitic soils in the north give way to heavy doleritic soils in the central and southern parts of the reserve.

Description of Geomorphology: The savanna plains of this reserve are bisected by two seasonal rivers, the Mgwenyana and Tinkatana and the reserve is bordered on the west by the Umtimphofu River. Also of interest are doleritic hills and outcrops in the central and southern regions and granites in the north.

Major rivers and streams: Umtimphofu, Tinkatana and Mgwenyane Rivers.

Vegetation

Vegetation types: Lowland (Veld Type 10) (Acocks 1975).

Description of vegetation: Very diverse vegetation, briefly described as a) mixed broadleaf savanna with Terminalia spp, Ziziphus mucronata, Bolusanthus speciosus, varied Combretum spp, Pterocarpus rotundifolius, P angolensis and a few examples of Sterculia murex which may be its most southerly distribution; b) riverine forest with Schotia spp, Ficus sycamorus etc; c) limited saline panveld and d) open savanna thornveld with Acacia nigrescens, A tortilis, A nilotica, A senegal, Sclerocarya caffra, Boscia albitrunca, Spirostachys africana etc.

Fauna

Endangered species: Red duiker Cephalophus natalensis, honey badger Mellivora capensis, crocodile Crocodylus niloticus and a number of bird species.

Dominant or important species of fauna: The reserve conserves a spectrum of lowveld fauna which includes the black-backed and side-striped jackals Canis adustus and C mesomelas, blue wildebeest Connochaetes taurinus, Burchell's zebra Equus burchelli, impala Aepyceros melampus, bushbuck Tragelaphus scriptus, waterbuck Kobus ellipsiprymnus, nyala I angasii, reedbuck Redunca arundinum, common duiker Sylvicapra grimmia, steenbok Raphicerus campestris, kudu I strepsiceros and a host of lowveld raptors and other birds. No large predators occur on the reserve, which was set up primarily to support the resurrection and conservation of the indigenous Nguni breed of cattle, a breed known to have occupied Swaziland for at least 1 200 years.

Infrastructure

Visitor Facilities: None yet.

Numbers: Nil. Potential: Not yet assessed.

Staff (and positions): Four rangers, 12 herdsman and six labourers.

Budget: No information.

Local Administration: c/o Mlilwane Wildlife Sanctuary, P O Box 33, Mbabane, Swaziland.

Principal Reference Material

Reilly T E and Elizabeth A Reilly 1977. The State of Nature Conservation in Swaziland: Past and Present. Supplement to Koedoe 20, 152-170.

FAO 1973. Report to the Government of Swaziland on the Establishment of National Parks, based on the work of I R Grimwood. United Nations Development Programme, Report No TA 3172, Rome.

Various unpublished internal reports, eg an extensive survey in September 1979 of nationally protection-worthy areas.

Preparation: T Greyling/T E Reilly, December 1984.

155 MLILWANE WILDLIFE SANCTUARY

Proclamation

Date Established: 1960

Decree Number: Private ownership (non profit-making Trust). Proclaimed by General Notice 4 as a Game Sanctuary under the Game Act in 1966, and as a Nature Reserve by Legal Notice 22 of 1977 under the National Trust Commission Act.

Geographical Features

Location: Latitude: 26°28'S Longitude: 31°05'E

Nearest town and distance: Ezulwini, + 5 km

Area: 4 545 ha

Physical Features

Elevation: Lowest: 660 m Highest: 1 437 m

Highest Mountain: Lumphohlo Mountain

Annual rainfall: 1 125 mm

Annual average temperature range: Minimum: 5°C Maximum: 34°C

Rainy season: Summer (October - February).

Description of Geomorphology: The reserve straddles the escarpment that divides the lowveld from the highveld and is centred on the Ezulwini valley, and is watered by four rivers including the Little Usutu with its spectacular Mantenga Falls. Twin sharp-peaked hills rise to the north. Flooded mining pits have created dams and vleis which support waterfowl.

Major rivers and streams: The Little Usutu River, the Mhlanbanyati River and some other smaller rivers.

Vegetation

Vegetation types: North-Eastern Mountain Sourveld (Veld Type 8) and Lowveld Sour Bushveld (Veld Type 9) (Acocks 1975).

Description of vegetation: The sanctuary contains the Gilbert Reynolds Memorial Garden which has an aloe collection and a variety of planted indigenous trees. Vegetation ranges from forests (montane, ravine, riverine) to savanna (valley bushveld, broadleaf, bushclumps, riverine thicket incorporating sandveld) and grassland (montane, middleveld incorporating vleis, bushclumps and thicket).

Endemic species of plants: Senecio mlilwanensis.

Fauna

Endangered species: Red duiker Cephalophus natalensis, serval Felis serval, African civet Civettictis civetta, crocodile Crocodylus niloticus and Southern African python Python sebae natalensis.

Dominant or important species of fauna: Before the establishment of the sanctuary, the area contained only steenbok Raphicerus campestris and common duiker Sylvicapra grimmia. Animals reintroduced since 1960 are square-lipped rhinoceros Ceratotherium simum, hippopotamus Hippopotamus amphibius, giraffe Giraffa camelopardalis, warthog Phacochoerus aethiopicus, buffalo Syncerus caffer, waterbuck Kobus ellipsiprymnus, sable Hippotragus niger, eland Taurotragus oryx, kudu Tragelaphus strepsiceros, blesbok Damaliscus dorcas phillipsi and blue wildebeest Connochaetes taurinus. Over 240 bird species have been recorded including black eagle Aquila verreauxii, various sunbirds (Nectariniidae) and numerous waterfowl on the dams.

Infrastructure

Visitor Facilities: Large well-equipped rest camp and camp site with small natural history museum. Facilities include a restaurant, guided horseback or open Landrover tours and 100 km of good gravel roads with wildlife/bird hides.

Numbers: No information Potential: No information.

Staff (and positions): On senior warden, two wardens, 10 rangers and about four administrative staff.

Budget: R100 000,00 per annum, self-generated. Unlike most other conservation areas the sanctuary is at present self-supporting in all matters other than capital developments.

Local Administration: Mlilwane Wildlife Sanctuary, P O Box 33, Mbabane, Swaziland.

Other Information of Interest: The Swaziland National Trust Commission is conducting a survey to investigate how the scenic quality of the Mantenga Falls can be maintained despite the development of a nearby hydroelectric scheme. Once completed, the development will reduce water over the falls to a trickle.

A National Environmental Education Programme has been established, funded by the Mlilwane Trust, the Swaziland National Trust Commission and the government of the United States of America. The Programme's offices are at the Mlilwane rest camp.

Principal Reference Material

Reilly T E and Elizabeth A Reilly 1977. The State of Nature Conservation in Swaziland: Past and Present. Supplement to Koedoe 20, 152-170.

FAO 1973. Report to the Government of Swaziland on the Establishment of National Parks, based on the work of I R Grimwood. United Nations Development Programme, Report No TA 3172, Rome.

Various unpublished internal reports, eg an extensive survey in September 1979 of nationally protection-worthy areas.

Preparation: T E Reilly, December 1984.

ALPHABETICAL LISTING OF CONSERVATION AREAS

<u>Name of Area</u>	<u>Map No</u>	<u>Page No</u>
Abe Bailey Nature Reserve	92	180
Addo Elephant National Park	5	26
Akkerendam Nature Reserve	114	220
Albert Falls Public Resort Nature Reserve	63	132
Alexandria State Forest	33	78
Andries Vosloo Kudu Reserve	104	203
Anysberg/Klein Swartberg Mountain Catchment Area	22	59
Augrabies Falls National Park	4	24
Barberspan Nature Reserve	88	174
Bathurst State Forest	35	81
Bloemhof Dam Nature Reserve	73	151
Blouberg Nature Reserve (East)	132	252
Blouberg Nature Reserve (West)	134	255
Blyde River Nature Reserve	72	149
Bontebok National Park	9	35
Borakalalo National Park	138	267
Boskop Dam Nature Reserve	86	171
Cape of Good Hope Nature Reserve	110	212
Cata Forest	144	278
Ceylon State Forest	45	99
Chelmsford Public Resort Nature Reserve	59	127
Coleford Nature Reserve	70	143
Commando Drift Nature Reserve	105	205
Cwebe Nature Reserve	148	285
Cwengcwe Forest	143	276
De Hoop Nature Reserve	97	190
De Vasselot Nature Reserve	32	76
Dontsa Forest	146	280
Doorndraai Dam Nature Reserve	76	155
Doornkloof Nature Reserve	101	197
Drakensberg State Forests	37	84
Dukuduku State Forest	40	91
Dwesa Nature Reserve	147	284
East London Coast State Forest	36	83
Entabeni State Forest	49	105
F C Erasmus Trust Forest	133	254
False Bay Nature Reserve	66	136
Fernkloof Nature Reserve	121	232
Gamka Mountain Nature Reserve	100	196
Gamkapoort Nature Reserve	102	199
Giant's Castle Nature Reserve	52	113
Golden Gate Highlands National Park	7	31
Goukamma Nature Reserve	107	207
Greyton Nature Reserve	115	221
Groendal Wilderness Area	28	70
Groot Swartberg/Swartberg East Mountain Catchment Area	20	56
Groot Winterhoek Mountain Catchment Area	14	47
Hans Merensky Nature Reserve	79	161

<u>Name of Area</u>	<u>Map No</u>	<u>Page No</u>
Hans Strijdom Nature Reserve	83	167
Happy Rest Nature Reserve	95	184
Hawequas Mountain Catchment Area	11	42
Hester Malan Nature Reserve	103	200
Hlane Game Reserve	153	299
Hluhluwe Game Reserve	55	119
Hottentots Holland Mountain Catchment Area	13	45
Itala Nature Reserve	53	115
Izeleni Forest	145	279
Kalahari Gemsbok National Park	2	20
Kamberg Nature Reserve	67	138
Kammanassie Mountain Catchment Area	23	61
Karoo National Park	3	22
Karoo Nature Reserve	98	193
Knysna Indigenous Forests	24	63
Koppies Dam Nature Reserve	128	245
Kouga/Baviaanskloof Mountain Catchment Area	26	67
Kruger National Park	1	16
Ladismith-Klein Karoo Nature Reserve	112	217
Langeberg East Mountain Catchment Area	16	50
Langeberg West Mountain Catchment Area	15	48
Langjan Nature Reserve	80	162
Lekgalameetse Nature Reserve	131	251
Loskop Dam Nature Reserve	74	152
Loteni Nature Reserve	61	129
Malolotja Nature Reserve	151	295
Manyeleti Game Reserve	130	249
Maphelana Nature Reserve	42	95
Matroosberg Mountain Catchment Area	12	44
Messina Nature Reserve	84	168
Midmar Public Resort Nature Reserve	65	135
Mkhaya Nature Reserve	154	300
Mkuzi Game Reserve	54	117
Mlawula Nature Reserve	152	297
Mlilwane Wildlife Sanctuary	155	302
Mont Rochelle Nature Reserve	118	227
Montagu Mountain Nature Reserve	122	234
Morgenzon State Forest	46	101
Mountain Zebra National Park	6	28
Ndumu Game Reserve	57	123
Ndzindza Nature Reserve	152	297
Nelshoogte/Berlin State Forests	43	96
Nietgenaamd Nature Reserve	120	230
Nooitgedacht Dam Nature Reserve	85	170
Ntendeka Wilderness Area	41	93
Nwanedi National Park	149	288
Nylsvley Nature Reserve	87	172
Ohrigstad Dam Nature Reserve	90	177
Oribi Gorge Nature Reserve	69	141
Otterford State Forest	31	75
Outeniqua Mountain Catchment Area	21	57
Oviston Nature Reserve	99	194
Paarl Mountain Nature Reserve	117	225
Percy Fyfe Nature Reserve	89	176

<u>Name of Area</u>	<u>Map No</u>	<u>Page No</u>
Pilanesberg National Park	137	265
Pirie Forest, including Evelyn Valley	140	272
Pongola Nature Reserve	77	157
Potlake Nature Reserve	135	256
Prince Edward Islands	136	260
Rabula Forest	141	274
Riviersonderend Mountain Catchment Area	17	52
Rolfontein Nature Reserve	106	206
Rooiberg Mountain Catchment Area	25	65
Royal Natal National Park and Rugged Glen Nature Reserve	58	125
Rustenburg Nature Reserve	81	164
S A Lombard Nature Reserve	82	165
Sandveld Nature Reserve	124	239
Sandveld State Forest	19	54
Sederberg Mountain Catchment Area	10	41
Sehlabathebe National Park	150	291
Serala State Forest	47	102
Silvermine Nature Reserve	116	223
Sodwana/Cape Vidal State Forests	39	89
Soetdoring Nature Reserve	127	244
Somerset East-Bosberg Nature Reserve	119	229
Spioenkop Public Resort Nature Reserve	60	128
Spitskop Nature Reserve	113	218
St Lucia Game Reserve	51	111
St Lucia Park	56	121
Sterkspruit Nature Reserve	94	183
Storms River Nature Reserve	30	73
Suikerbosrand Nature Reserve	75	154
Suurberg State Forest	34	79
Table Mountain Nature Reserve	111	214
Tembe Elephant Park	129	248
Thomas Baines Nature Reserve	109	210
Tsitsikamma Forest and Coastal National Park	8	33
Tsitsikamma Indigenous Forest	29	71
Tsitsikamma Mountains	27	68
Tsolwana Game Park	139	271
Tussen-die-Riviere Game Farm	123	237
Uitsoek State Forest	44	98
Umfolozi Game Reserve	50	109
Umtamvuna Nature Reserve	62	131
Vaalkop Dam Nature Reserve	93	182
Vergelegen Nature Reserve	71	144
Verloren Valei Nature Reserve	78	159
Vernon Crookes Nature Reserve	68	139
Verwoerd Dam Nature Reserve	126	242
Vrolijkheid Nature Reserve	108	209
Walker Bay State Forest	18	53
Weenen Nature Reserve	64	133
Weza State Forest	38	87
Willem Pretorius Game Reserve	125	240
Wolkberg Caves Nature Reserve	96	186
Wolkberg Wilderness Area	47	102
Wolwespruit Nature Reserve	91	179
Woodbush/De Hoek State Forests	48	104
Zingcuka Forest	142	275

REFERENCES

- Acocks J P H 1975. Veld Types of South Africa. *Memoirs of the Botanical Survey of South Africa* 40, 1-128.
- Broadley D G 1983. *FitzSimons' Snakes of Southern Africa*. Delta Books, Johannesburg. 376 pp.
- Bruton M N, P B N Jackson and P H Skelton 1982. *Pocket guide to the Freshwater Fishes of Southern Africa*. Centaur Publishers, Cape Town. 88 pp.
- Edwards D 1974. Survey to determine the adequacy of existing conserved areas in relation to vegetation types. *Koedoe* 17, 2-37.
- Gibbs Russell G E 1984. List of species of Southern African Plants. *Memoirs of the Botanical Survey of South Africa* 48, 1-144.
- Hall A V, M de Winter, B de Winter and S A M van Oosterhout 1980. *Threatened plants of southern Africa*. South African National Scientific Programmes Report 45. CSIR, Pretoria. 244 pp.
- Harroy 1971. United Nations list of National Parks and Equivalent Reserves. IUCN Publications, New Series 15, 1-601.
- Huntley B J and S Ellis 1984. Conservation status of ecosystems in southern Africa. *Proceedings of the 21st Working Session of the Commission for National Parks and Protected Areas*. IUCN, Gland. pp 13-22.
- IUCN 1975. *World Directory of National Parks and Protected Areas*. IUCN, Morges.
- IUCN 1978. *Objectives, criteria and categories for protected areas*. IUCN, Morges. 26 pp.
- IUCN 1980. *World Conservation Strategy*. IUCN, Gland.
- IUCN 1982. *IUCN Directory of Neotropical Protected Areas*. IUCN, Gland. 436 pp.
- IUCN 1982. *United Nations list of National Parks and Protected Areas*. IUCN, Gland. 155 pp.
- IUCN in press. *The IUCN Directory of Afrotropical Protected Areas*. IUCN, Gland and Cambridge.
- Maclean G L 1984. *Roberts' Birds of Southern Africa*. The Trustees of the John Voelcker Bird Book Fund, Cape Town. 848 pp.
- MacVicar C N 1977. *Soil classification: A binomial system for South Africa*. Department of Agricultural Technical Services, Pretoria. 150 pp.

- McLachlan G R 1978. South African Red Data Book - Reptiles and amphibians. South African National Scientific Programmes Report 23. CSIR, Pretoria. 53 pp.
- Meester J A J 1976. South African Red Data Book - Small mammals. South African National Scientific Programmes Report 11. CSIR, Pretoria. 59 pp.
- Miller K R 1983. Matching conservation goals to diverse conservation areas. A global perspective. In: R N Owen-Smith (ed) Management of Large Mammals in African conservation areas. Haum, Pretoria. pp 1-12.
- Pringle J 1982. The conservationists and the killers. Books of Africa Pty Ltd, Cape Town. 319 pp.
- Scheepers J C 1983. The present status of vegetation conservation in southern Africa. *Bothalia* 14, 991-996.
- Siegfried W R, P G H Frost, J Cooper and A C Kemp 1976. South African Red Data Book - Aves. South African National Scientific Programmes Report 7. CSIR, Pretoria. 108 pp.
- Skelton P H (in prep). South African Red Data Book - Freshwater fishes. South African National Scientific Programmes Report, CSIR, Pretoria.
- Skinner J D, N Fairall and J du P Bothma 1977. South African Red Data Book - Large Mammals. South African National Scientific Programmes Report 18. CSIR, Pretoria. 29 pp.
- Smith C A 1966. Common Names of South African Plants. Botanical Survey Memoir 35, 1-642.
- Smithers R H N 1983. The mammals of the southern African subregion, University of Pretoria. Pretoria, 736 pp.

RECENT TITLES IN THIS SERIES

66. Environmental research perspectives in South Africa. December 1982. 39 pp.
67. The SANCOR Estuaries Programme 1982-1986. February 1983. 43 pp.
68. The SANCOR Programme on Coastal Processes. April 1982 - March 1988. D H Swart (editor). February 1983. 30 pp.
69. Guidelines for the management of large mammals in African conservation areas. The proceedings of an international workshop held at Olifants Camp, Kruger National Park, South Africa. A A Ferrar (editor). May 1983. 95 pp.
70. Marine linefish programme priority species list. SANCOR. J H Wallace and R P van der Elst (editors). May 1983. 113 pp.
71. *Mineral nutrients in mediterranean ecosystems. Edited by J A Day. June 1983. 165 pp.
72. South African programme for the SCOPE project on the ecology of biological invasions. A description and research framework produced by the Task Group for Invasive Biota of the National Programme for Environmental Sciences. July 1983. 25 pp.
73. South African marine pollution survey report 1976-1979. B D Gardner, A D Connell, G A Eagle, A G S Moldan, W D Oliff, M J Orren and R J Watling. September 1983. 105 pp.
74. Ecological notes and annotated checklist of the grasshoppers (Orthoptera: Acridoidea) of the Savanna Ecosystem Project Study Area, Nylsvley. M V Gandar. November 1983. 42 pp.
75. *Fynbos palaeoecology: a preliminary synthesis. H J Deacon, Q B Hendey and J J N Lambrechts (editors). December 1983. 216 pp.
76. *A South African perspective on conservation behaviour - a programme description. Compiled by A A Ferrar. December 1983. 34 pp.
77. Limnology and Fisheries Potential of Lake Le Roux. B R Allanson and P B N Jackson (editors). December 1983. 182 pp.
78. Limnology of Lake Midmar. C M Breen (editor). December 1983. 140 pp.
79. The Limnology of the Touw River Floodplain. B R Allanson and A K Whitfield. December 1983. 35 pp.
80. *SANCOR: Summary report on marine research 1983. SANCOR. February 1984. 52 pp.
81. South African Antarctic Earth Science Research Programme. SASCAR. February 1984. 53 pp.

82. *The SANCOR marine sedimentology programme January 1984 - December 1988. I C Rust (editor). March 1984. 15 pp.
83. A description of major vegetation categories in and adjacent to the Fynbos biome. E J Moll, B M Campbell, R M Cowling, L Bossi, M L Jarman, C Boucher. March 1984. 29 pp.
84. Environmental research perspectives in South Africa. February 1984. 77 pp.
85. Invasive Alien Organisms in the Terrestrial Ecosystems of the Fynbos Biome, South Africa. I A W Macdonald and M L Jarman (editors). April 1984. 72 pp.
86. Terrestrial ecology in South Africa - project abstracts for 1982-1983. May 1984. 198 pp.
87. Conservation priorities in lowland fynbos. M L Jarman. May 1984.
88. A synthesis of plant phenology in the Fynbos Biome. Shirley M Pierce. December 1984. 57 pp.
89. Aquaculture in South Africa: A cooperative research programme. O Safriel and M N Bruton. June 1984. 79 pp.
90. Pipeline discharges of effluents to sea. D A Lord, F P Anderson and J K Basson (editors). October 1984. 108 pp.
91. Monitoring in South African Grasslands. M T Mentis. September 1984. 55 pp.
92. Conservation of threatened natural habitats. Anthony V Hall (editor). November 1984. 185 pp.
93. Limnological criteria for management of water quality in the Southern Hemisphere. R C Hart and B R Allanson (editors). December 1984. 181 pp.
94. Water quality criteria for the South African coastal zone. J A Luscher (editor). December 1984. 42 pp.
95. National Programme for Weather, Climate and Atmosphere Research Annual Report 1984/85. C W Louw (compiler). December 1984. 28 pp.
96. A guide to the literature on research in the grassland biome of South Africa. N M Tainton. December 1984. 77 pp.
97. South African Red Data Book - Birds. R K Brooke. December 1984. 213 pp.
98. Directory of southern African conservation areas. T Greyling and B J Huntley (editors). December 1984. 311 pp.

*Out of print.