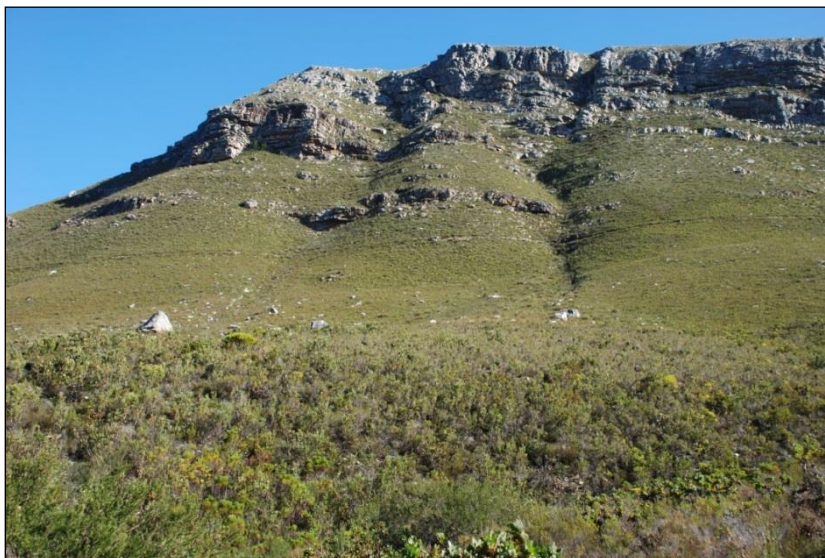




FERNKLOOF NATURE RESERVE PROTECTED AREA MANAGEMENT PLAN 2020 – 2025

Hermanus, Western Cape, South Africa

Final Draft May 2020



www.fernkloof.org.za



FERNKLOOF NATURE RESERVE

VISION STATEMENT

“The FNR is a showcase of the unique indigenous biodiversity of the Kleinriviersberg and the associated coastal lowlands for present and future generations.”



Image: *Leucospermum* species ©Hermanus Botanical Society

MISSION STATEMENT

“To sustainably manage and protect the natural assets and cultural heritage resources of the Fernkloof Nature Reserve, in partnership with relevant community organisations in order to conserve and ensure the continued existence of its rich biodiversity, and its associated ecological processes and services”.

MANAGEMENT OBJECTIVES

- ***To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures;***
- ***To ensure the conservation of ecological processes, ecosystems and species within the FNR are improved and maintained;***
- ***To effectively conserve the cultural heritage of the FNR;***
- ***To maintain and develop meaningful co-management and partnership agreements that benefits the FNR;***
- ***To ensure any development that is required is undertaken in a sustainable manner***

Authorisation Page

Main Contributors

The Protected Area Management Plan (PAMP) for the Fernkloof Nature Reserve (FNR) was adapted from the 2014/2017 Fernkloof Nature Reserve Integrated Management Plan compiled by Mr Charl Cilliers and Mr Aubrey Withers of Withers Environmental Consultants (Pty) Ltd., in association with Messrs Urban Dynamics Western Cape. The revised PAMP was compiled by Ms Liezl De Villiers and Ms Tamzyn Zweig (Overstrand Municipality, Environmental Management Services) with contributions from, but not limited to, the following parties:

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Definitions

In this document, unless the context indicates otherwise-

Alien species means a species that is not an indigenous species; or an indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention¹;

Biological diversity or **biodiversity** means the variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and includes diversity within species, between species, and of ecosystems¹;

Authorised person means an employee of a management authority, or any other person, acting as such on the written authorisation of a management authority and includes an environmental management inspector¹¹;

Biodiversity hotspot is a biographic region that is both a significant reservoir of biodiversity and is threatened with destruction. The term biodiversity hotspot specifically refers to 25 biologically rich areas around the world that have lost at least 70% of their original habitat¹⁵;

Biome means a large, naturally occurring community of plants and animals which occupy a distinct region, and area often defined by the specific climate and dominant vegetation¹⁵;

Bioprospecting means any research on, or development or application of, indigenous biological resources for commercial or industrial exploitation¹²;

Buffer zone includes the immediate setting of the protected area and the attributes that are functionally important as a support to the protected area (adapted wording)⁸, The surrounding areas and properties can be in control of the State or private properties where collaborative projects and programmes are undertaken to afford additional protection to the FNR;

Coastal dynamic processes mean all-natural processes continually reshaping the shoreline and near shore seabed and includes- (a) wind action; (b) wave action; (c) currents; (d) tidal action; and (e) river flows⁴;

Coastal wetland means any wetland in the coastal zone; and includes (i) land adjacent to coastal waters that is regularly or periodically inundated by water, salt marshes, mangrove areas, inter-tidal sand and mud flats, marshes, and minor coastal streams regardless of whether they are of a saline, freshwater or brackish nature; and (ii) the water, subsoil and substrata beneath, and beds and banks of any such wetland⁴;

Coastal zone means the area comprising coastal public property, the coastal protection zone, coastal access land and coastal protected areas, the seashore, coastal waters and the exclusive economic zone and includes any aspect of the environment on, in, under and above such area⁴;

Control, in relation to an alien or invasive species, means (a) to combat or eradicate an alien or invasive species; or (b) where such eradication is not possible, to prevent, as far as may be practicable, the recurrence, re-establishment, re-growth, multiplication, propagation, regeneration or spreading of an alien or invasive species¹;

Criterion A1 applied to threatened terrestrial ecosystems (national vegetation or DAFF recognised forests) has been identified as threatened due to an **irreversible loss of natural habitat** impacting on their structure, function and composition. An ecosystem is classified as **A1 critically endangered** due

to the extent of the remaining natural habitat of ecosystem being less than or equal to its biodiversity target indicating a loss of species and change in species composition within the ecosystem. An ecosystem classified as **A1 endangered ecosystem** due to the extent of the remaining natural habitat of the ecosystem is less or equal to its biodiversity target plus 15%. Thresholds for these classifications are based on biodiversity targets developed in the 2004 National Spatial Biodiversity Assessment¹⁶;

Criterion D1 applied to a threatened terrestrial ecosystem that has **threatened plant species** associated with the ecosystem. A D1 critically endangered ecosystem has 80 or more threatened National Red List plant species associated with the ecosystem, a D1 Endangered ecosystem has 60 or more threatened National Red List plant species associated with the ecosystem, and D1 Vulnerable if 40 or more threatened National Red List plant species are associated with the ecosystem. Only fynbos meets the high thresholds of Criterion D1¹⁶;

Critically Endangered ecosystem meaning ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk irreversible transformation¹;

Critically Endangered species (CR), being any indigenous species facing an extremely high risk of extinction in the wild in the immediate future¹. A species is Critically Endangered when the best available evidence indicates that it meets at least one of the five IUCN criteria for Critically Endangered, indicating that the species is facing an extremely high risk of extinction¹⁵.

Critically Rare species is a National Red List category for species not in danger of extinction but considered of conservation concern; the IUCN equivalent of Least Concern. A species is Critically Rare when it is known to occur at a single site but is not exposed to any direct or plausible potential threat and does not otherwise qualify for a category of threat according to one of the five IUCN criteria¹⁵.

Cultural heritage As defined and adapted from Article 1 of the World Heritage Convention Act, 1999 (Act No. 49 of 1999): “Monuments, architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of [outstanding universal] value from the point of view of history, art or science, groups of buildings, groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of value from the point of view of history, art or science, sites, works of man or the combined works of nature and man, and areas including landscapes and archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view”. For the purpose of FNR Protected Area Management Plan (PAMP), features of “living heritage”, as well as grave sites (e.g. Hoy’s Graves) and archaeological features (Khoekoen middens) are also included under this definition.

Cultural significance means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance⁸;

Data Deficient - Insufficient Information (DDD) means a species categorised by the National Red List when there is inadequate information to assess its risk of extinction, but the species is well defined. Listing of species in this category indicates that more information is required, and that future research could show that a threatened classification is appropriate¹⁵;

Data Deficient - Taxonomically Problematic (DDT) means a species categorised by the National Red List when taxonomic problems hinder the distribution range and habitat from being well defined, so that an assessment of risk of extinction is not possible¹⁵.

Development means any physical intervention, excavation or action, other than that caused by natural forces, which may result in the irreversible **transformation, disturbance** or change in the, appearance or physical nature of a site in a nature reserve or influence its stability and future well-being, including (a) the construction, alteration, demolition, removal or change of use of a site or a structure on the site; (b) the carrying out of any works on, over or under the site; (c) the construction or putting up for display of signs or notice boards; (d) any change to the natural or existing condition or topography of land; and (e) any removal, physical disturbance, clearing or destruction of trees or vegetation or the removal of topsoil¹¹;

Disturbed area, refer to Development in Definitions;

Discovery phase of bioprospecting means any research on, or development or application of, indigenous biological resources where the nature and extent of any actual or potential commercial or industrial exploitation in relation to the project is not sufficiently clear or known to begin the process of commercialisation¹;

Ecological community means an integrated group of species inhabiting a given area¹;

Ecological infrastructure taken directly from SANBI, refers to naturally functioning ecosystems that deliver valuable services to people, such as water and climate regulation, soil formation and disaster risk reduction. It is the nature-based equivalent of built or hard infrastructure and can be just as important for providing services and underpinning socio-economic development. Ecological infrastructure does this by providing cost effective, long-term solutions to service delivery that can supplement, and sometimes even substitute, built infrastructure solutions. Ecological infrastructure includes healthy mountain catchments, rivers, wetlands, coastal dunes, and nodes and corridors of natural habitat, which together form a network of interconnected structural elements in the landscape.

Ecological integrity means the sum of the biological, physical and chemical components of an ecosystem, and their interactions which maintain the ecosystem and its products, functions and attributes⁸;

Ecosystem means a dynamic complex of animal, plant and micro-organism communities and their non-living environment interacting as a functional unit¹²;

Eco-cultural tourism means environmentally responsible travel and visitation to relatively undisturbed natural areas in order to enjoy and appreciate nature as well as the past and present cultural and natural history of the area. Eco-cultural tourism promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations⁵;

Employee means a person in the employ of the management authority¹¹;

Endangered ecosystem means any ecosystem listed as an endangered ecosystem in terms of NEM:BA Section 52(2) where it is defined as: (b) endangered ecosystems, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems¹;

Endangered species (EN) means any indigenous species listed as an endangered species in terms of NEM:BA Section 56 where it is defined as: (b) endangered species, being any indigenous species facing a high risk of extinction in the wild in the near future, although they are not a critically endangered species¹; A species is Endangered when the best available evidence indicates that it meets at least one of the five IUCN criteria for Endangered, indicating that the species is facing a very high risk of extinction¹⁵.

Endemic means native or restricted to a certain area, region or country¹⁵;

Environment means the surroundings within which humans exist and that are made up of: (i) the land; water and atmosphere of the earth; (ii) micro-organisms, plant and animal life; (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being¹²;

Environmental goods and services includes (a) benefits obtained from ecosystems such as food, fuel and fibre and genetic resources; (b) benefits from the regulation of ecosystem processes such as climate regulation, disease and flood control and detoxification; and (c) cultural non-material benefits obtained from ecosystems and such as benefits of a spiritual, recreational, aesthetic, inspirational, educational, community and symbolic nature¹²;

Environmental Management Overlay Zone is a category of zoning applicable to an area which stipulates development rules in addition to the underlying zoning or base zone requirements and may include provisions for consent use limitations, environmental protection or any other purpose set out in the applicable bylaw.

Estuary means a body of surface water (a) that is permanently or periodically open to the sea; (b) in which a rise and fall of a water level as result of the tides is measurable at spring tides when the water course is open to the sea; or (c) in respect of which salinity is measurably higher as a result of the influence of the sea⁴;

Extent of occurrence (EEO) means the area in km² (measured by convex polygon) that contains all current sites of occurrence for a species (excluding vagrant individuals) classified on the National Red List of South African Plants¹⁵;

Fire Control Belt means with due regard to the weather, climate, terrain and vegetation of the area, is a break that: a) is wide enough and long enough to have a reasonable chance of preventing a Wild Fire from spreading to or from neighbouring land, b) will not cause soil erosion, and c) is reasonably free of inflammable material capable of carrying a wild fire across it¹³

Fire Protection Association (FPA) means a fire protection association registered in terms of the National Veld and Forest Fire Act, (Act No. 101 of 1998)¹³;

Genetic material means any material of animal, plant, microbial or other biological origin containing functional units of heredity¹;

Geographic information system (GIS). GIS is a system designed to capture, store, manipulate, analyse, manage and present geographical data³;

Habitat means a place where a species or ecological community naturally occurs¹;

Hazard means a source of, or exposure to danger¹²;

High-water mark means the highest line reached by coastal waters, but excluding any line reached as a result of (a) exceptional or abnormal floods or storms that occur no more than once in ten years; or an estuary being closed to the sea⁴;

Indigenous biological resource when used in relation to bioprospecting, means any indigenous biological resource as defined in NEM:BA Section 80(2) and includes: (i) whether gathered from the wild or accessed from any other source, including any animals, plants or other organisms of an indigenous species cultivated bred or kept in captivity or cultivated or altered in any way by means of biotechnology; (ii) any cultivar, variety, strain, derivative, hybrid or fertile version of any indigenous

species or of any animals, plants or other organisms referred to in subparagraph (i); and (iii) any exotic animals, plants or other organisms, whether gathered from the wild or accessed from any other source which, through the use of biotechnology, have been altered with any genetic material or chemical compound in any indigenous species or any animals, plants or other organisms referred to in subparagraph (i) or (ii); but excludes: (i) genetic material of human origin; (ii) any exotic animals, plants or other organisms, other than exotic animals, plants or other Organisms referred to in paragraph (a)(iii); and (iii) indigenous biological resources listed in terms of the International Treaty on Plant Genetic Resources for Food and Agriculture¹;

Indigenous species means a species that occurs, or has historically occurred, naturally in a free state in nature within the borders of the Republic, but excludes a species that has been introduced in the Republic as a result of human activity¹;

Internal rules mean rules made under Section 52 of NEM: PAA¹¹;

Introduction, in relation to a species, means the introduction by humans, whether deliberately or accidentally, of a species to a place outside the natural range or natural dispersal potential of that species¹;

Invasive species means any species whose establishment and spread outside of its natural distribution range- (a) threaten ecosystems, habitats or other species or have demonstrable potential to threaten ecosystems, habitats or other species; and (b) may result in economic or environmental harm or harm to human health¹;

Keystone species means species, relative to its population, that is critical for the overall structure and function of a particular ecosystem²;

Least Concern (LC) means a species categorised on the National Red List against the IUCN criteria and does not qualify for any categories. Species classified as Least Concern are considered at low risk of extinction. Widespread and abundant species are typically classified in this category¹⁵;

Listed invasive species means any invasive species listed in terms of NEM: BA Section 70(1). Refer to NEM:BA (Act No. 10 of 2004). Alien and Invasive Species Regulations (Government Gazette No. 37885, September 2014)¹;

Living heritage means the intangible aspects of inherited culture, and may include—(a) cultural tradition; (b) oral history; (c) performance; (d) ritual; (e) popular memory; (f) skills and techniques; (g) indigenous knowledge systems; and (h) the holistic approach to nature, society and social relationships⁶;

Local authority means any institution or body contemplated by section 84 (1) (f) of the Republic of South Africa Constitution Act, 1961 (Act 32 of 1961)⁷;

Local community means any community of people living or having rights or interests in a distinct geographical area¹²;

Local protected area means a nature reserve or protected environment managed by a municipality¹²;

Management authority, in relation to a protected area, means an authority to which the management of a protected area has been assigned¹;

Management means, in relation to a protected area, includes control, protection, conservation, maintenance and rehabilitation of the protected area with due regard to the use and extraction of biological resources, community-based practices and benefit-sharing activities in the area in a manner consistent with the Biodiversity Act¹²;

MEC means the member of the Executive Council of a province in whose portfolio provincial protected areas in the province fall (In the Western Cape Province the MEC is however officially referred to as the Minister of Environmental Affairs and Development Planning but to avoid confusion the PAMP text will refer to the MEC).

Migratory species means the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries¹;

Minister means the Cabinet member responsible for national environmental management¹;

Municipality means a municipality established in terms of the Local Government: Municipal Structures Act; 1998 (Act No. 117 of 1998). In the context of this document, unless the context suggests otherwise, "the municipality" refers to the Overstrand Municipality¹;

National Red List means the SANBI Red List of South African Plants that provides current information on the national conservation status of South Africa's indigenous plants¹⁵;

Natural heritage means, for the purpose of this document, unless context dictates otherwise, as per the World Heritage Convention Act (49 of 1999) Article 1: natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view; geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of value from the point of view of science or conservation; natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty; and Article 2: sites: works of man or the combined works of nature and man, and areas including archaeological sites which are of value from the historical, aesthetic, ethnological or anthropological point of view¹⁴;

Near Threatened (NT) means a species categorised on the National Red List when available evidence indicates that it nearly meets the IUCN criteria for Vulnerable and is therefore likely to become at risk of extinction in the near future¹⁵.

Point of entry means a place of entry to a nature reserve, including but not limited to access gates¹¹;

Pollution means any change in the environment caused by (i) substances;(ii) radioactive or other waves; or (iii) noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future¹²;

Prescribed burning means the controlled application of fire under specified environmental conditions to a predetermined area and at a time, intensity and rate of spread required to attain planned management objectives¹³;

Prohibited alien species means an alien species listed by notice of the Minister, in respect of which a permit may not be issued in contemplation of NEM: BA Section 67 (1)⁹;

Protected area means any of the protected areas referred to in NEM:PAA Section 9 where it is defined as: a) special nature reserves, national parks, nature reserves (including wilderness areas) and protected environments; (b) world heritage sites; (c) marine protected areas; d) specially protected forest areas, forest nature reserves and forest wilderness areas declared in terms of the National

Forests Act, 1998 (Act No. 84 of 1998); and (e) mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970)¹²;

Protected Area Notice means a written notification issued by a management authority¹¹;

Protected ecosystems being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed in Section 52¹;

Protected species meaning any species which are of high conservation value or national importance or require regulation in order to ensure that the species are managed in an ecologically sustainable manner¹;

Rare species being a species categorised by the National Red List when it meets at least one of four South African criteria for rarity, but is not exposed to any direct or plausible potential threat and does not qualify for a category of threat according to one of the five IUCN criteria. The criteria are as follows: Restricted range: Extent of Occurrence (EOO) <500 km², or

- Habitat specialist: Species is restricted to a specialized microhabitat so that it has a very small Area of Occupancy (AOO), typically smaller than 20 km², OR
- Low densities of individuals: Species always occurs as single individuals or very small subpopulations (typically fewer than 50 mature individuals) scattered over a wide area, OR
- Small global population: Less than 10 000 mature individuals¹⁵.

Recreation area means any area set aside in terms of the management plan for general use by the public¹¹;

Reserve means Fernkloof Nature Reserve;

Risk assessment means a scientific evaluation of the threat or potential threat to ecosystems, habitats, other species, the economy, the environment or human health or well-being posed by a restricted activity involving a specimen of an alien or listed invasive species in terms of Chapter 6 of NEM:BA¹⁰;

Scientific institution means (a) an organ of state that is involved in research; (b) a registered research unit of a tertiary institution; or (c) a museum or herbarium¹⁰;

Sense of Place means a geographic space that fosters a strong sense of authentic human attachment and belonging that is felt by the inhabitants and visitors to the area.

Species means an animal, plant or other organism that does not normally interbreed with individuals of another kind, and includes any sub-species, cultivar, variety, geographic race, strain, hybrid or geographically separate population¹;

Specimen means: a) any living or dead animal, plant or organism; b) a seed, egg, gamete or propagule or part of an animal, plant or other organism capable of propagation or reproduction or in any way transferring genetic traits; any derivative of any animal, plant or other organism; or any goods which- (i) contain a derivative of any animal, plant or organism; or from an accompanying document, from the packaging or mark or label, or from any other indications, appear to be or contain a derivative of an animal, plant or other organism¹¹;

Stakeholder means a natural or juristic person(s) that has an interest in, or may be affected by, a particular obligation or decision or activity, relating to or resulting from a management plan, either as individuals or representatives of a group, and include landowners where appropriate⁹;

Sustainable development means the integration of social, economic and environmental factors into planning; implementation and decision-making to ensure that development serves present and future generations¹²

In the context of FNR, it must be borne in mind that FNR is principally a protected conservation area with conservation management goals and objectives. The social and financial factors are therefore secondary. The main focus of any proposed structural/man-made development on FNR must be to ensure that development is restricted/mitigated in such a manner that:

- the conservation objectives as articulated in this PAMP remain achievable;
- structural development is restricted as far as is possible to the identified 'transformed units' described in this PAMP;
- structural development does not impact negatively on the surrounding natural environment;
- the FNR biodiversity and natural habitats remain sustainably conserved; and
- the natural aesthetic beauty and character of FNR is protected for the enjoyment of present and future generations.

Also refer the concepts of sustainable management discussed in 5.3. Mission Statement of the FNR; 5.4. Sustainable Development within the FNR;

Sustainable, in relation to the use of a biological resource, means the use of such resource in a way and at a rate that (a) would not lead to its long-term decline; (b) would not disrupt the ecological integrity of the ecosystem in which it occurs; and (c) would ensure its continued use to meet the needs and aspirations of present and future generations of people¹;

Transformed area, refer to **Development** in Definitions;

Threat (or threatens) means any action that causes a decline and/or compromises the future survival of a species, or anything that has a detrimental effect on a species. Threats can be human induced or natural⁹;

Vehicle means any conveyance designed or adapted principally to travel on wheels or tracks¹¹;

Viable in relation to a species or population means the ability to survive or persist and develop or multiply over multiple generations or a long time period⁹;

Vulnerable ecosystems, meaning ecosystems that have a high risk of undergoing significant degradation of degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems¹;

Vulnerable species (VU), meaning any indigenous species facing an extremely high risk of extinction in the wild in the medium-term, although they are not a critically endangered species or an endangered species¹. A species is Vulnerable when the best available evidence indicates that it meets at least one of the five IUCN criteria for Vulnerable, indicating that the species is facing a high risk of extinction¹⁵;

World heritage site means a world heritage site in terms of the World Heritage Convention Act, 1999 (Act No. 49 of 1999)¹².

Definition References

1	National Environmental Management Biodiversity Act (Act No. 10 of 2004)
2	Biology Dictionary. Available online: https://biologydictionary.net/

3	University of Wisconsin-Madison Libraries, Research Guides. Available online: https://researchguides.library.wisc.edu/GIS ;
4	National Environmental Management Integrated Coastal Management Act (Act No. 24 of 2008);
5	International Union for the Conservation of Nature (IUCN). Tourism, Ecotourism and Protected Areas; Björk "Definition Paradoxes: From Concept to Definition" Page 26-27.
6	National Heritage Resource Act (Act No. 25 of 1999)
7	Nature Conservation Ordinance Act (19 of 1974)
8	National Environmental Management Protected Areas Act (Act 57 of 2003). Norms and Standards for the Management of Protected Areas in South Africa (Government Gazette No.39878, March 2016)
9	National Environmental Management Biodiversity Act (Act No. 10 of 2004) Norms and Standards for Biodiversity Management Plans for Species (Government Gazette No. 31968, March 2009)
10	National Environmental Management Biodiversity Act (Act No. 10 of 2004). Alien and Invasive Species Regulations (Government Gazette No. 37885, September 2014)
11	National Environmental Management Protected Areas Act (Act 57 of 2003). Regulations for the Proper Administration of Nature Reserves (No. 35021 of 2012)
12	National Environmental Management Act (107 of 1998)
13	National Veld and Forest Fire Act (Act 101 of 1998)
14	World Heritage Convention Act (Act 49 of 1999)
15	SANBI National Red List Categories. Available online: http://redlist.sanbi.org/redcat.php
16	National Environmental Management Biodiversity Act (Act No. 10 of 2004). National List of Ecosystems that are threatened and need of protection (Government Gazette No.34809, December 2012)

Abbreviations & Acronyms

The following abbreviations and acronyms are referred to in this document:

a.m.s.l.	Above mean sea level
ADU	Animal Demographic Unit
AHC	Annual Hermanus Camp
APO	Annual Plan of Operation
BMP	Biodiversity Management Plan
BRAHMS	Botanical Research and Herbarium Management System
CAPE	Cape Action Plan for People and the Environment
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CCS	Core Cape Subregion
CDP	Conceptual Development Plan
CFR	Cape Floral Region
CITES	Convention on International Trade in Endangered Species
CPMG	Cliff Path Management Group
CR	Critically Endangered
CREW	Custodians of Rare and Endangered Wild Flowers (SANBI)
CWC	Cape Whale Coast
DDD	Data Deficient due to Insufficient Information
DDT	Data Deficient - Taxonomically Problematic
DEFF	Department of Environment, Fisheries and Forestry
DEA&DP	Department Environmental Affairs and Development Planning
DEA	Department of Environmental Affairs
DWS	Department of Water Affairs and Sanitation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EEO	Extent of occurrence
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework

EMP	Environmental Management Plan
EMS	Environmental Management Services (Overstrand Municipality)
EMOZ	Environmental Management Overlay Zone
EN	Endangered
EPWP	Expanded Public Works Programme
FAB	Fernkloof (Nature Reserve) Advisory Board
FDI	Fire Danger Index
FMP	Fire Management Plan
FHR	Fernkloof Honorary Rangers
FNR	Fernkloof Nature Reserve
FPA	Fire Protection Association (refers to the Greater Overberg Fire Protection Association)
GIS	Geographic Information System
GO FPA	Greater Overberg Fire Protection Association
HBC	Hermanus Bird Club
HBI	Herpetofauna Biodiversity Inventory
HBS	Hermanus Botanical Society
HWC	Heritage Western Cape
I&AP	Interested and Affected Party
IBI	Invertebrate Biodiversity Inventory
ICLEI	International Council for Local Environmental Initiatives
IDP	Integrated Development Plan
LC	Least Concern
LED	Local Economic Development
LT	Least Threatened
LUPO	Land Use Planning Ordinance, (Ordinance 15 of 1985)
MBI	Mammal Biodiversity Inventory
MEC	Member of the Executive Council
METT-SA	The WWF/World Bank's Management Effectiveness Tracking Tool adapted for South Africa
MoA	Memorandum of Agreement
MoU	Memorandum of Understanding
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEM:ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM:PAA	National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NGO	Non-Governmental Organisation
NHRA	National Heritage Resources Act, 1999 (Act 25 of 1999)
NPAES	National Protected Area Expansion Strategy
NRF	National Research Foundation
NWA	National Water Act, 1998 (Act No. 36 of 1998)
ODM	Overberg District Municipality
OHS	Occupational Health and Safety
OHAC	Overstrand Heritage and Aesthetics Committee
OSM	Overstrand Municipality
PAMP	Protected Area Management Plan

PPP	Public Participation Process
PSDF	Provincial Spatial Development Framework
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANSA	South African National Survey of Arachnid
SDF	Spatial Development Framework
SIF	Strategic Implementation Framework
SMME	Small, Medium and Micro Enterprises
SOP	Standard Operating Procedure
SPC	Spatial Planning Category
TMG	Table Mountain Group
UCT	University of Cape Town
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VBI	Vegetation Biodiversity Inventory
VBMP	Vegetation Biodiversity Monitoring Programme
VU	Vulnerable
WCC	Whale Coast Conservation
WCPAES	Western Cape Protected Area Expansion Strategy
WWF SA	World Wide Fund for Nature South Africa

1. The Declaration Status of the FNR

The FNR is a declared Protected Area in terms of Section 12 of the NEM:PAA under which nature reserves declared under previous provincial legislation are regarded to be nature reserves under NEM:PAA. The FNR was formally proclaimed (Proclamation No. 391 of 1971) in terms of the Nature Conservation Ordinance, 1965 (Ordinance No. 26 of 1965).¹ As such, the Municipality does not have to apply for the re-declaration of the Reserve in terms of the NEM:PAA.

A map dated September 1942 indicates a 165 hectare “*Existing Nature Reserve*”, and a “*Proposed Nature Reserve*” totalling 1 217 hectares. However, formal management for conservation purposes of a portion of the then “*Hermanus Commonage*” only began in September 1952, with the subsequent proclamation of a so-called “*Wild Flower Reserve*” (Proclamation No. 129 of 1956).²

The area steadily increased in popularity and was thus declared a Nature Reserve on 22 November 1957 (Proclamation No. 182 of 1957). Proclamation No. 182 did not, however, describe the boundaries of the Nature Reserve, nor did it assign a name to it. The name “*Fernkloof Nature Reserve*” was assigned by the then Hermanus Municipality on 5 February 1958. On 23 January 1962 the FNR was extended by ± 19.7 hectares by the inclusion of the Municipal commonage known as “*Mossel River West*”.

Mr Harry Wood was then appointed as the first curator of the Nature Reserve and was instructed by the Municipality to establish a garden using plants from the Caledon Division. A small nursery (which is today run by the HBS) was started on-site for this purpose. Since the 1970s, the HBS’s efforts and funding succeeded in establishing the current Reserve infrastructure comprising an auditorium, office complex, staff accommodation, kitchen, storage space, toilet blocks, herbarium, visitor’s centre, nursery, Research Centre and tourist accommodation. A small visitors’ centre was constructed, from which a network of hiking trails was established.

Following comments received from Dr J.P. (John) Rourke of the Compton Herbarium, Kirstenbosch, dated August 1970, the Municipality established a committee which proposed extensions to the Nature Reserve which included an additional mountainous area of commonage, the coastal Cliff Path, and Hoy’s Koppie. Proclamation No. 391 of 1971 which followed, named and proclaimed the FNR as a “*Local Authority Nature Reserve*”, and described its boundaries in terms of the Nature Conservation Ordinance, 1965 (Ordinance No. 26 of 1965), but did not include the Cliff Path section, or Hoy’s Koppie.

The then Department of Nature and Environmental Conservation endorsed the inclusion of Hoy’s Koppie and the Mossel River Valley into the Reserve on 18 April 1984, and the FNR was officially opened by Mr J.C. Heunis, MEC, on 4 September 1985.

¹ The Nature Conservation Ordinance, 1965 (Ordinance No. 26 of 1965) has been superseded by the Nature and Environmental Conservation Ordinance, 1974 (Ordinance No. 19 of 1974).

² The description of the recent history of the FNR was largely sourced from: Overstrand Conservation Services. 2001. Fernkloof Nature Reserve Management Plan incorporating the Mossel River Valley, a section of the Cliff Path and Hoy’s Koppie. Unpublished report compiled for the Overstrand Municipality. 65pp.

An extension to the FNR was made on 2 June 2000 (Provincial Notice No. 242 of 2000 as contained in Provincial Gazette No. 5507) by incorporating the Mossel River Valley, a section of the Cliff Path, Piet se Bos and Hoy's Koppie into the reserve.

A further extension was added to the east of the Reserve during 2009, between Vogelgat Private Nature Reserve, the Kleinrivier estuary and Lagoon Farm, as described in Provincial Notice No. 37 of 2009 of 21 August 2009, as contained in Provincial Gazette No. 6651.

Also Refer to:

Appendix 1. Overstrand: Fernkloof Nature Reserve Regional Locality Map

Appendix 2. Overstrand: Fernkloof Nature Reserve Local Context Map

Appendix 3. Overstrand: Fernkloof Nature Reserve Cadastrals Map

Appendix 10: Fernkloof Nature Reserve Proclamations

2. The Management Framework of the FNR

Also refer to:

9.2. Integrated Planning, Cooperative Governance and Co-management;

Management Action Table 1.2. Integrated Planning, Cooperative Governance and Co-management.

2.1. The Overstrand Municipality

Under authorisation of the MEC of the Western Cape Department of Environmental Affairs and Development Planning, the Overstrand Municipality¹(OSM) is the designated Management Authority of the FNR. Within the OSM Infrastructure and Planning Directorate, the Environmental Management Services (EMS) is responsible for *inter alia* the effective management of Municipal Nature Reserves.

The FNR Management Authority is responsible for reporting an annual assessment of the achievement of or contributions to the management goals of the nature reserve to the designated Western Cape Provincial MEC of Environmental Affairs in terms of Chapter 4(15) of the Regulations for the Proper Administration of Nature Reserves promulgated in terms of the NEM: PAA in Government Notice No. R 99 on 8 February 2012, thus ensuring coordination of matters that may affect the FNR through the relevant Provincial Departments, District and Local Municipalities.

In terms of the requirement of NEM: PAA and the Local Government Municipal Systems Act 2000 (Act No. 32 of 2000), the FNR management and PAMP is aligned with the Overstrand Municipal Integrated Development Plan (IDP), Municipal Spatial Development Framework (SDF), the Overstrand: Towards 2050 Integrated Development Framework (IDF) and with the Western Cape Provincial SDF (PSDF).

To strengthen and support the management of the FNR, partnerships or management agreements should be sought with adjacent conservation orientated landowners, with CapeNature and local conservation orientated groups and organisations.

2.2. The Fernkloof Advisory Board (FAB)

According to the Western Cape's Nature and Environmental Conservation Ordinance, 1974 (Ordinance No. 19 of 1974) an advisory board must be established for the purpose of advising and making recommendations to the management authority in connection with the management, control and development of a local nature reserve². In accordance with Section 8 of The Ordinance (19 of 1974)³, the Fernkloof Advisory Board (FAB) bylaw was promulgated by the Hermanus Municipality on 28

¹ The Overstrand Municipality is classified as a Category B Local Authority as per the Municipal Systems Act, 2000 (Act No. 32 of 2000), and therefore shares certain administrative functions with the Overberg District Municipality.

² The Western Cape's Nature and Environmental Conservation Ordinance (19 of 1974) and Amendment Act, 2000 (3 of 2000); Section 8.1

³ The Western Cape's Nature and Environmental Conservation Ordinance of 1974 will be replaced by the Western Cape Biodiversity Act once it is promulgated in the Government Gazette

September 1979¹. The advisory board is constituted in accordance with bylaws or regulations made under section 9 of the Ordinance No. 19 of 1974.

As per NEM: PAA Regulations for the Proper Administration of Nature Reserves (Government Gazette No. 35021 February 2012), Chapter 3, the Overstrand Municipality in their capacity as the FNR management authority, may establish one or more advisory committees. The establishment of, mandate, terms of reference etc. of the committee are set out in the Regulations. According to the NEM:PAA: Norms and Standards for the management of protected areas in South Africa (528 of 2014)², advisory committees indicate the intention of a protected area to have a) sound neighbour relations and b) a strategy that enhances the socio-economic activities within their sphere. The FNR does not have an Advisory Committee.

2.3. CapeNature

Governed by the Department of Environmental Affairs and Development Planning (Western Cape Government), the Western Cape Nature Conservation Board (trading as CapeNature) is responsible for biodiversity conservation in the Western Cape with the mandate to *inter alia* promote and ensure nature conservation, generate income, render services and provide facilities for research and training. As such, management of the FNR consults with, and is guided by CapeNature's policies and implementation guidelines³.

2.4. The South African Institute for Biodiversity (SANBI)

Governed by the Department of Environment, Forestry and Fisheries (DEFF) The South African Institute for Biodiversity (SANBI) is an institute that *inter alia* monitors and reports to the minister on the status of biodiversity, conservation and invasive species in South Africa. As such, the FNR management are guided by SANBI policies and guidelines⁴.

2.5. The Department of Environment, Forestry and Fisheries: Biodiversity and Conservation

The Biodiversity and Conservation unit of the DEFF is *inter alia* responsible for the "establishment, management and maintenance of ecologically representative national and cross-border systems of protected areas to advance the heritage of humankind." The function of the unit includes establishing, managing and maintaining protected areas and World Heritages Sites, improving governance at national and international level, safe-guarding key ecological processes across

¹ Hermanus Municipality, P.N.667/1979, Bylaw Relating to the Advisory Board for the Fernkloof Nature Reserve. 28 September 1979

² South Africa. 2016 Government Gazette No. 39878. Government Notice No.382. Department of Environmental Affairs: National Environmental Management Act, 2003 (Act 57 of 2003): Norms. and Standards for the management of protected areas in South Africa.

³ Western Cape Government. Available online: <https://www.westerncape.gov.za/public-entity/capenature-0> Accessed August 2018.

⁴ South African National Biodiversity Institute (SANBI). Available online: <https://www.sanbi.org/about/sanbi-mandate/> Accessed Aug 2018.

ecosystems and landscapes, development and implementation of policy and legislation and support to the Chief Directorate¹.

2.6. Western Cape Department of Environmental Affairs and Development Planning: Biodiversity

As the Provincial Governing body of CapeNature, the Western Cape DEA&DP undertakes to preserve the environment for future generations by preventing environmental harm. Informed by South African environmental legislation, the DEA&DP impact decisions to enable resilient, sustainable, quality and inclusive living environments. CapeNature reports to DEA&DP.

2.7. Co-Management Agreements

NEM:PAA (2003) Section 42 states that the protected area management authority may enter into Co-management agreements with another organ of state, a local community, an individual or other party for the co-management of the area by parties or the regulation of human activities that effect the environment in the area.

The FNR Management Authority encourage local and broader community involvement through collaboration with neighbouring communities and other stakeholders as described in the paragraphs below.

The following organisations have lease or co-management agreements with the Municipality:

2.7.1. The Hermanus Botanical Society (HBS)

Formed in 1960 with the purpose of protecting the fauna and flora of the FNR. HBS has assisted with designing and producing hiking maps, signage and points of interest management, alien vegetation clearing, establishing, colour coding and maintaining hiking trails as well as recording the plant species in the FNR. In 1977 the Hermanus Botanical Society applied to the Municipality for the lease of a portion of Municipal property 4780 and 591/1 for the purpose of managing, leasing, supervising and maintaining the Fernkloof gardens and all infrastructures on a portion of the Fernkloof Nature Reserve.

The HBS herbarium is recognised internationally. The HBS has recruited and housed many undergraduate, graduates and post-graduates to undertake scientific research that has benefited FNR. In 2017 the Hermanus Botanical Society also entered into a Co-Management Agreement (Conservation Partnership) with the Environmental Services department of the Municipality to assist with infrastructure and vegetation maintenance on the reserve where they felt they could make a contribution.

2.7.2. Cliff Path Management Group (CPMG)

Formed in 2002, a Co-management Agreement with the OSM was concluded in 2017. The CPMG has the following functions:

¹Department of Environmental Affairs: Biodiversity and Conservation. Available online: https://www.environment.gov.za/branches/biodiversity_conservation . Accessed: August 2018.

- To restore the natural biodiversity of the Cliff Path (from the Hermanus New Harbour to Piet-se-Bos) through the eradication of alien vegetation and replanting of locally indigenous flora;
- To preserve and improve the physical and aesthetic qualities of the Hermanus Cliff Path;
- To work with the OSM EMS to improve the physical attributes of the sites and maintain a coordinated directional signage programme;
- To attain a litter-free environment working in conjunction with the OSM;
- To maintain archaeological sites along the Cliff Path;
- To communicate with professional security structures to protect and safeguard Cliff Path users¹.

2.7.3. Hermanus Hacking Group (HHG)

The Hermanus Hacking Group is a Non-Profit Organisation funded by the HBS, the Table Mountain Fund, the OSM and individual sponsors. A Co-management Agreement with the OSM was concluded in 2017. The HHG, through the Co-Management Agreement assists with the EMS Annual Alien Vegetation Clearing Plan for the FNR.

2.7.4. Overstrand Heritage and Aesthetics Committee (OHAC)

The OHAC is an advisory board appointed in terms of the National Heritage Resources Act, 1999. The OHAC advises on the conservation of the built and natural environment of the Overstrand. The Overstrand Heritage and Aesthetics Committee are consulted by the FNR on matters relating to develop and maintenance of heritage sites within the reserve.

2.7.5. Fernkloof Honorary Rangers (FHR)

FHR are individuals chosen by the EMS for their passion, commitment and years of dedication towards the protection, conservation and preservation of the FNR. Not only are the FHR protectors of the flora and fauna and all other ecological functioning that the reserve provides, but they carry many years of local knowledge and expertise. In 2018 the first four FHR were presented with certificates and badges at the Annual Mayoral Awards. Mr Frank Woodvine, Ms Priscilla Drewe, Ms Belle Barker and Ms Lee Burman are the luminaries who will lead the way forward for the Honorary Rangers of the FNR.

¹ Adapted from CPMG website: <https://www.fernkloof.org.za/index.php/cliff-path-management-group> Accessed: 23 July 2018.

3. Legislation Guiding the Administration of the FNR

Legislation and regulations applicable to the various aspects of management for FNR are listed in the relevant subsections of Section 9, The FNR Strategic Implementation Framework.

As the Management Authority of the FNR, the Overstrand Municipality must, *inter alia*, implement all current and future legislation applicable to the FNR (e.g. the NEM:PAA, the NEM:BA, and Sections 7 - 10 of the Western Cape's Nature and Environmental Conservation Ordinance, 1974 [Ordinance No. 19 of 1974])¹. Note that, since the FNR is a formal Protected Area, any conflicts with other legislation must be dealt with in accordance with Section 7 of the NEM:PAA.

Regulations for the Proper Administration of Nature Reserves have been promulgated in terms of the NEM:PAA in Government Notice No. R 99 on 8 February 2012. The PAMP for the FNR must also be interpreted and applied in accordance with the provisions of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA), with the 2014 Environmental Impact Assessment (EIA) Regulations and with the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).

The FNR management employees must familiarise themselves with the purpose and contents of the applicable legislation listed in Section 9, FNR Strategic Implementation Framework (which may not be exhaustive), with any subsequent amendments, and with the associated Regulations that may be revised from time to time.

¹The Western Cape's Nature and Environmental Conservation Ordinance of 1974 will be replaced by the Western Cape Biodiversity Act once it is promulgated in the Government Gazette.

4. The FNR Protected Area Management Plan (PAMP)

4.1 Legislation guiding the FNR PAMP

The Management Authority's responsibility to formulate a management plan is enshrined in NEM: PAA (2003): 39) Preparation of a Management Plan.

The function of a management plan is described in NEM: PAA Section 41. Management Plans.

“The objective of a management plan is to ensure the protection, conservation and management of the protected area concerned in a manner which is consistent with the objectives of this Act and for the purpose it was declared.”

Management plans may include subsidiary plans, and the Minister or MEC may approve the management plan or any subsidiary plan in whole or part.

The Standard Indicators of a Protected Area Management Plan are set out in NEM:PAA Norms and Standards for the Management of Protected Areas in South Africa¹

4.2 The Primary Functions of the FNR PAMP

The FNR Protected Area Management Plan (PAMP) is a strategic document formulated to provide a framework for the operation and management of the FNR. The PAMP is an adaptive management tool that allows for adaptive/and or refined management processes to respond to the changing factors that may affect the FNR.

The Primary Functions of this PAMP are to:

- i. Be a strategic and adaptive instrument tool that informs the need of specific programmes and operational procedures for effective management of the FNR;*
- ii. Provide for empowerment, efficiency, progression and continuity of FNR management;*
- iii. Give FNR management the tools required to ensure the values and purposes of the FNR are protected*

Although this PAMP outlines strategic priorities as well as the specific actions required to effectively manage the FNR and emergency situations that may arise, it does remain possible that - due to the inherent and unpredictable characteristics of the natural environment - the priorities outlined in this PAMP may require adaptation to meet the immediate needs of the reserve. Adaptive management strategies should be recorded and addressed in the annual review to update the PAMP and the Annual Plan of Action (APO) for the FNR.

¹South Africa. 2016 Government Gazette No. 39878. Government Notice No.382. Department of Environmental Affairs: National Environmental Management Act, 2003 (Act 57 of 2003): Norms and Standards for the management of protected areas in South Africa.

4.3 Procedures for the approval of the FNR PAMP

The FNR PAMP was adapted from outsourced environmental consultants Withers Environmental Consultants and Urban Dynamics Western Cape (The Integrated Management Plan for the Fernkloof Nature Reserve, 2014 and 2017). The document was redrafted and edited by the Overstrand Municipality's Environmental Management Services. Upon completion of this, the Fernkloof Nature PAMP Draft 1 was submitted to OSM Director of Infrastructure and Planning. Upon acceptance by the Director, the subsequent procedure followed:

- 1) Document was submitted to the FAB, CapeNature and HBS for review and comment;
- 2) Comments received were incorporated into the PAMP;
- 3) Document was returned to the FAB, CapeNature and HBS for endorsement;
- 4) Document was then submitted to the OSM Director, Infrastructure and Planning, Municipal Manager, Ward 3 Councillor and other Senior Management Staff involved with the PAMP;
- 5) Document was advertised for Stakeholder and I&AP engagement and comment;
- 6) Comments received were considered and incorporated into the PAMP;
- 7) Draft 2 was completed and prepared to be placed on the Municipal Website in order for the I&AP to view and to show the incorporation of comments received;
- 8) Submitted to OSM Council for approval to follow; and upon approval
- 9) Submitted to DEADP for Ministerial Approval.

4.4 The PAMP Stakeholder Participation Process

A formalized and transparent Public Participation Process (PPP) for the PAMP is not only a legal requirement but also a valuable tool for the sustainable management of a protected area (as per the three pillars of sustainable development discussed in 5.3. FNR Mission Statement. A transparent and formalized PPP will ensure that the desires and concerns of stakeholders, communities and interested and affected parties (I&AP) are understood and considered and will ultimately provide better outcomes for the goals of the FNR.

4.5 Monitoring and Review of the FNR PAMP

Also refer to:

Management Action Table 1.12. Management Effectiveness.

According to Chapter 4 (15) of Government Notice No. R. 99 of 8 February 2012: NEM: PAA Regulations for the Proper Administration of Nature Reserves the Management authority is to monitor and report annually, **before the end of June each year** to the Member of the Executive Council (MEC) on the status of implementation of the management plan and may include an assessment of the achievement of, or contributions to, the management objectives of the nature reserve.

An annual environmental and management performance evaluation needs to be conducted by the Reserve Manager to measure performance against set objectives for the protected area. The result of this evaluation should become the focus of the Management Authority to assist with achieving the management goals and to gauge management effectiveness.

As such, it is suggested that the annual performance evaluation be undertaken in the first quarter of each year (April/May), to ensure that the audit and report can be submitted to the MEC before the June deadline.

An external environmental and management audit may also take place every five years. Monitoring of the effectiveness of management is an important mechanism for the Management Authority to ensure that set targets and objectives of the PAMP are met. Therefore in addition to the above mentioned annual performance evaluation, the METT – SA (Management Effectiveness Tracking Tool), a rapid, site-level assessment tool adapted from the World Bank and the World Wildlife Fund for Nature (WWF) system, will also be applied to evaluate the management effectiveness of the FNR's PAMP¹.

4.5.1 Review and Amendment Procedures for the FNR PAMP

4.5.1.1 Document Control

The PAMP is a basic planning framework guiding key management aspects of the FNR. It is important for the PAMP to be revised and improved if need be, by documenting all actions and management results in a structured format. It will be important for the PAMP and its supporting documents to be accessible to all the implementing and management persons/institutions responsible for implementing its Actions and Monitoring Programmes. The results of the assessments are to be submitted to the Advisory Board, CapeNature, and to the DEA&DP on an annual basis.

4.5.1.2 Management and Document Review

To maintain the relevance, appropriateness and effectiveness of the PAMP, and thereby enhance its performance, the EMS should formally review, evaluate and update the PAMP on an annual basis.

An external environmental and management audit, review and update of the PAMP should occur every five years.

The scope of each review should be comprehensive, though not all elements of the PAMP need to be reviewed at once and the review process may take place over a defined period of time. The annual and five-yearly reviews should include the following:

- review the results of the monitoring analyses undertaken of Actions and of specific Monitoring Programmes throughout the year, and during the annual evaluations;
- review the extent to which the goals set in the PAMP have been met;
- review the applicability of the PAMP in relation to changing conditions (e.g. changes in legislation, climate change, natural disasters), circumstances, information and technological advances;
- obtain and review any concerns amongst relevant authorities and role-players that may have arisen; and
- incorporate the results of, or management recommendations arising from, Actions and management programmes into the PAMP after their completion.

During the last year of applicability of this PAMP (2025), timeous steps shall be taken by the Management Authority to prepare for a new five-year iteration of this PAMP. Should the new iteration

¹ Wittridge, O. 2011. Integrated Reserve Management Plan. Helderberg Nature Reserve. City of Cape Town. 122 pp.

be delayed for any reason, this 2020 - 2025 MP will remain in force until the new five-year man plan has been authorised by the MEC.

5. Strategic Management Framework of the FNR

The Strategic Management Framework provides the basis for the management, conservation and development of the FNR and consists of the purpose, vision, mission, values, and goals of the FNR which consequently defines the management objectives and actions.

Actions arising from the PAMP are described in detail in Section 9. The FNR Strategic Implementation Framework; and Management Action Tables 1.1. to 1.17.

5.1 The Purpose of the FNR

The FNR delivers important ecosystem services¹ and is a source of spiritual and cultural wellbeing, and outdoor recreation for the inhabitants of and visitors to Hermanus. Ecological infrastructure provides critical ecosystem services that support economic and social development including freshwater supply, buffers against flooding, as well as climate and air quality control². Growing human population has created an increased need for urban and economic development that is directly related to the partitioning and degradation of natural ecosystems and therefore increased pressure on ecological infrastructure.

The specific purpose for which the reserve was established, was spelled out by Mr Harry Wood, the then Curator of the reserve, on 25 April 1966 at the request of the Town Clerk. It read, "The specific purpose for which the reserve was established was to conserve the natural association between Fauna and Flora which are indigenous to this area, and to build up that which is becoming extinct in the Caledon Division. This includes the planting of forest trees, which when mature will encourage the natural Fauna of the surrounding districts to make a haven in the reserve".

In the Town Clerk's letter to the Director of Nature Conservation dated 12 November 1968 it was rephrased to read, "Specific purpose for which Reserve was established: As a nature reserve (particularly wild flowers) which includes the preservation and cultivation of Indigenous Flora, which grows and which is known to have grown in the Caledon Division".

The purposes of a Protected Area are described in NEM: PAA Chapter 3. Section 23: Declaration of Protected Areas and must be used as a frame of reference for management. The FNR fulfills all of the purposes of a Protected Area as defined by NEM:PAA (Chapter 3, Section 17) and is especially valuable as a component of the Cape Floral Kingdom that conserves a unique combination of habitats, ecosystems and species.

¹ As defined in Section 1 of the NEM:PAA.

² Pool-Stanvliet, R., Duffell-Canham, A., Pence, G. & Smart, R. 2017. The Western Cape Biodiversity Spatial Plan Handbook. Stellenbosch: CapeNature. Available online: <http://bgis.sanbi.org/Projects/Detail/194> Accessed: 14 August 2018.

5.2 The Vision of the FNR

The FNR vision is a long-term inspirational determinant of the FNR for achievement of goals toward best management, conservation and development of the FNR.

“The FNR is a showcase of the unique indigenous biodiversity of the Kleinriviersberg and the associated coastal lowlands for present and future generations.”

In achieving the above Vision, the FNR will contribute meaningfully to the realisation of the vision of the current Municipal Spatial Development Framework (SDF) and Integrated Development Plan (IDP) documents, which is as follows:

“Overstrand Municipality is striving to be the most desirable destination to visit, stay and do business in”

The vision of the Overstrand Municipality’s Environmental Management Services Section (EMS), which is as follows:

“The Environmental Management Section strives towards sustainable environmental management by means of environmental best practice and apply adaptive and creative thinking to an ever-changing and unpredictable environment in an attempt to manage the future outcomes of a system that is beyond our control” (T. Dry)

“Accordingly, the section strives to coordinate, plan and manage all human activities in a defined environmental system to accommodate the broadest possible range of sustainable short and long term environmental, social and economic development objectives.”

5.3 Mission Statement of FNR

The Mission Statement of the FNR should be acknowledged as the Management Intent and thereby guide management actions:

“To sustainably manage and protect the natural assets and cultural heritage resources of the Fernkloof Nature Reserve, in partnership with relevant community organisations in order to conserve and ensure the continued existence of its rich biodiversity, and its associated ecological processes and services”.

5.4 Sustainable Development within the FNR

Also refer to:

8. *The FNR Conservation Development Framework;*

9.9. *Infrastructure Management; Management Action Table 1.9.;*

9.13. *Financial and Administrative Management; Management Action Table 1.13.*

To ensure development of the FNR follows the concept of sustainable development, the following points of relevance have been adapted from The National Environmental Management Act (No. 19519 of 1998) Section 2 (4) (a) Principles must be adhered to:

- i. the disturbance of ecosystems and loss of biological diversity is avoided, or where it cannot be altogether avoided, is minimised and remedied;*
- ii. pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
- iii. the disturbance of landscapes and any cultural sites on the FNR is avoided, or where it cannot be altogether avoided, is minimised and remedied;*
- iv. waste is avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;*
- v. the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;*
- vi. the development, use and exploitation of renewable resources and the ecosystems of which they are a part, do not exceed the level beyond which their integrity is jeopardised;*
- vii. a risk-averse and cautious approach is applied (also called the Precautionary Approach) to the general management of the FNR, which considers the limits of current knowledge about the consequences of decisions and actions; and*
- viii. negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.*

5.5 The Values of the FNR

The following values of the FNR make the protected area exceptional in ecological, ecosystem, social and culture terms:

Ecological Values	<ul style="list-style-type: none"> • <i>Unique ecosystems, habitats and species;</i> • <i>78% of FNR consists of Critically Endangered Sandstone Fynbos and a further 7.4% of Vulnerable Agulhas Limestone Fynbos, this is over 85% of the reserve.</i> • <i>Catchment area for the Mossel River;</i> • <i>The Hermanus Botanical Society Herbarium and Research Centre contributes valuable research data to national and international organisations</i>
Ecosystem Service Values	<ul style="list-style-type: none"> • <i>Carbon sequestration through diverse habitat types;</i> • <i>Water cycle regulation from vegetation management and alien vegetation removal;</i> • <i>Species diversity contributes to genetic diversity enabling adaptation to changing conditions;</i>

	<ul style="list-style-type: none"> • <i>Adjacent agricultural lands benefit from the protection of bird and insect species to pollinate crops;</i> • <i>Protected coastal dune habitats contribute to stability in coastal urban areas.</i>
Cultural & Historical Values	<ul style="list-style-type: none"> • The graves of Sir William and Lady Hoy on Hoy's Koppie circa 1935; • Annual Hermanus Camp (AHC) a Grade IIIA Local Heritage Site by Heritage Western Cape declared in 2015; • The Archaeological findings in the Klip Kop Cave on Hoy's Koppie occupied in the Middle Stone Ages; • Khoekoen Shell Middens at Rietfontein and Rowweklip sites on the FNR Cliff Paths.
Ecotourism values	<ul style="list-style-type: none"> • Access to approximately 60km of walking, hiking and cycling trails; • Wheelchair accessible paths and resting benches suitable for all ages and levels of physical fitness; • Guided walks with local knowledge sharing; • Avi-tourism; • Land-based whale-watching from the Cliff Path portions of the FNR; • Galpin Hut hiker accommodation; • Fernkloof Indigenous Nursery; • Fernkloof gardens with wheelchair access, child-friendly play and picnic areas; • Significant attractor of tourists to Hermanus; • Visitors' Centre; • Fernkloof Hall for function hire.
Social Values	<ul style="list-style-type: none"> • Environmental Awareness programmes; • Scientific research opportunities; • Local economy job creation; • Aesthetical, recreational, spiritual, cultural and therapeutic values.

5.6 The Objectives of the Management of the FNR

The following prioritised objectives of the FNR represent Key Performance Areas (KPA's) that mark achievements that must be met to support the management intent described in the Vision of the FNR:

- i. To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures;
- ii. To ensure the conservation of ecological processes, ecosystems and species within the FNR are improved and maintained;
- iii. To effectively conserve the cultural heritage of the FNR;
- iv. To maintain and develop meaningful co-management and partnership agreements that benefit the FNR;
- v. To ensure any development that is required within the FNR is undertaken in a sustainable manner.

6. The Description and Context of the FNR

6.1 Location and Extent of the FNR

Also refer to:

9.1. Legal Status and Reserve Expansion; Management Action Table 1.1. Legal Status and Reserve Expansion;

Appendix 1. Overstrand: Fernkloof Nature Reserve Regional Locality Map;

Appendix 2. Overstrand: Fernkloof Nature Reserve Local Context Map;

Appendix 3. Overstrand: Fernkloof Nature Reserve: Cadastrals;

Appendix 5. Overstrand: Fernkloof Nature Reserve Vegetation Map;

Appendix 10: Fernkloof Nature Reserve Proclamations;

Figure 15. Table: Current and proposed land parcels that constitute the FNR

The six portions that make up the FNR are located adjacent to and are partially surrounded by the town of Hermanus (Western Cape, South Africa). Hermanus is the centre of the jurisdiction area of the Overstrand Municipality, which forms part of the Overberg District Municipality in the Western Cape Province. The total area of the existing FNR is 1801.46ha. The FNR extends from sea-level to 823.7a.m.s.l at Galpinkop. The properties that make up the Reserve are referred to in this PAMP collectively as the FNR or referred to as individual portions as described below.

The Fernkloof Nature Reserve consists of six fragmented land parcels that make up the FNR in its entirety.

Portion 1: The main body of the FNR consists of a mountainous area (westernmost parts of the Kleinriviersberge mountain range), which directly abuts the urban edge of Hermanus on the southern border, with no agricultural land or vacant erven in between. De Diepgat Conservancy and Vogelgat Private Nature Reserve on the eastern boundary of FNR Portion 1, (Erf 591/0) serve as a buffer zone and contribute to the critical mass of indigenous vegetation in the reserve. Alien vegetation and fire management is place for Vogelgat Reserve. On the western boarder of Portion 1 (FNR Erven 591/1; 591/2 and RE/4780), a subdivided portion Ashbourne Vineyards is rezoned from Agriculture I to Open Space III. The Ashbourne Conservation area is approximately 50ha A Stewardship Agreement between CapeNature and the Ashbourne conservation area is in place. Vineyards at Hamilton Russel and Southern Right Wine Estate Border Portion 1 (Erf 1253).

Portion 2: The Hoy's Koppie portion contains the graves of Sir and Lady William Hoy (circa 1930) (also refer to 6.2. Conservation History of the FNR) as well as archaeological evidence of the Khoekoen occupation of the area. Vegetation types in the Hoy's Koppie portion of the FNR include the Critically Endangered Overberg Sandstone and a Milkwood tree grove. Unique plant species found in this area include Spinnekopblom (*Ferraria crispa*) and the Bobbejaantjie (*Babiana ambigua*). Hoy's Koppie portion is surrounded by urban residential development.

Portion 3: An area directly north of the Kleinrivier Estuary was proclaimed into of the FNR in 2009. This area serves as a conservation corridor to the estuary and is bordered by Maanschynkop Provincial Nature Reserve and Vogelgat Private Nature Reserve;

Portion 4: The Cliff Path portion contains narrow strips of land in the Coastal Zone between the high-water mark and cadastral boundaries of erven between the Klein River Estuary and the Hermanus New Harbour. The Cliff Paths represent Overberg Dune Strandveld thicket and Cape Seashore vegetation types within the FNR and shell middens represent a heritage value of the FNR.

Portion 5: The Annual Hermanus Camp (AHC) portion of the reserve was declared as a Grade IIIA Living Heritage Feature Local Heritage Site in 2015. This portion of the FNR was included in the 2000 FNR proclamations. The area borders the Kleinrivier Estuary and protects the only portion of FNR that contains Cape Lowland Freshwater Wetlands vegetation;

Portion 6: The Piet-se-Bos portion of the reserve contains endangered Milkwood Forest and remnants of Southern Afrotemperate forests (The Grotto). The area was proclaimed in 2000.

6.2 Conservation History of the FNR

In 1923 Mr William Hugh ("Meester") Paterson, schoolteacher and later Mayor of Hermanus, collected examples of local wild flowers from the Hermanus vicinity and displayed them at a flower show in England. The flowers won a trophy, and kick-started public interest in conserving the rich floral diversity of the area. Meester Paterson was appointed as the first secretary of a local Hermanus Horticultural Society that was founded the following year.

A map dated September 1942 indicates a 165 hectare "*Existing Nature Reserve*", and a "*Proposed Nature Reserve*" totalling 1 217 hectares. However, formal management for conservation purposes of a portion of the then "*Hermanus Commonage*" only began in September 1952, with the subsequent proclamation of a so-called "*Wild Flower Reserve*" (Proclamation No. 129 of 1956).¹ The area steadily increased in popularity and was thus declared a Nature Reserve on 22 November 1957 (Proclamation No. 182 of 1957). Proclamation No. 182 did not, however, describe the boundaries of the Nature Reserve, nor did it assign a name to it. The name "Fernkloof Nature Reserve" was assigned by the then Hermanus Municipality on 5 February 1958. On 23 January 1962 the FNR was extended by ± 19.7 hectares by the inclusion of the Municipal Commonage known as "*Mossel River West*".

Mr Harry Wood was then appointed as the first curator of the Nature Reserve and was instructed by the Municipality to establish a garden using plants from the Caledon Division. A small nursery (which is today run by the HBS) was started on-site for this purpose. Since the 1970s, the HBS's efforts and funding succeeded in establishing the current Reserve infrastructure comprising an auditorium, office complex, accommodation, kitchen, storage space, toilet blocks and herbarium), visitor's centre,

¹The description of the recent history of the FNR was largely sourced from: Overstrand Conservation Services. 2001. Fernkloof Nature Reserve Management Plan incorporating the Mossel River Valley, a section of the Cliff Path and Hoy's Koppie. Unpublished report compiled for the Overstrand Municipality. 65pp.

Research Centre and a nursery. A small visitors' centre was constructed, from which a network of hiking trails was established.

Following comments received from Dr J.P. Rourke of the Compton Herbarium, Kirstenbosch, dated August 1970, the Municipality established a committee which proposed extensions to the Nature Reserve which included an additional mountainous area of commonage, the coastal Cliff Path, and Hoy's Koppie. Proclamation No. 391 of 1971 which followed, named and proclaimed the FNR as a "Local Authority Nature Reserve", and described its boundaries in terms of the Nature Conservation Ordinance, 1965 (Ordinance No. 26 of 1965), but did not include the Cliff Path section, or Hoy's Koppie.

The then Department of Nature and Environmental Conservation endorsed the inclusion of Hoy's Koppie and the Mossel River Valley into the Reserve on 18 April 1984, and the FNR was officially opened by Mr J.C. Heunis, MEC, on 4 September 1985. An extension to the FNR was made on 2 June 2000 (Provincial Notice No. 242 of 2000, Provincial Gazette No. 5507) by incorporating the Mossel River Valley, a section of the Cliff Path, Piet se Bos and Hoy's Koppie into the reserve. A further extension was added to the east of the Reserve during 2009, between Vogelgat Private Nature Reserve, the Kleinrivier estuary and Lagoon Farm, as described in Provincial Notice No. 37 of 2009 of 21 August 2009, as contained in Provincial Gazette No. 6651 (refer to Appendix 1: FNR Proclamation and Extension Government Notices/Gazettes).

6.3 FNR Context: Ecological

Also refer to:

9.1. *Legal Status and Reserve Expansion;*

9.3. *Ecosystem & Biodiversity Management*

9.14. *UNESCO World Heritage Site Application;*

Management Action Table 1.1. Legal Status and Reserve Expansion;

Management Action Table 1.3. a) Ecosystem & Biodiversity Management: General Actions

The FNR is located within the Cape Floral Region (CFR), an UNESCO World Heritage Site consisting of thirteen clusters of protected areas in the Western and Eastern Cape known as The Cape Floral Region Protected Areas. The CFR is globally recognized as the smallest but most diverse of the six Floral Kingdoms and is especially noteworthy for its diversity of threatened endemic plant species.

Within the CFR, the southwestern Cape floristic region is known as the Core Cape Subregion (CCS). The CCS encompasses an area of approximately 90 760km² and is represented by over 9300 vascular plant species of which over 68% are endemic. The CCS represents less than 0.4 % of Africa's surface area, yet is home to over 20% of the continent's flora, and displays outstanding ecological and biological processes associated with the fynbos vegetation, which characterises it¹.

The FNR constitutes 0.02% of the CFR yet 18 % of plant species found within the CFR are also found within the FNR. The FNR conserves a unique combination of habitats, ecosystems and species, some

¹ Cape Floral Region Protected Areas. Available online: <http://whc.unesco.org/en/list/1007>. Accessed: 8 June 2012. ¹ Manning, J. & Goldblatt, P. 2012. Plants of the Greater Floristic Region 1: The Core Cape Flora, *Strelitzia* 29. South African Biodiversity Institute, Pretoria

of which are classified as rare, critically endangered, endangered or vulnerable in terms of their conservation status.

6.4 FNR Context: Climate

The climate of the area is described as a Mediterranean-type warm-temperate climate that is defined by fire-prone warm, dry summers and cooler wet winters. The area on average receives approximately 450 – 830 mm of rain per year (mean annual precipitation is approximately 480mm), which falls year-round, and peaks in the winter months from May to August. In summer the prevalent south-easterly winds are responsible for the orographic mist precipitation on the eastern and southern slopes at higher altitudes. Winter is dominated by prefrontal north westerly winds and postfrontal south-westerly winds. Frost may occur on 2 or 3 days per year. Snowfalls on coastal mountains are not common due to the maritime climate¹.

For the main vegetation type of the FNR, namely Overberg Sandstone Fynbos, the mean average maximum and minimum temperatures for January and July are 25.6 °C and 6.3 °C, respectively.

6.5 FNR Context: Geology and Soils

The FNR contains mostly shallow acidic lithosol soils, comprising a high proportion of gravel and small boulders, derived from Ordovician quartzitic sandstones of the Table Mountain Group with Houwhoek, Glenrosa and Mispah soil forms being prominent.¹ Such lithosol soils underlie Overberg Sandstone Fynbos, the main vegetation type of the FNR.

In the south-east of the FNR, the originally horizontal quartzite sandstone beds are conspicuously folded. Table Mountain quartzitic sandstone is extremely resistant to weathering, and hence gives rise to cliffs, screes and coarse sandy soils.

Because of the rugged topography, and the slow rate of weathering of the quartzitic sandstone of the Peninsula Formation, there is little possibility for soil development. The soils are rarely deeper than 30 cm as bedrock is never far from the surface, and the landscape is punctuated with rock outcrops, or strewn with angular blocks.

Because of the acidic conditions, organic plant materials are slow to decompose, and so accumulate to form black, partly decomposed, peat-like material dispersed in the sub-surface horizon of the soil. The peat contributes little to soil fertility but improves the moisture holding capacity of the soil, and so in part accounts for the surprisingly green appearance of the vegetation in the warmer mid-summer months.

In some areas, colluvial weathered material accumulates to a depth of a metre or more. On such sites, which are often permanently wet, a considerable depth of peat with its characteristic flora may develop.

The FNR is also characterised by rust-coloured shale bands of 80 – 200m wide at an altitude of approximately 275m a.m.s.l. The shale bands weather readily to give rich, brown, loamy soil and provide the smooth slopes of the FNR. This band of clay, derived from shale of the Cedarberg Formation, supports diverse fynbos shrublands of all structural types, namely Western Coastal Shale Band Vegetation.

¹Mucina, L., Rutherford, M.C. (eds) (2006). The Vegetation of Southern Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

Shallow alkaline bedrock and alkaline, grey, regic sands on limestones of the Bredasdorp Group underlie Agulhas Limestone Fynbos vegetation, which occurs chiefly in the south-eastern areas of the Reserve, nearer to the Klein River Estuary.

In the extreme western areas of the FNR, Hangklip Sand Fynbos is underlain by leached, acid Tertiary sand. The soils are either Lamotte or Houwhoek forms, or comprise grey, regic sands.

The Overberg Dune Strandveld, thicket and Milkwood Forest habitats of the Cliff Path area are underlain by deep, recent marine-derived calcareous sands forming dunes that line the coast (Quaternary Strandveld Formation of the Bredasdorp Group), to shelly, shallow-marine sandstones and limestones of the Bredasdorp Group deposited on underlying Table Mountain Group quartzitic sandstone.

The substrate of the Cape Lowlands Freshwater Wetlands vegetation type is built of fine sandy, silty and clayey soils overlying young Quaternary sediments, largely derived from weathering of Cederberg Formation shales, Table Mountain Group quartzitic sandstones and Cape granites.

The soils of the Southern Afrotemperate Forest Habitats, in the gorges and along streams, are for the most part shallow (and skeletal) Mispah, Glenrosa and Houwhoek forms, derived from Table Mountain Group quartzitic sandstones and shales of the Cederberg Formation.

6.6 FNR Context: Hydrology

Also refer to:

Appendix 4. Overstrand: Fernkloof Nature Reserve Hydrology Map;

9.3. Ecosystem and Biodiversity Management;

9.6. Invasive and Non-Invasive Alien Species Management;

Management Action Tables 1.3: Ecosystem & Biodiversity Management: h) Ecosystem Services;

Management Action Tables 1.3: Ecosystem & Biodiversity Management: j) Catchment, Groundwater & Rivers;

Management Action Table 1.6. Invasive and Non-Invasive Alien Species Management.

It is understood that inland aquatic systems within the Western Cape are generally highly threatened ecosystems and although some mountain streams are in relatively good ecological condition, many of the lower lying inland ecosystems are modified from their natural state and are degraded¹.

Due to the intensity of pressures, a strategic and systematic approach to the management of freshwater ecosystems must include the recognition of flow alteration from extraction, water pollution, the destruction and degradation of natural habitats, the impact of invasive and alien species and the effects of climate change¹. The aquatic systems of the FNR are described in more detail below.

¹Fynbos Forum.2016. Ecosystem Guidelines for Environmental Assessment in the Western Cape, Edition 2. ISBN 978-0-620-72215-5

6.6.1 Groundwater

The Peninsula Formation quartzite in the Hermanus area supports an aquifer, which has been exploited by the Gateway, Camphill and Volmoed Wellfield to supply Hermanus with potable water¹. According to Umvotu Africa, the Peninsula Formation quartzite unit is hydraulically separated into various fault-bounded compartments, named 'Structural Sub-Areas', across which it is interpreted that there is no hydraulic connection (i.e. no groundwater flow), due to the sealing nature of the annealed fault core (as such, the potential impacts of pumping of the water supply are likely to be insignificant on the biodiversity of the FNR).

In some of these compartments, the Peninsula Formation quartzite is overlain by Cedarberg Formation shale and the Goudini Formation fine sandstones/siltstones, which act as confining units. In other words, water cannot enter or escape from the quartzite through the overlying layers. In other compartments these overlying units are not present, and the Peninsula Formation is broadly unconfined, for example in "Sub-Area 3" (rainwater can recharge the aquifer system by infiltrating the Peninsula Formation quartzite unit in this area).

The Gateway Well-field (which augments the potable water supply to Hermanus) targets the Peninsula Formation within "Sub-Area 1". At the well-field, and on the coastal platform, the Peninsula Formation is confined at depth beneath the Cedarberg Formation shales and the Goudini Formation. The recharge zone (source of water) for Sub-Area 1 is where the Peninsula Formation outcrops in the western Kleinriviersberge Mountain range (i.e. in the Fernkloof Mountains).

The Skurweberg Formation quartzite, which overlays the confining beds of the Cedarberg Formation shale and Goudini Formation, is also an effective aquifer but is not targeted by the Gateway Well-field (the deeper Peninsula Formation aquifer yields better quality water than shallower layers and the yield is inferred to be more sustainable). In the Hermanus coastal platform the Skurweberg Formation is unconfined, and a monitoring borehole (GWE08b) targets this unit to monitor for potential links from pumping in the deep confined Peninsula Formation to the upper Skurweberg Formation aquifer across the Hermanus Fault. In the coastal platform the Skurweberg Formation (south of Hermanus Fault) and Goudini Formation (north of Hermanus Fault) are overlain by the Bredasdorp Group sediments, which forms the shallow alluvium or primary, unconfined aquifer. Many private well-points penetrate the alluvium for garden watering, and five monitoring points (WP1 to WP4 and GWE08a) penetrate the alluvium to monitor a potential link from pumping in the deep confined Peninsula Formation to the upper alluvium aquifer.

¹ Umvotu Africa. 2011. Results of Monitoring Programme April 2011 to September 2011. Volume 1 Gateway Wellfield. Water Source Development and Management Plan for the Greater Hermanus Area, Overstrand Municipality. Draft May 2012.

6.6.2 River and Catchment Areas

The FNR contains the entire catchment area of the Mossel River, from source to sea¹. Sixteen streams form tributaries of the Mossel River, namely: Robbeklipstroom, Roads End Stream, James's Stream, Vulture Stream, Dew Pond, Diastella Stream, Sunbird Swamp, Disa Stream, Roridula Stream, Retzia Stream, Waterkloof, Fisherman's Kloof, Fernkloof, Droëkloof, Kantoorskloof, and an unnamed stream (which is important to hikers) north of 'Galpinkop'. The Mossel River has three named waterfalls, the Assegaaibos Waterfall, Cave Falls and Roridula Falls. The Mossel River catchment area feeds the Gateway Well-Field which augments the potable water supply to Hermanus.

6.6.3 Coastal and Estuary Zones

The eastern boundary of the FNR abuts the Klein River Estuary, the catchment area of which falls outside the FNR.

The FNR includes various fragmented land parcels at or in proximity to the coast and to the Klein River Estuary. These areas are managed in terms of the applicable statutory management guideline documents and in terms of the relevant legislation (including, but not limited to, the NEM: ICMA, the NEM:PAA, the NEMA, and the NWA) as well as the OSM Draft Environmental Overlay Zone Regulations (2016)² with the purpose of: "*Managing the integrity of coastal ecosystems, ecosystem services, coastal dynamic processes and biodiversity within Coastal Reserves*". As per the OSM Draft Environmental Overlay Zone Regulations (2016), a co-management agreement with the CPMG was concluded in 2017 to co-manage the restoration and maintenance of indigenous flora of the FNR Cliff Path portions of the FNR.

The Overberg District Municipality (ODM), of which the OSM is a local municipality to, participates in the Local Action for Biodiversity (LAB): Wetlands South Africa in partnership with the International Council for Local Environmental Initiatives (ICLEI) with the objective to conserve wetlands and natural resources that provide ecosystem services that naturally control climate hazards such as water source shortages and flooding. A Wetland Report has been drafted for the Overberg and, after acceptance of the draft, a strategy and action plan will be developed to streamline wetland conservation and funding. The ODM has committed to extend the partnership with the ICLEI for another three years³.

6.7 FNR Context: Vegetation

Also refer to:

Appendix 5. Overstrand: Fernkloof Nature Reserve Vegetation Map

9.3. Ecosystem and Biodiversity Management;

9.5. Fire Management;

9.6. Invasive and Non-Invasive Alien Species Management;

Management Action Table 1.3. a) General Actions;

Management Action Table 1.3 b) Indigenous Vegetation;

Management Action Table 1.3 j) Catchment, Groundwater & Rivers;

¹ The Mossel River is located in the G40H Quaternary Drainage Region.

² Overstrand Municipality: Draft Environmental Overlay Zone Regulations. 2016. Available online: <https://www.overstrand.gov.za/en/documents/town-planning/overstrand-municipality-by-law-on-municipal-land-use-planning/3908-02-revision-of-overstrand-mun-bylaw-2016-draft-env-man-a-overlay-zone-reg/file>

³ Overberg District Municipality. Annual Report. 2016/17. Accessed online: August 2018. Available online: https://www.odm.org.za/download_document/1475

Management Action Table 1.5. Fire Management.

The South African Biodiversity Institute (SANBI) has led the process to identify threatened ecosystems that are listed in the NEM:BA Government Gazette 1002 of 2011: National List of Ecosystems that are Threatened and need of protection¹. Within the FNR the Critically Endangered (CR) Overberg Sandstone Fynbos; Vulnerable (V) Agulhas Limestone Fynbos and Endangered (E) Hangklip Sand Fynbos and Western Cape Milkwood Forest vegetation types are represented. Least Threatened (LT) Western Coastal Shale Band Vegetation, Hangklip Sand Fynbos, Cape Lowland Freshwater Wetland, Cape Seashore Vegetation and Overberg Dune Strandveld vegetation types are also represented in the FNR.

Note: Criterion D1 (Overberg Sandstone Fynbos and Agulhas Limestone Fynbos within the FNR) was developed to protect species that are not listed as endangered in terms of the restricted activities (for e.g. hunting, gathering, exporting trading in etc.) as defined in the NEM:BA but are at risk due to habitat degradation, the main driver of terrestrial species loss¹. In all ecosystems in South Africa, only fynbos ecosystems meet the D1 criteria which highlights the biodiversity and extent of pressure of the vegetation type.

Within the FNR, broader vegetation types include a large diversity of habitats including coastal and estuarine areas, seasonal wetlands, rivers and dams, forested gorges featuring spectacular waterfalls, forested rocky scree slopes, patches of Milkwood Forest, and fynbos-covered mountain slopes. This habitat diversity translates to a staggering record of more than 1 250 indigenous plant species identified within the FNR². Approximately 78 plant species found within the FNR are classified in the Red List of South African Plants as Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT) or Rare³.

The species richness per km² and the threatened plant species profiles within its boundaries makes the FNR comparable with the Kogelberg Nature Reserve, one of the thirteen protected areas within the UNESCO World Heritage Site: Cape Floral Region.

HBS regularly contribute species specific flora data, information and samples to the following national and international organisations:

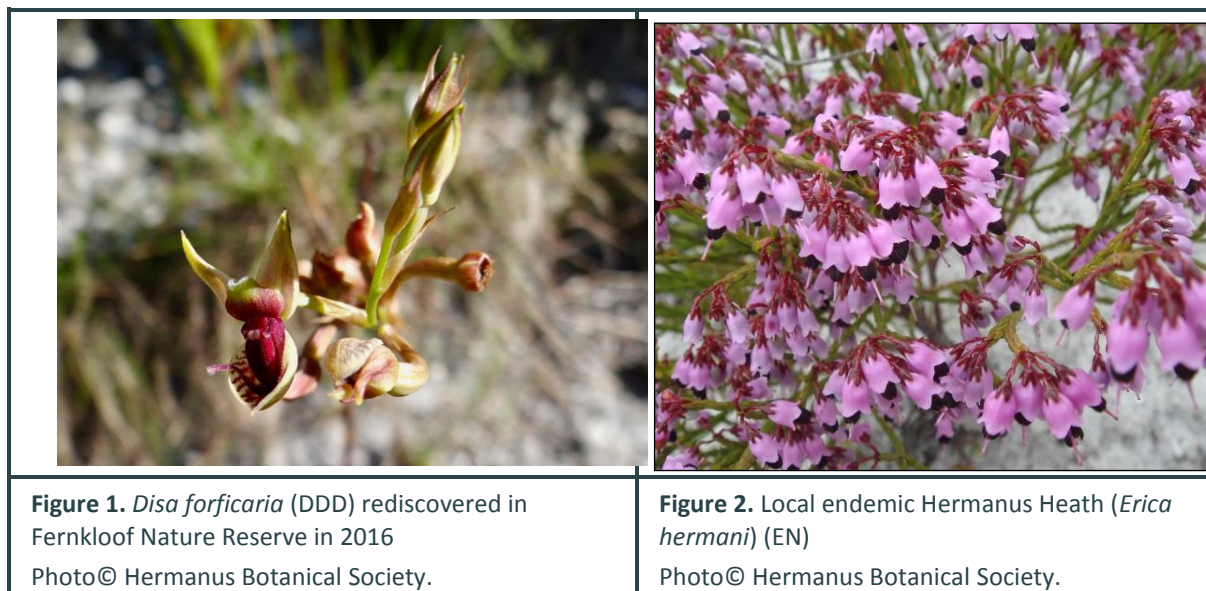
- The SANBI Custodians of Rare and Endangered Wild Flower (CREW);
- The University of Oxford's Botanical Research and Herbarium Management System (BRAHMS); and
- Royal Botanical Kew Millennium Seed Bank.

¹South Africa: Department of Environmental Affairs. Government Notice No.1002 of 2011: National Biodiversity Act , 2004 (Act No. 10 of 2004) National List of Ecosystems that are threatened and need of protection.

²Grant Forbes, CapeNature. pers. comm. 31 May 2012

³ South African National Biodiversity Institute (SANBI) Red List of South African Plants. Available online: <http://redlist.sanbi.org/index.php>

In 2016, *Disa forficaria* (Figure 1) was rediscovered in the FNR; this species was previously only known from five herbarium specimens and, despite concerted efforts, had not been located *in situ* since 1966. This species is currently classified as DDD (Data Deficient due to Insufficient Information)¹.



The paragraphs below describe the FNR vegetation types, their classifications as per the NEM: BA and the notable species found therein.

6.7.1 Overberg Sandstone Fynbos

Vegetation type and local description:

Overberg Sandstone Fynbos, defined as moderately tall, dense restioid, ericoid-leaved and proteoid shrublands, constitutes 78% of the total area of the reserve. Landscape features include low mountains with the highest point of 824m a.m.s.l. and undulating hills and plains².

National Conservation Status and Classification:

Overberg Sandstone Fynbos is listed by NEM:BA as Critically Endangered due to the D1 Criterion. Of the original 117 000ha of naturally occurring Overberg Sandstone Fynbos vegetation in South Africa, 86% percent remains, of which 6% is statutorily conserved in the Fernkloof Nature Reserve, Agulhas National Park, Babilonstoring, Heuningberg, Maanschynkop, Salmonsdam and Caledon Nature Reserves.

According to the SANBI Threatened Species Programme, of 110 plant species associated with Overberg Sandstone 14 are listed as Critically endangered (CR), 37 are listed as Endangered (EN) and 59 are listed as Vulnerable (VU).

¹ von Staden, L., Bytebier, B., Liltved, W.R., Oliver, E.G.H. & Oliver, T.A. 2006. *Disa forficaria* Bolus. National Assessment: Red List of South African Plants version 2017.1. Accessed on 2018/09/10

² Mucina, L., Rutherford, M.C. (eds). 2006. The Vegetation of Southern Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria

A species of concern occurring in the FNR is the Hermanus Pincushion (*Leucospermum gracile*) (NT). 25 species are categorised as endemic flora species that are only associated with Overberg Sandstone Fynbos vegetation.

As such, the FNR has a vital role to play regarding achieving the desired National target of 30% formal protection for this vegetation type.

Notable species within the FNR:

The vegetation on Hoy's Koppie includes Overberg Sandstone Fynbos on the northern side, and a Milkwood grove on the southern side (in the vicinity of the Klip Kop Cave). Notable species include the Spinnekopblom (*Ferraria cripisa*) and the Bobbejaantjie (*Babiana ambigua*) (LC).

The Endangered Hermanus Heath (*Erica hermani*) (Figure 2) has an extent of occurrence (EOO) of 8km² at two or three locations and although some plants remain within the FNR, the individuals who occur in firebreaks are threatened by brush-cutting and on the lower slopes of the reserve and Babilonstoring alien vegetation continue to be a concern.

The Cryptic pagoda (*Mimetes palustris*) (Figure 3), listed as CR due to the species' EEO of 26km² within the Kleinrivier mountains and the threat of a decreasing population size due to the direct effects of invasive alien vegetation and habitat degradation¹.

The Endangered *Erica galpinii* (Figure 4.) is a rare localised, slow growing reseeder that is estimated to have less than 450 mature individuals from two subpopulations within a 4km² EEO. During the 1980's the Fernkloof subpopulation consisted of over 700 mature individuals, but due to too frequent fires, it is reported that approximately 200 matures specimens remain constituting a 50% decline in the subpopulation².



Figure 3. Local Endemic, Cryptic pagoda (*Mimetes palustris*) (CR)

Photo© Hermanus Botanical Society.



Figure 4. *Erica Galpinii* (EN) occurs only on Galpin Kop in the FNR.

Photo© Hermanus Botanical Society.

¹ Rebelo, A.G., Helme, N.A., Holmes, P.M., Forshaw, C.N., Richardson, S.H., Raimondo, D., Euston-Brown, D.I.W., Victor, J.E., Foden, W., Ebrahim, I., Bomhard, B., Oliver, E.G.H., Johns, A., van der Venter, J., van der Walt, R., von Witt, C., Low, A.B., Paterson-Jones, C., Rourke, J.P., Hitchcock, A.N., Potter, L., Vlok, J.H. & Pillay, D. 2006. *Mimetes palustris* Salisb. ex Knight. *National Assessment: Red List of South African Plants version 2017.1*. Accessed on 2018/09/13

² Turner, R.C. & von Staden, L. 2008. *Erica galpinii* T.M. Salter. *National Assessment: Red List of South African Plants version 2017.1*. Accessed on 2018/09/13

6.7.2 Western Coastal Shale Band Vegetation

Vegetation type and local description:

Rust-coloured bands of shale derived soils some 80 – 200m wide, at an altitude of approximately 275m a.m.s.l. occurring in two bands in the northernmost part of the FNR with a smaller occurrence south of the former distribution description¹. The shale bands in the FNR are limited in extent, contain small populations of several prominent plant species, and support small patches of Afrotemperate Forest in gullies, and on saddles. This vegetation type is known to support diverse renosterveld and fynbos shrublands of all structural types.

National Conservation Status and Classification:

Least Threatened. The National Conservation Target of 30% has been achieved (45% in statutory and local authority reserves, and an additional 30% in mountain catchment areas). These shale bands are known to support at least 7 endemic species, although not yet described in the FNR. This area constitutes 4% of the FNR thereby contributing to the overall habitat and species biodiversity of the reserve.

Notable species within the FNR:

Skaapbostee species (*Otholobium dreweae*) (Synonym *Otholobium* sp.nov.) (Figure 5) is listed as Vulnerable due to the only known location of the species being in the FNR². The Endangered Witbergpypie (*Cyrtanthus leucanthus*) is found on FNR sandstone and limestone slopes and is associated with Western Coast Shale Band vegetation, this species has highly localised populations that are known to have less than 40 individuals per population. This species is known from 14 subpopulations which are all threatened by alien vegetation invasion, more than half of the population is threatened by coastal development and urban expansion³.

Argyrobium splendens (E), although not yet identified in the FNR, is a species that was previously known from one type specimen collected at an unspecified location near the Hemel-en-Aarde Valley over 100 years ago. In 2008 a small population (40-60 individuals) was identified in the Babilonstoring Mountains⁴ and after the January 2015 fires a population of over 500 plants were identified on shale band vegetation near the Babilonstoring Nature Reserve⁵.

The population is severely threatened by invasive *Hakea sericea* and *Hakea drupacea* that are common in this vegetation type. The species is likely to occur on lower north-facing slopes but is assumed to be a short-lived fire-dependant species that is likely to only be present a few years after a fire but absent in mature vegetation and may therefore yet be identified in the FNR.

¹Mucina, L., Rutherford, M.C. (eds). 2006. The Vegetation of Southern Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria

²Helme, N.A. & Raimondo, D. 2007. *Otholobium* sp. nov. (Drewe 450 HER, K). National Assessment: Red List of South African Plants version 2017.1. Accessed on 2018/10/04

³Snijman, D.A. & Raimondo, D. 2007. *Cyrtanthus leucanthus* Schltr. National Assessment: Red List of South African Plants version 2017.1. Accessed on 2018/10/04

⁴Helme, N.A. & von Staden, L. 2012. *Argyrobium splendens* (E. Mey.) Walp. National Assessment: Red List of South African Plants version 2017.1. Accessed on 2018/10/04.

⁵ Helm, N. October 2015. iSpot share nature observation. *Argyrobium splendens*. Available online: <https://www.ispotnature.org/communities/southern-africa/view/observation/562976/argyrobium-splendens>



Figure 5. Skaapbostee (*Otholobium dreweae*) is named for Priscilla Brierly Drewe whose research led to the rediscovery of this species in the FNR.
Photo© Hermanus Botanical Society



Figure 6. Hermanus Cliff Lily (*Gladiolus carmineus*) (V) occurs mainly in Overberg Dune Strandveld on the Cliff Path portions of the FNR.
Photo© Hermanus Botanical Society

6.7.2 Hangklip Sand Fynbos

Vegetation type and local description:

Occurs in the extreme western area of the FNR and marginally adjacent to the start of Rotary Way. Hangklip Sand dunes and sandy bottomlands supporting moderately tall, dense ericoid shrubland, emergent tall shrubs in places. This area constitutes 0.14% of the vegetation types of the FNR and therefore contributes to the habitat and species diversity of the FNR.

National Conservation Status and Classification:

Endangered (Criterion A1). Only 45% of natural habitats remain, with 20% of the original habitat is formally conserved. The national target for formal conservation is 30%. Nationally five endemic and 32 Red Data List species are known to be supported by the Hangklip Sand Fynbos.

Notable species within the FNR:

Acropholia bolusii (V), occurs on the coastal sandy flats of the FNR and has a decreasing population trend due to the <10 known locations within the Western Cape impacted by coastal development and alien vegetation. *Amphithalea virgata* (V) is found on lower mountain slopes and now only occurs at six locations between De Hoop and Hermanus.

The Line-leaf Cone bush (*Leucadendron linifolium*) (V)¹ occurs on seasonally waterlogged sands and occurs from Riversdale to the Cape Flats. This species has seen a population reduction of >30% in the past 60 years due to habitat loss from urbanisation, alien plant invasions, groundwater extraction, wetland drainage and wildflower harvesting².

¹ Low, A.B., Paterson-Jones, C., Rourke, J.P., Hitchcock, A.N., Potter, L., Vlok, J.H. & Pillay, D. 2006. *Leucadendron linifolium* (Jacq.) R.Br. National Assessment: Red List of South African Plants version 2017.1. Accessed on 2018/10/04

² Rebelo, A.G., Helme, N.A., Holmes, P.M., Forshaw, C.N., Richardson, S.H., Raimondo, D., Euston-Brown, D.I.W., Victor, J.E., Foden, W., Ebrahim, I., Bomhard, B., Oliver, E.G.H., Johns, A., van der Venter, J., van der Walt, R., von Witt, C., Low, A.B., Paterson-Jones, C., Rourke, J.P., Hitchcock, A.N., Potter, L., Vlok, J.H. & Pillay, D. 2006. *Leucadendron linifolium* (Jacq.) R.Br. National Assessment: Red List of South African Plants version 2017.1. Accessed on 2018/10/04

6.7.3 Agulhas Limestone Fynbos

Vegetation type and local description:

Overberg Sandstone Fynbos grades into Agulhas Limestone Fynbos and is easily differentiated by the presence of Proteacea. In Walker Bay, dune cone bush (*Leucadendron coniferum*) indicates limestone fynbos¹. Agulhas Limestone Fynbos occurs chiefly in the south-eastern areas of the reserve near the Klein River Estuary. Agulhas Limestone Fynbos comprises mainly asteraceous and proteoid fynbos, with restioid fynbos in sandy areas and on limestone pavements. Wetter areas, such as waterlogged bottomlands near the Klein River Estuary, are dominated by restioid fynbos. This vegetation type makes up 7.4 % of the FNR.

Compared to the other two types of limestone fynbos (De Hoop and Canca), Agulhas Limestone Fynbos is the smallest but the most species diverse vegetation type which occurs on the Agulhas Plain from Hermanus to Bredasdorp and Struisbaai with the largest expanses being between the Klein River estuary and Grootbos, around Hagelkraal, Heuningrug and Soetanytsberg². Given the lack of distinct structural types recorded in this vegetation, the floristic diversity is astounding.

National Conservation Status and Classification:

Vulnerable under D1 Criterion (more than 40 threatened Red Data List plant species). 64% of the natural area of the ecosystem remains with 8% of the 32% national target officially protected in the Agulhas National Park and small patches in the Kogelberg Nature Reserve, Table Mountain National Park and Wolfgat Nature Reserve. A further 4% is found in private conservation areas such as Groot Hagelkraal and Oude Bosch.

Notable species within the FNR:

The Cape Gorse (*Aspalathus excelsa*) listed as Vulnerable due to habitat loss from urbanisation and alien species invasions, has a range from Hermanus to Stanford and is located on the slopes of the Kleinrivier Mountains. *Colpoon speciosum* (V) has a range from Houwhoek to Agulhas and only three subpopulations are protected within reserves³.

6.7.4 Cape Lowlands Freshwater Wetlands

Vegetation type and local description:

This vegetation type occurs along the banks of the Klein River Estuary and is characterised by extensive Common reeds (*Phragmites australis*), temporarily or permanently flooded restiolands and sedgeland as well as macrophytic vegetation embedded in permanent water bodies. This vegetation type has a cosmopolitan character, indicated by the occurrence of a number of species with distribution in similar habitats, which makes it an important breeding habitat for migratory water birds. Cape Lowlands Freshwater Wetlands make up 0.79% of the FNR.

¹Jacobs, K. & Jangle, R. 2008. Coastal Ecosystem Management Plan: Western Cape. Unpublished, The Nature Conservation Corporation, Cape Town.

²South Africa: Department of Environmental Affairs. Government Notice No.1002 of 2011: National Biodiversity Act, 2004 (Act No. 10 of 2004) National List of Ecosystems that are threatened and need of protection.

³ Helme, N.A. & Raimondo, D. 2007. Colpoon speciosum (A.W. Hill) P.A. Bean. National Assessment: Red List of South African Plants version 2017.1. Accessed on 2018/10/04

National Conservation Status and Classification:

The Cape Lowlands Freshwater Wetlands vegetation type, classified as Least Threatened in terms of its conservation status³. The National conservation target is 24% with 14% statutorily protected in the Western Cape. According to the 2012¹ and 2017² Western Cape State of Biodiversity, the full extent of wetland types and how biodiversity is distributed within them is not yet fully understood and a coordinated effort should be made to monitor wetland ecosystems. The accuracy of applying terrestrial (as per Mucina 2006 for e.g.) information for wetland diversity descriptions has not yet been fully examined by researchers and academics, although it is useful as a start-up tool for wetland biodiversity grouping.

A Report to the Water Research Commission (Sieben et al. 2014³) developed a detailed species database for vascular plants (including the associated environmental information) with the aims to classify wetland vegetation types to assist with setting targets for restoration and strategic conservation planning. The database classifies wetland vegetation types by community, for e.g. *Phragmites* dominated communities.

It is recommended that wetland vegetation be identified to community level to contribute to this database for better understanding of vegetation types, conservation status and the threats associated with them (refer to Management Action Table 1.3. Indigenous Vegetation).

6.7.5 Southern Cape Afrotropical Forest

Vegetation type and local description:

Although occurring at a scale too small to be mapped in Mucina (2006)⁴, Southern Cape Afrotropical Forests (a subtype of Afrotropical forest) occurs in gorges and along streams of the FNR and on the coast at Grotto Beach.

National Conservation Status and Classification:

Least Concern as 56% of the 74 848 hectares of Southern Cape Afrotropical Forests are protected in formal protected areas.

Notable species within the FNR:

Southern Cape Afrotropical Forests within the FNR are dominated by tall trees: Butter-spoon Tree/Botterlepelboom (*Cunonia capensis*) (LC), Assegaaiboom (*Curtisia dentata*) (NT), Cape Beech/Beukeboom (*Rapanea melanophloeos*) (LT). Small trees including the South African endemics Cape Keurboom (*Virgilia oroboides*) (LT) occur along the middle and lower reaches of the Mossel River.

¹ Turner, A. A. (ed.) 2012. Western Cape Province State of Biodiversity 2012. CapeNature Scientific Services, Stellenbosch. ISBN: 978-0-621-41407-3.

² Turner, A.A. (ed). 2017/ Western Cape Province State of Biodiversity. 2017. CapeNature Scientific Services, Stellenbosch. ISBN: 978-0-621-4592-3.

³Sieben, J.J. Mtashi, H. and Janks, M. 2014. National Wetland Vegetation Database: Classification and Analysis of Vegetation Types for Conservation Planning and Monitoring. *Report to the Water Research Commission*. WRC Report No. 1980/1/14. ISBN 978 -1-4312-0569-1

⁴ Mucina, L., Rutherford, M.C. (eds) (2006). The Vegetation of Southern Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

6.7.6 Overberg Dune Strandveld (and Western Cape Milkwood Forest)

Vegetation types and local description:

Overberg Dune Strandveld is described by Mucina (2006) as closed, evergreen, hard-leaved shrublands up to 4m tall in wind protected valleys and moist dune slacks with coastal thickets up to 1m tall in wind exposed littoral areas. This vegetation type occurs on the Cliff Path areas of the FNR. The Western Cape Milkwood Forest is recognised as the westernmost forest type within the Southern Coastal Forest vegetation type.

Occurring as interrupted belt patches in sheltered areas at low altitudes, the Western Cape Milkwood forest vegetation type is considered to be a late successional stage of Overberg Dune Strandveld and makes up <0.1% of the FNR.

The Milkwood Forest at Piet-se-Bos is particularly conservation- worthy. The Cliff Path Management Group (CPMG) have been planting Milkwood trees and Coastal Camphor Bush (*Tarchonanthus littoralis*) (LC) in the Piet se Bos area since 2008, in order to rehabilitate degraded patches. These plants have been sourced in close proximity to the sites under rehabilitation.

National Conservation Status and Classification:

Overberg Dune Strandveld is classified as Least Threatened, of the 36% National Conservation Target, 30% of the remaining vegetation type are preserved formal conservation areas and a further 11% are afforded in private reserves.

Western Cape Milkwood Forest is classified as Endangered due to Criterion C (limited geographic extent and imminent threat to the ecosystem based on coastal development pressure) due to in terms of its conservation status in Government Gazette No. 1002 of 9 Dec 2011. 2500 hectares remain of the original 77 535 hectares of Western Cape Milkwood Forest vegetation type; 621 hectares (2%) are conserved with 89% of the total area considered as High Threat due to urban expansion and land transformation¹.

Notable species within the FNR:

A mix of temperate and subtropical species for e.g. Cape Beech/Beukeboom (*Rapanea melanophloeos*) (LC) and White Milkwood (*Sideroxylon inerme*) (LC). The Confetti Bush/Cape May/Aasbossie (*Coleonema album*) (LC) dominated Overberg Dune Strandveld occurs on shallow base-rich sand and Hangertjie (*Erica plukenetii*) (LC) occurs on shallow leached sand on the coastal shelf. The Carrion Flower/Aasbloom (*Orbea variegata*) (LC) is also of interest. Succulent-rich wind-shorn dwarf shrublands along exposed littoral situations on skeletal soils include many examples of Stonecrop (Crassulaceae) and Stone Plants (Mesembryanthemaceae).²

The Hermanus Cliff Lilly (*Gladiolus carmineus*) (VU) (Figure 6) a habitat specialist, occurs on rocky outcrops mainly along the Cliff Path and is listed as Vulnerable due to limited range within a small coastal area between Hangklip and Cape Infanta³.

¹ Republic of South Africa. Department of Water Affairs and Forestry. 2005. *Systematic conservation planning for the forest biome of South Africa*. Accessed August 2018.

² Cowling, R.M. 1991. Management of Coastal Zone: Hermanus Cliff Path. Unpublished report for the Cliff Path Management Group of the Fernkloof Advisory Board.

³ Goldblatt, P. & Raimondo, D. 2006. *Gladiolus carmineus* C.H. Wright. National Assessment: Red List of South African Plants version 2017.1. Accessed on 2019/03/07

6.7.7 Cape Seashore Vegetation

Vegetation type and local description:

Distributed throughout the Cliff Path portion of the FNR, Cape Seashore Vegetation is defined in Mucina (2006) by *inter alia* coastal cliffs of herbaceous, grassy and (to some extent) dwarf-shrubby vegetation that can include succulents.

Cape Seashore vegetation is often dominated by one pioneer species. The plant communities of this vegetation type are determined by the age of the substrate and the disturbance regimes (in the case of moving dunes), distance from the upper tidal zone¹.

National Conservation Status and Classification:

Least Threatened with a National Target of 20%. Approximately 1.7% has been transformed by urban development and almost half of the vegetation type is offered protection in the Western Cape.

Notable species within the FNR:

Psoralea repens is listed as NT due to a population reduction and habitat loss of 20% due to coastal urbanisation since the 1970's. The species has an approximately 15-year generation length and is also threatened by alien vegetation².

Within the FNR, this species is found on coastal fore dunes. The Critically Endangered and possibly extinct *Jordaaniella anemoniflora* was described in 1924 from specimens collected in the Hermanus area. Specimens collected in Hermanus were introduced to Kirstenbosch Botanical Garden for cultivation. The range described for this species is from Macassar (Cape Town) to Hermanus. Specimens were removed for cultivation from a location in Macassar/Strand and it is unknown whether these specimens survived. Coastal development in Hermanus has degraded dune habitats although there are habitats east of Hermanus where wild populations could exist and should be investigated³.

6.8 FNR Context: Invasive and Alien Vegetation

Also refer to:

9.6. *Invasive and Non-Invasive Alien Species Management; Management Action Table 1.6. Invasive and Non-Invasive Alien Species Management.*

Appendix 6. Overstrand: Fernkloof Nature Reserve Alien Vegetation Map spatially represents the alien and invasive vegetation densities within the reserve. Due to the complexities of mapping specific alien vegetation, FNR alien and invasive flora is mapped into clearing units in accordance with the DEFF standards. Alien vegetation monitoring and clearing is an ongoing priority for FNR, and emerging weeds are monitored.

¹ Mucina, L., Rutherford, M.C. (eds) (2006). The Vegetation of Southern Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

² Stirton, C.H. & Raimondo, D. 2008. *Psoralea repens* L. National Assessment: Red List of South African Plants version 2017.1. Accessed on 2018/10/30.

³ von Staden, L. & van Jaarsveld, E.J. 2012. *Jordaaniella anemoniflora* (L.Bolus) Van Jaarsv. National Assessment: Red List of South African Plants version 2017.1. Accessed on 2018/10/30

Invasive alien (IAP) are known to out-compete indigenous species, provide a high fuel load that intensifies veld fires, have high water demands and alter the nutrient composition of soil that indigenous vegetation rely on. The FNR also hosts a number of invasive alien plant species, including garden escapes, ruderal and cosmopolitan garden species, and serious plant invaders such as Acacia (*Acacia* spp.), Gum trees (*Eucalyptus* spp.), Pines (*Pinus* spp), Stink bean (*Paraserianthes lophantha*), and Australian myrtle (*Leptospermum laevigatum*) and Spreading Century-Plant (*Agave americana* var. *Expansa*). Dense infestations of invasive plant species disrupt natural burning regimes, use more water than indigenous vegetation, and are one of the biggest drivers of biodiversity loss.

Species such as Garden Route Keurboom (*Virgilia divaricata*), Thatching Reed (*Thamnochortus insignis*) and Garden Route Ragwort (*Senecio pterophorus*), are indigenous to South Africa, but not locally indigenous to the Hermanus region, can also become invasive and are monitored by the HBS. These indigenous invaders are presently confined to the lower riverine areas of the Reserve.

The invasive Spreading century plant (*Agave americana* variant *expansa*) has taken hold amongst the Aloes on Hoy's Koppie. In addition, Thatching Grass (*Thamnochortus insignis*), is fast becoming established on Hoy's Koppie, particularly on the northern side. The Madeira vine (*Anredera cordifolia*) is categorised 1b in the NEM: BA Alien and Invasive Species Lists (2016). The vine is difficult to eradicate and is quickly becoming a problem along the coastal cliff path portions of the FNR. Canary Creeper (*Hedera canariensis*) an evergreen perennial (Category 3) must be removed from infested areas of the FNR.

In 2017-2018 the FNR along with all other Open Space Zone 1 areas in the OSM, the alien and invasive alien flora was verified in the field to assess the infestation levels of the area. The following density classification increments were used: Very scattered <5%; Scattered 5% - 25%; Medium 25.1% - 50%; Dense 50.1% - 75%; Closed 75%>. The table below shows the density classifications and the dominant species found therein.

Figure 7. Table of the Classification, Density Range and Dominant Alien and Invasive Flora of the FNR (January 2019)

Classification	Group Range in %	Dominant Species
Very Scattered	<5%	Port Jackson Willow (<i>Acacia saligna</i>); Black Wattle (<i>Acacia mearnsii</i>)
Scattered	5% - 25%	Port Jackson Willow (<i>Acacia saligna</i>); Pine species (<i>Pinus</i> spp)
Medium	25.1% - 50%	Australian Myrtle (<i>Leptospermum laevigatum</i>); Port Jackson Willow (<i>Acacia saligna</i>)
Dense	50.1% - 75%	Australian Myrtle (<i>Leptospermum laevigatum</i>); Port Jackson Willow (<i>Acacia saligna</i>)
Closed	75%>	Not Applicable, no closed areas

6.9 FNR Context: Fire Management Regime

Also refer to: 9.5. Fire Management; Management Action Table 1.5. Fire Management;

The existing wildfire management strategy focuses on protecting properties adjacent to the Reserve from wildfires that start on the FNR, and *vice versa*. Fire protection measures include using existing roads and fire control belts as access routes from for wildfire control and management.

The FNR management intent is to apply an ecological Fire Management Plan for the FNR, which not only considers fire safety in terms of infrastructure, but also aims to actively manage a shifting mosaic of different vegetation ages and patch sizes. Such a mosaic is achieved through controlling the spread of wildfires in the landscape, and through undertaking scientifically determined prescribed burns.

As a member of the Greater Overberg Fire Protection Association (GO FPA), the EMS can employ the assistance in the event of wildfires in and around the FNR.

Burning along the coast must be scientifically motivated. Current coastal thicket adds another habitat to the reserve. Management must clearly spell out what objectives they want to achieve with coastal burns and how it relates to the Management Plan objectives. To ensure that prescribed burns are scientifically scheduled, fire monitoring and record-keeping must be undertaken, and the extents of all prescribed burns and wildfires must be mapped on a geographic information system (GIS) for ease of updating and recording. Post-fire vegetation monitoring is currently performed by the FNR with assistance from the HBS. Post-fire vegetation monitoring should be mapped and captured on GIS to develop a veld age map for the FNR. The veld age map should be updated annually and added to the FNR annual audit and Annual Burning Plan.

6.10 FNR Context: Mammalian Fauna

Also refer to:

9.3. Ecosystem and Biodiversity Management

9.4. Wildlife Management

Management Action Table 1.3. a) Ecosystem & Biodiversity Management: General Actions ;

Management Action Table 1.3. g) Mammals;

Management Action Table 1.4 Wildlife Management.

A well-documented characteristic of the fynbos biome is the relatively low number and biomass of herbivorous animals supported by the vegetation type¹. The varied terrains of the FNR supports at approximately 58 mammalian species associated with the vegetation types, and include Red List threatened² species *viz.* the Cape Clawless Otter (*Aonyx capensis*) (NT) (Figure 8), the Cape Mountain Leopard (*Panthera pardus*) (VU), the Grey rhebok (*Pelea capreolus*) (NT) and the true fynbos endemic

¹ Mucina, L., Rutherford, M.C. (eds) (2006). The Vegetation of Southern Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria

² The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.2016

Cape Spiny mouse (*Acomys subspinosus*) (LC)¹. Verreaux's mouse (*Myomyscus verreauxii*) an important *Protea* pollinator is also likely to occur in the FNR.



6.11 FNR Context: Avifauna

Also refer to:

9.3. *Ecosystem and Biodiversity Management;*

9.4. *Wildlife Management;*

Management Action Table 1.3. a) Ecosystem & Biodiversity Management: General Actions;

Management Action Table 1.3. f) Avifauna.

The FNR forms part of the Cape Whale Coast (CWC) Important Bird Area (IBA) that extends from the Stony Point seabird colony to the Klein River Estuary. The IBA is predominantly coastal, although it does incorporate important estuarine and inland systems².

The Fernkloof Nature Reserve and its Garden is hugely underestimated as a birding destination and compares with similar destinations such as Harold Porter Botanical Gardens and the Karoo Botanical Gardens at Worcester. The vegetation of the FNR is predominantly fynbos and the bird species diversity is therefore typical of this habitat. Ornithophily (bird pollination) is common in the Fynbos Biome, and birds pollinate approximately 5% of fynbos taxa³.

Of the 68 species of endemic birds found in South Africa, 48 species are known to occur in the CFR

¹Palmer, G., Midgley, J., Pence, G. & Avery, M. 2017. *Acomys subspinosus*. The IUCN Red List of Threatened Species 2017: e.T275A110016981. <http://dx.doi.org/10.2305/IUCN.UK.2017-2.RLTS.T275A110016981.en>. Downloaded on 04 September 2018

² Birdlife South Africa. Cape Whale Coast. Available online: <https://www.cepf.net/sites/default/files/iba-statusreport2015.pdf>

³ Mucina, L., Rutherford, M.C. (eds) (2006). The Vegetation of Southern Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria

and six of the eight strictly fynbos endemic bird species¹ are known to occur in the FNR. Figure 10. Fynbos Endemic Avifauna found within the FNR below shows the species of fynbos endemic birds known to occur in the FNR.

Figure 10. Fynbos Endemic Avifauna found within the FNR

Common Name (<i>Species name</i>)	IUCN Red List Status
Cape siskin (<i>Crithagra totta</i>)	Least Concern
Hottentot buttonquail (<i>Turnix hottentottus</i>)	Endangered
Victorin's Warbler (<i>Cryptillas victorini</i>)	Least Concern
Cape sugarbird (<i>Promerops cafer</i>) (Figure 9)	Least Concern
Orange-breasted sunbird (<i>Anthobaphes violacea</i>)	Least Concern
Cape Rockjumper (<i>Chaetops frenatus</i>)	Near Threatened

Raptor species that occur in the FNR include Jackal Buzzard (*Buteo rufofuscus*) (LC), Steppe Buzzard (*Buteo buteo*) (LC), Yellow-billed Kite (*Milvus aegyptius*) (not evaluated), African Marsh Harrier (*Circus ranivorus*) (E), Black Harrier (*Circus maurus*) (E), Lanner Falcon (*Falco biarmicus*) (V) and a pair of Verreaux's Eagles (*Aquila verreauxii*) (LC).

Other estuarine and aquatic species that occur in the FNR include Caspian Tern (*Hydroprogne caspia*) (V); Eurasian Curlew (*Numenius arquata*) (NT), Maccoa Duck (*Oxyura maccoa*) (NT) and Chestnut-banded Plover (*Charadrius pallidus*) (NT).

Areas of thick scrub and forest alongside streams support seed and insect-eating species such as the African Olive-Pigeon (*Columba arquatrix*) (LC), Canaries, Flycatchers, Knysna Woodpecker (*Campethera notata*) (NT) and Cape White-eyes (*Zosterops pallidus*). The summer months herald the arrival of migrants such as swallows, cuckoos and Steppe Buzzards.

The Hermanus Bird Club (HBC) maintains a list of over 100 species of the avifauna found in the FNR and contributes regular updates of FNR bird species lists to the University of Cape Town's Percy Fitzpatrick Institute.

The Fernkloof Birding Project initiated by the HBC and Birdlife South Africa and supported by various contributors and partners has designed and erected birding environmental educational poster boards within various areas of the FNR. Overberg Birdlife manages the project, raises fund and provides and maintain signboards for the project. Within the FNR 11 education bird poster boards have been erected that display information regarding habitats, typical species and threats to bird biodiversity.

¹ Wright, D., and Lee, A. 2017. Bird-friendly Habitat Management Guidelines for the endemic birds of the Fynbos Biome BirdLife South Africa, Johannesburg.

6.12 FNR Context: Reptiles and Amphibians

Also refer to:

9.4. *Wildlife Management*;

9.3. *Ecosystem and Biodiversity Management*;

Management Action Table 1.3. a) *Ecosystem & Biodiversity Management: General Actions* ;

Management Action Table 1.3. e) *Herpetofauna*.

Relatively little is known about the herpetofauna (reptiles and amphibians) of the FNR and monitoring and research is required. Amphibians and reptiles are considered indicator species and their presence or absence is indicative of the state of health of an ecosystem.

Snakes that may be encountered on FNR include Puff Adder (*Bitis arietans*)(LC), Berg Adder (*Bitis atropos*)(LC), Common Slug Eater (*Duberria lutrix*)(LC), Brown House Snake (*Lamprophis capensis*) (LC), Olive House Snake (*Lamprophis inornatus*) (LC), Mole Snake (*Pseudaspis cana*) (LC), Spotted or Rhombic Skaapsteker (*Psammophylax rhombeatus*) (LC), Common Egg-Eater (*Dasypeltis scabra*) (LC), Boomslang (*Dispholidus typus*) (LC), Cape Cobra (*Naja nivea*) (LC) and Rinkhals (*Hemachatus haemachatus*)(LC).

Lizards known to occur in the FNR include the Vulnerable Listed Cape Dwarf Chameleon (*Bradypodion pumilum*)¹ and other species such as the Cape Mountain Lizard (*Tropidosaura gularis*) (LC), Common Mountain Lizard (*Tropidosaura montana*) (LC), Cape Grass Lizard (*Chamaesaura anguina*) (conservation status not assessed by the IUCN Red List), Cape Girdled Lizard (*Cordylus cordylus*) (LC), Southern Rock Agama (*Agama atra*) (LC).

Two species of tortoise are known to occur in the FNR, the endemic Angulate tortoise (*Chersina angulata*) (LC) and the Common Southern Padloper (*Homopus areolatus*) (LC).

Amphibian species known to occur in the FNR are Purcell's Ghost Frog (*Heleophryne purcelli*) (LC), the Arum Lily frog (*Hyperolius horstockii*) (LC), the Cape River frog (*Amieta fuscigula*) (conservation status not assessed by the IUCN Red List) and the Clicking Stream frog (*Strongylopus grayii*) (LC).

Notable Amphibian species:

Drewes' Moss Frog (*Arthroleptella drewesii*), currently recorded in only two locations on the moist, moss-covered slopes of the lower Klienriviersberg and Babilonstoring Mountains from 200 to 1100 a.m.s.l. The Drewes' Moss Frog is listed on the International Union for the Conservation of Nature (IUCN 2018) Red List of Threatened Species as Near Threatened (NT) due to its restricted range of approximately 101km².

The Cape Rain frog (*Breviceps gibbosus*), listed as NT due to endemism within the Southwestern portion of the Western Cape, has an unknown population.

¹ The IUCN Red List of Threatened Species. Version 2018-1. <www.iucnredlist.org>. Downloaded on **21 August 2018**

² IUCN SSC Amphibian Specialist Group & South African Frog Re-assessment Group (SA-FRoG). 2016. *Arthroleptella drewesii*. The IUCN Red List of Threatened Species 2016: e.T58058A77158328. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T58058A77158328.en>. Downloaded on **21 August 2018**.

The Rose's Mountain Toad (*Capensibufo rosei*) which was previously described as occurring within the FNR has been recently (Channing, Measey, De Villiers, Turner & Tolley, 2017) redescribed as the Moonlight Mountain Toadlet (*Capensibufo selenophos*)¹. The population status and distribution range are currently unknown and is thus listed as Data Deficient (DD) by the IUCN (2018).

6.13 FNR Context: Fish

Also refer to:

9.4. Wildlife Management;

9.3. Ecosystem and Biodiversity Management;

Management Action Table 1.3. a) Ecosystem & Biodiversity Management: General Actions;

Management Action Table 1.3. d) Fish & Aquatic Organisms;

Management Action Table 1.3. j) Catchment, Groundwater & Rivers;

Management Action Table 1.4. Wildlife Management.

The Cape Fold Mountains are associated with the CFR where isolated fish lineages with high levels of endemism have recently been acknowledged to occur². Indigenous fish species such as Data Deficient Cape Galaxias (*Galaxias zebratus*)³ and Cape Kurper⁴ (*Sandelia capensis*) are both currently undergoing taxonomic review and, based on research in neighbouring catchments, unique lineages could possibly also still occur in FNR river systems.

As freshwater alien fish species were introduced into the Mossel River system in the past, species such as Smallmouth Bass (*Micropterus dolomieu*) and Trout (*Oncorhynchus* spp.) possibly still occur in the Mossel River and/or in the three dams on the reserve.

In terms of the above, a survey must be conducted to confirm the existence, status and distribution of the fish species presently occurring in and around the FNR, and to determine the potential extent of the impact of the alien fish species present on the natural aquatic systems or species.

If it is found that alien fish species do occur in the FNR, a management strategy to eradicate the specific species or to mitigate against the negative effects of the species on natural ecosystems, must be conducted.

6.14 FNR Context: Invertebrates

Also refer to:

9.4. Wildlife Management;

9.3. Ecosystem and Biodiversity Management;

¹ IUCN SSC Amphibian Specialist Group, South African Frog Re-assessment Group (SA-FRoG). 2017. *Capensibufo selenophos*. The IUCN Red List of Threatened Species 2017: e.T112716203A112716215. <http://dx.doi.org/10.2305/IUCN.UK.2017-2.RLTS.T112716203A112716215.en>. Downloaded on **21 August 2018**

² Skelton, Paul & Swartz, Ernst. (2011). Walking the tightrope: Trends in African freshwater systematic ichthyology. Journal of fish biology. 79. 1413-35. 10.1111/j.1095-8649.2011.03085. x.

³ Swartz, E., Impson, D. & Cambray, J. 2007. *Galaxias zebratus*. The IUCN Red List of Threatened Species 2007: e.T8816A12934076. <http://dx.doi.org/10.2305/IUCN.UK.2007.RLTS.T8816A12934076.en>. Downloaded on 21 August 2018.

⁴ Chakona, A. 2018. *Sandelia capensis*. The IUCN Red List of Threatened Species 2018: e.T19890A99447632. <http://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T19890A99447632.en>. Downloaded on **21 August 2018**

*Management Action Table 1.3. a) Ecosystem & Biodiversity Management: General Actions;
Management Action Table 1.3 c) Invertebrates.*

Invertebrates play a critical role in the functioning of all ecosystems as they contribute to maintaining soil fertility, decomposition, water quality, pest control and pollination. Invertebrates, such as termites, are considered to be keystone species. Termites recycle large quantities of plant biomass into the soil and keep the soil porous with their tunnelling, allowing water to infiltrate the soil. Previous perceptions of low diversity indexes of insect groups in the fynbos biomes are now understood to have insect diversity levels comparable to grassland and subtropical thicket biomes. Leafhopper and gall-forming insects are thought to be previously under-represented in insect diversity surveys of the CFR¹.

Relatively little is known about the species diversity and abundance of arachnids in the FNR surveys and it is important that surveys are regularly performed to better understand their significance.

A South African National Survey of Arachnida (SANSA) was performed as part of a public survey in the FNR in 2010². The aim of the survey was to compile the first species list of spiders found in the FNR. At least five surveys have been performed since. The relatively few surveys performed have resulted in at least 270 specimens from 39 families represented by 92 genera and 137 species. Salticidae (Jumping spiders) was found to be the most species rich with 17 species represented, followed by the Gnaphosidae (Ground Wanders) (13 species), Thomisidae (Ground spiders) were represented by 12 species and 11 species of tangle web spiders (Theridiidae) were collected. Species found represented by a single individual (singletons) were from 18 families. Fourteen species endemic to the Western Cape are known to occur in the FNR. Of the total species of arachnids identified in South Africa, 6.7% of these species have been identified in the FNR. Two species located are the first description of the species distribution in the Western Cape, a species of jumping spider *Rumburak lateripunctatus* and a Sac spider species *Fuchiba capensis*³. Postgraduate student, Lina Almeida-Silva collected a specimen of Drymusidae in FNR. In 2017 another specimen was collected. In her studies of this family she found that the specimens from FNR belong to a new genus and possibly new species, *Izithunzi* sp.nov. The generic name means shadows (*Izithunzi*) in isiXhosa which refers to the retiring nature and cryptic. During this period two new “incomer species” (well known in other areas) of the Rain spider, *Palystis* spp were collected. A third specimen of *Palystis* species collected from FNR could be a new species described for the Rain spiders⁴.

¹ Procheş, Şerban & Cowling, Richard. (2006). Insect diversity in Cape fynbos and neighbouring South African vegetation. *Global Ecology and Biogeography*. 15. 445 - 451. 10.1111/j.1466-822X.2006.00239.x.

² Veldtman, A., Dippenaar-Schoeman, A.S., Samways, M.J., Veldtman, R. Du Plessis, D. State of Biodiversity Report. 2017. Chapter 10. Arthropods. online: <https://www.capenature.co.za/wp-content/uploads/2018/01/SOBD-Report-2017-Chapter-10.pdf> Accessed: 20 August 2018.

³ Hamilton-Attwell, V.L. and Dippenaar-Schoeman, A. *Spiders of Fernkloof Nature Reserve (FNR)*. Paper Presentation. SANSA Workshop. February 2017.

⁴ Facudo, M., Larque, A.P.G and Griswold, C.E. 2017. Molecular phylogeny and revision of the false violin spiders (Araneae: Drymusidae) of Africa 2017 The Linnean Society of London, *Zoological Journal of the Linnean Society*, 2017, XX, 1–41.

Other arachnid species found in the FNR include: the Golden Orb Spider (*Nephila fenestra*) Garden Orb Spider (*Argiope australis*), Bark Spiders (*Caerostris sexcuspidata*), the Nursery Web or Fishing Spider (*Euprosthenopsis pulchella*), Rain Spider (*Palystes superciliosus*), Black Jumping Spider (*Thyene ogdeni*), Jumping Spider (*Hyllus dotatus*), Flower Crab Spider (*Thomisus citrinellus*), and the False Violin Spider (*Drymusa capensis*)¹.

Little is known of the invertebrates of the FNR, although species present are expected to be typical of fynbos assemblages. Invertebrates known to occur within the FNR include the Mountain Cockroach (*Aptera fusca*) which are known to be widespread in the fynbos biome within the Western Cape, the fynbos endemic Tenspot Ground Beetle (*Thermophilum decemguttatum*), the Southern Dewstick Bug (*Pameridea roridulae*) that has a symbiotic relationship with carnivorous *Roridula* plant species, Dung beetles (*Scarabaeinae spp*), the Spotted Blister Beetle (*Ceroctis capensis*) and the Swollen Restio Beetle (*Pseudorupilia ruficollis*) that relies on restios and fynbos for their pollen diet. None of the aforementioned invertebrates have been evaluated by the IUCN and their conservation status is unknown.

Although alien invasive species management is largely focussed on plants, numerous invertebrate species such as the Argentine ant (*Linepethema humile*) which are known to displace indigenous species that are important for the dispersal of fynbos seeds and the Varroa Mite (*Varroa destructor*) that invades Cape honeybee hives, should be monitored and eradicated if necessary².

6.15 FNR Context: Alien Faunal Species

Also refer to:

9.3. Ecosystem and Biodiversity Management

9.4. Wildlife Management;

Management Action Table 1.3. a) General Actions;

Management Action Table 1.3. e) Herpetofauna;

Management Action Table 1.3. j) Catchment, Groundwater & Rivers

Management Action Table 1.6. Invasive and Non-Invasive Alien Species Management.

Alien animal species may have a negative effect on species and processes within an ecosystem, can introduce disease and/or be responsible for the introduction of unnatural gene flow from non-indigenous to indigenous populations. Wherever possible and appropriate, such animals must be removed from the FNR or humanely euthanized. Alien animals present in the reserve pose a threat or potential threat to the ecological processes and/or experience in the FNR. Mallard ducks, feral ungulates, rats and other species (e.g. feral domestic cats and dogs) are considered potential threats.

The Guttural Toad (*Amietophrynus gutturalis*) is known to occur in the FNR. The toad is listed as NEM:BA Category 1b, is highly adaptable and competes for habitats with species such as the

¹ Hermanus Botanical Society. Marais, D. (ed). 2017. *Fernkloof Nature Reserve*. Hermanus. ISBN. 978-0-620-75924-3

² Ecosystem Guidelines for Environmental Assessment in the Western Cape. Ed 2. Published by: The Fynbos Forum. 2016. Available online: www.bgis.org.za

endangered Western Leopard Toad. Such animals must be removed from the Reserve or humanely destroyed as soon as possible after their presence is detected.

Introductions of alien animals to the FNR will not be allowed, except as part of management (e.g. for biological control of alien plant species) or research projects recommended by the EMS in consultation with the FAB. All such introductions must be documented by the Biodiversity Conservation Manager. If the introduction of alien species as a biological control for management purposes is considered, NEM:BA, NEMA and associated regulations must be consulted and complied with, particularly NEM:BA Alien and Invasive Species Regulations Section 10. Invasive species research and biological control¹.

It is critically important that such exceptions do not have the potential to negatively influence the integrity and sustainability of the FNR's species and ecological processes.

6.16 FNR Context: Cultural Heritage

Also refer to:

9.7. Cultural Heritage Management;

Management Action Table 1.7. Cultural Resource Management

Little is known about the pre-colonial history of the FNR, although it likely provided some degree of food, shelter and seasonal grazing to nomadic groups of indigenous Khoekhoen people, who were both hunter-gatherers and herders.

Archeological findings of shell middens, debris and artifacts found in the Klip Kop Cave located on the southern side of Hoy's Koppie intimate occupation by the Khoekoen (Quena) during the Middle Stone Ages (250 000 - 50 000 years ago). Shell middens are also located on areas of the Cliff Path locally known as Rowweklip and Rietfontein.

It is likely that the Khoekoen herders, who used fire to improve grazing lands for their livestock, did so on the lower slopes of the FNR. It is also likely that the early European settlers continued this trend. The more accessible forested gorges were probably also exploited by the early European settlers for timber, in order to produce a wide variety of wood products (wagons and building materials). Man has therefore managed and/or impacted upon the vegetation structure and composition of the FNR over many thousands of years.

Sir William Hoy, a Scottish-born head of the South African Railways from 1910 visited Hermanus regularly for the fishing, and for the relaxed atmosphere. In order to help preserve the Hermanus lifestyle, Sir William actively opposed the then plans to build a railway line from Botriver to Hermanus. Sir William Hoy was especially fond of climbing the Koppie and was subsequently buried there after his death in 1930, as was his wish. His wife, Lady Hoy, who died in England, was buried next to him in 1935, and their graves are still situated at the top of the Koppie today are an attraction to tourist and

¹ NEM:BA (Act No. 10 of 2004). Alien and Invasive Species Regulations (Government Gazette No. 37885, September 2014)

locals alike. The, the well-maintained paths (maintained by the OSM and the CPMG) are wheelchair friendly and offer views of Hermanus, Fernkloof Mountains and Walker Bay¹.

The Annual Hermanus Camp (AHC) was founded in 1908 at “Piet se Bos” by the Reverend Ernest William Lasbrey of St John's Parish, Wynberg. By 1912 the site had moved to its current location and was used by the 1st Kenilworth Boy Scout Troop and other Troops for their annual camps. In 1969 the AHC split from the Boy Scout movement and, until today, recruits its members from parishes, and from local Western Cape schools. The AHC is still based on scouting traditions, with a Christian ethos.² Due to the high significance of the AHC (Erf 4771) within the local context of Hermanus, the AHC has been designated as a “Grade IIIA” Living Heritage Feature Local Heritage Site by Heritage Western Cape (HWC) on 9 January 2015, and has been placed onto the HWC Heritage Register.

The cultural heritage of the FNR must be managed judiciously to ensure its preservation for future generations. As such any disturbance of landscapes or features that significantly impact upon cultural resources must be avoided (where such disturbance cannot be altogether avoided, the impacts must be minimised and remedied).

Any burial sites or archaeological material discovered on the FNR must be reported to the EMS and the Overstrand Heritage and Aesthetics Committee. If need be, the Overstrand Municipality will need to appoint an archaeologist to investigate any finds. HWC and/or South African Heritage Resources Agency (SAHRA) must be informed if finds are deemed to be significant by the archaeologist.

6.17 FNR Context: Socio-economics of the Overstrand

Also refer to:

9.11. Socio-Economic Framework;

Management Action Table 1.11. Socio-economic Framework Management

The Overstrand Municipality is demarcated into 13 wards across Hangklip/Kleinmond, Greater Hermanus, Stanford and Greater Gansbaai. The 1708km² area has a 230km coastline and is located in the South West portion of the Overberg District Municipality³. According to the Department of Social Development's 2018 projection, the Overstrand has a population of 102 024, making it the second largest municipality in the Overberg District¹.

The 2nd Review of the 5-year Integrated Development Plan (2019/20) identifies the following main economic drivers in the Municipal area³:

Tourism: Marketed as the Cape Whale Coast, the OSM is situated 120km from Cape Town International Airport, and is easily accessible to both national and international tourists. The municipality has well-developed infrastructure and the area has a suite of tourist attractions that

¹ Adapted from the Hermanus Historical Society website. Accessed 20 August 2018. Available: <http://www.hermanus-history-society.co.za/2015/08/28/hoys-koppie-the-jewel-of-hermanus/>

² A History of the Annual Hermanus Camp (2010). Available from http://hermanuscamp.org.za/index_files/History_of_the_AHCamp.htm (Accessed 28 May 2014).

³ Overstrand Integrated Development Plan. 2st review of 5 year IDP (2019/20). 27 March 2019. Accessed online March 2019. Available online: <https://www.overstrand.gov.za/en/documents/strategic-documents/integrated-development-plan/6253-draft-2019-20-idp-review-27-3-2019/file>

contribute significantly to the GDP. Tourism in the OSM contributes to other economic sectors including retail, catering and accommodation.

Aquaculture and Agriculture: The OSM has a well-established aquaculture sector which is one of the fastest growing industries in the OSM. The thriving agriculture industry includes a growing viticulture sector. In the OSM the aquaculture and agriculture sectors have mitigated job losses in the turbulent commercial fishing industry sector.

Manufacturing: The OSM has a successful light manufacturing industry that contributes to employment creation in the area.

Finance, real estate and business services: The largest contributor to the municipal GCPR, this sector highlights the attractiveness of the area to retirement and job availability that are demonstrated by the demographic (ages 15-64). The sector continues to grow and counters job losses in the agriculture sector and contributes significantly to skills development.

Secondary service industry: This sector has had significant growth due to the demand for services, support and information that deals with the growing development demands of the municipality.

The OSM Local Economic Development (LED) has three approaches:

- a) **Community based projects** include Building Entrepreneurship Communities, Investment Promotion, Harbour Development, Support and Growth of the Informal Sector;
- b) **Innovative projects** include Supply Chain and Economic Development, Agri-parks Project Implementation, Youth Focussed Projects, Emerging Farmer Support Programmes and Expanded Public Works Programmes (EPWP),
- c) **Skills development** includes Capacity Building Initiatives and Collaborative Partnerships Orientated Training.

7 Operational Management of the FNR

7.1. Operational staff

Also refer to:

9.14. Human Resource Management; Management Action Table 1.14. Human Resource Management

The current “permanent” human resource structure and capacity is not adequate to ensure that FNR is managed effectively and able to meet its Management Goals or implement all of the Actions set out in the Management Action Tables (Tables 1.1. to 1.16). Therefore the Organogram for the Environmental Management Services is currently under review (EMS Organogram 2020-2027) to ensure a short, medium and long-term plan to increase the capacity of the EMS over the next 7 years and to develop posts in all required sections of the department.

Below is the current staff component for the FNR, permanent and contract positions.

Figure 11. FNR Staff Component

Job Title	Area of responsibility	Post Status
Biodiversity Conservation Manager	OSM	Filled
Principal Conservation Practitioner	FNR Kleinmond Nature Reserves	Filled
Senior Field Ranger: Terrestrial	FNR	Filled
Senior Field Ranger: Coastal	FNR	Filled/Under review
Senior Field Ranger: Special Projects	All areas	Filled/Under review
Junior Field Rangers (4)	FNR	2 Filled 2 Not Approved
Environmental Monitors (4)	FNR	Filled/Contract EPWP
Supervisor: General Workers	FNR	Not Approved
General Workers (5)	FNR	Not Approved
Administrative Assistant (1)	FNR	Filled/Contract EPWP
LED Alien Clearing Team (5)	FNR	Filled/Contract EPWP

The management of FNR is a specialised function requiring specialist continuity and therefore requires a dedicated permanent personnel component. An appropriate minimum staff component must consist of at least a dedicated Principle Conservation Practitioner , an Administrative Assistant, 3 Senior Field Rangers (one coastal, one terrestrial and one for special projects), and four junior field rangers. Another essential human resource requirement is a dedicated six-person skilled labour force with a dedicated supervisor to manage daily operational tasks on the FNR and a small Alien Plant Clearing team to assist with alien clearing on the reserve only.

The FNR implements the EPWP Working for the Coast initiative that provides a trained labour force of 92 beneficiaries who contribute to FNR management deliverables including daily boardwalk

maintenance for the Cliff Path portions of the reserve, trail maintenance and alien invasive plant removal. Four EPWP Environmental Monitors are under contract to assist on the coastal section of the reserve and in Open Spaces 1 areas.

7.2. Important contributors to the Operational Management of the FNR

Also refer to:

9.2. Integrated Planning, Cooperative Governance and Co-management;

9.3. Ecosystem & Biodiversity Management;

9.9. Infrastructure Management;

Management Action Table 1.2. Integrated Planning, Cooperative Governance and Co-management;

Management Action Table 1.3. a) Ecosystem & Biodiversity Management: General Actions;

Management Action Table 1.3. b) Indigenous Vegetation;

Management Action Table 1.5. Fire Management;

Management Action Table 1.6. Invasive and Non-Invasive Alien Species Management;

Management Action Table 1.9. Infrastructure Management

The FNR staff compliment is supported and strengthened by volunteer groups and societies who continue to provide invaluable expertise, knowledge, services and dedication toward the management to the FNR. The FNR recognise and are grateful for the following groups and their contributions and support to management of the reserve.

The Hermanus Botanical Society (HBS) assist with:

- regularly contribute to international and national conservation monitoring, specimen and data collection initiatives;
- assist with the OSM mandate to conserve and protect the of flora and fauna in the reserve;
- assist the OSM with post fire vegetation monitoring in the reserve;
- contribute funds and coordinate volunteers for the Hermanus Hacking Group alien vegetation clearing project;
- commissioned the development of the Cliff Path portion of the FNR, the Fernkloof Gardens, the Fernkloof Visitors' Centre, the Hermanus Botanical Society Herbarium, The Hermanus Botanical Society Research Centre and the Fernkloof Indigenous Nursery;
- develop and deliver outreach and education initiatives including (amongst other) guided fynbos walks, fynbos presentations and talks, the annual Hermanus Flower Festival held at the FNR and;
- developed, and continue to maintain, the reserve's website (www.fernkloof.org.za);
- are acclaimed for the concept, design and printing of the Fernkloof Nature Reserve Book in commemoration of the FNR 60th anniversary of the reserve.

The Cliff Path Management Group (CPMG) who assist with the:

- manage and maintain the Cliff Path portion of the FNR;
- restore and rehabilitate the natural vegetation along the Coastal Cliff Paths through alien vegetation clearing and replanting of natural vegetation;
- maintain signage;
- conduct and coordinate clean-up projects;
- maintain cultural heritage sites;

- provide communication with professional security groups to improve the personal safety of visitors to the area.

The Hermanus Bird Club who assist with:

- monitor and maintain avifauna species lists for the FNR;
- provide valuable research through bird ringing in the reserve;
- contribute significantly to environmental education initiatives for birds in the FNR.

The Hermanus Annual Camp who assist with:

- the maintenance of the property and infrastructure on Portion 5 of the FNR;
- ecological monitoring and rehabilitation of Milkwood forests in Portion 5 of the FNR

7.3. Financial Management

Also refer to:

9.13. Financial and Administrative Management;

Management Action Table 1.13.

The FNR is managed according to an Annual Plan of Operations (APO). The FNR APO is guided by the annual budget allocation that is determined by the OSM for the EMS and various specific projects including infrastructure maintenance, alien invasive species and fire management. These APO's will be available as subsidiary documents that will be submitted and added to the Management Plan every year. An assessment to determine the direct and indirect economic value of the ecosystem services that the FNR provide will give additional motivation for supplementary funding.

7.4. Infrastructure

Also refer to:

8. The FNR Conservation Development Framework;

9.9. Infrastructure Management;

Management Action Table 1.9. Infrastructure Management;

Appendix 7. Overstrand: Fernkloof Nature Reserve Recreational Trails Map;

Appendix 8. Overstrand: Fernkloof Nature Reserve Infrastructure Map.

The FNR is fragmented into six portions of protected areas which contain various infrastructure types that are listed below in the Figure 12. below. Responsibilities for maintenance of infrastructure are largely the onus of the OSM and FNR although Lease Agreements and Co-Management Agreements are in place for a number of sites and are described in the PAMP in Section 1.5. Co-Management Agreements.

Figure 12. Table of Infrastructure located within the FNR

Feature Name	Location	Feature Type	Maintained by
OSM Staff House & Garage	Portion 1.	Building	OSM
Staff House & Garage	Portion 1.	Building	HBS
HBS Boardroom	Portion 1.	Building	HBS
Kitchen	Portion 1.	Building	HBS
Garage	Portion 1.	Building	HBS
Garage & Storeroom	Portion 1.	Building	HBS
Galpin Hut	Portion 1.	Accommodation	HBS
Fernkloof Ranger's Office	Portion 1.	Building	HBS
Main Hall	Portion 1.	Building	HBS
Ablutions x 2	Portion 1.	Building	HBS
Gate: Jeep Track	Portion 1.	Access	OSM
Fernkloof Tar Road and Parking Area	Portion 1.	Access	OSM
Gate: Main	Portion 1.	Access	OSM
Gate: Three Dams	Portion 1.	Access	OSM
Ablutions Galpin Hut	Portion 1.	Composting Toilet	HBS
Ablutions	Portion 1.	Building	HBS
Ablutions	Portion 4.	Building	HBS
Reservoirs x 7	Portion 1.	Reservoirs	OSM
Viewing Points x 6	Portion 1.	Parking	OSM
Baboon Fence	Portion 1.	Fence	OSM
Garage & Storeroom	Portion 5.	Building	OSM
HBS Herbarium	Portion 1.	Building	HBS
Indigenous Nursery	Portion 1.	Retail	HBS
Fernkloof Indigenous Nursery Office	Portion 1.	Building	HBS
Visitors' Centre	Portion 1.	Building	HBS
Klip Kop Cave	Portion 2.	Heritage Site	OHAC
Grave sites	Portion 2	Heritage Site	OHAC
Gate: Hamilton Russel	Portion 1.	Access	Landowner
Towers/Masks	Portion 1.	Various	Various

7.5. Roads/Jeep tracks

Roads and Jeep tracks within the reserve are spatially represented in Appendix 8. Overstrand: Fernkloof Nature Reserve Infrastructure Map.

Rotary Drive lookout point is utilised and is impacted upon by the public (e.g. by trampling, littering and vandalism). Projects are planned to formalise the area around the communication tower / radio mast, which is located just off (south of) Rotary Drive in order to be more visitor friendly but to still protect the integrity of the surrounding natural vegetation and landscape. Rotary Drive is maintained by OSM Area Management.

The FNR Jeep Track is utilised by hikers and serves as an emergency access point for FNR rangers and fire-fighting vehicles. The Jeep Track is not accessible to the public by motorised vehicles.

7.6. Recreational Trails and Footpaths

Recreational trails and footpaths are spatially represented in Appendix 7. Map: Recreational Trails of the FNR.

A total length of ± 65 km of recreational trails exist on the FNR, including:

- a) Mountain hiking trails and footpaths within the main portion of the FNR, some of which are constructed as wheel-chair friendly paved walkways with rest benches. The trails were originally laid out by the HBS and are maintained by the OSM, with support from HBS. Portions of the hiking trails are available for dog owners to walk their dogs on lead.
- b) The coastal Cliff Path (which meanders ± 11 km along the coast from the New Harbour to Piet-se-Bos, complete with wheelchair paths and ± 220 in-memorial benches) is maintained by the OSM, with support from the Cliff Path Management Group (CPMG).
- c) A path up Hoy's Koppie, a portion of which is wheelchair-friendly is maintained by the OSM with support from the HBS.
- d) The Hermanus Cycle Trail was originally established by Hermanus Cycles, in association with other role-players such as the Hermanus Tourism Bureau, and the FNR. The cycle trail is a ± 17 km circular trail signposted for clockwise travel that may be joined at various points. The trail surface is mainly that of a jeep track or "twee-spoor" track, but a few substantial stretches of single track add to the attraction of the route. An average rider may complete the route (which is also open to hikers, joggers and dog-walkers), in less than 90 minutes. In 2012 the Hermanus Cycle Trail was revamped by the Pedal Power Association.
- e) The Piet-se-Bos portion of the reserve contains anti-erosion wooden walkways which are maintained by the OSM.

7.7. Buildings

Buildings within the FNR are spatially represented in Appendix 8. Overstrand: Fernkloof Nature Reserve Infrastructure Map.

Buildings within the FNR are located in the following portions of the reserve:

The main portion of the FNR contains a Botanical Centre located near the main entrance to the FNR, off Fir Avenue. This facility was commissioned and constructed circa 1970 by the HBS and consists of an auditorium, office complex, staff accommodation, kitchen, storage space, toilet blocks, herbarium, research facility and a nursery. The land on which the Botanical Centre stands is leased to the HBS.

A small visitors' centre (Figure 13.) is located at the car park where the HBS maintains a wild flower exhibit throughout the year. The Galpin Hut (Figure 14.), a basic self-catering overnight hut, located near the summit of 'Galpinkop' was erected by the HBS circa 1970 and refurbished by the OSM in 2013, including the residential dwelling occupied by Nursery Staff of HBS. An additional Municipal residential dwelling is located to the west of the entrance gate. These buildings are maintained by the OSM.

The coastal portion of the FNR: The Annual Hermanus Camp (AHC) is located adjacent to De Mond, the eastern end of the Cliff Path, adjacent to the mouth of the Klein River Estuary. The campsite includes a double garage and a store room, and a generator building (which houses an auxiliary generator for a submersible sewage pump-station).



Figure 13. The FNR Visitors' Centre
Photo@www.fernkloof.org.za



Figure 14. FNR Galpin Hut
Photo@www.fernkloof.org.za

7.8. Fences

Fences and beacons are spatially represented in Appendix 8. Map: Infrastructure within the FNR.

The FNR has no fixed boundary fencing. A few beacons and only rusted boundary fence remains indicate the boundary between the FNR and some of the northern neighbouring farms, and between the FNR and Vogelgat Nature Reserve. In addition, the Municipality erected an electrified (baboon-management) fence above the suburb of Voëlklip in 2008. The management of the baboon fence is set out in Management Action Table: 1.4. Wildlife Management.

To allow the free movement of animals into and from the FNR, the reinstatement of boundary fencing is not envisaged at this point. Whilst 15 new entry point signs were put up during 2011, public entry fees are not currently charged, and no access control is exercised. Tourism management barriers in the form of internal fences/gates with No Entry signs are placed in places that aim to restrict unauthorised access and to ensure rehabilitation of burnt sites.

7.9. The Indigenous Nursery, Gardens and Botanical Research Centre

The Indigenous Nursery, Gardens and Research Centre is located in Portion 1 of the FNR. The nursery is maintained and managed by the HBS. Proceeds from nursery sale are used to fund projects within the HBS mandate. The Fernkloof Garden is at the entrance to Portion 1 of the FNR and consists of indigenous and non-indigenous flowerbeds, lawns for recreational activities, wheel-chair and pushchair friendly pathways, environmental educational boards, cultural history information boards and plant labels with botanical information.

A memorial arboretum was developed in 2010. The memorial arboretum is currently at full capacity and alternative options for memorial initiatives will be investigated for the future.

The HBS Research Centre (HBSRC), opened in 2019. The concept and motivation for a Research Centre, process of setting it up and equipping with scientific instruments was undertaken by the HBS. Research is being managed by the HBS. The HBSRC facility will assist with the identification, collection and preparation of specimens for the Millennium seed bank collection, facilitate training for new members, house laboratory equipment (including digital microscopes) and plant identification references, provide a platform for arachnid and amphibian identification and research. SANBI funded the digitizing of the 4000 specimens in the HBS Herbarium onto the BRAHMS database in 2016-2017.

7.10. Water and Waste Management

Also refer to:

9.3. Ecosystem and Biodiversity Management;

Management Action Table: 1.3. j) Catchment, Groundwater & Rivers;

9.9 Infrastructure Management;

Management Action Table 1.9. Infrastructure Management;

Appendix 4. Overstrand: Fernkloof Nature Reserve Hydrology Map.

7.10.1. Mossel River Dams Water Management

Also refer to Appendix 4. Overstrand: Fernkloof Nature Reserve: Hydrology Map

Two concrete dams (known as dams 1 and 2) were built in the upper reaches of the Mossel River Valley during the 1920s to supply potable water to the then Mossel River Township, which was established circa 1908. The water was stored in a downstream reservoir. As the residential areas expanded, so did the demand for potable water, and a pipeline was laid from the adjacent Vogelgat Nature Reserve to the reservoir. The additional water from Vogelgat proved to be insufficient, and a third rock fill dam was completed downstream of dams 1 and 2 in 1947. Use of the water from the 3 dams was reduced after construction of the De Bos dam in 1976. Water from the three dams is currently used for irrigation at the Hermanus Golf Course and the Fernkloof Gardens.

7.10.2. Waste Management

7.10.2.1. Solid Waste Management

The primary objective of integrated waste management planning is to combine and optimize waste management in order to maximise efficiency and minimise the associated environmental impacts and financial costs. The FNR and EMS offices should be a living example of best practices in waste management. The OSM waste recovery of source separation (i.e. the two-bag system of separating recyclables from non-recyclables) is implemented to increase the recovery rate of recyclable items and environmental awareness through resident's hands-on participation with recycling initiatives in

the area. Garden refuse is stockpiled in waste management facilities and is chipped and composted at the Karwyderskraal facility¹.

Waste avoidance refers to a proactive approach to minimise waste production by not creating waste in the first place. The FNR gardens have an experimental Bin Free Garden project where visitors are requested to remove all their waste when they leave. This system also contributes to baboon and other wildlife species (such as rock hyrax) management by reducing human-wildlife conflict and discouraging unhealthy foraging behaviour in the wildlife that occupy the FNR. The concept of “leave only footprints, take only photographs” should be promoted.

Dog waste must be removed by owners and transgressors are controlled by the Overstrand By-law relating to the Keeping of Dogs and Cats (2009) Section 6 (3) requires dog owners in public places to remove dog waste by placing it in a suitable container and disposing of it responsibly. In the FNR, signage indicates that dog waste must be removed from the reserve by the owner. Dog waste bins in the FNR are provided by Whale Coast Conservation (WCC). Cigarette smoking in the FNR must be discouraged to reduce wild fire risks. The largest contributor of litter is discarded cigarette butts despite the presence of Butt Bins provided by WCC.

The Rotary Drive and Hoy’s Koppie portions of FNR require better waste management; refuse bins are inadequate and are often ignored. Awareness and educational signage to promote anti-litter campaigns should be implemented and source separation (recycling bins) should be implemented where appropriate.

The Cliff Path Portions of the FNR utilise Fishing Line Bins (supplied by WCC in partnership with Dyer Island Conservation Trust).

7.10.2.2. Water and Sewage Waste Management

Current sewage management includes antiquated septic tank/French drain systems that must be replaced by conservancy tanks and waste water recycling systems where appropriate. The composting toilet at Galpin hut is sufficient for the needs of the over-night hikers. Modern, eco-friendly water saving infrastructure in ablutions should be implemented. These requirements could be achieved through a contract with WCC to promote and advertise WCC Green House sustainable waste management products.

¹ Overstrand Municipality Integrated Waste Management Plan (4th Generation) (Final Report). May 2015. Compiled by Jan Palm Consulting Engineers. Specialist Waste Management Consultants. Available online: www.overstrand.gov.za

7.11. Signage

Also refer to:

9.8.3 Guiding Principles for Law Enforcement and Compliance

Management Action Table 1.9. Infrastructure Management;

Management Action Table 1.11. Socio-Economic Framework Management;

Management Action Table 1.16. Visitor and Services Management.

Directional signage: All recreational walking and hiking mountain trails are clearly mapped and marked with directional signage and colour coded ground markers that give information to visitors about the difficulty and length of hiking and walking trails as well as road types (dirt or tar), picnic and parking areas, points of interest etc.

Informational signage: Clearly displayed within the main portion of the FNR, signage that dictates the internal rules of the reserve including areas that are accessible for dog walking.

Interpretational signage: includes attractive and informative signage in main portion of the FNR as well as “Discover Biodiversity” educational signage on the Cliff Path portions of the FNR. There are four clusters of 11 educational posters that make up the Educational Birding Trail of the FNR.

7.12. Natural Resource Utilisation

Also refer to Management Action Table 1.11. Socio-Economic Framework Management

7.12.1. Fauna and Flora Natural Resource Utilisation

The NEMA (1998) Section 2. National Environmental Management Principles speaks to sustainable development and the required consideration of relevant factors specifically: *(4)(a)(vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised; (vii) that a risk-adverse and cautious approach is applied, which takes into account the limits of current knowledge as well as the consequences of decisions and actions and; (viii) that negative impacts on the environment and on people’s environmental rights be anticipated and prevented, and where they cannot be altogether prevented are minimised and remedied.*

NEM:PAA Regulations for the proper administration of Nature Reserves. Chapter 5. The Use of biological resources in Nature Reserves guides the authorisation and utilisation of natural resources in a protected area.

The EMS will consider applications for the extractive use of plant resources (e.g. Buchu *Agathosma* spp. and invasive Thatching Reed), provided that the Goals of the FNR are not compromised and the effects on species, ecological systems and management functioning (including monitoring of the effects of extraction) are determined to be non-detrimental. The extractive use of animal resources will not be considered, except if such animals are alien or alien invasive species (e.g. fish) as listed by NEM: BA.

The EMS must evaluate all extractive resource use applications whilst ensuring:

- the necessary consultation and relevant permits are acquired from CapeNature and the DEA&DP;

- due consideration of alternatives;
- sustainable and wise use of the resource;
- ecological and social acceptability;
- benefit to local communities;
- equitable access to the resource;
- that the harvesting operations are effectively controlled and monitored; and
- if approved, a written agreement is issued to the resource user stipulating resource price and/or conditions of harvest.

7.12.2. Bioprospecting

Bioprospecting within a protected area is regulated in NEMA (Act 10 of 2004) Chapter 6. The Minister (DEAT) is the issuing authority for Bioprospecting Permits. Applications for such permits must be supported by a Project Proposal, a Material Sharing Agreement and a Benefit Sharing Agreement. The aforementioned documents are reviewed by the Bioprospecting Advisory Committee before permits are issued. Bioprospecting regulations do not apply to alien species but does include exotic/alien species/organisms that are genetically altered by genetic materials or compounds from indigenous species. Bioprospecting Permits will only be issued if *inter alia* stakeholders are protected.

Requests to collect indigenous biological resource from the FNR for the purpose of bioprospecting (including discovery phase research) will only be considered from *bone fide* South African scientific institutions in terms Government Notice No. R 138 of 8 February 2008: NEM:BA Regulations on Bioprospecting, Access and Benefit-Sharing. Bioprospecting activities within the FNR must be closely monitored and regulated in terms the above provisions of the NEM:BA.

7.12.3. Abiotic Natural Resources Resource Utilisation

The extraction of abiotic resources from the FNR will not be permitted, unless it will assist in achieving the FNR Management Goals. Any application for extraction of abiotic resources from within the boundaries of the FNR will be reviewed according to applicable legislation (including the Mineral and Petroleum Resources Development Act, 2002 [Act No. 28 of 2002]).

7.13. Research and Monitoring

Current research and monitoring activities that currently occur within the FNR are elaborated upon in the relevant paragraphs of Section 6. Description and Context of the FNR. Also refer to 9.3. Ecosystem and Biodiversity Management and the corresponding Management Action Tables 1.3 (a-j)

Research and monitoring activities that occur within a nature reserve are promulgated in NEM:PAA Regulations for the Proper Administration of Nature Reserves (No. 35021 of 2012) Section 35: Research and monitoring; Section 37. Use of biological resources in nature reserves

Various aspects of the biophysical and natural environment, the functioning of the ecosystems, natural resource management (e.g. alien vegetation), and heritage resources are presently inadequately understood. Research is necessary to provide such information that will assist in ensuring that the natural and cultural heritage management goals of the FNR are realised.

Priority will be given to research that will provide information and understanding that is of direct benefit to the FNR and will guide management interventions required to achieve the protected area's biodiversity, conservation and cultural heritage goals in the most cost-effective manner. Opportunities will, however, be considered and provided for both applied and theoretical research.

Long term research and monitoring (e.g. of alien vegetation clearing and other factors affecting the sustained flow of good quality water from the FNR supplying the three dams, and the Gateway Well-Field) is desirable and necessary as a result of the dynamic and stochastic nature of the different ecosystems of the FNR, and to ascertain whether management actions are having their desired effects in terms of achieving conservation, and enhancing the provision of ecosystem services.

Baseline data collection, monitoring and evaluation are required in order to determine whether conservation, cultural heritage and tourism goals are being achieved, and to ascertain the effectiveness of management interventions.

Partnerships and agreements with accredited scientific institutions will be promoted to stimulate and encourage the desired research in the FNR. Researchers (local and international) must be registered with a South African scientific institution. All proposed research must be reviewed, endorsed and supervised by an accredited South African scientific institution. All proposals to undertake research within the FNR will be submitted to EMS for evaluation and approval, with recommendation from FAB (or approved by the Overstrand Municipal Council, if need be).

The EMS and CapeNature as well as external researchers must be consulted to identify and prioritise research and monitoring requirements. This research priority list will then be circulated to tertiary scientific institutions and made available on the FNR website. CapeNature have various ecological monitoring and research protocols and systems that can be adopted by the FNR. If these systems are adopted and data collection is standardised, the FNR would contribute to regional and national biodiversity programmes toward improving understanding of the area.

All research and monitoring data (including GIS data) collected within the FNR, must be collated and stored in a database that is managed by the Reserve Manager. All raw data collected during research and monitoring within the FNR will remain the property of the OSM EMS. Upon the completion of research and monitoring in the FNR, two hard and two electronic copies of all research publications produced must be provided. One copy each must be kept within the FNR and one at the EMS office, in a reference library. All research publications identified as management supporting documentation should be added to the PAMP and included in the annual report submitted to the MEC. Any management recommendations that may arise from research and monitoring should be brought before management and the FAB for consideration.

Due to the stochastic nature (random behaviour) of the environment, the predicted effects of climate change, and the length of time for management interventions to result in measureable change, it is desirable and necessary to implement long-term baseline collection and monitoring programmes. It is

also important to monitor and record all management interventions and any changes in the biophysical environment in order to better understand the possible causes of any biological and environmental changes.

The Reserve Manager will be responsible for continuing with all existing monitoring programmes, and for undertaking the monitoring actions listed in this PAMP, and for presenting the data to the EMS and FAB on an annual basis. Any existing monitoring programmes must be continued with, unless there is a specific written decision by the EMS to terminate a particular monitoring programme.

7.14. Public Events and Activities

Also refer to 9.16. Tourism Development Framework; Management Action Table 1.16. Tourism Development Framework

The Tourism Conceptual Development Plan as discussed in 9.16 should consider events and activities described below and investigate opportunities available to increase and generate income. Various different recreational activities in the area need to be identified and regulated to reduce damage to vegetation and sensitive habitats.

7.14.1. FNR Filming Policy

Also refer to:

9.16. Tourism Development Framework; Management Action Table 1.16. Tourism Development Framework.

There is an increasing demand for wildlife and landscape photography and footage for film, television, books and advertising in South Africa and the Overstrand area. Production companies often work with large budgets and, if managed correctly, this is an opportunity for the FNR to generate alternative revenue without a negative impact on natural and cultural resources. Section 49 and 50 of the NEM:PAA regulates commercial activities in protected areas.

NEM:PAA Regulations for the Proper Administration of Nature Reserves (No. 35021, 2012), Section 34 specifies that filming, services and events requiring permit, agreements and authorisations required in Protected Areas.

Tourists or members of the public who take film or photographs for private use and/or personal enjoyment are not considered a commercial enterprise and the FNR cedes the right to such material. If however, the material filmed by amateur or professionals is used (or is intended to be used) for broadcast, commercial, resale, marketing or advertising, the filmmakers will be charged a fee that includes a location fee and other fees that are dependent on the specific filming requirements.

All commercial filmmakers/photographers should sign a code of conduct developed by FNR management that govern the following behaviour while filming in the FNR:

- physical harm/stress to wild animals;

- minimal impact on the environment;
- accuracy of information portrayed;
- where necessary the use of expert advice in natural history filming;

An agreement between the filmmakers and the management authority should include:

- A free copy of the finished product or publication for the purpose of education and information (not for resale/commercial use) be made available to the FNR;
- The filmmakers/photographers acknowledge the FNR and FNR officials (when deemed appropriate) in the broadcast version/publication of the product created with footage and material filmed in the FNR;
- The rules and regulations of NEM:PAA and the internal rules of the FNR are complied with;
- In the case of filming in sensitive areas, or for any reason deemed necessary by the FNR and at the cost to the filmmaker/photographer, an Environmental Control Officer must oversee and control filming in the FNR.

The OSM, as the management authority of the FNR, is the legal authority for commercial filming in the FNR. Permits for commercial filming can be obtained from the OSM website.

7.14.2. FNR Venue Hire

The Fernkloof Hall is available for event hire in the FNR. The 130m² stone building is able to accommodate approximately 80 people and includes chairs and trestle tables, crockery and cutlery, and a recently refurbished, well equipped kitchen. The hall is available for workshops, presentations and functions.

8. The FNR Conservation Development Framework

8.1. Protected Area and Municipal Zoning

Also refer to

9.1. Legal Status and Reserve Expansion; Management Action Table 1.1.;

9.15. Visitor & Services Management; Management Action Table 1.15.;

9.16. Tourism Development Framework; Management Action Table 1.16.

The FNR is classified as Spatial Planning Category (SPC) Core Conservation Zone: Conservation 1 in the Overstrand Municipal Wide Spatial Development Framework¹ and the Overstrand Environmental Management Framework (EMF). Although there are possible Consent Use (e.g. Tourist facilities) within the Development Rules, the consent uses of the above Municipal Zoning will only apply for the FNR if the Management Plan in terms of NEM:PAA has made provision for such activities. This means that as the FNR is declared and the PAMP is a legal binding document, once it is signed by the MEC, any development applications will be required to go through the standard process of NEMA, NEM:PAA and the Management Plan for consideration.

The concepts of sustainable development are also addressed in Section 8.3, Sensitivity Analysis of the FNR. A sensitivity analysis of the FNR will inform and support:

- Future infrastructure development;
- Reserve planning;
- Use and access within the reserve; and
- Management priorities for the FNR.

The above processes and methods are implemented by CapeNature to ensure that the location, characteristics and mitigation for access, infrastructure development and activities within the reserves are influenced by the best possible information available to make effective management decisions. It is recommended that CapeNature be consulted to determine the way forward for the sensitivity analysis for the FNR and this action must take place before any new development in Fernkloof can even be considered.

Land use Guidelines for Protected Areas (PAs):

In general, protected areas should be maintained in a natural or near-natural state, with no loss or degradation of natural habitat. Where there is pre-existing degradation, this should be restored. Where it is necessary to establish or expand infrastructure within a protected area, this should be carried out subject to the provisions of NEMA, NEM:PAA and the PAMP.

In general, land uses that are inappropriate in protected areas include any form of mining or prospecting, extensive or intensive grazing of livestock that leads to loss of species diversity, and modification of natural habitat for cultivation, plantation forestry, urban and industrial development.

¹Overstrand Municipal Wide Spatial Development Framework (Vol 2). 2006. Final Draft. Pg 23

Ecotourism developments in a protected area should be small scale and appropriate with an attempt to minimise the impact on the environment as far as possible.

Permissible land uses are those that are compatible with maintaining the natural vegetation cover of CBAs in a healthy ecological state, and that do not result in loss or degradation of natural habitat.

The Western Cape Biodiversity Spatial Planning Handbook further states that:

- 1) All operational aspects of managing protected areas must be subject to their main purpose, which is to protect and maintain biodiversity and ecological integrity, and should be governed by a formally approved management plan including land use activities that support the primary function of these areas as sites for biodiversity conservation.
- 2) A management plan must identify allowable activities, which should be consistent at least with the CBA Irreplaceable category; the location of these allowable activities should be captured in a zonation plan in the management plan
- 3) Activities relating to the construction of roads, administrative or tourism infrastructure and services (such as water reticulation systems, power lines, etc.) that are required to support the primary function of the protected area and its allowable activities, are subject to NEMA authorisation and the protected area management plan.

The Overstrand Municipal Zoning Scheme, Gazetted by the Western Cape Provincial Government in 2013, zones the FNR as Open Space Zone 1: Nature Reserve (OS1) where the primary use is listed as a nature reserve and consent uses are defined in conjunction with the Development Rules applicable.

The consent uses of the above Municipal Zoning will only apply to the FNR, which is declared in terms of NEM: PAA, where this Management Plan has made provision for such activities. Any infrastructure development or layout must follow due process with regard to any environmental application and authorization required.

The Municipal Spatial Planning Categories must not be confused with “Management Units”, as determined in the PAMP. The “Management Units” describe, at a much finer scale, the allowable land-uses and activities in clearly defined areas as described in Table 2. The approved protected area management plan determines the allowable and prohibited activities within each management unit.

Chapter 15 of the OSM Zoning Scheme Regulations¹ allows municipalities to prepare, approve, amend or delete overlay zones for specific areas, therefore the OSM has drafted and intend to adopt the Environmental Management Overlay Zone (EMOZ) Regulations. The EMOZ regulations provide a mechanism for land use management, additional to existing statutory land use controls, whereby Council may give effect to specific guidelines in a spatial development framework or policy plan or address as specific management issue.

The above regulations apply, in addition to any other laws that may apply, to the Environmental Management Overlay zones within the area of jurisdiction of the Overstrand Municipality and bind all persons and organs of state within this area of jurisdiction. These regulations do not invalidate any land use rights or authorisation that existed when these regulations came into effect but may place additional constraints on existing rights

8.2. Zonation and Land use within the FNR

In terms of Section 41 of the NEM:PAA, (2) a management plan must contain at least (g) a zoning of the area indicating what activities may take place in different sections of the area, and the conservation objectives of those sections.

As such, the area of the FNR is divided into four Management Units:

1. Conservation Units;
2. Transformed Units;
3. Special Management Units for Cultural Feature Protection;
4. Buffer Zones.

Refer to Table 2. Fernkloof Nature Reserve Management Units and Parameters for the individual objectives, characteristics, visitor activities, facilities and infrastructure as well as Management Guidelines for the zones within in the FNR.

FNR Management Units are spatially represented in Appendix 9. Overstrand: Fernkloof Nature Reserve: FNR Management Units

8.3. Sensitivity Analysis of the FNR

Spatial planning and decision-making in a reserve must not only consider critical biodiversity areas (CBAs) but must include biophysical, aesthetic and heritage attributes to inform constraints and opportunities within the reserve. Sensitivity mapping is the process of collating and analysing these characteristics to rate the reserve's sensitivity on a standard scale of 1 to 5, with 1 representing minimal sensitivity and 5 representing maximum sensitivity. Addition factors such as fire risks, costs (for e.g. of development in areas that are more expensive due to inaccessibility versus easier access areas). Sensitivity maps cannot replace all onsite investigation but are a rapid review of known risks and can guide reserve planning to minimise negative environmental impacts¹.

A sensitivity analysis of the FNR will inform and support:

- future infrastructure development;
- reserve planning;
- use and access within the reserve; and
- Management priorities for the FNR.

Comprehensive sensitivity analysis of the FNR requires:

- expert assessment of key informants (biodiversity, heritage etc.);
- data production, synthesis and compilation;
- expert GIS layer verification and scoring;
- sensitivity value analysis for the production of final summary layers

¹ Kirkwood, D. Ecological Planner, CapeNature. Biodiversity and Implementation Forum. . Conservation Development Frameworks - Reserve Sensitivity Analysis and Zonation Process CapeNature's simplified approach.2012. Available online: <http://biodiversityadvisor.sanbi.org/wp-content/uploads/2012/09/01SENS2.pdf>

The above processes and methods are implemented by CapeNature to ensure that the location, characteristics and mitigation for access, infrastructure development and activities within reserves are influenced by the best possible information available to management.

8.4. Development Applications

Development applications for new land uses and extension of existing land uses within the FNR must be aligned with the PAMP (particularly Section 5.3. Mission Statement of the FNR and Section 5.4. Sustainable Development of the FNR), OSM Land-Use Planning By-law and other relevant regulations and legislation. Any development applications for Fernkloof must follow the municipal application procedures.

8.5. Implementation and Monitoring of Development

The Biodiversity Conservation Section shall be responsible, in association with the Town Planning, Property Administration and the Building Department to ensure that the conditions of approval with respect to each development application have been complied with.

8.6. Access

Also refer to:

7.8. Fences;

Management Action Table 1.1. Legal Status and Reserve Expansion;

Management Action Table 1.9. Infrastructure Management.

The OSM EMS provides and maintains facilities that promote access to the FNR. The FNR's boundary is unfenced and at this stage a boundary fence is not envisaged as there are no large game species that require containment in the reserve, and the high prohibitive cost of fencing for comparatively little or no benefit. The fencing probability can however be reviewed for specific areas of conflict. The reserve boundary points must, however, be surveyed and physically demarcated to enable the easy on-site recognition of the reserve's boundary lines for legal compliance and effective law enforcement purposes.

8.7. Servitudes

The FNR has partnerships with a number of servitude arrangements for which the partners are provided access to the areas managed as the FNR. Servitudes are spatially represented in Appendix 2. Overstrand: Fernkloof Nature Reserve Local Context Map.

8.8. Concept Development Plan: Tourism and Marketing

Also refer to:

9.16. Tourism Development Framework; Management Action Table 1.16.

The Overstrand Municipality has the mandate to sustainably develop the FNR within the framework of an approved Concept Development Plan. The Concept Development Plan will be undertaken to help ensure the long-term environmental and economic sustainability of the FNR, whilst respecting and giving access to the FNR's natural and cultural heritage features.

To fulfil this mandate, the EMS will initiate the compilation of a CDP. The CDP will address the future improvement and development of all infrastructures within the FNR. Such a CDP must be guided by the content of this PAMP, specifically in terms of the definition of sustainable development as described in the Definitions portion of this PAMP as well as the FNR Vision, Mission, Management Goals, Zonation and management policy guidelines. Such a CDP must also consider the FNR's natural and cultural heritage sensitivities, management and bulk infrastructure, its particular sense of place and its existing visitor infrastructure and facilities.

The EMS will continue to strive to provide a quality eco-cultural tourism experience for visitors to the FNR. Whilst a range of existing facilities and services are provided for the use of visitors to the FNR, some degree of tourism infrastructure development is required to serve recreational and social needs. Emphasis should, however, be placed on facilities and services that enrich the visitor's understanding and appreciation of the biodiversity and cultural heritage of the FNR. Tourism infrastructure development will be guided by the CDP.

9. The FNR Strategic Implementation Framework (SIF)

The Strategic Implementation Framework guides the implementation of the FNR PAMP to ensure the Goals of the FNR are achieved. The SIF translates information from the sections above into management targets and actions that are measurable and can be used to inform annual operations and the resources required to implement and fulfil them.

The successful management of the FNR is dependent on the completion of the Actions tabled in Section 10. These Actions are achievable with the dedication and commitment of the OSM EMS together with the groups, organisations and institutions that have co-management agreements with the OSM EMS and the FNR. It is the responsibility of the OSM to develop and maintain co-management agreements with the relevant institutions and partners to ensure that the Management Actions required to effectively managing the FNR are implemented.

As per the NEM: PAA Norms and Standards for the Management of Protected Areas in South Africa (Section 11.1. (c)(i) and (ii)) the standard indicator of an approved and implemented management plan is an annual work plan of operations implementing the management plan in place; and there is a detailed work plan identifying specific targets for achieving management objectives linked to the management plan.

The Management Actions derived from the Strategic Implementation Framework and tabled in Section 10 Management Actions derived from the Strategic Implementation Framework underpin the goals listed below which in turn supports the mission and the long-term vision of the FNR.

The goals will be implemented within this framework through the execution of the various Actions and through the development of a FNR Annual Plan of Operations / Business Plan (which may be submitted to the MEC annually in terms of Section 41[4] of the NEM:PAA [which deals with “*subsidiary plans*”]).

9.1. Legal Status and Reserve Expansion

9.1.1. Management Goals

- i. All areas of the reserve are awarded legal status in terms of NEM: PAA;
- ii. Reserve boundaries are clearly demarcated and known to local residents;
- iii. Identify and prioritise potential areas for FNR expansion in accordance with the National Protected Area Expansion Strategy.

9.1.2. The Existing FNR Protected Areas

The original boundaries of the FNR were officially proclaimed (Proclamation No. 391 of 1971) in terms of the Nature Conservation Ordinance, 1965 (Ordinance No. 26 of 1965).¹

The Hoy’s Koppie and Mossel River Valley portions of the FNR were formally included into the reserve on 18 April 1984 and added approximately 6.94 hectares to the reserve.

¹ The Nature Conservation Ordinance, 1965 (Ordinance No. 26 of 1965) has been superseded by the Nature and Environmental Conservation Ordinance, 1974 (Ordinance No. 19 of 1974).

An extension to the FNR was made on 2 June 2000 (Provincial Notice No. 242 of 2000 as contained in Provincial Gazette No. 5507) by incorporating the Mossel River Valley, a section of the Cliff Path, Piet se Bos and Hoy's Koppie into the reserve.

A further extension was added to the east of the reserve during 2009, between Vogelgat Private Nature Reserve, the Kleinrivier estuary and Lagoon Farm, as described in Provincial Notice No. 37 of 2009 of 21 August 2009, as contained in Provincial Gazette No. 6651.

The total area of the current (2018) FNR is 1801.46 hectares.

9.1.3. The Proposed Expansions of FNR

Opportunities to establish new protected and/or conservation management areas in collaboration with private and/or provincial organisations bordering or in the locale of the reserve can contribute to conservation management goals and also result in socio-economic benefits for the OSM communities.

If the Municipality plans to extend or amend the boundaries of the reserve, the MEC may, in terms of Section 23 of the NEM: PAA, declare an area, as specified in a notice published in the Government Gazette, to be part of the existing nature reserve. Upon approval from the Municipal Council for the extension of the FNR, the Overstrand Municipality will apply for the declaration of the full extent of the FNR and consolidation as a Protected Area in terms of the NEM:PAA, and for the registration of the full extent of the FNR in the National Register of Protected Areas

The OSM EMS therefore recommends the Municipal properties listed in Figure 15 below are included in the FNR. Copies of the title deeds are available from the EMS. The properties to be proposed as extensions of the FNR are spatially represented in Appendix 9. Map: FNR Management Units.

Figure 15. Current and proposed land parcels that constitute the FNR

The proposed full extent of the FNR will include the following properties. The proposed extension will add approximately 230.95 hectares to the existing extent of the Fernkloof Nature Reserve. The full extent of the FNR should be approximately 2032 ha if the full extension is approved.

Farm portion and number	Farm name	Part of current FNR
RE/591	Glenvarloch	Yes
1/591	Glenvarloch	Yes
2/591	Glenvarloch	Yes
RE/1253		Yes
RE/4780		Yes
Erf 4833		Yes
RE/243		Yes -not full extent
RE/4771		Yes -not full extent

Erf 4831 (Excluding a portion presently known as Maanskynbaai)		Yes -not full extent
3/585	Hemel en Aarde	Proposed extension
5/585	Hemel en Aarde	Proposed extension
8/585	Hemel en Aarde	Proposed extension
Portion of Erf 249 South of Marine Drive (West Cliff)next to the New Harbour, Hermanus		Yes – not full extent
Erf 4831(Including a portion presently known as Maanskynbaai)		Proposed extension
Portion of Erf 572 South of Marine Drive seawards of the road, Hermanus		Proposed extension
Erf 4771 (Strip of land north of 5th Street, Hermanus)(Proper description to be included)		Proposed extension
Erf 243 (Strip of land above the existing Gateway Shopping Centre, Hermanus)		Proposed extension
Erf 243 north of Rotary Way and east of the Preekstoel Water Treatment Works, Hermanus		Proposed extension
Coastal Portion of Erf 1253, west of Erf 1233, Hermanus		Proposed extension
Portion of Erf 4771 between 9 th Avenue and 12 th Avenue, Hermanus, presently known as 'The Grotto'.		Proposed extension

9.1.4. UNESCO World Heritage Site Application

The FNR may qualify to be included as an extension of the UNESCO World Heritage Site: The Cape Floral Region Protected Areas¹ due to:

Criterion (ix): *“to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals”*; and

Criterion (x); *“to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.”*

9.1.5. Legislation, Initiatives and Strategies for Protected Area Expansion

- National Environmental Management: Protected Areas Act (Act No. 57 of 2003);
- Nature Conservation Ordinance (Ordinance No. 19 of 1974);
- Western Cape Protected Area Expansion Strategy (WCPAES);
- National Protected Area Expansion Strategy for South Africa 2008 (NPAES)²;

¹ The Cape Floral Region Protected Areas. Accessed:06 August 2018. Available online: <https://whc.unesco.org/en/list/1007>

² National Protected Area Expansion Strategy for South Africa 2008. *Priorities for expanding the protected area network for ecological sustainability and climate change adaptation*. Prepared by the Government of South Africa. Published

- National Protected Area Expansion Strategy: Resource Document¹;
- Protected Area Expansions Strategy and Implementation Plan for the Western Cape²
- Western Cape Protected Area Strategy: Stewardship Programme;
- SANBI CAPE: Biodiversity for Development³

9.1.6. Guiding Principles for Reserve Expansion

The expansion of Protected Areas in South Africa is informed by the 2008 NPAES. The goal of the NPAES is to achieve cost effective protected area expansion for ecological sustainability and adaptation to climate change. The NPAES explains inter alia the mechanisms and financial tools available for protected area expansion. The NPAES Resource Document provides technical information for the implementation of the expansion of a protected area.

The CapeNature Protected Area Expansion Strategy and Implementation Plan for the Western Cape (WCPAES 2015) is endorsed by Minister of Local Government, Environmental Affairs and Development planning, and provides province-specific ecological specific goals:

“To expand the Western Cape Protected Area network to encompass a more representative and resilient suite of areas that support biodiversity and ecological infrastructure, especially those threatened species and ecosystems that remain unprotected as yet; and to regularise existing Protected Areas so that environmental security is ensured for everyone in South Africa, and the costs and benefits of appropriation accrue to the proper entity”.

The SANBI CAPE Landscape Initiative programme promotes biodiversity conservation and sustainable development that engages with local role-players (including government, private sector, communities, NGOs and conservation organisations) to strategically coordinate and embark on joint projects to maximise biodiversity in and outside of protected areas⁴.

9.1.7. Management Actions

Refer to Section 10. Management Action Table 1.1. Legal Status & Reserve Expansion.

by the Government of South Africa, Pretoria, 2010. ISBN: 978-1-919976-55-6. Accessed online. 06 August 2018.
Available online:

https://www.environment.gov.za/sites/default/files/docs/nationalprotected_areasexpansion_strategy.pdf

¹ National Protected Area Expansion Strategy Resource Document. 2009. Department of Environmental Affairs, South African National Biodiversity Institute. Accessed online 06 August 2018. Available online:

https://www.environment.gov.za/sites/default/files/docs/npaes_resource_document.pdf

² Maree, K.S., Pence, G.Q.K. & Purnell, K. 2015. Western Cape Protected Areas Expansion Strategy: 2015 – 2020. Unpublished report. Produced by CapeNature. Cape Town, South Africa.

³ Cadman, M., Petersen, C., Driver, A., Sekhran, N., Maze, K. and Munzhedzi, S. 2010. Biodiversity for Development: South Africa's landscape approach to conserving biodiversity and promoting ecosystem resilience. South African National Biodiversity Institute, Pretoria. Accessed 07 August 2018. Available online: <https://www.sanbi.org/biodiversity/science-into-policy-action/mainstreaming-biodiversity/cape-programme/cape-programme-landscape-initiatives/#>

⁴ SANBI CAPE Landscape Initiative. Accessed 07 August 2018. Available online: <https://www.sanbi.org/biodiversity/science-into-policy-action/mainstreaming-biodiversity/cape-programme/>

9.2. Integrated Planning, Cooperative Governance and Co-Management Agreements

9.2.1. Management Goals

- i. To promote the conservation of the buffer zone around the FNR by formally entering into Conservation Management Agreements and Fire Management Agreements with CapeNature and with neighbouring property owners;
- ii. To continue to refine and develop the FNR PAMP in consultation with the FAB, whilst considering inputs from CapeNature, the CPMG, the HBS, the Hermanus Tourism Bureau, and from any other Non-Governmental Organisations (NGOs) or authorities who wish to assist with the management of the reserve.

9.2.2. Legislation, Initiatives and Strategies

- Intergovernmental Relations Framework Act, (Act No. 13 of 2005);
- NEM: PAA 2003 (Section 40.1.b);
- Municipal Systems Act 2000 (Section 35 1.b and Section 37.1b);
- National Protected Area Expansion Strategy Resource Document¹;
- NEM: PAA Proper Administration of Protected Areas. Regulations. 2012 (Notice 105 of Government Gazette No. 35019).

9.2.3. The FNR PAMP Alignment

It is essential that cooperative governance, co-management agreements and partnerships are developed, maintained and improved with national, regional and local government, stakeholders and direct and indirect contributors to the vision and goals of the FNR. Collaborative/co-management agreements and partnerships that comply with the management and legal framework of this PAMP increase and improve management capacity, enhance communication efforts and benefit natural and heritage conservation management within and around the FNR.

Formal Lease Agreements, Collaborative Management Agreements and Partnerships (including commercial partnerships), along with a written recommendation of the agreement from FAB and EMS, must be submitted to the relevant OSM municipal official for authorisation. All partnerships and agreements should be legally binding, contain clauses for cancellation/non-renewal for non-compliance of agreement and include a review period of between 1-3 years or an otherwise stipulated timeframe for review.

The Biodiversity Conservation Manager is responsible for ensuring that any FNR partnership agreement (commercial or otherwise) is monitored and that agreement conditions are strictly complied with.

¹ SANBI: National Protected Area Expansion Strategy Resource Document. Department of Environmental Affairs. 2009. Available online: https://www.environment.gov.za/sites/default/files/docs/npaes_resource_document.pdf

9.2.4. Management Actions

Refer to Section 10. Management Action Table 1.2: Integrated Planning, Cooperative Governance & Co-Management.

9.3. Ecosystem and Biodiversity Management

9.3.1. Management Goals

- i. To effectively conserve and manage the biophysical environment and the biodiversity of the FNR;
- ii. To develop and implement an ecologically sound fire management programme using input and recommendations from CapeNature and the Greater Overberg Fire Protection Association;
- iii. To institute sound catchment management to ensure sustained flow of good quality water from the Mossel River's natural catchment area;
- iv. To implement alien / invasive vegetation clearing and management on the FNR according to an on-going time-bound management programme as required in terms section 76 of NEM:BA;
- v. To develop a monitoring programme at relevant temporal and spatial scale to support management objectives and provide for review of the management plan;
- vi. To encourage, promote and improve scientific research in the FNR;
- vii. To protect and conserve the ecological integrity, natural character, and the economic, social and aesthetic value of the Cliff Path section of the FNR.
- viii. To provide access to the coastal protected areas within the FNR, and to manage such land in accordance with the National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) (NEM:ICMA).

9.3.2. Legislation, Policies and Strategies

- Lima Action Plan for UNESCO's Man and the Biosphere Programme (2016)¹;
- Madrid Action Plan for Biosphere Reserves (2008 - 2013)²
- Nature Conservation Ordinance (Ordinance No. 19 of 1974);
- National Environmental Management Act, (Act No. 107 of 1998)(NEMA);
- National Environmental Management: Protected Areas Act (Act No. 57 of 2003)(NEM:PAA);
- NEM: PAA (Act No. 57 of 2003). Regulation 99. Proper Administration of Nature Reserves (Government Gazette No. 35021, February 2012);
- NEM: PAA (Act No. 57 of 2003). Norms and Standards for the Management of Protected Areas in South Africa (Government Gazette No.39878, March 2016);
- National Environmental Management: Biodiversity Act (Act No. 10 of 2004)(NEM:BA);
- NEM:BA (Act No. 10 of 2004). Alien and Invasive Species Regulations (Government Gazette No. 37885, September 2014);

¹ UNESCO Lima Action Plan as endorsed by 4th World Congress of Biosphere Reserves. Available online: http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/Lima_Action_Plan_en_final.pdf

² UNESCO Madrid Action Plan (2008 - 2013) available online: <http://unesdoc.unesco.org/images/0016/001633/163301e.pdf>

- NEM:BA (Act No. 10 of 2004). Schedule: National List of Ecosystems that are Threatened and in need of protection (Government Gazette No. 34809, December 2011);
- NEM:BA (Act No. 10 of 2004): Draft Norms and Standards for the Management of Damage-Causing Animals in South Africa (Notice 1084 of 2010);
- NEM:BA (Act No. 10 of 2004) Norms and Standards for Biodiversity Management Plans for Species (Government Gazette No. 31968, March 2009);
- NEM:BA (Act 10 of 2004) Part 2 Co-ordination and alignment of plans, monitoring and research
- National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008);
- Conservation of Agricultural Resources Act, (Act No. 43 of 1983);
- CITES Regulations, 2009;
- South Africa's Fifth National Report to the Convention of Biological Diversity, March 2014¹;
- Western Cape Nature Conservation Board Act (Act No. 15 of 1998) and Regulations;
- CapeNature: Western Cape Biodiversity Spatial Plan Handbook (CapeNature)²;
- SANBI: Biodiversity Advisor online resource³;
- CapeNature: Baseline data collection and monitoring (2010) Unpublished;
- Fynbos Ecosystem Management Plan: Western Cape (2008)⁴

9.3.3. Guiding Principles for Ecosystem and Biodiversity Management

The FNR must be scientifically and adaptively managed in order to maintain the ecological integrity of ecosystems and habitats within the boundaries of the FNR, and to conserve its natural landscapes, habitats and species.

The diversity of indigenous plants and animals on the FNR will be conserved, *inter alia*, by:

- Managing the reserve in terms of the relevant governing legislation and guidelines;
- Preventing the spread of alien and invasive species;
- Restoring degraded ecosystems;
- Scientifically based fire, catchment and coastal area management;
- Protecting indigenous animals and possibly introducing historically occurring species;
- Preventing the destruction of natural habitat by tourists, staff, contractors, and by any other external factors (e.g. fire);
- Instituting measures to prevent soil erosion and pollution (contamination of soil) from taking place;
- Controlling illegal use of natural resources; and
- Monitoring and evaluating natural resources, and the success of the various management actions.

¹ Convention on Biological Diversity. Fifth National Report. South Africa. Available online: <https://www.cbd.int/reports/nr5/>

² Pool-Stanvliet, R., Duffell-Canham, A., Pence, G. & Smart, R. 2017. The Western Cape Biodiversity Spatial Plan Handbook. Stellenbosch: CapeNature. Available online: <http://bgis.sanbi.org/Projects/Detail/194> Accessed: August 2018

³ SANBI: Biodiversity Advisor online resource available: <http://biodiversityadvisor.sanbi.org/> Accessed: 14 August 2018

⁴ Jacobs, K. & Jangle, R. 2008. Fynbos Ecosystem Management Plan: Western Cape. Unpublished, The Nature Conservation Corporation, Cape Town. Available online: <http://www.conservationatwork.co.za/sites/default/files/conservation-guidelines/Fynbos%20EMP.pdf>

Adaptive management making use of the best scientific understanding includes implementing management actions, monitoring progress, and adapting the natural resource management strategy accordingly. Natural resource management aims to conserve biodiversity through identifying and addressing threats and ensuring the maintenance and/or re-instatement of those ecological processes that are considered the main determinants of ecosystem structure and function. Where such ecological processes have been disrupted and cannot be re-instated, management should attempt to simulate their effects; otherwise management intervention in the system should be minimised.

Soil erosion and deposition are natural, dynamic processes. However, soil erosion can be increased / aggravated due to human activity (e.g. along trails and pathways, and following alien vegetation clearing operations). In the case of human induced and/or aggravated erosion, appropriate remedial management action must be taken. Potential soil erosion must be avoided through appropriate planning (e.g. alien vegetation clearing accompanied by phased rehabilitation of natural vegetation), and through scheduled maintenance of infrastructure such as roads, cycle trails and pathways. Steep denuded areas should be stabilised against erosion by packing of logs parallel to the slope before undertaking vegetation rehabilitation work.

Other management interventions required to effectively conserve biodiversity and ensure sustained delivery of water are the control of alien and invasive species, soil erosion, wildlife management and minimising illegal activities (e.g. illegal hunting and plant collecting).

9.3.4. Management Actions

Refer to Section 10. Management Action in Tables 1. 3.

- j) Ecosystem & Biodiversity Management: General Actions;
- k) Ecosystem & Biodiversity Management: Indigenous Vegetation;
- l) Ecosystem & Biodiversity Management: Invertebrates;
- m) Ecosystem & Biodiversity Management: Fish & Aquatic Organisms;
- n) Ecosystem & Biodiversity Management: Herpetofauna;
- o) Ecosystem & Biodiversity Management: Avifauna;
- p) Ecosystem & Biodiversity Management: Mammals;
- q) Ecosystem & Biodiversity Management: Ecosystem Services;
- r) Ecosystem & Biodiversity Management: Soil Erosion;
- s) Ecosystem & Biodiversity Management: Catchment, Groundwater & Rivers.

9.4. Wildlife Management

9.4.1. Management Goals

- i. To maintain the diversity of indigenous animals that characterize habitats of the FNR;
- ii. To investigate the reintroduction of previously naturally occurring species;
- iii. To effectively manage damage causing/problem fauna.

9.4.2. Legislation

As per Ecosystem and Biodiversity Management Legislation

- NEM:BA (Act No. 10 of 2004): Draft Norms and Standards for the Management of Damage-Causing Animals in South Africa (Notice 1084 of 2010).

9.4.3. Guiding Principles for Wildlife Management

A minimal intervention strategy will be followed in terms of indigenous wildlife management. Exceptions will only be considered for the following purposes:

- achieving management and conservation goals;
- research and monitoring purposes;
- translocation to or from other state or private protected areas; and
- Safe-guarding populations of threatened species.

Wildlife that have been injured and are highly unlikely to survive, can be destroyed on the authority of the Biodiversity Conservation Manager who will consult with CapeNature.

The Biodiversity Conservation Manager must ensure that all relevant information is recorded and the relevant data / specimens / material is provided to CapeNature scientific staff responsible for processing and recording such information. A copy of these records must be maintained in the reserve office.

The reintroduction of previously occurring species to the FNR requires careful planning and consideration. A reintroduction sand plan must be commissioned in consultation with CapeNature. Before the reintroduction of previously naturally occurring species within the FNR, the following points should be investigated/considered for each potential species introduction:

- Why did the animal become locally extinct?
- Is the causal factor still a threat?
- Is the habitat still suitable for the species?
- What are the potential negative effects of reintroduction?
- Where is the nearest naturally occurring population?

9.4.4. Damage Causing/Problem Fauna Management Guiding Principles

9.4.4.1. Background to Baboon Management within and around the FNR

The mountains behind Hermanus are home to at least three troops of Chacma Baboons. One of these troops is resident in the FNR, whilst the two other larger troops frequents the Hemel-en-Aarde Valley and the Vogelgat Nature Reserve¹

The Chacma baboon (*Papio ursinus*) will remain an important and integral part of the natural ecosystem of the Overstrand area by forming part of the rich biodiversity of the area. They play a significant ecological role in the Cape Floristic Region as one of the mayor pollinators for the Fynbos

¹ <http://www.hermanustimes.co.za/local-guide>. Accessed 21 June 2012.

ecosystem. The coastal plains have always been an important food source for baboons, and they have frequented the Overstrand coastal plains as part of their normal feeding pattern for thousands of years.

As a result of living in an urban area enclosed between the sea and mountain, the food supplies of the troops are limited, and their continued existence is under threat. They are exposed to injury and illness through being fed inappropriate foods by humans and exposure to motor vehicles, being shot and poisoning etc. Partly due to the stresses under which they exist, they have become a threat to human society in that they raid homes and garbage facilities and may harm humans in attempts to find food. Poor land use planning decisions in the past have contributed to conflict as the available natural vegetation and areas available to support the baboon population have been reduced by allowing encroachment of human settlements into pristine natural areas with established wildlife populations.

In 2014 the Municipality also had to stop their involvement with the management of the troops after external funding for the management of the project ended. But after a 5-year negotiation with the Provincial Department and CapeNature, the assignment for Baboon Management was handed over to the Municipality in September 2019. In November 2019 the Overstrand Municipality appointed a specialised service provider to manage the baboon programme in Hermanus through the implementation of the Virtual Fence system.

A number of other measures have also been put in place by the Municipality to decrease and manage potential conflict situations between man and baboon, including the installation of baboon-proof refuse bins, the strategic and timed removal of residential waste on a weekly basis, the provision of signage, and the distribution of informative pamphlets to the public. This has all been done with the assistance and support of the Hermanus Baboon Action Group (HBAG).

9.4.4.2. Regulations and Guidelines for Damage Causing Animals

The NEM:BA Draft Norms and Standards for the Management of Damage Causing Animals in South Africa gives provision for the management of problem animals using standardized guidelines to assess the impact of damage caused by the problem animal ¹.

9.4.5. Management Actions

Refer to Section 10. Management Action Table 1.4. Wildlife Management

¹South Africa. 2010. General Notice No 1084 of 2010. Staatskoerant, 26 November 2010. Department of Environmental Affairs National Environmental Biodiversity Act, 2004 (Act 10 of 2004): Draft Norms and Standards for the Management of Damage Causing Animals in South Africa. Available online: https://www.environment.gov.za/sites/default/files/gazetted_notices/nemba_draftnormsandstandards_g33806_gen1084.pdf

9.5. Fire Management

9.5.1. Management Goals

Also refer to Ecosystem and Biodiversity Management Goals (9.3.1.)

The overall goals of Fire Management in the Western Cape are¹:

- To ensure conservation of species and processes by maintaining and improving ecosystem functioning;
- To allow for natural fire processes to occur without impacting on safety and infrastructure;
- To implement effective Integrated Catchment Management.

9.5.2. Legislation and Guidelines

- National Veld and Forest Fire Act, (Act No. 101 of 1998);
- National Forests Act, (Act No. 84 of 1998);
- Articles 4, 34 of the Overstrand Municipality Community Fire Safety By-law, P.N. 6454/2007 – Prevention of fire hazards on properties;
- Fire Brigade Services Act, No. 99 of 1987 and amendments up to Act 14 of 2000 – Prevention of fires;
- OSM Veld Fire Management Plan;
- OSM Fire Management Plan;
- The Integrated Fire Management Handbook. Establishing Fire Protection Associations in South Africa².

9.5.3. Guiding Principles for Fire Management

Fire is a key ecological process influencing biodiversity and sustained water delivery. Although it is not possible to reconstruct the “natural” fire regime, it is generally accepted that the natural frequency, intensity, seasonality and spread of fire through the landscape is variable in fynbos-dominated landscapes.

Scientific fire management, that mimics natural fire regimes maximises fynbos rejuvenation and subsequent biodiversity. Judicious alien vegetation and catchment management with the aim of providing sustained water delivery to the Gateway Well-Field and to the Mossel River is also paramount.

Given the above, the goal is to actively manage for a shifting mosaic of vegetation patches of ages and sizes - thereby creating a diversity of habitats that should ensure the conservation of the biodiversity representative of the area. This approach will also provide the best insurance policy for organisms for which habitat requirements and responses to fire are unknown. Such a mosaic is achieved through controlling the spread of wildfires in the landscape, and through undertaking scientifically determined prescribed burns.

¹ Cape Nature Stewardship PA Management Plan

² The Integrated Fire Management Handbook. 2016. Fynbos Fire. Available online:
http://fynbosfire.org.za/development/wp-content/uploads/2015/02/A-Guide-to-IFM_Complete_Display.pdf

9.5.4. Management Actions

Refer to Section 10. Management Action Table 1.5. Fire Management

9.6. Invasive and Non-Invasive Alien Species Management

9.6.1. Management Goals

Refer to Ecosystem and Biodiversity Management Goals (Section 9.3.1.)

9.6.2. Legislation and Regulations

Ecosystem and Biodiversity Legislation, and specifically:

- NEM:BA (Act No. 10 of 2004). Alien and Invasive Species Regulations (Government Gazette No. 37885, September 2014);
- NEM: BA (Act No. 10 of 2004). Alien and Invasive Species List (Government Gazette No. 40166, July 2016);
- Conservation of Agricultural Resources Act, (Act No. 43 of 1983) with Amendments published in the Government Gazette Vol. 429, No 22166 of 30 March 2001.

Alien and Invasive plants listed under Section 70 of NEM:BA (2004) and in NEM: BA Alien and Invasive Species List (2016) are a serious threat to the ecological functioning of natural ecosystems as well as water production. The control of Alien and Invasive species is promulgated in NEM: BA (2004), the NEM:BA Alien and Invasive Species Regulations (2014). In addition, the requirements of Sections 76 and 77 of the NEM:BA should be noted in terms of the legal obligations of the Overstrand Municipality to control invasive species on the FNR.

Section 77 of NEM:BA (2004) states that the Management Authority of a protected area must at regular intervals prepare and submit to the Minister or the MEC for Environmental Affairs in the Province a report on the status of any listed invasive species that occurs in that area. A status report must include a detailed list and description of all listed invasive species that occur in the protected area; a detailed description of the parts of the area that are infested with listed invasive species; an assessment of the extent of such infestation; and a report on the efficacy of previous control and eradication measures.

The OSM EMS Department is accountable for the planning, initiation and supervision of all alien and invasive plant clearing operations in FNR. Therefore, an annual budget and APO must be compiled for annual alien / invasive vegetation clearing. The Reserve Manager must supervise alien clearing operations to ensure that the correct methodologies are used, and to avoid any environmental damage resulting from injudicious clearing operations.

9.6.3. Guiding Principles for Invasive and Non-Invasive Alien Species Management

The following management guidelines apply:

(i) Alien Plant Introductions

Plants that are not locally indigenous will not be allowed to be used for landscaping in the garden areas of the FNR. The HBS shall submit a species list, for approval, to the Reserve Management before any new plants are planted in the garden.

(ii) Existing non-invasive alien plants

An Invasive Plant Clearing Plan must be developed for Fernkloof to address the existence of non-invasive alien plants within the reserve. If considered appropriate by the Management Authority of the reserve, certain non-invasive alien plants may be retained within appropriately zoned areas for horticultural purposes (e.g. trees within the Arboretum or Fernkloof Garden). Such plants should, however, not be replaced should they die. All seedlings of existing non-invasive alien plants must be removed annually.

9.6.4. Management Actions

Refer to Section 10. Management Action Table 1.6. Invasive and Non-Invasive Species Management.

9.7. Cultural Heritage Management

9.7.1. Management Goals

- i. To incorporate the cultural and heritage features and attributes of the FNR into decision-making with regard to the development of infrastructure within the FNR, and to consider such aspects along with biodiversity management.

9.7.2. Legislation

- National Heritage Resource Act, (Act No. 25 of 1999) which has repealed the National Monuments Act, (Act No. 28 of 1969);
- World Heritage Convention Act, (Act No. 49 of 1999).

9.7.3. Guiding Principles for Cultural Heritage Management

Management of the cultural heritage is guided by the National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA) and must aim to promote the conservation and public appreciation of the cultural heritage found in the FNR. FNR cultural heritage features include grave sites (e.g. Hoy's Graves), archaeological features (Khoekoen middens), living heritage features such as the AHC, and significant historical inputs such as the history of the FNR and the longstanding contribution of the HBS.

The cultural heritage of the FNR must be managed judiciously to ensure its preservation for future generations. As such any disturbance of landscapes or features that significantly impact upon cultural resources must be avoided (where such disturbance cannot be altogether avoided, the impacts must be minimised and remedied).

Any burial sites or archaeological material discovered on the FNR must be reported to the EMS and the Overstrand Heritage and Aesthetics Committee. If need be, the Overstrand Municipality will need to appoint an archaeologist to investigate any finds. HWC and/or SAHRA must be informed if finds are deemed to be significant by the archaeologist.

9.7.4. Management Actions

Refer to Section 10. Management Action Table 1.7. Cultural Resource Heritage Management.

9.8. Law Enforcement and Compliance

9.8.1. Management Goals

- i. To improve law enforcement and compliance capacity of reserve staff.

9.8.2. Legislation and Regulations

- National Environmental Management Act, (Act No. 107 of 1998);
- National Environmental Management: Protected Areas Act, (Act No. 57 of 2003);
- National Environmental Management: Biodiversity Act, (Act No. 10 of 2004);
- NEM:BA Threatened or Protected Species (ToPS) Regulations (2007);
- Marine Living Resources Act, (Act No. 18 of 1998);
- Government Notice R1111 of 1998 - Marine Living Resource Regulations;
- National Environmental Management: Integrated Coastal Management Act, (Act No 24 of 2008);
- Western Cape Nature Conservation Ordinance, (Ordinance 19 of 1974);
- Regulations proclaimed in terms of the Ordinance, Provincial Notice 955 of 1975.

9.8.3. Guiding Principles for Law Enforcement and Compliance

The EMS recognises that illegal activities within and around the FNR can be a severe threat to:

- the integrity of its natural and cultural heritage;
- its supply of ecosystem services;
- the safety of FNR staff and visitors;
- and the attainment of the FNR's stated Vision, Mission and Management Goals.

The EMS and Reserve staff should remain aware of the ever-present threat posed by poaching, and by the illegal trade in fauna and flora (especially poaching of bulbs from the naturally vegetated areas). Such illegal utilisation of the FNR's natural resources is not quantified and must be considered a threat that has the potential to increase if not managed early enough.

The Reserve staff should maintain on-going vigilance whilst conducting routine patrols, especially in those areas most likely to be targeted by poachers. Criminal activities will be noted and communicated to the Municipal Law Enforcement Department. These security forces should also assist in terms of patrolling certain high-risk areas within the FNR.

All incidents of poaching must be recorded and taken seriously, and criminal charges lodged against the perpetrators. This will enable the EMS to determine whether the Reserve staff contingent is sufficient to perform this key management task. Co-ordination of the various security and enforcement agencies will be facilitated formally through the Hermanus Security Forum. The Municipality must ensure that sufficient numbers of staff are available to effectively manage the FNR from a security/patrolling point of view. A dedicated component of Safe Officers is to undertake patrols in order to improve Reserve management capacity.

Another way in which illegal utilisation of natural resources may be combated is to create understanding and awareness through pro-active education and by means of providing informative signage and information pamphlets. The FNR must lead by example, by ensuring that products sold (e.g. at the existing nursery shop) have originated from sustainable, environmentally friendly sources.

9.8.4. Management Actions

Refer to Section 10. Management Action Table 1.8 Law Enforcement and Compliance

9.9. Infrastructure Management

9.9.1. Management Goals

- i. To plan, site and design all future buildings and infrastructure according to relevant environmental and heritage authority guidelines¹ and legislation.

9.9.2. Legislation

- Occupational Health and Safety Act, (Act No 85 of 1993);
- Water Services Act, (Act No.108 of 1997);
- National Water Act, (Act No. 36 of 1998);
- Constitution of the Republic of South Africa (1996);
- National Environmental Management Act, (Act No. 107 of 1998);
- White Paper on Integrated Pollution and Waste Management, 1998.

9.9.3. Guiding Principles for Infrastructure Management

9.9.3.1. Infrastructure

Refer to Section 8.2 Zonation and Land use and Table 2. Fernkloof Nature Reserve Management Units and Parameters.

All existing and new infrastructure in the FNR must be modernized to utilise water and energy-saving techniques and equipment, where possible. In addition to environmental benefits, the installation of water and energy-saving devices has the potential to bring about significant financial savings in the long-term.

¹ Baumann, N. (2009). Overstrand Heritage Survey: Draft report. The Overstrand Heritage Landscape Group. Available from <http://www.overstrand.gov.za>. (Accessed 12 February 2013).

Where possible, future development within the FNR should be confined to within the already developed footprint of the reserve to ensure current undeveloped areas continue to be conserved and biodiversity, species and ecosystems are not impacted. The existing and new reserve infrastructure within the FNR must at all times be maintained in a safe, functional, clean, serviceable and aesthetically acceptable condition.

9.9.3.2. Access Points

In general, the EMS will provide and maintain facilities that promote access to the FNR. The FNR's boundary is unfenced and at this stage a boundary fence is not envisaged as there are no large game species that require containment in the Reserve, and because of the high prohibitive cost of fencing for comparatively little or no benefit. The reserve boundary points must, however, be surveyed and physically demarcated to enable the easy on-site recognition of the Reserve's boundary lines for legal compliance and effective law enforcement purposes.

9.9.3.3. Roads, Tracks and Paths

Roads and tracks must be kept to a minimum to maintain the natural character of the landscape as far as possible and to avoid unnecessary negative impacts on the natural and cultural heritage of the FNR. In terms of this management guideline, a critical evaluation of the existing road/track and footpath network needs to be undertaken to identify whether any need to be closed or re-aligned. Any section that is approved for closure must be rehabilitated according to a documented rehabilitation programme.

Proposed development of new roads/tracks and footpaths or their closure must be aligned with the Management Units specified in this PAMP and must follow the appropriate legal and other procedures. The FNR management must ensure that the existing vehicle road/tracks and footpaths on the FNR are effectively maintained to the appropriate standards to support their relevant use, and to avoid soil erosion and other negative impacts on the environment.

Roads and tracks that are heavily used by vehicles or sections prone to accelerated soil erosion should be assessed, and if required, be tarred, paved, concreted, provided with boardwalks or upgraded to avoid soil erosion and/or excessive maintenance costs.

9.9.3.4. Domestic Solid Waste Management

The FNR Management must ensure that all the applicable provisions of the NEM:WA are complied with. In particular, all domestic waste must preferably be sorted for recycling, and must be removed from the FNR to the Municipal Solid Waste Transfer Station in Hermanus.

Solid waste management procedures must be closely monitored by the FNR management to prevent pollution and other adverse impacts, especially of the water resources. All staff and public waste receptacles must be animal-proof (especially for baboons) and maintained as such. Reserve staff must, where practical, collect and remove litter during routine patrols.

9.9.3.5. Sewage

The FNR Management must ensure that all the applicable provisions of the NEM:WA and the NWA are met in terms of the provision of ablution facilities, and for the on-site processing of sewage. No pollution of surface or groundwater may occur due to any activity on the FNR.

As such, all sewage systems in the FNR must be investigated and their compliance with the above legislation must be verified. New systems should be installed where there is non-compliance (e.g. where septic tank / French drain sewage systems are known to be causing pollution). Septic tank / French drain systems will not be installed at future developments within the FNR.

9.9.4. Management Actions

Refer to Section 10. Management Action Table 1.9. Infrastructure Management

9.10. Disaster and Risk Management

9.10.1. Management Goals

- i. To improve collaborative risk management partnerships with Government and Municipal Departments, and with neighbouring property owners.
- ii. To develop policies, partnerships and bylaws for the FNR in order to minimise risks and crime.

9.10.2. Legislation

- Disaster Management Act, (Act No. 57 of 2002);
- Occupational Health and Safety Act, (Act No. 85 of 1993).

As per the NEM: PAA Norms and Standards for the Management of Protected Areas in South Africa Section 8.1 (c) (iv) annual risk assessments are completed and proactive mitigating interventions applied where appropriate; and Section 13.1. (b)(iv), a standard indicator is that a protected area has a disaster management plan in place.

9.10.3. Guiding Principles for Disaster and Risk Management

In order to maintain a high level of internal security so that visitors and their belongings can be safe and secure, the EMS must initiate and institutionalise a security strategy that ensures co-ordinated participation in all possible security forums and networks whilst optimising security in and around the FNR. This strategy must ensure sufficient human resources capacity to deal with conservation-related illegal activities in the FNR.

9.10.4. Management Actions

Refer to Section 10. Management Action Table 1. 10. Risk and Disaster Management.

9.11. Socio Economic Framework

9.11.1. Management Goals

- i. To encourage, promote and improve research and environmental education at the FNR;

- ii. To develop a monitoring programme at relevant temporal and spatial scale to support management objectives and provide for review of the management plan.

9.11.2. Guiding Principles for Socio Economic Framework

Environmental education programmes for neighbouring communities and other stakeholders need to be continued in collaboration with Whale Coast Conservation (WCC), the HBS and/or CapeNature and/or the local branches of Environmental NGOs or clubs, where staff capacity allows. Such programmes should strive to proactively engage, inform and benefit the FNR's neighbouring communities.

Programmes for groups and communities from other areas should be accommodated on request whenever possible. In addition, members of the neighbouring community (e.g. community tour guides) should be empowered and used to run appropriate environmental education tours.

Environmental awareness and education (including interpretative signage and information pamphlets) of the FNR's natural and cultural heritage resources is aimed at creating awareness, understanding and appreciation of the value of these resources amongst the general public and visitors to the Nature Reserve.

An interpretation programme using signage, displays and information media must effectively direct and inform visitors in respect of appropriate natural and cultural features of the area.

9.11.3. Management Actions

Refer to Section 10. Management Action Table 1.11. Disaster and Risk Management

9.12. Management Effectiveness

9.12.1. Management Goals

- i. To implement and review the FNR PAMP annually using the METT-SA assessment system;
- ii. To implement and submit an annual assessment report that depicts the achievement of/or contributions of management actions of the nature reserve to the designated Western Cape Provincial MEC of Environmental Affairs as per NEM:PAA¹ thus ensuring coordination of matters that may affect the FNR through the relevant Provincial Departments, District and Local Municipalities;
- iii. To implement APO for the FNR. The FNR must be managed according to the APO. Annual budgets for specific goals must be incorporated in the APO.

9.12.2. Legislation

- The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996);
- Public Finance Management Act (PFMA), (Act No.1 of 1999);

¹ South Africa. 2016 Government Gazette No. 39878. Government Notice No.382. Department of Environmental Affairs: National Environmental Management Act, 2003 (Act 57 of 2003): Norms and Standards for the management of protected areas in South Africa

- National Environmental Management: Protected Areas Act, (Act No. 57 of 2003).

9.12.3. Guiding Principles for Management Effectiveness

- Department of Environmental Affairs Report: Management Effectiveness of South Africa's Protected Areas¹
- METT Handbook. A Guide to using the Management Effectiveness Tracking Tool (METT)²

9.12.4. Management Actions

Refer to Section 10. Management Action Table 1.12. Management Effectiveness.

9.13. Financial and Administration Management

9.13.1. Management Goals

- i. To receive an Annual Budget from Council specifically for the FNR that includes allocations for running costs and projects that are required to effectively manage the reserve;
- ii. To compile a five-year business plan for the FNR that includes costs and identifies sources of income generation and external funding opportunities;
- iii. To implement an APO for the FNR. The FNR must be managed according the APO. Annual budgets for specific goals must be incorporated in the APO;
- iv. To identify other funding opportunities for specific projects;
- v. To use the results of an Ecosystem Services Values Assessment as motivation for funding (refer to Management Action Table 3. h) Ecosystem and Biodiversity: Ecosystem Services).

9.13.2. Legislation

- Municipal Finance Management Act, (Act No.1 of 1999);
- Government Immovable Assets Management Act (Act No. 19 of 2007);
- Local Government: Municipal Systems Act (Act No. 32 of 2000).

9.13.3. Guiding Principles for Financial Management

- Financial management of the reserve is line with the Municipal Finance Management Act (1999) and the Local Government Municipal Systems Act (2000);
- The reserve strives to develop an improved income base while conserving the integrity of cultural, ecological and natural resources;

9.13.4. Management Actions

Refer to Section 10. Management Action Table 1.13. Financial and Administrative Management.

¹ G. I. Cowan, Nobusika Mpongoma, P Britton, (eds) 2010. Management effectiveness of South Africa's protected areas. Department of Environmental Affairs, Pretoria. Available online:
<http://www.gisp.org/whatsnew/docs/AfricaIASProtectedAreas.pdf>

² Stolton, S. and N. Dudley. 2016. METT Handbook: A guide to using the Management Effectiveness Tracking Tool (METT), WWF-UK, Woking. Available online:
https://www.protectedplanet.net/system/comfy/cms/files/files/000/000/045/original/WWF_METT_Handbook_2016_FINAL.pdf

9.14. Human Resource Management

9.14.1. Management Goals

- i. To ensure human resource capacity is adequate to manage the FNR effectively;
- ii. To continue to supplement and improve limited human resource capacity through the use of voluntary inputs from reputable and knowledgeable sources such as FAB, HBS and CPMG and other co-management agreements;
- iii. To implement mechanisms to enable an Honorary Ranger volunteer programme to assist and improve law enforcement and monitoring programmes within the FNR.

9.14.2. Legislation

As a minimum, all the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) must be met to provide for the safety of staff and visitors, especially in and around infrastructure installations at the FNR.

- The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996);
- The Western Cape Nature Conservation Board Act, (Act No.15 of 1998);
- Labour Relations Act, (Act No. 66 of 1995);
- Basic Conditions of Employment Act, (Act No. 75 of 1997);
- Employment Equity Act, (Act No 55 of 1998);
- Occupational Health and Safety Act, (Act No. 85 of 1993);
- Skills Development Act, (Act No. 97 of 1998);
- The Protected Disclosures Act, (Act No. 26 of 2000);
- The Promotion of Access to Information Act, (Act No. 2 of 2000);
- The Promotion of Administrative Justice Act, (Act No. 3 of 2000);
- Local Government: Municipal Systems Act (Act No. 32 of 2000).

9.14.3. Guiding Principles for Human Resource Management

Human Resource Management within the FNR is the responsibility of OSM. The main purposes of the OSM Human Resource Management Services are¹:

- Determine and acquire the right quantity and quality of employees and;
- Ensure the optimal development and utilisation of employee resources.

9.14.4. Management Actions

Refer to Section 10. Management Action Table 1.14. Human Resource Management

9.15. Visitor Management and Services

9.15.1. Management Goals

- i. Ensure the FNR visitor facilities and infrastructure are sustainably developed and maintained within the zonation policies of the FNR;
- ii. Improve the safety and security of visitors to the reserve (refer to 12. Disaster and Risk Management and 10. Law Enforcement and Compliance);

¹ Overstrand Municipality Management Services. Available online: <http://overstrand.gov.za/en/management-services-human-resources> Accessed: 27 August 2018.

- iii. Safeguard cultural and natural heritage resources through adequate visitor management and low impact recreational activities within the FNR.

9.15.2. Legislation

- Tourism Act, (Act No. 72 of 1993)

9.15.3. Management Actions

Refer to Section 10. Management Action Table 1.16. Visitor & Services Management.

9.16. Tourism Development Framework

9.16.1. Management Goals

- i. To develop a Tourism Conceptual Development Plan (CDP) for the FNR;
- ii. To develop the eco-cultural tourism potential of the FNR without compromising the biodiversity of the nature reserve;
- iii. To develop and maintain high quality visitor infrastructure, facilities and recreational activities.

9.16.2. Legislation

The key areas of legislation that speak to infrastructure use and development within a protected area are:

- National Environmental Management Act, (Act No. 107 of 1998);
- National Environmental Management: Protected Areas Act, (Act No. 57 of 2003);
- NEMA Environmental Impact Assessment Regulations (Government Notice No. R. 543 of June 2010 as corrected by Correction Notices 1 (Government Notice No. R. 660 of July 2010) and 2 (Government Notice R. 1159 of December 2010);
- National Water Act (Act 36 of 1998, as amended by Act 45 of 1999);
- National Heritage Resources Act, (Act No. 25 of 1999);
- The National Waste Act, (Act No. 59 of 2008);
- Tourism Act, (Act No. 72 of 1993);
- Occupational Health and Safety Act, (Act No 85 of 1993).

9.16.3. Guiding Principles for Tourism Development Frameworks

The objectives for the Tourism CDP should be as follows:

- To guide tourism infrastructure development in line with the zonation within the FNR;
- Be aligned with the visions, mission, management goals and management guidelines of this PAMP.

9.16.4. Management Actions

Refer to Section 10. Management Action Table 1.17. Tourism Development Framework.

SECTION 10. Management Action Tables derived from the Strategic Implementation Framework (Section 9);

Refer to the Index of Tables on page vii

MANAGEMENT ACTION TABLE 1.1. LEGAL STATUS AND RESERVE EXPANSION			
<p>Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies, bylaws and procedures;</p> <p>Objective 2) To ensure the conservation of ecological processes, ecosystems and species within the FNR are improved and maintained;</p> <p>Objective 3) To effectively conserve the cultural heritage of the FNR</p> <p>Objective 4) To maintain and develop meaningful co-management and partnership agreements that benefit the FNR.</p>			
	Key Deliverables	Monitoring Activities	Indicators
1.	The FNR has secure permanent legal conservation status in terms of NEM:PAA	<p>i. Upon approval from the OSM Municipal Council for the inclusion of the proposed properties (Refer to Figure 15 Current and proposed land parcels that constitute the FNR and Appendix 3. Overstrand: Fernkloof Nature Reserve Cadastral Map) as an extension of the FNR, the OSM will apply to the DEA&DP for the declaration of all parcels of land in the Government Gazette;</p> <p>ii. The Registrar of Deeds must be informed in writing of the declaration and record such declaration in the relevant registers and documents;</p> <p>iii. The Fernkloof Nature Reserve (including all land parcels) is listed in the National Register of Protected Areas.</p>	a) The FNR is legally secure.
2.	The FNR boundary is surveyed and demarcated. This will inform the buffer zone surrounding the protected area in accordance with the Draft EMOZ 2016	<p>i. Survey all boundaries for inclusion in the extension of the FNR.</p> <p>ii. Boundaries must be demarcated and known to management and neighbouring property-owners.</p>	<p>a) The FNR boundary is demarcated;</p> <p>b) A Buffer Zone surrounding the FNR is in place.</p>
3.	The OSM EMS considers opportunities for FNR extension and/or protected areas/conservation management areas in collaboration with organisations and private landowners.	<p>i. Identify possible stewardship agreements with surrounding land owners;</p> <p>ii. Investigate the SANBI CAPE Programme: Landscape Initiatives programme that advises on biodiversity stewardship and agreements between protected area management and voluntary commitment, landowner focussed extension etc. using systematic biodiversity site selection¹⁰⁰</p>	a) The FNR has increased in size and has improved buffer zones.

4.	The FNR is included in the UNESCO World Heritage Site: Cape Floral Region Protected Area (WHS CFRPA)	i. Collaborate with the CapeNature Western Cape Protected Area Expansion Programme to have the FNR included in the listing of the Cape Floral Kingdom World Heritage Site.	a) The FNR has been submitted for the inclusion as a WHS CFRPA cluster.
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MANAGEMENT ACTION TABLE 1.2. INTEGRATED PLANNING, COOPERATIVE GOVERNANCE & CO-MANAGEMENT AGREEMENTS

<p>Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures;</p> <p>Objective 2) To ensure the conservation of ecological processes, ecosystems and species within the FNR are improved and maintained;</p> <p>Objective 3) To effectively conserve the cultural heritage of the FNR</p> <p>Objective 4) To maintain and develop meaningful co-management and partnership agreements that benefit the FNR.</p>			
	Key Deliverables	Monitoring Activities	Indicators
5.	Integrate FNR land-use and planning with the OSM IDP; SDF; IDF and EMF	i. The EMS participates in the review of the Municipal IDP, SDF, IDF and EMF documents to ensure the maintenance of an effective buffer zone through appropriate land-uses adjacent to the FNR.	a) The FNR is integrated into land-use and planning and has an effective buffer zones.
6.	Investigate and formalise beneficial Collaborative, Co-management, private and commercial partnership agreements.	i. Ensure all existing partnerships, co-management and collaborative agreements with state bodies, NGOs, Conservation Organisations, private landowners, institutions and persons are formalised and signed off by relevant OSM officials; ii. Investigate and facilitate co-management agreements with long-standing non-commercial institutions (e.g. HBS and AHC) regarding their leases on the FNR; iii. The list of properties and land status directly adjacent to the FNR should continually be updated to reflect the latest information.	a) FNR partnerships and agreements are formalised and if necessary, legally binding.
7.	Investigate and formalise private and public agreements, co-management, collaborative	i. Annually investigate any potentially beneficial and desirable partnerships with neighbouring landowners, state bodies, institutions or persons and, where feasible, formalise through written agreements according to Municipal protocols and the PAMP management framework.	a) The FNR has increased management effectiveness through partnerships and agreements

¹⁰⁰ Cadman, M., Petersen, C., Driver, A., Sekhran, N., Maze, K. and Munzhedzi, S. 2010. Biodiversity for Development: South Africa's landscape approach to conserving biodiversity and promoting ecosystem resilience. South African National Biodiversity Institute, Pretoria. Accessed online 07 August 2018. Available online: <https://www.sanbi.org/biodiversity/science-into-policy-action/mainstreaming-biodiversity/cape-programme/cape-programme-landscape-initiatives/#>

	management, cooperative governance and Key Partners		
8.	Update and formalise existing leases and privately owned buildings within the FNR.	<ul style="list-style-type: none"> i. The inventory of existing lease-holdings and of privately owned buildings within the boundaries of the FNR is up to date; ii. Compile and/or update written agreements with all such lease-holders and landowners within the FNR; iii. All FNR lease agreements are legally binding and complied with. 	a) FNR leases and privately owned buildings within FNR are up to date and complied with by both signatories.
9.	Update the Fernkloof Advisory Board (FAB) bylaw.	<ul style="list-style-type: none"> i. The FAB bylaw is updated to be applicable and effective for the management of the FNR; ii. FAB is able to advise on the management of the FNR. 	a) The FAB bylaw is amended.
10.	Develop and Implement FNR Bylaws	As the management authority, the OSM has the authority to administer bylaws for effective management (through adequate overlay zones as per Chapter 15 of the OSM Zoning Scheme Regulations), law enforcement and compliance: The FAB and OSM investigate the need for bylaws to effectively manage, enforce laws and ensure compliance within the FNR;	a) The FNR has specific bylaws in place to effectively manage and enforce compliance of management decisions

MANAGEMENT ACTION TABLE 1.3. ECOSYSTEM & BIODIVERSITY MANAGEMENT

Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures;

Objective 2) To ensure the conservation of ecological processes, ecosystems and species within the FNR are improved and maintained;

Objective 4) To maintain and develop meaningful co-management and partnership agreements that benefit the FNR;

Objective 5) To promote and provide sustainable development within the FNR.

a) ECOSYSTEM & BIODIVERSITY MANAGEMENT: GENERAL ACTIONS

	Key Deliverables	Monitoring Activities	Indicators
11.	A Sensitivity Analysis is performed for the FNR	i. CapeNature is consulted to determine the protocols and procedures for Sensitivity Analysis for the FNR; ii. The zonation of areas within the FNR are accurately represented and comply with the CapeNature Management Zone requirements.	a) The FNR Management Units/Zones are categorised according to a Sensitivity Analysis.
12.	Management of ecosystems and biodiversity are audited.	i. The Biodiversity Conservation Manager must assess the results from the Key Deliverables and Monitoring Activities as part of the environmental and management audit in April / May of each calendar year (Refer to Table 1.12. Management Effectiveness and Table 1.13. Finance and Administration Management).	a) Ecosystem and Biodiversity Management Actions of the FNR are reported in the annual Management Audit.
13.	A FNR Priority Research List is compiled	i. Using information from existing species lists for fauna and flora in the FNR, and information gathered during Biodiversity and Ecosystem Inventories and Surveys set out in this Action Table, a Priority Research List should be developed by the FNR.	a) The FNR has a prioritised list of biodiversity and ecosystem research requirements.
14.	Volunteers and Students contribute to Reserve Management	i. Investigate formal agreements with reputable scientific institutions that require conservation, environmental education, biological and/or ecological research, reserve management or cultural heritage projects to complete student qualifications; ii. Promote/advertise the FNR Priority Research List to scientific institutions to generate capacity in research and reserve management; iii. Investigate possible agreements with local volunteer organisations or develop a FNR volunteer organisation that contributes financially to the FNR for research opportunities in the FNR;	a) Research and monitoring capacity of the FNR are increased by student and volunteer contributions

		<p>iv. The FNR Honorary Rangers Programme (HRP) is utilised to contribute to law enforcement (refer Action 66), management, monitoring and research within the FNR;</p> <p>v. Develop and define the Terms of Reference (ToR) for The FNR HRP.</p>	
15.	Standard Operating Procedures (SOP) for Research and Monitoring are implemented in the FNR.	<p>i. Consult with CapeNature and SANBI for advice/requirements for formalised SOPs for all FNR monitoring and research programmes to ensure these programmes add value to regional, provincial and national databases;</p> <p>ii. Train FNR management, staff and relevant citizen science/co-management groups to implement research and monitoring SOPs to ensure data collection is standardised;</p> <p>iii. Students and academics wishing to perform research at the FNR must submit a research proposal to be reviewed by the relevant management authorities, organisations and/or scientific institutions.</p>	<p>a) All monitoring programmes are standardised;</p> <p>b) SOPs for all research and monitoring are in place;</p> <p>c) Monitors are trained to collect data according to the relevant SOP.</p>
16.	Ensure that all FNR Research Data and intellectual property is protected by legal contract.	<p>i. Registered scientific institutions are made aware of the availability of research and monitoring data from the FNR;</p> <p>ii. FNR data are protected by legal contracts that include the ownership and right of intellectual property (IP) including raw data, scientific journal publication expectations of the FNR and the contribution of research to FNR management actions.</p>	<p>a) Research and conservation institutions are aware of research opportunities available at the FNR;</p> <p>b) A contract for research to be conducted in the FNR is developed and implemented.</p>
17.	Research and monitoring data contributes to the relevant institutional, provincial and national programmes	<p>i. All monitoring and research data collected at the FNR are forwarded to the relevant institutions, provincial and national government bodies for inclusion in the relevant biodiversity and monitoring programmes and reports.</p>	<p>a) The relevant institutions reliably receive monitoring and research data from the FNR.</p>
18.	Monitoring and Research data is collated, analysed and submitted with the Protected Area Annual Management Report to the MEC	<p>i. FNR management ensures that monitoring and research data is analysed and included in the annual report to the MEC;</p> <p>ii. FNR management uses monitoring and research data in the annual METT-SA scoring system;</p>	<p>a) Valuable research is encouraged by FNR management;</p> <p>b) The FNR annually indicates an upward trend in the METT-SA score.</p>
19.	Monitoring and Research Database Management	<p>i. Research and monitoring databases must be collated with historical data, for e.g. 2010 SANSA Public Survey (Hamilton-Atwell 2010) and post fire monitoring data (HBS);</p> <p>ii. Databases must be formatted to be scientifically sound;</p> <p>iii. Databases must be backed-up to external and/or online systems to ensure security thereof;</p>	<p>a) Databases are current;</p> <p>b) Databases are formatted correctly;</p> <p>c) Databases are securely backed-up.</p>

		iv. All species monitoring lists must regularly be updated and sent to the EMS;	
20.	Monitoring and Research Data contributes to adaptive management strategies.	i. The data collected during monitoring and/or research within the reserve is used to inform management strategies to better conserve and protect species and habitats within the FNR.	a) Management uses monitoring and research results to better protect species and habitats.
21.	FNR Ecosystem GIS Systems are up to date	i. All monitoring and research data should, where applicable, be overlaid to FNR GIS systems.	a) FNR GIS data is current

b) ECOSYSTEMS & BIODIVERSITY MANAGEMENT: INDIGENOUS VEGETATION			
	Key Deliverables	Monitoring Activities	Indicators
22.	The Piet-se-Bos restoration programme continues successfully	i. The CPMG should continue to plant White milkwood (<i>Sideroxylon inerme</i>), Coastal Camphor Bush (<i>Tarchonanthus littoralis</i>) and other species indigenous to the Western Cape Milkwood Forest vegetation type on the Piet se Bos portion of the FNR;	a) The natural vegetation of the FNR Piet-se-Bos site continues to be restored.
23.	Conduct a Vegetation Biodiversity Inventory (VBI) for the FNR.	i. The FNR vegetation types of the FNR are surveyed, mapped and described using procedures and recommendations from the SANBI and CapeNature Biodiversity programmes. ii. Wetland community vegetation types are identified and classified to community level (as per Sieben et al 2014); iii. The VBI and subsequent Vegetation Biodiversity Monitoring Programme records flora species per FNR quarter degree square (3419AC and 3419AD) and submit data to the SANBI.	a) A FNR VBI is designed and conducted.
24.	The FNR Herbarium contributes to the BRAHMS	i. The HBS Botanical Research Centre with SANBI and Millennium Seed Bank partnerships contribute data and samples to the University of Oxford's BRAHMS database of herbaria, botanic gardens, seed bank and botanical surveys for taxonomic research and seed bank curation.	a) The FNR Herbarium specimens are loaded onto the BRAHMS database.
25.	Implement a FNR Vegetation Biodiversity Monitoring Programme (VBMP)	i. Using a SOP for FNR VBMP, regular and scientifically sound vegetation monitoring occurs in all FNR areas; ii. Monitoring includes Rare and Endangered vegetation types/species in all areas of the FNR (including areas that are difficult to access); iii. Monitoring data collection should include the collection of environmental and other relevant abiotic data; iv. Data collected during VBMP are added to FNR GIS data layers; v. VBMP data is analysed to re-assess and adapt FNR management strategies for <i>inter alia</i> fire and alien vegetation management;	a) The FNR VBMP contributes to the development of an BMP for the FNR; b) GIS and Monitoring databases are current; c) Adaptive management occurs in response to VBMP information; d) A BMP for the FNR is developed as per NEM:PAA.

		vi. The results of the VBMP are used to develop and implement a Biodiversity Management Plan (BMP) as per NEM:BA.	
26.	Identify FNR vegetation research priorities and needs.	<ul style="list-style-type: none"> i. Using the VBMP database, species of concern and research needs are identified with specific scientific research questions that require clarification/research; ii. Calls for identified research are advertised on applicable forums i.e. SANBI, National Research Foundation (NRF) and scientific institutions 	a) The FNR has dedicated researchers who contribute to the identification of management strategy requirements.
27.	Develop and maintain a scientifically valuable post-fire vegetation monitoring programme.	<ul style="list-style-type: none"> i. CapeNature is consulted to determine scientifically sound protocols for post-fire vegetation monitoring; ii. The data collected during post-fire vegetation monitoring is used to develop GIS overlays for Veld Age Maps of the FNR; iii. Veld Age Maps are updated annually; iv. Annually updated Veld Age Maps are added to the FNR Annual Audit and Annual Burning Plan (refer to Management Action Table 1.5. Fire Management) 	<ul style="list-style-type: none"> a) The protocols for post-fire monitoring are scientifically sound; b) Post-fire vegetation surveys contribute to Veld Age Maps for the FNR.
c) ECOSYSTEMS AND BIODIVERSITY MANAGEMENT: INVERTEBRATES			
	Key Deliverables	Monitoring Activities	Indicators
28.	Design and compile an Invertebrate Biodiversity Inventory (IBI) for the FNR.	<ul style="list-style-type: none"> i. Consult with the UCT Animal Demographic Unit (ADU), Iziko Entomology Dpt, SANSA, AfriBugs, SANBI and/or CapeNature to design and implement an Invertebrate (Lepidoptera, Arthropoda and Arachnida) Biodiversity Inventory (IBI) for the FNR; ii. Investigate the cost/benefit of a contracted professional baseline (inventory) invertebrate survey (e.g. AfriBugs) and training programmes for citizen science contributions to ongoing invertebrate monitoring for the FNR. 	a) An FNR IBI is conducted and contributes to the development of the BMP of the FNR
29.	Design and implement Invertebrate Monitoring and Research Programmes for the FNR	<ul style="list-style-type: none"> i. Design and implement a regular monitoring programme for invertebrates in the FNR using citizen science, FNR staff and/or research students. ii. Investigate and identify research needs and opportunities for invertebrates in the FNR. 	<ul style="list-style-type: none"> a) Regular invertebrate monitoring is conducted; b) Invertebrate research is conducted.
30.	Use invertebrate monitoring data to identify management needs	<ul style="list-style-type: none"> i. Use IBI to identify invertebrate species and habitats of concern/priority (including alien species) to advise future research and ecological and biodiversity management strategies. 	<ul style="list-style-type: none"> a) Priority species are identified; b) Management strategies are adapted to protect or eradicate species as required.

	and prioritise research requirements		
d) ECOSYSTEMS & BIODIVERSITY MANAGEMENT: FISH & AQUATIC ORGANISMS			
	Key Deliverables	Monitoring Activities	Indicators
31.	Conduct a comprehensive Fish Survey for the FNR.	i. Consult with CapeNature to design and implement a comprehensive fish survey for the FNR; ii. Investigate the benefit/cost of a specialist contract to design and conduct the survey	a) Specialists are consulted to design a fish survey for the FNR; b) A fish survey is conducted in the FNR.
32.	Design and implement a Fish/Aquatic Monitoring and Research Programmes for the FNR	i. Investigate and identify future research needs and opportunities for fish and other aquatic organisms in the FNR; ii. Investigate the potential of other (e.g. macro/micro aquatic invertebrate surveys) to develop a holistic aquatic survey of the FNR	a) Research and monitoring are regularly conducted on aquatic species/habitats within the FNR.
33.	Use Fish/Aquatic monitoring data to identify management needs and prioritise research requirements	i. Using the data collected during the fish survey, assess and mitigate potential negative threats (vegetation encroachment, water pollution/extraction, illegal harvesting etc.) on endemic fish and their habitats; ii. If alien fish species are identified, a management strategy must be developed to eradicate and/or minimise the negative impacts of alien fish on aquatic species and ecosystems; iii. Following the results of the survey, investigate (in conjunction with DWA and CapeNature) the merit/risk of the reintroduction of indigenous fish species to aquatic systems within the FNR; iv. Using the data collected during the Fish Inventory, develop a long-term Fisheries Management Strategy for the FNR.	a) A Fisheries Management Plan for the FNR is designed and implemented.
e) ECOSYSTEMS & BIODIVERSITY MANAGEMENT: HERPETOFAUNA			
	Key Deliverables	Monitoring Activities	Indicators
34.	Design and compile a Herpetofauna Biodiversity Inventory (HBI) for the FNR	i. Consult with UCT ADU, CapeNature and SANBI to design and develop a species inventory of reptiles and amphibians in the FNR; ii. Using the results of the HI, investigate the viability of research and/or monitoring opportunities in the FNR	a) A Herpetofauna survey of the FNR is designed and implemented

35.	Use Herpetofauna Inventory to prioritise key conservation species and habitats.	iii. Endangered and/or rare species identified in the HBI should be seen as indicators for adaptive management strategies to protect areas/habitats/species of concern.	a) Management strategies are adapted to conserve Herpetofauna of the FNR.
f) ECOSYSTEMS & BIODIVERSITY MANAGEMENT: AVIFAUNA			
	Key Deliverables	Monitoring Activities	Indicators
36.	Avifauna Species lists are regularly updated.	i. The Avifauna species list for the FNR must be regularly updated (for e.g. by the HBC) and submitted to the OSM EMS.	a) The Avifauna Species List for the FNR is current.
37.	Formalise an MoU with the Hermanus Bird Club	i. A formal MoU between the HBC and OSM EMS is signed to formalise Avifauna database management and responsibilities of both parties.	a) A formal MoU between HBC and OSM EMS is agreed upon and signed by both parties.
38.	b) Avifauna Species observations are regularly recorded and uploaded to the relevant online databases	i. Avifauna species lists are regularly updated on UCT ADU and/or SANBI iNaturalist websites	a) FNR contribute avifaunal species lists to online biodiversity platforms.
g) ECOSYSTEMS & BIODIVERSITY MANAGEMENT: MAMMALS			
	Key Deliverables	Monitoring Activities	Indicators
39.	A Mammal Biodiversity Inventory (MBI) (species list) database is current	i. The MBI database is up to date and securely stored as per SOPs for monitoring and research.	a) MBI are up to date
40.	Mammal observations within the FNR are added to the MBI	i. Mammal monitoring is routinely performed and opportunistic observations by FNR staff, citizen science groups etc. are uploaded to the MBI database.	a) Mammal observations are recorded.
41.	The FNR MBI contributes to mammal biodiversity platforms.	i. The MBI contributes to a mammal biodiversity online database (for e.g. SANBI iNaturalist or UCT ADU Mammal Map)	a) FNR MBI contribute to relevant biodiversity online platforms
42.	Management strategies are adapted to protect species and habitats	i. Identified endemic mammal species/species of concern contribute to adaptive management strategies to protect and conserve the species and their habitats	a) FNR Management Strategies are adapted to conserve/protect species of concern.

h) ECOSYSTEMS & BIODIVERSITY MANAGEMENT: ECOSYSTEM SERVICES			
	Key Deliverables	Monitoring Activities	Indicators
43.	Quantify FNR Ecosystem Services	i. Perform a formal Ecosystem Services Value Assessment of the FNR to determine the present and potential value of services delivered to the local and regional economy by the FNR.	FNR annually indicates an upward trend in METT-SA score
i) ECOSYSTEMS & BIODIVERSITY MANAGEMENT: SOIL EROSION			
	Key Deliverables	Monitoring Activities	Indicators
44.	c) Prevent and mitigate soil erosion in the FNR	<p>I. Identify areas in the FNR that may be susceptible to soil erosion for monitoring purposes, based on local geology and soils;</p> <p>II. Extensive sites of potential or aggravated soil erosion must be mapped;</p> <p>III. Potential soil erosion must be prevented with appropriate planning (e.g. Alien Vegetation removal);</p> <p>IV. Areas prioritised for rehabilitation are in the APO and budget for the management of the FNR.</p> <p>(Refer to Management Action Table 1.9. Infrastructure Management)</p>	Soil erosion areas are mapped, monitored and rehabilitated.
j) ECOSYSTEMS & BIODIVERSITY MANAGEMENT: CATCHMENT, GROUNDWATER & RIVERS			
	Key Deliverables	Monitoring Activities	Indicators
45.	Groundwater is routinely monitored	<p>i. Ensure the continued scheduled monitoring of groundwater (by Umvoto Africa) to ensure protection of groundwater quality and quantity at the FNR.</p> <p>ii. File the groundwater monitoring reports produced at the EMS offices, and at the FNR.</p>	<p>a) FNR annually indicates an upward trend in METT-SA score</p> <p>b) Long-term monitoring and research of the effects of water extraction on vegetation within the FNR occurs.</p>
46.	Monitor the effects of groundwater extraction on vegetation in the FNR	i. Undertake long-term monitoring of vegetation within the FNR for any negative effects resulting from groundwater extraction (e.g. by recording phenological changes in monitoring plots). Such monitoring could be undertaken in collaboration with scientific institutions.	
47.	Ensure a sustained supply and good quality of water from the Mossel River Catchment	<p>i. A good indigenous vegetative canopy and basal cover must be maintained to sustain the flow of surface water, and to prevent turbidity in streams and rivers;</p> <p>ii. Strict pollution control and waste management standards must be applied (refer to Table 1.9. Infrastructure Management);</p> <p>iii. Natural wetlands in the catchment are maintained, and any damaged wetlands are rehabilitated;</p> <p>iv. Invasive alien plants are removed / controlled;</p>	a) The Mossel River Catchment is managed effectively.

		v. Aquifer water quality and quantity are monitored; vi. Ensure the continued monitoring of surface water quality (e.g. in collaboration with CapeNature's River Health Programme). File the monitoring reports produced at the EMS offices, and at the FNR. vii. Table and discuss adaptive management actions at FAB meetings, if required.	
48.	FNR Management participates and contributes to surrounding water management forums	i. FNR Management should attend the Klein River Estuary Forum (KREF) meetings to remain informed of current affairs affecting natural resource surrounding and neighbouring the FNR	a) FNR contributes to the management of the Klein River Estuary.
49.	Hydrology of the FNR is well understood	i. All water courses, including seepages are mapped in the FNR.	a) The Hydrology of the FNR is accurately mapped.
MANAGEMENT ACTION TABLE 1.4. WILDLIFE MANAGEMENT			
Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures; Objective 2) To ensure the conservation of ecological processes, ecosystems and species within the FNR are improved and maintained			
	Key Deliverables	Monitoring Activities	Indicators
(Refer to Management Action Table 1.3. for abiotic and taxa-specific ecosystem and biodiversity management strategies)			
50.	Investigate the reintroduction of naturally occurring wildlife in the FNR	i. Consult with CapeNature to determine what research and/or investigations are required to determine the feasibility of the reintroduction of wildlife (including fish) that are suitable to the habitats/ecosystems of the FNR.	A precautionary approach is applied to the introduction of wildlife in the FNR.
51.	Manage damage causing/problem fauna	i. The FNR investigates and implements best practises regarding damage causing wildlife and promotes partnerships to assist with the management thereof; ii. A Baboon Management Protocol for Hermanus, subject to public participation and approval from CapeNature and the Municipal Council, will be implemented by the EMS. iii. The baboon-proof fence above Voëlklip is ineffective. The fence will be moved to another location and be monitored for effectiveness of baboon control in and around the FNR.	a) Partnerships to mitigate damage from wildlife are investigated; b) The baboon-proof fence is moved to a more effective location.

MANAGEMENT ACTION TABLE 1.5. FIRE MANAGEMENT

- Objective 1)** To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures;
- Objective 2)** To ensure the conservation of ecological processes, ecosystems and species within the FNR are improved and maintained;
- Objective 3)** To effectively conserve the cultural heritage of the FNR
- Objective 4)** To maintain and develop meaningful co-management and partnership agreements that benefit the FNR.

	Key Deliverables	Monitoring Activities	Indicators
Due to the dependence of sound fire management on effective alien vegetation management, many Monitoring Activities for Management Action Table 1.5 Fire Management and Management Action Table 1.6. Invasive and Non-Invasive Species Management will occur concurrently.			
52.	Develop a Fire Management Plan (FMP) for the FNR	<ul style="list-style-type: none"> i. In consultation with CapeNature and guiding documentation (Veldfire Management Policy and CapeNature Veldfire Management Guidelines), develop and maintain a FNR Fire Management Plan (FMP) to guide fire management including: the objectives of, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required; ii. Develop a 5-year Burning Programme based on objectives, scientific understanding, and management actions outlined in the FNR FMP; iii. Within the 5 year Burning Programme, an Annual Burning Plan must be developed; iv. The size of burning blocks, and the season in which burning is undertaken should take into consideration the limited distributions of various plant and animal species (e.g. distribution records of rare and endemic plant and animal species, such as Drewe's Moss Frog), to be sure that such species are not extirpated by prescribed burning operations. 	a) A FNR FMP is in place
53.	Convene an Annual Fire Management Workshop	<p>The EMS will convene an Annual Fire Management Workshop with the OSM Fire and Disaster Management Department and all relevant stakeholders. The purpose of the workshop will be to:</p> <ul style="list-style-type: none"> i. Review the previous fire season's prescribed burns and wildfires must be reviewed; ii. Determine the upcoming Annual Burning Plan for management units within the FNR 	a) An Annual Fire Management Workshop is held to review and determine the Annual Burning Plan for the FNR

54.	Formalise a MoA with Greater Overberg Fire Protection Association (FPA)	Formalise Fire Management Agreements with neighbouring members of the FPA in order to allow for: i. legal compliance in the event of a wildfire starting on the FNR and crossing over to a neighbouring property or vice versa; ii. co-operative fire-fighting on each other's properties in the event of a wildfire; and iii. agreement with regard to the positioning and width of fire control belts (in collaboration with CapeNature, FPAs, and with the Overstrand Fire and Disaster Management Department).	a) The FNR is legally compliant as per national regulations; b) FNR receives assistance during fire events; c) Fire control belts surrounding the FNR are sufficient.
55.	Minimise the effects of fires within and around the FNR	i. Serve notice on property owners adjacent to the coastal areas of the FNR, specifically in terms of preventing encroachment into and/or edge effects on the FNR, and regarding necessary fire management of the coastal precinct of the FNR	a) FNR coastal boundary areas are better protected from the spread of fire
56.	FNR staff are prepared and trained to manage prescribed burns and wild fires	i. Personal Protective Equipment (PPE) is provided to FNR staff; ii. Fire training for emergency and prescribed burns is provided to FNR staff	a) FNR staff are equipped to respond to wildfires and prescribed burns

MANAGEMENT ACTION TABLE 1.6. INVASIVE AND NON-INVASIVE ALIEN SPECIES MANAGEMENT

Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures;
Objective 2) To ensure the conservation of ecological processes, ecosystems and species within the FNR are improved and maintained;
Objective 4) To maintain and develop meaningful co-management and partnership agreements that benefit the FNR.

	Key Deliverables	Monitoring Activities	Indicators
57.	Manage invasive alien and alien vegetation species within the FNR on an on-going basis.	Develop an on-going time-bound programme to effectively: i. Identify, map and monitor alien and invasive flora in the FNR and in areas which threaten the FNR; ii. Control declared alien weeds and invasive species within the FNR. iii. Address the re-planting / rehabilitation of relevant areas with indigenous plants; iv. Ensure that alien clearing, especially in steep areas is accompanied by phased rehabilitation of natural vegetation, to aid natural succession and prevent erosion; v. Develop a phased 5-year plan to address the existing non-invasive alien plants in the FNR.	a) The FNR has an Invasive and Alien Plant Management Plan; b) FNR annually indicates an upward trend in METT-SA score.

		The FNR Invasive and Alien Plant (IAP) Management Plan should be part of the FNR APO and results/progress of this management plan should be submitted in the annual report to the MEC as per NEM:PAA	
58.	Use effective control methods to manage Invasive Alien Plants in the FNR	<p>Alien vegetation must be controlled by competent authority as per Section 42 of NEMA (1998). In addition to clearing declared alien and invasive alien plants, the following must be undertaken:</p> <ul style="list-style-type: none"> i. Garden Route Keurboom (<i>Virgilia divaricata</i>) is an indigenous invasive species, and should be removed from the Reserve; ii. Canary Creeper (<i>Hedera canariensis</i>) and Madeira Vine (<i>Anredera cordifolia</i>) must be removed from all areas of the FNR iii. Spreading Century-Plants (<i>Agave americana</i> var. <i>expansa</i>), and Thatching Grass (<i>Thamnochortus insignis</i>), are to be removed from Hoy's Koppie before they spread further. 	a) Alien and Invasive Plant Species are effectively controlled in the FNR.
59.	Prevent alien and invasive plants from entering the FNR	<ul style="list-style-type: none"> i. Monitor the encroachment / edge effects of private properties abutting the FNR (e.g. with respect to pruning of coastal vegetation along the Cliff Path by private landowners, invasion of garden plants into the FNR etc.). ii. Serve notice on property owners adjacent to the coastal areas of the FNR, specifically in terms of preventing encroachment into and/or edge effects on the FNR. 	a) The Alien and Invasive plants species in areas surrounding the FNR are monitored and managed.
60.	Form co-management/partnerships to effectively manage alien and invasive species in the FNR.	<ul style="list-style-type: none"> i. Applications should be made to the relevant EPWPs such as "Landcare", "Working for Water", "Working on Fire" and "Working for Wetlands" where applicable for assistance with alien plant clearing. 	a) The FNR contributes to poverty relief programmes that assist with effective vegetation and fire management.

MANAGEMENT ACTION TABLE 1.7. CULTURAL HERITAGE RESOURCE MANAGEMENT

Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures; Objective 3) To effectively conserve the cultural heritage of the FNR Objective 4) To maintain and develop meaningful co-management and partnership agreements that benefit the FNR; Objective 5) To promote and provide sustainable development within the FNR.			
	Key Deliverables	Monitoring Activities	Indicators
61.	To protect cultural resources within the FNR.	Compile a comprehensive Cultural Heritage Inventory and Management Plan for FNR in collaboration with Overstrand Heritage and Aesthetics Committee and HWC. This plan must include guidelines for the conservation, curation, interpretation and monitoring of the various features and, where possible, must recommend sites for legal cultural heritage registration (e.g. registration as a Provincial Heritage Site).	a) Cultural Heritage Resources are being managed as per the objective of the FNR.
62.	Monitor Cultural Heritage resource of the FNR.	Ensure that existing sites of historical significance are regularly monitored for any signs of degradation and are checked during the annual environmental and management audit.	
63.	Manage Cultural Heritage resources effectively	i. Include the management and maintenance of heritage and cultural resources in the APO and budget for the FNR. ii. Ensure that a detailed Memorandum of Agreement is signed between the AHC and the Overstrand Municipality which sets out the rights and obligations of each party.	

MANAGEMENT ACTION TABLE 1.8. LAW ENFORCEMENT AND COMPLIANCE MANAGEMENT

Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures; Objective 4) To maintain and develop meaningful co-management and partnership agreements that benefit the FNR			
	Key Deliverables	Monitoring Activities	Indicators
64.	Law Enforcement within the FNR is effective	i. Investigate the compilation of formal agreements with the Overstrand Protection Services Directorate and/or with the South African Police Services with regard to patrolling of the FNR. In particular, the problems of vagrancy and theft / vandalism need to be addressed (especially along the Cliff Path, along Rotary Drive, and on Hoy's Koppie);	a) Law enforcement and Monitoring and Compliance within the FNR are improved

		ii. Develop and implement an integrated emergency strategy for the FNR with all relevant institutions. The strategy should include <i>inter alia</i> measures with respect to wildfires, emergencies and criminal incidences (refer to Management Action Table 1.10. Disaster and Risk Management); iii. Ensure the on-going existence of the FNR Security Forum in collaboration with the Overstrand Protection Services Directorate and the holding of regular meetings as required iv. Investigate the implementation of restricted night-time vehicular access to Rotary Drive, in collaboration with the relevant Departments and adjacent landowners in this area. v. The existing FNR Security Forum, under the Chairmanship of the Overstrand Protection Services Directorate, must be maintained to promote security co-ordination and affectivity; vi. Ensure that the APO includes prioritised safety and security management actions.	
65.	FNR Staff know regulations and contribute to compliance and law enforcement in the FNR	i. Improve law enforcement and compliance capacity of the FNR staff; ii. Investigate an Honorary Rangers programme for the FNR to improve staff capacity of law enforcement and compliance in the FNR.	

MANAGEMENT ACTION TABLE 1.9. INFRASTRUCTURE MANAGEMENT

Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures;

Objective 3) To effectively conserve the cultural heritage of the FNR

Objective 4) To maintain and develop meaningful co-management and partnership agreements that benefit the FNR;

Objective 5) To promote and provide sustainable development within the FNR.

	Key Deliverables	Monitoring Activities	Indicators
66.	Transformed Management Units are accurately mapped with infield demarcations	i. A detailed, spatial representation of infrastructure and development within the FNR Transformed Management Units is compiled.	a) FNR Transformed Management Units are spatially represented
67.	Ensure the maintenance of infrastructure on the FNR.	ii. Include infrastructure development and maintenance in the APO and budget for the FNR. iii. Compile and maintain a built infrastructure resource inventory / register for trails; pathways; servitudes; communication structures; water lines; reservoirs; valve chambers; fire control belts; fences; roads; memorial benches; and buildings etc.	a) The APO includes infrastructure development and maintenance; b) Infrastructure Inventories are up to date.

		<p>iv. Update the Infrastructure Map of the FNR to include the location of all built infrastructure, roads, tracks etc.;</p> <p>v. Local service providers should be used where possible to maintain buildings and provide services (plumbing, electrical, mechanical);</p> <p>vi. Areas that are heavily utilised during the holiday season, e.g. vehicle parking areas and vistas along Rotary Drive must be equipped with the necessary (preferably aesthetically pleasing) ablution facilities, and with baboon-proof bins. Existing ablution facilities that are unsightly must be screened;</p> <p>Review the desirability and effectiveness of all present FNR infrastructure with regard to:</p> <ul style="list-style-type: none"> ○ Adequacy; ○ State of repair; ○ Existing maintenance plans and programmes; ○ Visitor and staff use; ○ Environmental impacts (negative and positive); ○ Income generation; ○ Possibilities of outsourcing 	
68.	Manage Roads, tracks and paths so impacts on the FNR environment are minimised.	<p>i. Beacons are only in place at some points along the boundary of the FNR. As per NEM: PAA Norms and Standards for the Management of Protected Areas in South Africa (Government Gazette, March 2016), it is essential that the Reserve boundary points are demarcated, secured and publically known;</p> <p>ii. Maintenance of the trails is urgently required in certain areas. Such maintenance must be on-going;</p> <p>iii. All vehicle roads and tracks must be regularly monitored, evaluated and recommendations made for new vehicle roads and tracks / hiking trails/cycling and repair or closure (with rehabilitation measures) of existing ones;</p> <p>iv. All unnecessary and/or informal pathways should be closed off and rehabilitated (e.g. from the surfaced area of the Cliff Path to the coastline). Similarly, sections of existing tracks and trails that pose on-going erosion control problems should be closed off and rehabilitated before their re-opening.</p>	a) Roads, tracks, paths and walkways are monitored, evaluated and maintained.

		v. Provide and manage coastal access points in terms of Section 20 of the NEM: ICMA	
69.	Controlled access points for the FNR are investigated.	<ul style="list-style-type: none"> i. Investigate the feasibility of constructing a controlled access point at the main entrance to the FNR. ii. Controlled pathways (e.g. steps and boardwalks) should be identified and constructed (e.g. for access to the seashore or viewpoints). 	a) Controlled Access of the FNR is investigated.
70.	Signage is appropriate and effective, supporting management goals.	Assess the existing interpretive, security, emergency, safety, and informative signpost system on the FNR (including access signage) and provide additional signage or update / improve the existing signage in terms of the APO. It is important that all signage should be standardised in terms of design.	a) Signage design standardised, in place and effective.
71.	Solid Waste is managed effectively.	<ul style="list-style-type: none"> i. A waste management Audit must be performed to quantify effectiveness and identify weakness of waste management in all portions of the FNR; ii. Develop, install and maintain effective standardised solid waste receptacles for the FNR that are animal and baboon-proof, including fishing-line bins where required; iii. Reserve staff must, where practical, collect and remove litter during routine patrols. 	a) Solid waste management is effective.
72.	Sewage systems are effectively managed.	<ul style="list-style-type: none"> i. All existing sewage systems in the FNR must be investigated for legal compliance, and must be replaced / upgraded with appropriate sewage systems as funding permits; ii. All leaking sewage and water pipelines, taps and valves must be replaced as soon as their malfunction has been noticed; iii. Ensure that all sewage and potable water pipelines / servitudes are registered with the relevant authorities, are mapped and placed on the appropriate GIS system for easy reference; 	a) Sewage and water pipeline systems are legally compliant and registered. b) Sewage and water pipelines are mapped.
73.	The FNR considers environmentally friendly infrastructure alternatives.	<ul style="list-style-type: none"> i. Effective environmentally friendly sewage facilities, energy and water-saving devices and technologies should be fitted in existing and new buildings wherever possible; ii. Investigate a partnership with NGO organisations to implement water-wise energy saving infrastructure in ablutions throughout the FNR. iii. All new bulk engineering services such as electricity, sewage and potable water pipelines must be located to minimise any negative environmental impacts, including negative aesthetic impacts. 	a) The FNR strives to use environmentally friendly technologies.

MANAGEMENT ACTION TABLE 1.10. DISASTER & RISK MANAGEMENT			
<p>Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures;</p> <p>Objective 4) To maintain and develop meaningful co-management and partnership agreements that benefit the FNR</p>			
	Key Deliverables	Monitoring Activities	Indicators
74.	Identify potential risk areas in the FNR	i. Conduct a risk assessment and identify areas of potential concern (for e.g. recreational use of the Mossel River Dams)	a) Risks are identified and reduced.
75.	Disaster Response is integrated with cooperative governance.	i. Develop and implement an integrated emergency strategy for the FNR with all relevant institutions. The strategy should include <i>inter alia</i> measures with respect to wildfires, emergencies and criminal incidences (refer to Management Action Table 1.8. Law Enforcement and Compliance)	a) Reduced risks and increased readiness and preparedness in the FNR
MANAGEMENT ACTION TABLE 1.11. SOCIO-ECONOMIC FRAMEWORK MANAGEMENT			
<p>Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures;</p> <p>Objective 4) To maintain and develop meaningful co-management and partnership agreements that benefit the FNR</p>			
	Key Deliverables	Monitoring Activities	Indicators
76.	Ensure education and awareness raising programmes increase awareness of the FNR.	i. Where possible, sustain the FNR environmental education and awareness programmes specifically for surrounding neighbouring communities and general public interest groups; ii. Collaboration between outdoor adventure operators, the HBS, and environmental education service providers should be facilitated; iii. The use of FNR facilities by the WWC Eco-Schools Programme and by the Boy Scouts, school groups etc. should also be promoted.	a) The number of visitors for educational programmes is increased in the FNR.
77.	Manage consumptive utilisation of resources in the FNR.	Review any existing CapeNature and DEA&DP policies and develop a Policy Guideline Document for the Evaluation of extractive resource use applications within the FNR.	a) The FNR has an extractive resource policy in place.

MANAGEMENT ACTION TABLE 1.12. MANAGEMENT EFFECTIVENESS

Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures.

	Key Deliverables	Monitoring Activities	Indicators
78.	EMS reports to the MEC Annually	i. Management authority to monitor and report annually, before the end of June each year to the Western Cape MEC on the status of implementation of the IMP and may include the following: (a) an assessment of the achievement of or contributions to the management objectives of the nature reserve (e.g. the results of an annual audit).	a) The OSM submits an annual report the MEC
79.	Implement the METT-SA	ii. Conduct the annual management effectiveness tracking tool - South Africa (METT-SA) annually; iii. Monitor and improve METT-SA through development and implementation of the FNR APO; iv. Report to the DEA as per requirements for national evaluation of the METT-SA	a) The required METT-SA scoring is completed; b) The FNR METT-SA continues to show upward trends.
80.	Implement, review and update the FNR PAMP	i. In the last year of applicability (2024), the Management Authority updates the FNR PAMP to ensure the succeeding five-year PAMP is prepared timeously; ii. Using the results of the METT-SA, review and amend the FNR PAMP to ensure adaptive management strategies are in effect. iii. In terms of NEM: PAA Norms and Standards for the Management of Protected Areas in South Africa (Government Gazette, March 2016): Municipalities responsible for protected areas are to include in their annual reports the MEC, their progress toward meeting and maintaining norms and standards of the NEM:PAA.	
81.	An Annual Plan of Operations are developed for the implementation of approved programmes in the FNR	i. An Annual Plan of Operations (APO), as subsidiary plan (as per NEM: PAA 2003) to the FNR PAMP, may be developed in accordance with the Management plan and may be submitted to the MEC each year; ii. Management Actions (including costings) from this PAMP should be used to formulate the APO;	a) An APO for specific areas of management within the FNR are used to implement and track management programmes

		<ul style="list-style-type: none"> iii. The APO may also be submitted to CapeNature to keep them informed of activities on the FNR. iv. The development of Specific APOs will be used for implementing approved task-specific management programmes (e.g. alien / invasive vegetation clearing, fire management). 	
82.	The Biodiversity Manager implements and contributes to the FNR APO.	<p>The Biodiversity Manager (or an appointed environmental consulting firm) must:</p> <ul style="list-style-type: none"> i. Implement the various agreed APOs throughout each financial year; ii. Undertake an annual environmental and management audit during the first quarter of each calendar year to assess the effectiveness of the Actions and Monitoring programmes listed in this PAMP; iii. The annual audit must be submitted to the OSM Environmental Manager within four weeks of the audit date; iv. implement any adaptive management, corrective or mitigation measures that are required; v. The PAMP must be revised in accordance with the findings of the environmental and management audit, if revision is necessary. 	a) The effectiveness of the PAMP and management actions are measured and adapted.
83.	The Overstrand community supports and is involved in the management of the FNR.	Arrange and advertise an annual public meeting in July each year to give feedback on progress, planned projects and encourage informal local community participation.	a) A sense of stewardship for the FNR from local communities is increased
MANAGEMENT ACTION TABLE 1.13. FINANCE & ADMINISTRATION MANAGEMENT			
Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures.			
	Key Deliverables	Monitoring Activities	Indicators
84.	An Annual Budget is allocated to the FNR by the OSM	<ul style="list-style-type: none"> i. The EMS appeal to Council for an FNR specific Annual Budget; ii. A detailed 5-year Cost Budget / Business Plan should be compiled for the FNR, which should consider potential income streams such as extended Municipal Public Works Programmes. 	a) The FNR receives an Annual Budget that is specifically allocated to projects and running costs required to manage the reserve effectively

85.	Investigate funding opportunities for the FNR	Identify potential funding institutions for FNR projects identified by the FAB and by the EMS, to compile the necessary motivations / applications (e.g. to the United Nations Environment Programme's Global Environment Facility; the World Bank; the Table Mountain Fund).	a) The FNR applies for funding specific projects.
86.	Identify opportunities that create a diverse income for the FNR	i. Investigate sponsorship from private enterprises to sponsor projects such as the Honorary Rangers Programme and pamphlet and brochure sponsorship; ii. Investigate the creation of a Trust / Donation Fund for the FNR.	a) The FNR explores alternative sources of income for the reserve.
87.	Fixed Asset Management	i. To manage the assets of the reserve in accordance with the relevant Municipal legislation; ii. To ensure all reserve assets are barcoded; iii. To ensure that all reserve assets are verified bi-annually; iv. To provide input into infrastructure asset register; v. Disposal of assets in line with Asset Policy; vi. Immovable Assets Management Act requirement is met annually.	a) Fixed Asset Policy is adhered to.

MANAGEMENT ACTION TABLE 1.14. HUMAN RESOURCE MANAGEMENT

Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures.

	Key Deliverables	Monitoring Activities	Indicators
88.	The Staff complement of the FNR is adequate.	i. Ensure that an appropriate human resource structure and capacity for the FNR is in place, with a view to improving effectiveness and efficiency in achieving FNR goals, and informing the detailed 5-year Cost Budget/Business Plan (refer to Table 1.13); ii. Investigate the establishment of a trained Field Ranger staff component to patrol the FNR and undertake environmental monitoring.	a) The FNR has the staff it requires to fulfil management goals.
89.	Secure funding for additional staff requirements.	Investigate the sourcing of funding (e.g. Greenest Town / Municipal Treasury / EPWP to appoint additional staff as required.	a) Funding is sourced to fill staff gaps in the FNR.
90.	Staff are well trained and have the required resources and tools available to them.	i. Ensure that capacity building across the FNR staff contingent takes place; ii. Appropriate training courses should be identified on an annual basis;	a) Capacity building and training occur within the FNR staff contingent.

		iii. The attendance of training courses pertaining to Nature Reserve and Environmental Management should be mandatory for all FNR staff. iv. Appropriate training must be given to new staff by the FNR management where applicable	
MANAGEMENT ACTION TABLE 1.15. VISITOR & SERVICES MANAGEMENT			
Objective 1) To implement an effective management framework through legislative compliance, corporative governance and the implementation of measurable strategies, policies and procedures; Objective 2) To ensure the conservation of ecological processes, ecosystems and species within the FNR are improved and maintained; Objective 3) To effectively conserve the cultural heritage of the FNR.			
	Key Deliverables	Monitoring Activities	Indicators
91.	Investigate the negative effects (soil erosion, pollution) from visitors utilising the Mossel River dams.	i. The FNR must investigate the public use of the Mossel River dams for recreational use, in order to improve safety, to avoid soil erosion and pollution of the area.	a) The effects of visitor activity at the dams is understood, management strategy is developed accordingly.
92.	The number of visitors to the FNR are accurately recorded	i. Visitors to the FNR is recorded through a self-issuing permit book/slip system (To be investigated). ii. Visitor numbers inform the planning and development of visitor activity centres.	a) The number of visitors to the FNR are included in the Annual Report. b) Visitor numbers inform planning and development within the FNR.
93.	Information pamphlets and signage are informative and updated to be current to management issues as they arise.	i. Continue to make informative pamphlets available to the public at the Visitors Centre in the FNR, Hermanus Tourism Bureau, and the Old Harbour Museum. ii. Assess and update the informative pamphlets and signage to include Code of Conduct for visitors to the reserve; iii. Update information pamphlets and signage to include any current/changes in management activities that visitors should be aware of (e.g. closure of paths/access ways for rehabilitation). iv. Include unsafe areas and security rules and regulations in information pamphlets and signage.	a) Visitors can make informed decisions regarding compliance and personal safety while using the FNR.
MANAGEMENT ACTION TABLE 1.16. TOURISM DEVELOPMENT FRAMEWORK			
Objective 3) To effectively conserve the cultural heritage of the FNR;			

Objective 5) To promote and provide sustainable development within the FNR.			
	Key Deliverables	Monitoring Activities	Indicators
94.	Provide ecologically-safe natural and cultural recreational opportunities within the FNR.	<ul style="list-style-type: none"> i. Develop a CDP, to feed into a Marketing and Tourism Infrastructure Development Plan / Strategy in association with the Hermanus Tourism sectors; ii. Such a plan should include conceptual future development options for identified development nodes; branding strategies; what the target markets are; the attainment of professional tourism service delivery standards; public / private partnerships; linkages with other tourist initiatives; visitor awareness, orientation and interpretation; events and activities (e.g. weddings, team building, use of the lagoon, hiking, mountain biking, conferences); iii. After completion of the Marketing and Tourism Infrastructure Development Plan / Strategy, specific identified business opportunities for Lessees must be advertised for proposal calls. Lessees are to submit detailed project proposals (complete with architectural guidelines, conceptual site development plans, graphics and business plans) to the Municipal EMS Department. iv. Any construction activities may require prior approvals in terms of the relevant legislation. The costs for such applications (e.g. Environmental Impact Assessments in terms of the NEMA) should be carried by the prospective concessionaire. v. Where applicable, ensure that Reserve tourist facilities are graded by the Tourism Grading Council of South Africa (TGCSA). vi. Complete an APO and budget for the development of Eco-cultural tourism and Marketing (including professional fees for the appointment of a tourism and marketing consultant). Include the tourism grading application process in the APO. vii. Investigate the establishment and registering of Fernkloof Garden as a Botanical Garden. 	a) The FNR has a CDP for Marketing and Tourism in the FNR.
95.	Paragliding and Drone Activity inside of- and surrounding the FNR is regulated	<ul style="list-style-type: none"> i. The OSM develops and implements an Airspace Policy for the FNR; ii. The Airspace Policy rules and regulations are known to public through signage and education and awareness campaigns. 	a) The use of aircraft within and around the FNR is regulated
96.	Filming and Events within the FNR are promoted and properly regulated.	<ul style="list-style-type: none"> i. The OSM develops a Filming and Events policy specific to the FNR; 	a) Filming and Events in the FNR are beneficial to the reserve

Table 2. Fernkloof Nature Reserve Management Units and Parameters (also refer to Appendix 9. Overstrand: Fernkloof Nature Reserve Management Units Map)

UNIT	OBJECTIVE	CHARACTERISTICS	VISITOR ACTIVITIES	FACILITIES/INFRASTRUCTURE	VISITOR ACCESS	MANAGEMENT GUIDELINES
CONSERVATION UNITS	<p><i>Minimal or more intensive biodiversity management intervention.</i></p> <p>Conservation: to manage and direct visitor use, and plan infrastructure to minimise impacts on sensitive environments.</p> <p>Allows for minimal or more intensive biodiversity management intervention</p> <p>Users: To provide easy access to natural landscapes with a high expectation of solitude.</p>	<p>Natural area for the conservation of endemic and threatened species and the implementation of management activities for the protection of natural areas.</p> <p>This area is designated for the conservation and enjoyment of nature.</p> <p>Areas with high sensitivity but can accommodate limited access for trails and tracks.</p> <p>Areas accessible for management of roads, trails and tracks and where these can be located with low visibility from the surrounding landscape.</p> <p>Usually areas that require active fire management with fire control belts to stay within thresholds of concern, but may also include natural burning regimes.</p>	<p>Low impact nature-based recreation. For example (but not limited to):</p> <p>Environmental education and interpretation (including guiding), hiking, bird watching, photography, mountain biking (in designated areas), flower picking (for exhibitions only).</p> <p>Guided/unguided nature observation.</p> <p>Day hiking trails and/or short trails.</p> <p>Bird hides, mountain biking and rock climbing where appropriate.</p> <p>Other activities if specifically considered and approved as part of specific reserve zoning scheme eg. Overnight hiking hut (Galpin Hut).</p>	<p>Access routes, entrance walls, vehicle tracks, gravel roads, jeep tracks, hiking trails, mountain bike trails, bird hides, overnight huts, fences, gates, benches, sign boards and posts, fire tracks/control belts, dams, borehole monitoring, bridges, power lines, boardwalks, safety and security cameras, gateway and relay stations.</p> <p>May have defined or beacons hiking routes, tourism and management access roads and management tracks and fire belts.</p> <p>Infrastructure should be designed to reduce impacts of high visitor numbers.</p> <p>Roads open to the public should be accessible by 2 x 4 sedan.</p> <p>Full width tarred or surfaced roads or roads and tracks to accommodate two vehicles where appropriate.</p> <p>Unsurfaced roads may be surfaced if road planning exercise has confirmed that the location is suitable.</p> <p>Some deviation from natural/pristine state allowed particularly on less sensitive or already disturbed/transformed sites.</p>	<p>No special access control or permits required for this zone except for permits allowing hikers to overnight at Galpin hut or in areas where dogs on a leash and accompanied by an owner) may be walked.</p> <p>Vehicle access on dedicated routes, with permission from the Management Authority.</p> <p>Pedestrian access from parking areas or adjacent Development zones.</p>	<p>Visitor Management</p> <p>Frequent monitoring necessary to prevent damage or degradation.</p> <p>Frequent footpath maintenance must be scheduled for busy routes with particular attention to use of railings or other access controls to prevent damage to sensitive areas.</p> <p>Unless visitor access can be intensively guided and managed, re-route trails away from sensitive habitats or plant and animal species.</p> <p>Trail layout, design and construction must be identified to reduce maintenance requirements under higher use.</p> <p>Conservation Management</p> <p>Habitats with lower or higher management requirements. May be natural burning zones.</p> <p>Prevent or restore visible trampling or any other visitor impact.</p> <p>Rehabilitate non-useful roads to natural vegetation.</p>

UNIT	OBJECTIVE	CHARACTERISTICS	VISITOR ACTIVITIES	FACILITIES/INFRASTRUCTURE	VISITOR ACCESS	MANAGEMENT GUIDELINES
TRANSFORMED UNITS	<p><i>Low/High intensity management and recreational use.</i></p> <p>Conservation: To locate the zone and infrastructure to minimise impact on sensitive environments.</p> <p>To actively manage users and visitor impacts on adjacent sensitive areas.</p> <p>Provide additional protection to sensitive or threatened habitats, species or other features by Special Management Overlays</p> <p>Users: To provide access to adjacent natural landscapes with no expectation of solitude.</p> <p>To provide low and/or higher density accommodation.</p>	<p>Developed areas for the provision of access, management infrastructure, accommodation, high intensity recreation and commercial use.</p> <p>This area is designated for the provision of facilities which promote access to the nature reserve for recreational activities, but which do not impact negatively on the conservation area.</p> <p>Areas with extensive degraded or transformed footprints.</p> <p>Natural or semi-natural habitats only when use of these areas is essential to minimise infrastructure/use impacts over whole reserve.</p> <p>Areas able to accommodate high numbers of visitors regularly, with no identified sensitive or regionally rare biodiversity.</p> <p>Areas able to accommodate roads, trails and tourism infrastructure without risk of erosion or degradation.</p> <p>Areas easily accessible from reserve management centre.</p> <p>Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment.</p> <p>Areas where new infrastructure can be located with low impact on the surrounding landscape.</p>	<p>For example (but not limited to):</p> <p><i>Low intensity:</i></p> <p>Adventure, team-building, small commercial and community activities, educational, tourism and research activities. Picnicking, hiking, bicycle access and landscape viewing.</p> <p><i>High intensity:</i></p> <p>Restaurant/tea garden. Meetings, workshops or mini-conference facilities. Accommodation such as overnight hiking hut/ self-catering accommodation for no more than the number of people that can be accommodated in the area.</p>	<p>Management offices, nursery, herbarium, tourism office, Fernkloof gardens, model aircraft flying sites, utility areas, tarred roads and management infrastructure.</p> <p>High density tourist development nodes.</p> <p>Self-catering accommodation/overnight hiking huts or camping for no more than the number of people than can be accommodated in this area.</p> <p>Roads in this unit should be surfaced (formalised) wherever possible to reduce management cost and environmental impacts.</p> <p>Development and infrastructure may take up a significant proportion of the zone, but planning should ensure that the area still provides a relatively natural outdoor experience that retains the sense of place for visitors to the FNR.</p>	<p>Tour bus access.</p> <p>Motorised self-drive sedan car access.</p> <p>Parking areas.</p> <p>Air access only permitted if considered and approved as part of zoning scheme and no possibility of faunal disturbance.</p>	<p>Visitor Management:</p> <p>Management action will focus mostly on maintenance of facilities & providing high quality experiences that retain a “sense of place”</p> <p>Use built and infrastructure solutions to such as railings, fencing, hard surfacing and boardwalks to manage undesirable visitor impacts.</p> <p>Accept substantial impact on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay.</p> <p>Frequent footpath and road maintenance must be scheduled for high impact routes. Visible impacts to adjacent units should be mitigated.</p> <p>Conservation Management</p> <p>Management should aim to mitigate the biodiversity impacts of the high number of visitors only in sensitive areas (if any) identified by Special Management Overlay.</p> <p>These are highly transformed habitats with lower management requirements.</p> <p>Usually fire exclusion areas.</p> <p>Prevent or restore visible trampling or any other visitor impact.</p>

UNIT	OBJECTIVE	CHARACTERISTICS	VISITOR ACTIVITIES	FACILITIES/INFRASTRUCTURE	VISITOR ACCESS	MANAGEMENT GUIDELINES
BUFFER ZONE	<p><i>To prevent encroachment and protect natural ecosystems within the FNR.</i></p> <p>Conservation: Buffer transition zones to guard the boundaries of Protected Areas against invasion by alien species, encroachments and footprints of residential and other infrastructure areas.</p> <p>Users:</p> <p>Current lease agreements for encroachments and all other properties abutting the Nature Reserve.</p>	<p>Natural or developed areas beyond and adjacent to the boundaries of the FNR.</p>	<p>Residential properties, gardens and infrastructure may not encroach on Protected Area, unless through an approved lease agreement.</p> <p>The Municipality may issue notices for restoration/rehabilitation on any such encroachment.</p> <p>Visitor access to these areas will therefore be minimised and controlled.</p>	<p>Management infrastructure such as vehicle tracks and tarred roads, fences, gates, fire access routes, dams, pump stations, bridges, power line servitudes, boardwalks and road servitudes.</p> <p>Residential gardens.</p>	<p>Visitor access to these areas will be minimised and controlled.</p>	<p>Visitor Management:</p> <p>Visitor access to these areas will be minimised and controlled. Implementation of the Environmental Management Overlay Zone Regulations EMOZ.</p> <p>Management and rehabilitation of natural vegetation.</p> <p>Actions to alleviate urban and natural hazards.</p> <p>Conservation Management:</p> <p>Fire management, alien invasive species management, infrastructure management, monitoring, enforcement & compliance.</p> <p>Limiting and/or prohibiting inappropriate land uses in the buffer zone.</p>
SPECIAL MANAGEMENT Cultural Feature Protection	<p><i>Protection of localised identified important Cultural Feature.</i></p> <p>Conservation: Protection of heritage sites and objects of heritage significance, traditional or complementary use and interpretation of such sites according to approved heritage studies and applications.</p>	<p>Natural or developed area which contains heritage features that warrant specific management and protection.</p> <p>Could overlap any other zone.</p> <p>Permanent, temporary or temporal zone to manage important cultural or heritage features</p>	<p>Low impact use in compliance with Heritage or similar authorisation under any applicable law.</p> <p>Specific activities dependent on ability to manage activity and feature in question.</p>	<p>Buildings, structures and demarcation measures necessary to protect features in accordance with NEMA, NEM:PAA, NEM:BA and NHRA.</p> <p>Usually none, but specific infrastructure dependent on feature in question.</p>	<p>Specific access dependent on ability to manage access and feature in question.</p>	<p>Feature specific – as required</p>

ACKNOWLEDGMENTS

The Overstrand Municipality would like to acknowledge the collective efforts over many years of several dedicated and knowledgeable persons in terms of the initial establishment and current management of the FNR.

Specifically, the Overstrand Municipality wishes to acknowledge the contributions of the Hermanus Botanical Society, the Fernkloof Nature Reserve Advisory Board and the Cliff Path Management Group. The collective knowledge, expertise and dedication of the members of these institutions have fostered a sense of community ownership and involvement in the management of the FNR. Together, these organisations have helped establish the Fernkloof Nature Reserve as a community asset.

The authors acknowledge all the reference documents referred to. In particular, much of the background information in this report was sourced from the original Environmental Management Plan for the FNR, namely the 2001 *“Fernkloof Nature Reserve Management Plan incorporating the Mossel River Valley, a section of the Cliff Path and Hoy’s Koppie”*.

Some of the content for the PAMP was also sourced and adapted from the *“Matatiele Nature Reserve: Integrated Environmental Management Plan 2008 – 2012”*, which as compiled by Mr D. Heard for the Matatiele Local Municipality, Eastern Cape Province, South Africa.

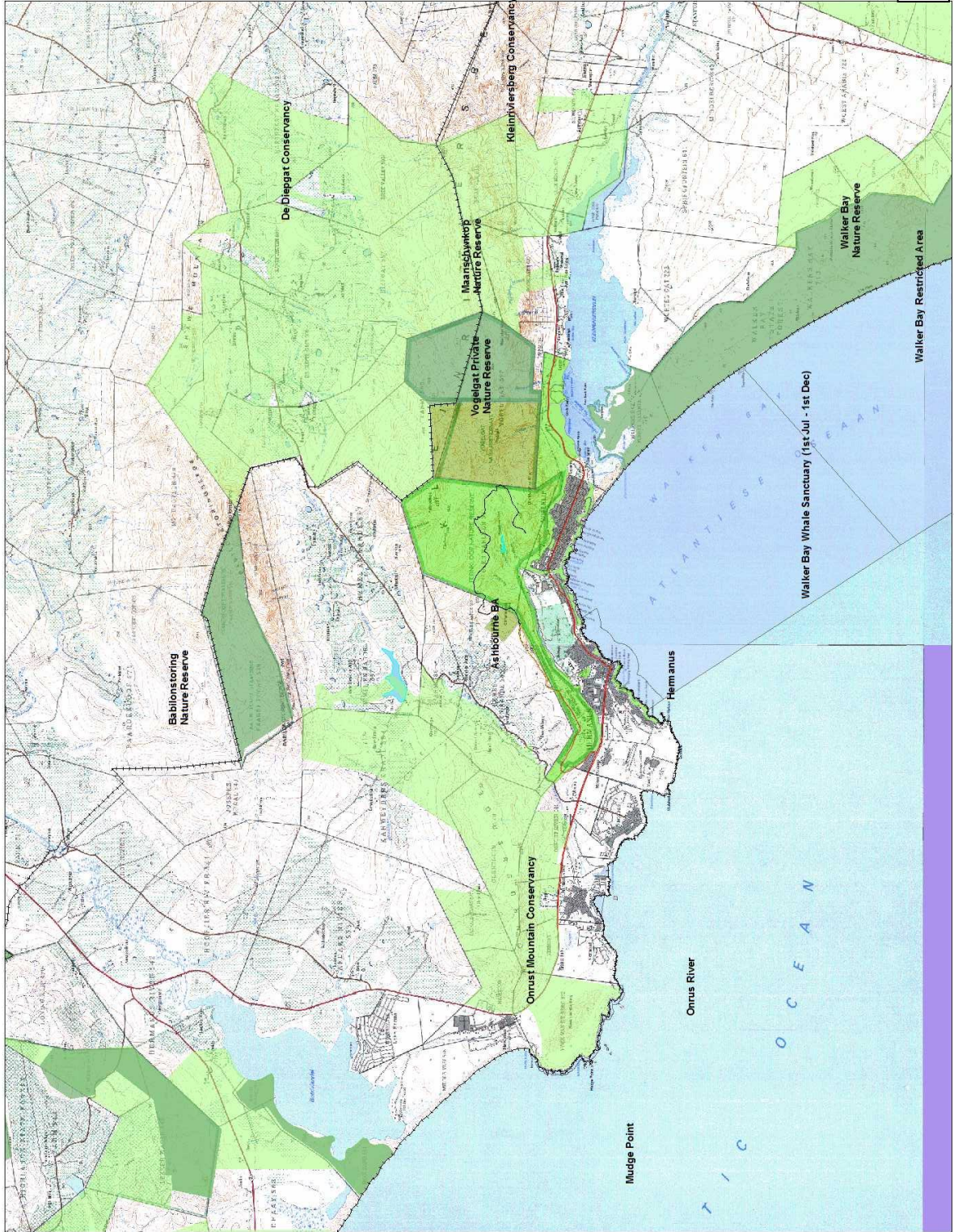
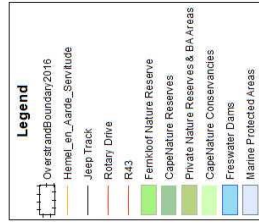
The framework of this Protected Area Management Plan was sourced from the Cape Nature Protected Area Management Plans as guidance for the development of a recognised and accepted layout for a PAMP.

The authors of the PAMP would also like to specifically thank the following persons for their contributions:

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- Mr R. Smart (CapeNature)
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- Dr A. Odendal (OBL)
- Dr V. Hamilton-Atwell (HBS)



APPENDIX 1
OVERSTRAND
FERNKLOOF NATURE RESERVE
REGIONAL LOCALITY
MAP



May 2019





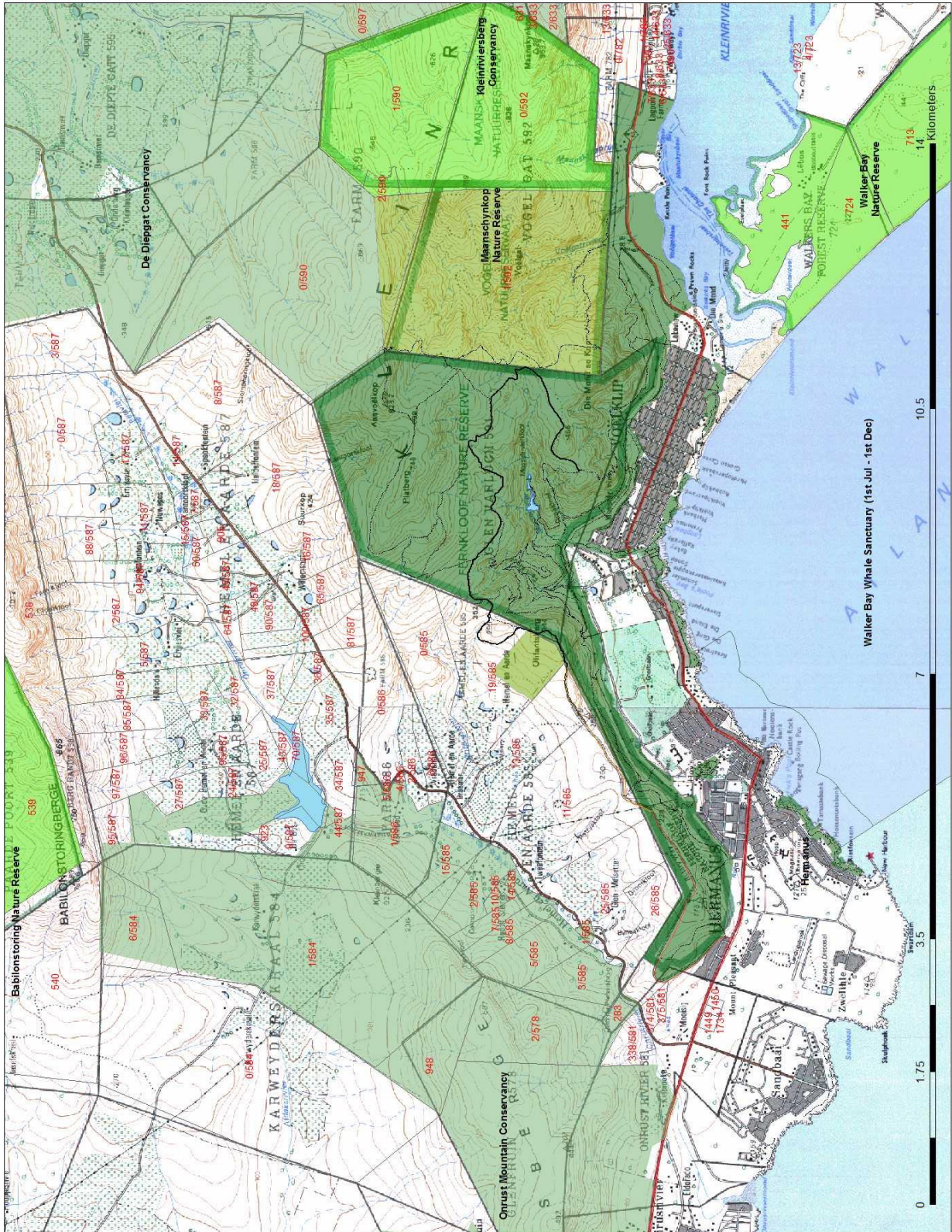
APPENDIX 2

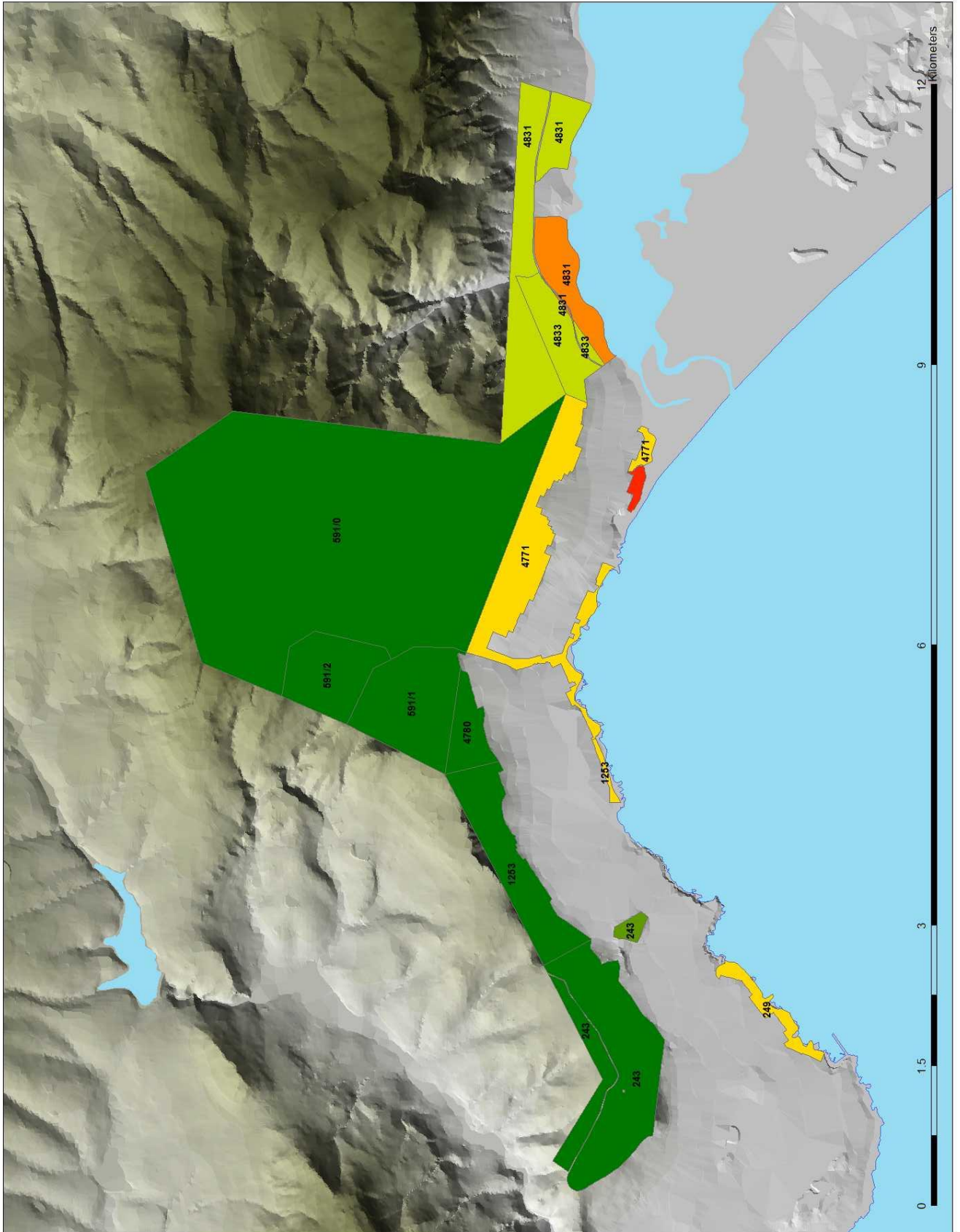
OVERSTRAND: FERNKLOOF NATURE RESERVE LOCAL CONTEXT MAP

Legend	
	Hiking Trails
	Home En Area Servitude
	Jeep Track
	Road Drive
	R43
	Zoning 2014 Selection Eri Number
	DAM
	Vegetal Private Nature Reserve
	CN Reserves
	Fernkloof Nature Reserve
	MPA_ARE_A

May 2019

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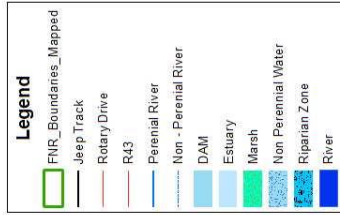






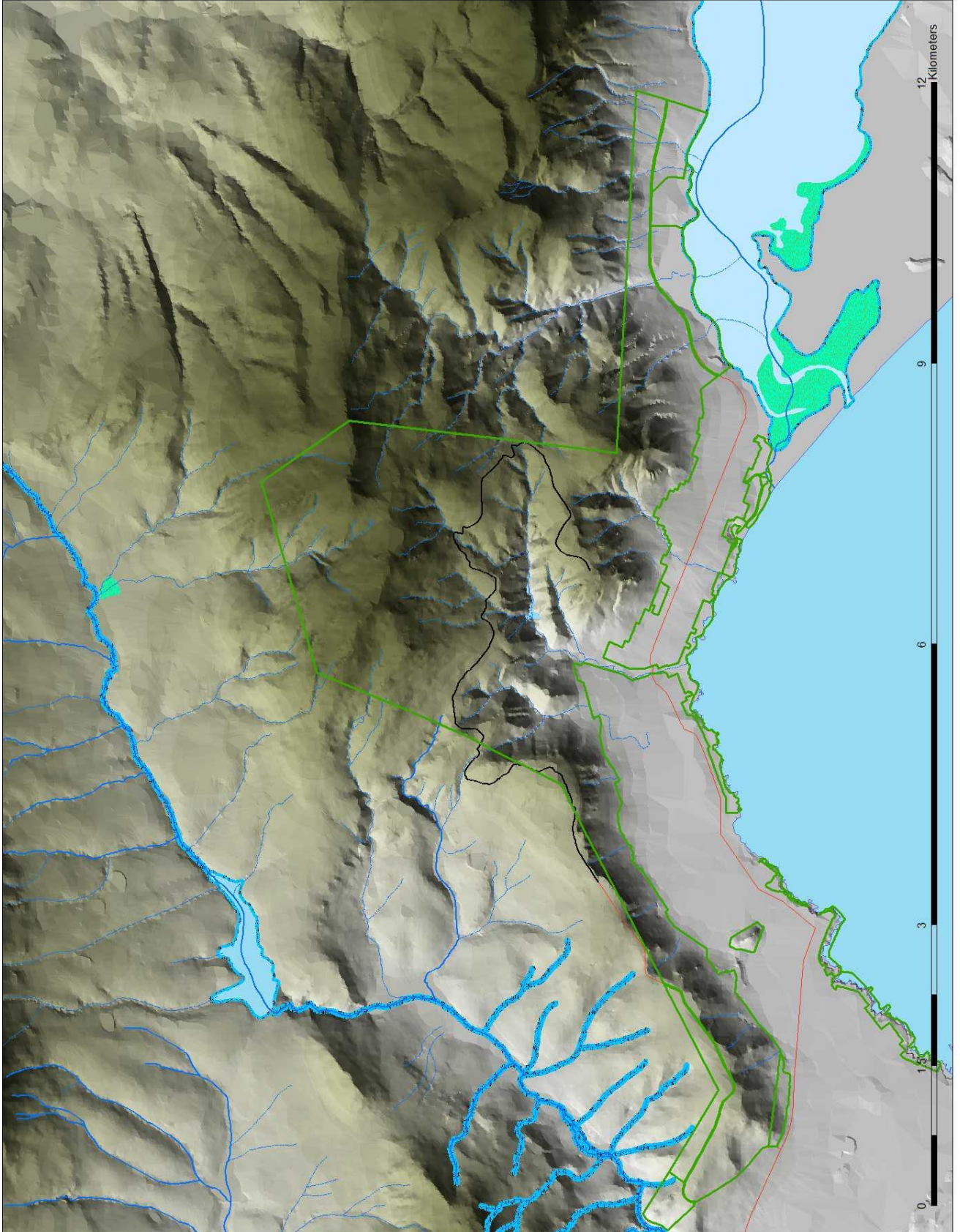
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OVERSTRAND:
FERNKLOOF NATURE RE SERVE
RESERVE:
HYDROLOGY



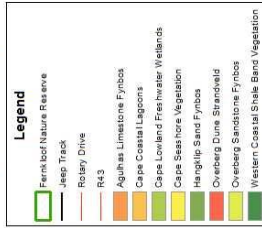
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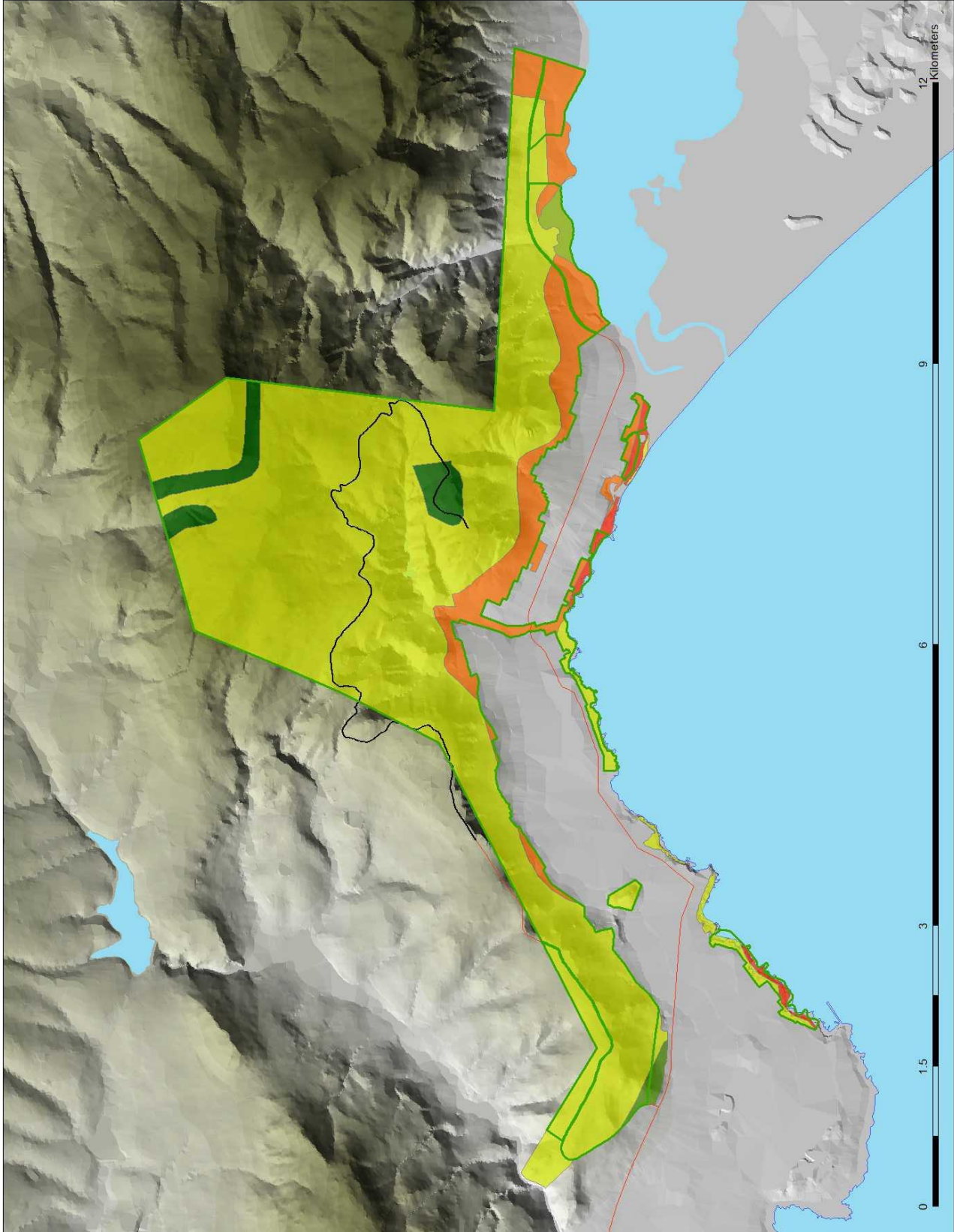




APPENDIX 6
OVERSTRAND:
FERNKLOOF NATURE RESERVE
FERNKLOOF NATURE RESERVE:
VEGETATION

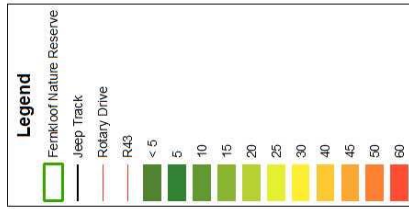


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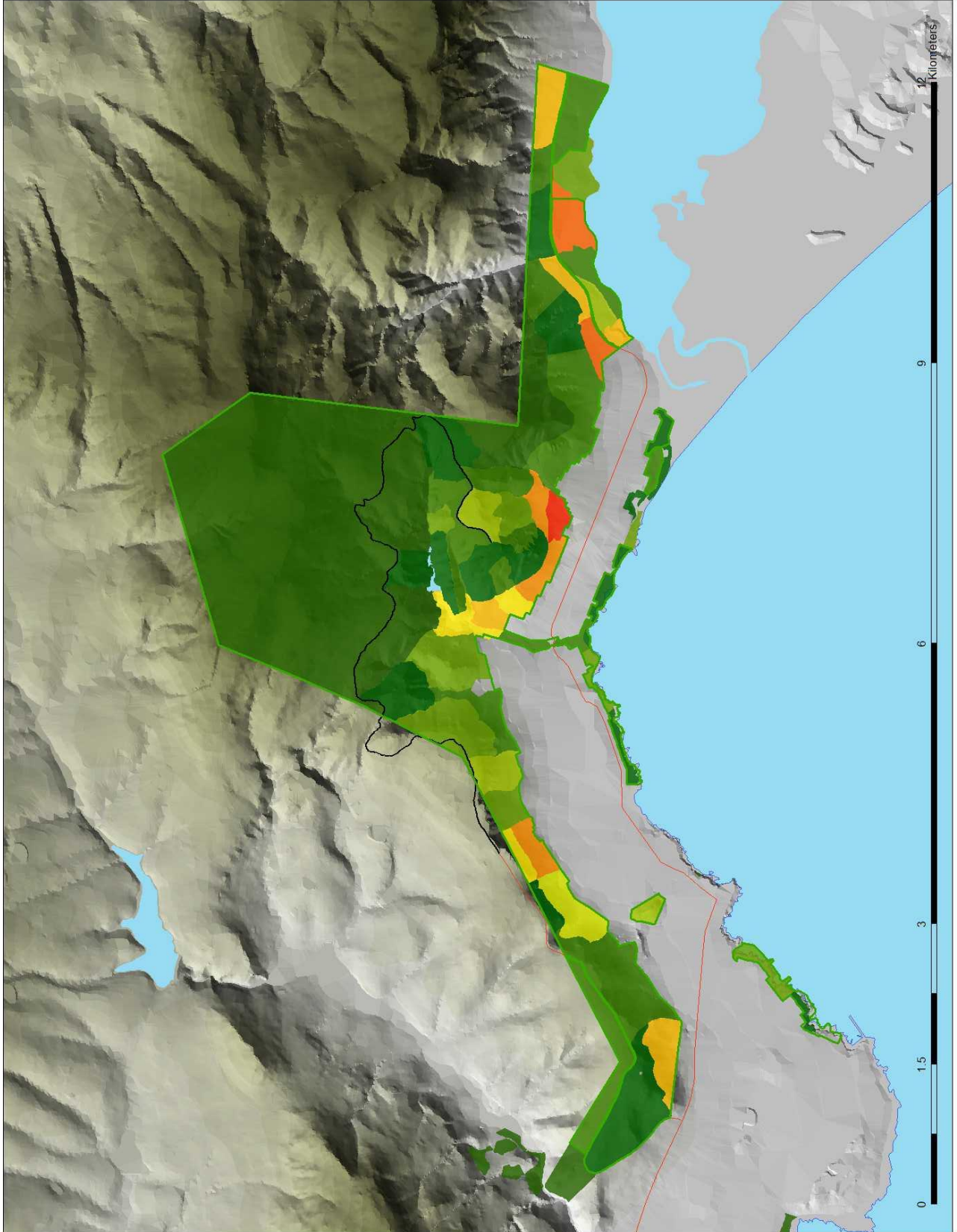




APPENDIX 6
OVERSTRAND:
FERNKLOOF NATURE RESERVE
FERNKLOOF NATURE RESERVE:
RESERVE:
ALIEN VEGETATION



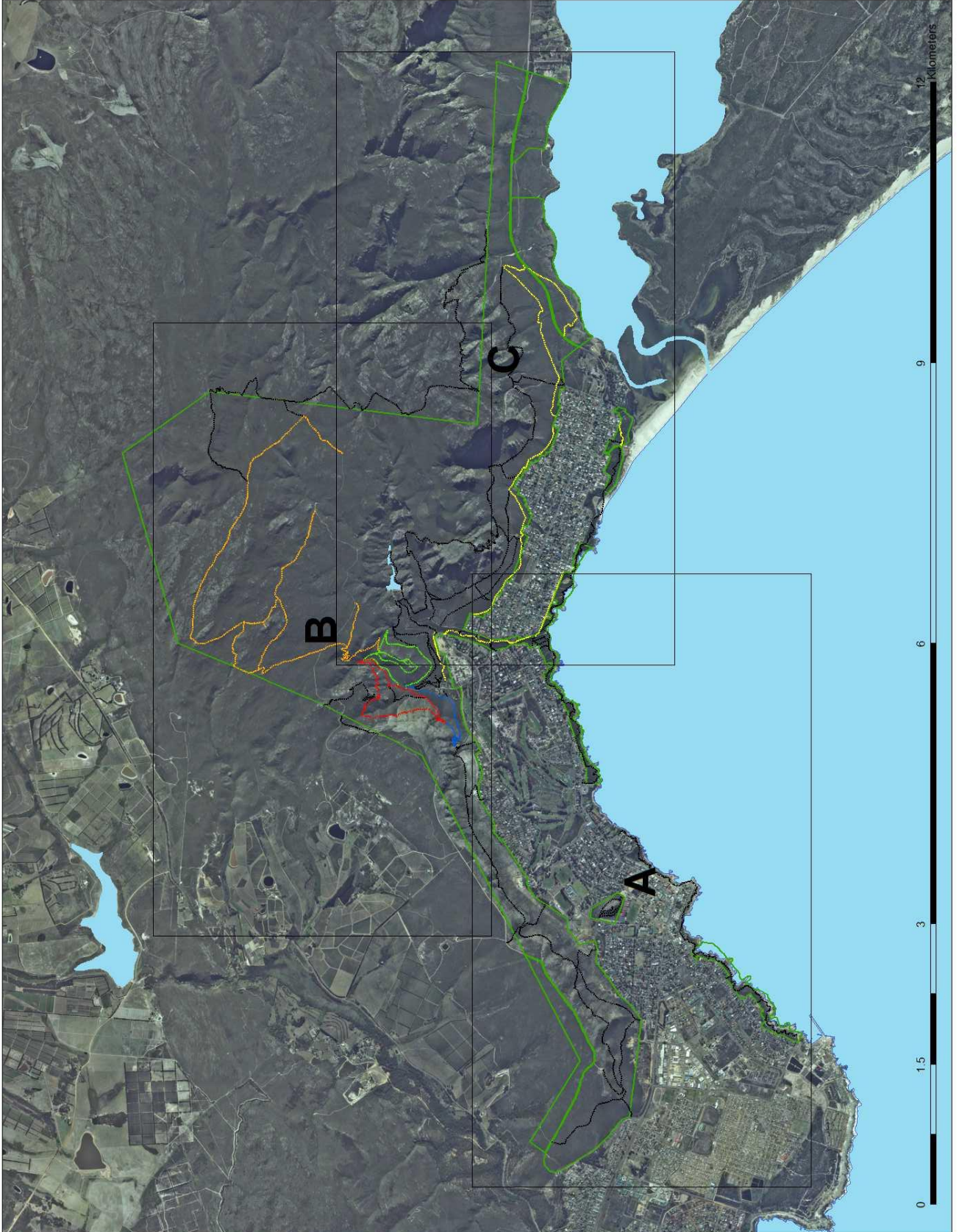
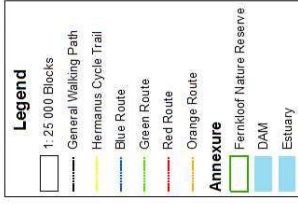
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APPENDIX 7

OVERSTRAND:
FERNKLOOF NATURE RESERVE
FERNKLOOF NATURE
RESERVE:
RECREATIONAL TRAILS



May 2019

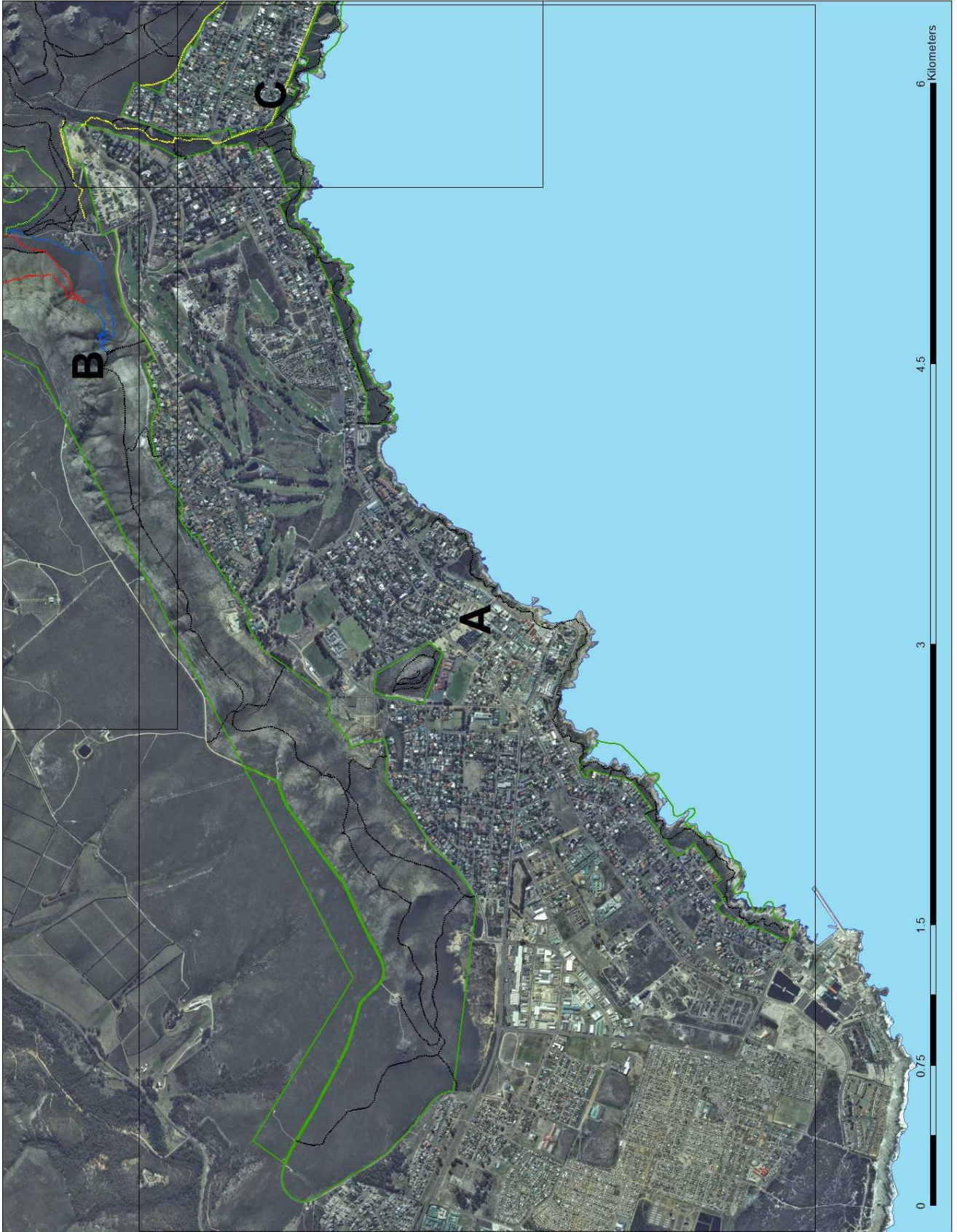
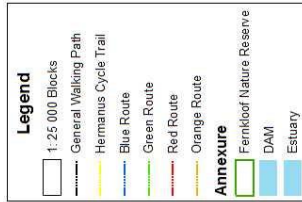
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APPENDIX 7
OVERSTRAND:
FERNKLOOF NATURE RESERVE
RECREATIONAL TRAILS

MAP A



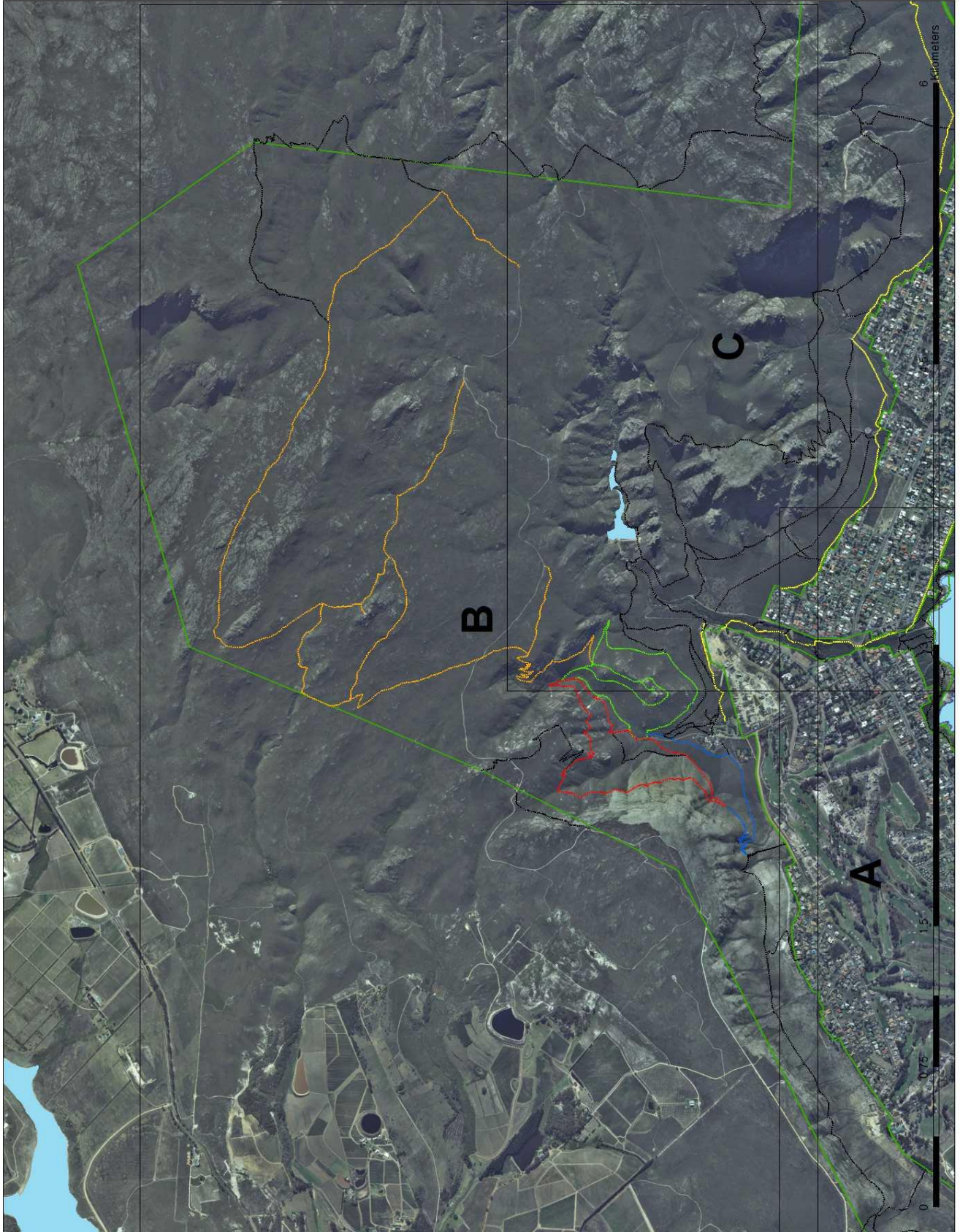
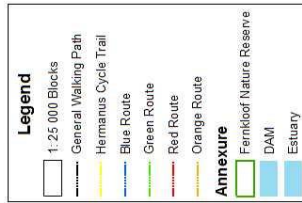
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APPENDIX 7
OVERSTRAND
FERNKLOOF NATURE RESERVE
**FERNKLOOF NATURE
RESERVE:
RECREATIONAL TRAILS**

MAP B



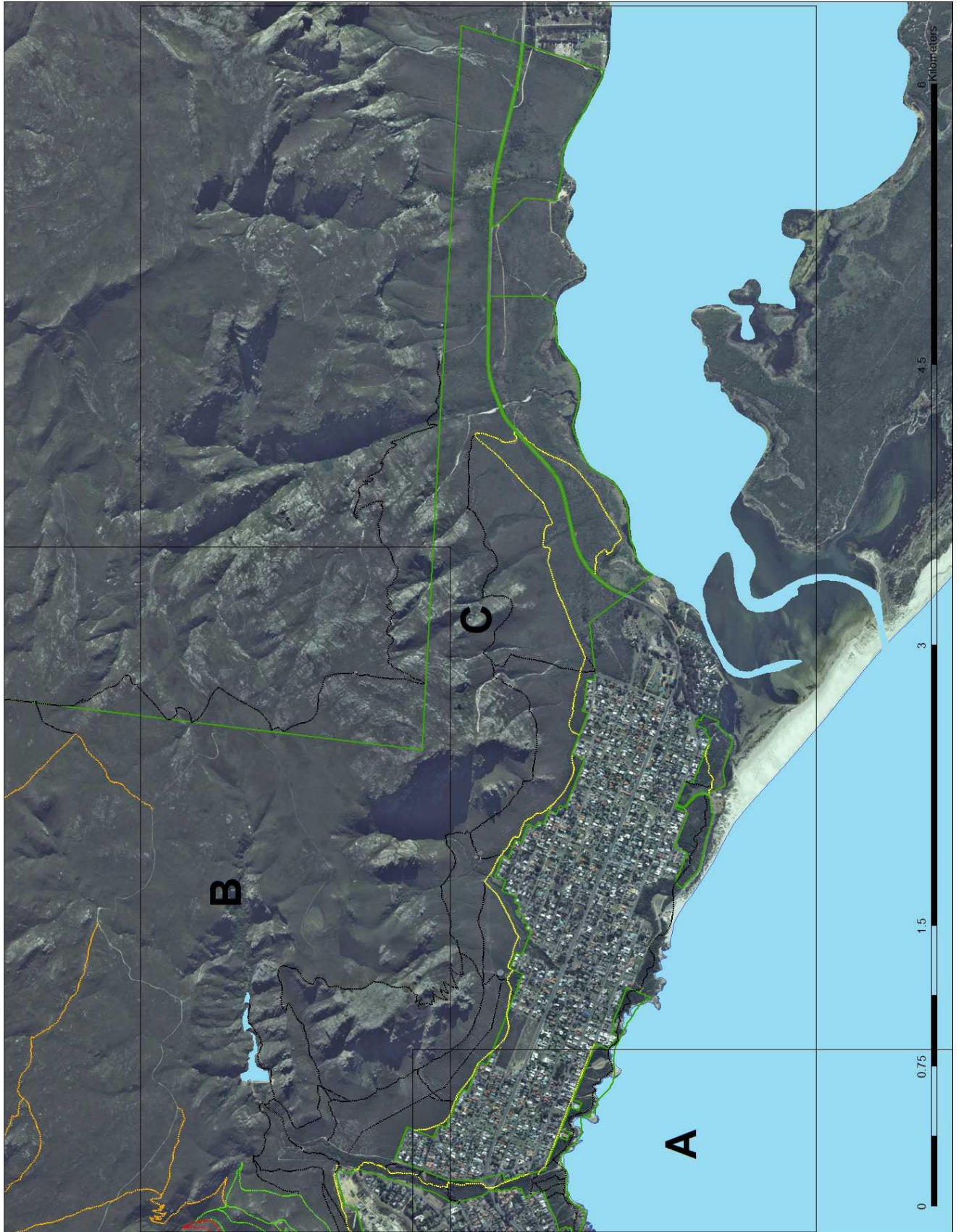
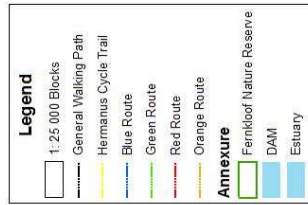
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APPENDIX 7
 OVERSTRAND
 FERNKLOOF NATURE RESERVE
FERNKLOOF NATURE RESERVE:
RECREATIONAL TRAILS

MAP C



May 2019

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APPENDIX 8

OVERSTRAND: FERNKLOOF NATURE RE SERVE RESERVE: INFRASTRUCTURE

Legend

Identification

- Ablutions
- Board Room
- Galpin Hut
- Garage
- Garage & Storeroom
- Gate - Hamilton Russell
- Gate - Jeep Track
- Gate - Main
- Gate - Three Dams
- Herbarium
- House
- Hoy's Koppie Graves
- Kitchen
- Klip Kop Cave
- Main Hall
- Nursery
- Nursery Office
- Rangers Station
- Reservoir
- Storeroom
- Tower/Mast
- View Point
- Visitor's Centre with Ablutions
- Baboon Fence

Roads

Name

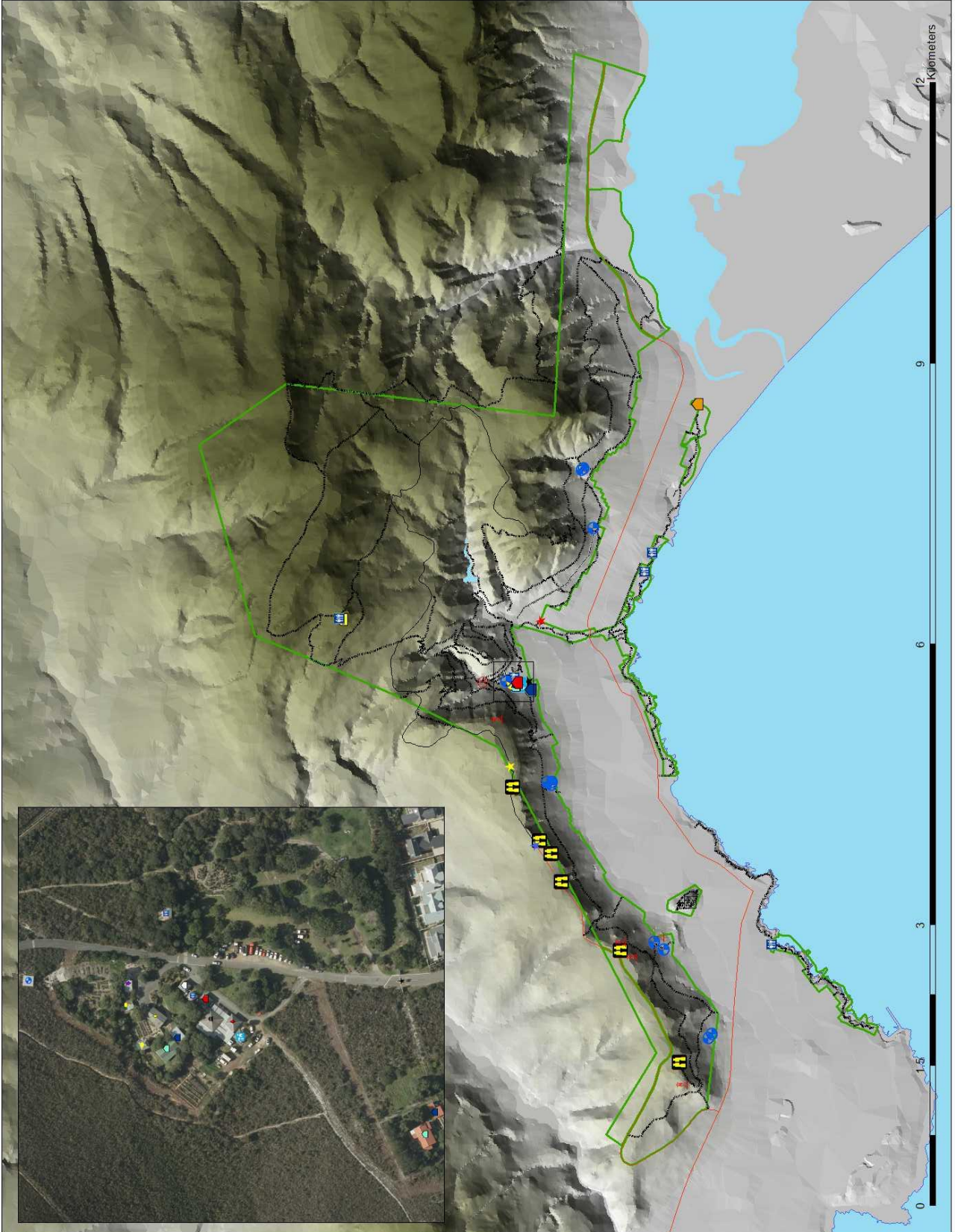
- Jeep Track
- Rotary Drive
- R43
- Hiking_Trails

Annexure

- Fernkloof Nature Reserve
- DAM
- Estuary

May 2019

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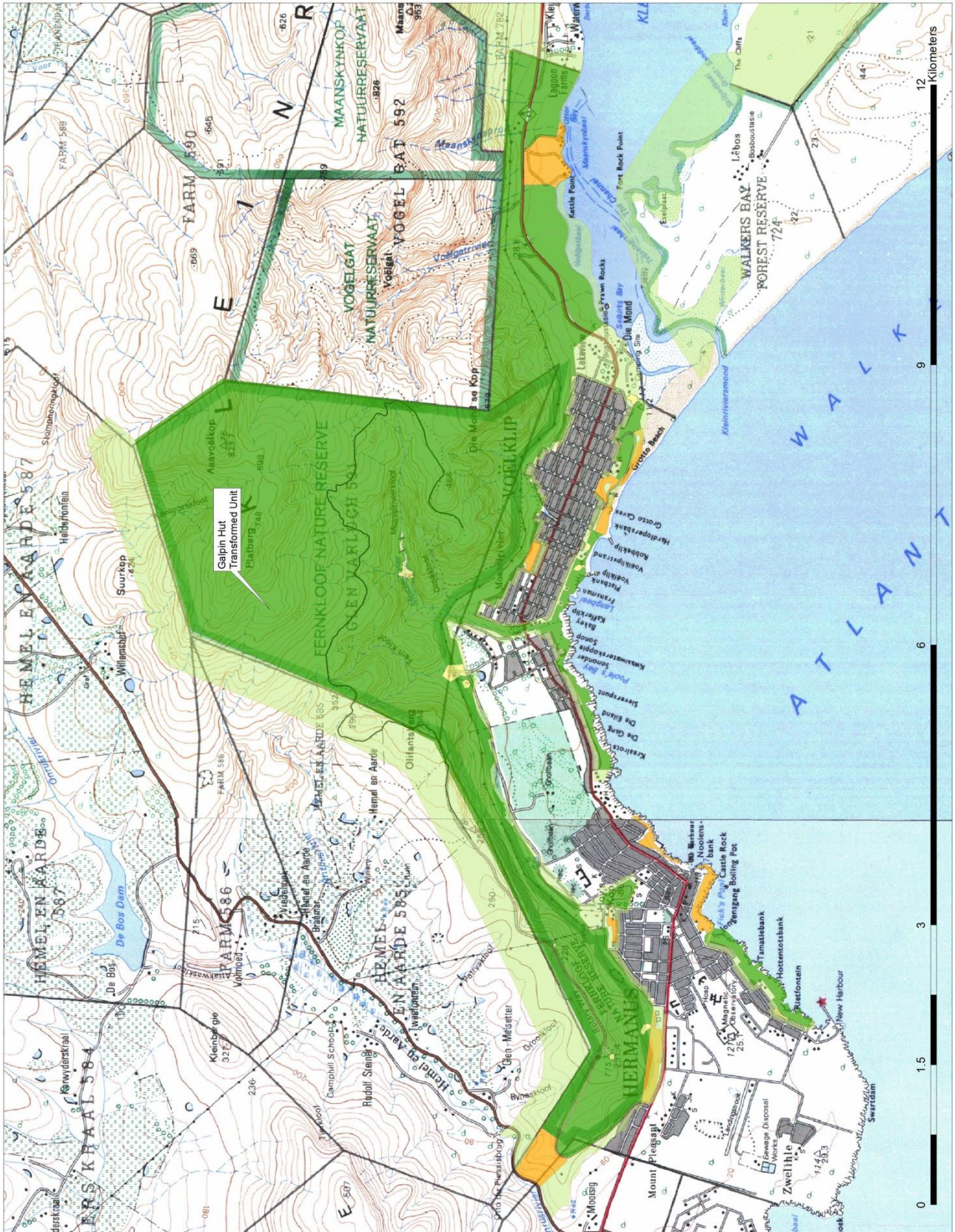
APPENDIX 9
OVERSTRAND:
FERNKLOOF NATURE RESERVE
FERNKLOOF NATURE RESERVE:
MANAGEMENT UNITS

Legend

	Protected Area Buffer
	Special Conservation Unit
	Conservation Unit
	Transformed Units
	New Proposal To Council
	Jeep Track
	Rotary Drive

May 2020

NOT TO SCALE



PROVINSIALE ADMINISTRASIE
VAN DIE KAAP DIE GOEIE HOOP
+
DEPARTEMENT VAN NATURE EN
OMGEWINGSBEWARING

PROVINSIALE GEBOU, DORPSTRAAT,
PRIVAATBAG 5014, KAAPSTAD 8000



PROVINCIAL ADMINISTRATION
OF THE CAPE OF GOOD HOPE
DEPARTMENT OF NATURE AND
ENVIRONMENTAL CONSERVATION

PROVINCIAL BUILDING, DORP STREET,
PRIVATE BAG 5014, CAPE TOWN 8000

The Town Clerk
Hermanus Municipality
P.O. Box 20
HERMANUS
7200

TELEKS
TELEX 512231
TELEGRAM NATUUR
TELEFOON 45-0222
TELEPHONE
NAVRAE Mr Butcher
ENQUIRIES
VERWYING AN. 213/6/4/1
REFERENCE
DATUM
DATE

16 APR 1984

(ATTENTION: MR SIM)

Dear Mr Sim

1. Your letter of 22 February 1984, F/3/2 refers.
2. In principle this Department does not have any objection to the proposed increases in the land area of the Fernkloof Nature Reserve.
3. Under the present financial restrictions placed on us by the Treasury it may not be possible to subsidize an additional expenditure incurred through these increases.

Yours faithfully

A. BUTCHER
for DIRECTOR

AB/AIH

Butcher 18.4.84

Endorsement

MAH
VB THE SENIOR REGIONAL OFFICER, PRIVATE BAG 5014, STELLENBOSCH

PROVINCE OF WESTERN CAPE

Provincial Gazette

5507

Friday, 2 June 2000

Registered at the Post Office as a Newspaper

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PROVINSIE WES-KAAP

Provinciale Rekenant

5507

Vrydag, 2 Junie 2000

As 'n Nuut-blad by H. Postkantoor Geregistreer

INHOUD

(Hierin is verkygbaar by Kamer 12-06, Provinsiale Gebou, Dorpstraat 4, Kaapstad 8001.)

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P.N. 241/2000

2 June 2000

The Premier has approved the following amendment framed by the Municipal Council of George.

GEORGE MUNICIPALITY:

AMENDMENT TO THE STANDARD BY-LAW RELATING TO MUNICIPAL PARKS

The Standard By-law relating to Municipal Parks, published under Provincial Notice 478 dated 21 August 1987 and adopted by the Municipal Council of George under Provincial Notice 238 dated 11 March 1988, is hereby amended in so far as it applies to the George Municipality by the inclusion after section 3(g) of the following section:

"(h) play golf in a park."

P.N. 242/2000

2 June 2000

GREATER HERMANUS MUNICIPALITY:

EXTENSION OF BOUNDARIES;

FERNKLOOF LOCAL NATURE RESERVE:

CORRECTION NOTICE

Notice No. 391 dated 1971 is hereby corrected by replacing it with the following Provincial Notice:

Notice 1: hereby given in terms of section 7(7) of the Nature Conservation Ordinance, 1974 (Ordinance 19 of 1974), that the Greater Hermanus Municipality has, with the approval of the Minister of Environmental and Cultural Affairs, altered the boundaries of the Fernkloof Local Nature Reserve to be indicated by a point-to-point description of the boundaries as mentioned in the Schedule of the notice.

SCHEDULE

ANNEXURE A

Beginning at the eastern beacon of Portion 349 of the farm Onnas River 581, Administrative District of Caledon; thence north-eastward, in a straight line along the north-eastward extension of the south-western boundary of this portion, to the point where this extension intersects the northern boundary of Erf 243 Hermanus; thence south-eastwards along the boundaries of the following properties, so as to include them in this area: the said Erf 243, Erven 1253, 4780, 4771, 4831, to beacon DIVN on the northern boundary of the said Erf 4831 as per survey record E 1276/80 filed in the Survey-General's Office in Cape Town; thence southwards to the north-western beacon of Lease Area Diagram No 3331/66; thence south-westwards in a straight line through the south-western beacon of this lease area to the point where this line intersects the high-water mark of the channel of the Klein River Lagoon; thence generally westwards along the said high-water mark, to the point where this high-water mark intersects the south-western prolongation of the north-western boundary of Erf 4831; thence north-westwards along this prolongation, to the point where this prolongation is intersected by the north-westward prolongation of the north-western boundary of Erf 4831; thence south-westwards along this north-eastward prolongation and the

P.K. 241/2000

2 Junie 2000

Die Premier het sy goedkeuring gegee aan die volgende wysiging opgestel deur die Munisipale Raad van George.

MUNISIPALITEIT GEORGE:

WYSIGING VAN DIE STANDAARDVERORDENING INSAKE "MUNISIPALE PARKE"

Die Standaardverordening insake Munisipale Parke gepubliseer by Provisiale Kennisgewing 478 van 21 Augustus 1987 en aangenem deur die Munisipale Raad van George by Provisiale Kennisgewing 238 van 11 Maart 1988, word hierby gewysig vir sover dit op die Munisipaliteit van George van toepassing is deur na artikel 3(g) die volgende artikel by te voeg:

"(a) in 'n park golf speel,"

P.K. 242/2000

2 Junie 2000

GREATER HERMANUS MUNISIPALITEIT:

UITBREIDING VAN GRENSE:

PLAASLIKE NATUURRESERVAAT FERNKLOOF:

WYSIGINGSLENNISGEWING

Kennisgewing No. 391 gedateer 1971 word hiermee vervang deur die volgende Provisiale Kennisgewing:

Kennisgewing hiermee ingevolge artikel 7(7) van die Ontwikkelsing op Natuur, 1974 (Ordonnansie 19 van 1974) dat die Groter Hermanus Munisipaliteit met die goedkeuring van die Minister van Omgewing, en Kultuur sake die grense van die Plaaslike Natuurreservaat Fernkloof gewysig het soos vasgestel deur 'n punt-tot-punt beskrywing van die grense, soos op die bylaag aangedui.

BYLAAG

GEBIED A

Met die oorspronklike baken van gedeelte 349 van die plaas Onnas River 581, Caledon Administratiewe Distrik, as beginpunt en vandaar noordwaarts in 'n reguit lyn langs die noordwaarts oostelike uitbreiding van die suidoostelike grens van hierdie gedeelte, tot by die punt waar hierdie uitbreiding met die noordelike grens van Erf 243 Hermanus kruis; vandaar suidooswaarts langs die noordelike grens van die volgende eiendomme soos aangedui by hierdie gebied: ingesluit word die volgende: Erf 243, Erven 1253, 4780, 4771, 4831, tot by beak DIVN aan die noordelike grens van die vermeldde Erf 4831 soos volg: opname van E 1276/80 wat in die Landmeter-generaal se kantoor in L. opgetek is; vandaar suidwaarts na die noordelike baken van die Verbindingsgebied, Diagram No 3331/66; vandaar suidwaarts in 'n reguit lyn deur die suidoostelike baken van hierdie verbindingsgebied tot by die punt waar hierdie lyn kruis met die hoogwatermerk van die kanaal van die Kleinriviermond; vandaar in 'n algemene westwaarts rigting laag; die vermeldde hoogwatermerk tot by die punt waar hierdie hoogwatermerk kruis met die suidoostelike verlenging van die suidoostelike grens van Erf 4831; vandaar noordwaarts langs hierdie verlenging tot by die punt waar hierdie verlenging kruis met die noordwaarts verlenging van die noordelike grens van Erf 4831.

vandaar noordwaarts langs die noordwestelike grens van die vermeldde Erf 4334, tot by die noordwaartselike bakken van hierdie erf, vandaar noordwaarts tot by die punt op die noordwestelike grens van Erf 4833 waar hierdie grens kruis met die noordwestelike uitbreiding van die noordwestelike grens van Erf 5563 (2de Straat); vandaar noordwaarts langs hierdie vermeldde erf en die grense van die volgende erf; sodat hulle van hierdie gebied uitgekluit word; die vermeldde Erf 5563, Erwe 6093, 5534, 5533, 5532, 5531, 5530 en 5529, tot by die westelike bakken van die vermeldde erf; vandaar noordwaarts langs die noordwestelike grens van 2de Straat (12,59 m), tot by die punt waar hierdie noordwestelike grens kruis met die noordwaartselike uitbreiding van die noordwestelike grens van Erf 4052, vandaar noordwaarts langs die grense van die vermeldde Erf 4052 en Erf 4045 sodat hulle van hierdie gebied uitgekluit is, tot by die westelike bakke van die vermeldde Erf 4045, vandaar noordwaarts langs die noordwestelike grens van 3de Straat (12,59 m), tot by die suidelike bakke van Erf 6246, vandaar noordwaarts langs die grense van die vermeldde Erf 6246 en Erf 3741 sodat hulle nie by hierdie gebied ingesluit word nie, tot by die oostelike bakke van die laasgenoemde erf; vandaar noordwaarts langs die noordwestelike uitbreiding van die noordwestelike grens van die vermeldde Erf 3741, tot by die punt waar hierdie uitbreiding met die noordwestelike grens van 2de Straat (12,59 m) kruis; vandaar noordwaarts langs die vermeldde noordwestelike grens van die laasgenoemde erf, pad tot by die suidelike bakke van Erf 3728, vandaar noordwaarts langs die grense van die vermeldde Erf 3728 en Erf 3716 sodat hulle van hierdie gebied uitgekluit word, tot by die noordelike bakke van die laasgenoemde erf, vandaar noordwaarts langs die suidoostelike grens van 1de Laan (12,59 m), tot by die punt waar die kruis met die suidoostelike grens van 1ste Straat (12,59 m), sodat hulle van hierdie gebied uitgekluit word; vandaar noordwaarts langs die suidoostelike grens van die vermeldde 1ste Straat sodat die van hierdie gebied uitgekluit word, tot by die oostelike bakke van Erf 3499; vandaar noordwaarts langs die grense van die volgende erf sodat hulle van hierdie gebied uitgekluit word; die vermeldde Erf 3499, Erwe 3500, 3491 en 1338, tot by die noordelike bakke van die laasgenoemde erf, vandaar noordwaarts langs die suidoostelike grense van 1de Laan (12,59 m), sodat hulle van hierdie gebied uitgekluit word, tot by die punt waar hierdie grens kruis met die suidoostelike uitbreiding van die noordwestelike grens van Erf 6154, vandaar noordwaarts langs hierdie uitbreiding en die grense van die vermeldde Erf 6154 en Erf 4137 sodat hulle van hierdie gebied uitgekluit word, tot by die punt waar die noordwestelike grens van die vermeldde Erf 4137 kruis met die noordwestelike grens van die vermeldde 1ste Straat, vandaar noordwaarts langs die noordwestelike grens van die vermeldde 1ste Straat en noordwaarts langs die noordwestelike grens van 1de Laan (12,59 m) sodat hulle van hierdie gebied uitgekluit word, tot by die oostelike bakke van Erf 7001, vandaar noordwaarts langs die grense van die vermeldde Erf 7001 en Erf 3017 sodat hulle van hierdie gebied uitgekluit word, tot by die oostelike bakke van Erf 3014; vandaar noordwaarts langs die grense van die vermeldde Erf 3014 en Erwe 3002 en 3000 sodat hulle van hierdie gebied uitgekluit word, tot by die westelike bakke van die vermeldde Erf 3000; vandaar noordwaarts langs die noordwestelike grense van 4de Straat (12,59 m), tot by die suidelike bakke van Erf 4801, vandaar noordwaarts langs die grense van die vermeldde Erf 4801 en 4828, sodat hulle van hierdie gebied uitgekluit word, tot by die noordelike bakke van die vermeldde Erf 4788, vandaar noordwaarts langs die noordwestelike en noordwestelike grense van 8de Laan (12,59 m) tot by die oostelike bakke van Erf 2460; vandaar noordwaarts langs die grense van die vermeldde Erf 2660 en Erwe 2661, 2663 en 2665 sodat hulle van hierdie gebied uitgekluit is, tot by die noordelike bakke van die laasgenoemde erf; vandaar noordwaarts in 'n reguit lyn oor 7de Laan (12,59 m) tot by die oostelike bakke van Erf 5515; vandaar noordwaarts langs die grense van die vermeldde Erf 5513 en Erf 2557-S sodat hulle van hierdie gebied uitgekluit is; tot by die noordelike bakke van die laasgenoemde erf; vandaar noordwaarts in 'n reguit lyn tot by die oostelike bakke van Erf 2340, vandaar noordwaarts langs die grense van die vermeldde Erf 2350 en Erwe 7356 en 2377 sodat hulle van hierdie gebied uitgekluit word tot by die noordelike bakke van die laasgenoemde erf, vandaar noordwaarts en noordwaarts langs die suidoostelike en suidoostelike grense van 4de Laan (12,59 m) en 4de Straat (12,59 m) op 'n dwarswal, tot by die noordelike hekk van die kruising van die vermeldde 4de Straat en 3de Laan (12,59 m) tot vandaar noordwaarts en noordwaarts langs die suidoostelike en suidoostelike grense van die vermeldde 3de Laan, tot by die oostelike bakke van Erf 2891; vandaar noordwaarts langs die grense van die vermeldde Erf 2091 en Erwe 2042-7 sodat hulle van hierdie gebied uitgekluit word, tot by die noordelike bakke van die laasgenoemde en vandaar noordwaarts in 'n reguit lyn oor 2de Laan (12,59 m) tot by die oostelike bakke van Erf 1816, vandaar noordwaarts langs die grense van die volgende erf; sodat hulle van hierdie gebied uitgekluit word; die vermeldde Erf 1816, Erwe 1815, 1814, 1813, 1812, 1810 en 1811, tot by die oostelike bakke van die laasgenoemde erf; vandaar noordwaarts en noordwaarts langs die

intersection point of the said 1st Avenue and an unnamed road (12,59 m) along the north-eastern boundary of Erf 4921; thence north-westwards along the northern boundary of this road, so as to exclude it from this area, to the northern intersection point of this road and the unnamed road (12,59 m) running along the north-western boundary of Erf 4830; thence south-westwards along the north-western and western boundaries of this unnamed road, so as to exclude it from this area, to the northern beacon of Erf 5275; thence south-westwards along the boundaries of the following erven, so as to exclude them from this area: the said Erf 5275, Erven 1684, 1684, 5275, 5279, 5709 and 5710, to the south-western beacon of the last-mentioned erf; thence north-westwards along the north-eastern boundary of 10th Street (12,59 m), to the point where this boundary intersects the south-western boundary of 11th Street (12,59 m) adjacent to Erven 1970 and 1938; thence south-eastwards along the south-western boundary of the said 11th Street, so as to exclude it from this area, to the northern beacon of Erf 1983; thence south-westwards along the boundaries of the said Erf 1983 and Erf 2546; thence south-westwards along the boundaries of the said Erf 2246, so as to exclude it from this area, to the southern beacon of the said 4th Avenue and the said 11th Street; thence south-eastwards along the south-western boundary of the said 11th Street, to the western intersection point of the said 11th Street and 6th Avenue (12,59 m); thence south-westwards along the north-western and south-western boundaries of the said 6th Avenue, to the western beacon of Erf 7149; thence south-westwards along the boundaries of the said Erf 7149 and Erven 7154 and 7153, to the point where the south-eastward extension of the said Erf 7153 intersects the south-eastern boundary of the said 7th Avenue (12,59 m); thence north-eastwards along the south-eastern boundary of the said 7th Avenue, to the northern intersection point of this road and an unnamed road (12,59 m) adjoining the south-western boundary of Erf 2559; thence south-eastwards along the south-western boundary of this unnamed road, to the western intersection point of this road and an unnamed road (15,74 m) adjoining Erf 2676; thence south-westwards along the north-western boundary of this unnamed road, to the point where this boundary intersects the south-western boundary of Groot Street (12,59 m); thence south-eastwards along the south-western boundaries of the said Groot Street and 10th Avenue, to the point where the south-eastward extension of the south-western boundary of the said 10th Avenue intersects the high-water mark of the Atlantic Ocean; thence generally westwards along this high-water mark, to the point where this high-water mark intersects the eastern boundary of Erf 6087; thence northwards along this boundary, so as to exclude this erf from this area, to the point where this boundary is intersected by the westward extension of the southern boundary of Erf 1277; thence eastwards along this extension and the southern boundaries of the said Erf 1277 and Erven 1279, 1280, 1282 and 1283, so as to exclude them from this area, to the north-eastern beacon of the last-mentioned erf; thence north-eastwards in a straight line, to the western beacon of Erf 1300; thence south-eastwards along the boundaries of the following erven, so as to exclude them from this area: the said Erf 1300, Erven 1301, 4953, 4954 and 1306-11, to the eastern beacon of the last-mentioned erf; thence north-eastwards in a straight line, to the southern beacon of Erf 1323; thence north-eastwards along the boundaries of the said Erf 1323 and Erven 6122, 1328-31, so as to exclude them from this area, to the point where the south-eastern boundary of the said Erf 1331 intersects the south-western boundary of Erf 1339; thence south-eastwards along the south-western boundary of the said Erf 1339, so as to exclude it from this area, to the point where the south-eastern boundary of the said south-western boundary intersects the south-eastern boundary of the said Erf 1339; thence north-eastwards along the said south-eastern boundary of this road, to the south-eastern intersection point of this road and Mossel Rivier Drive (12,59 m); thence north-eastwards along the south-eastern boundary of the said Mossel Rivier Drive, to the northern intersection point of the said Mossel Rivier Drive and Theron Street (12,59 m); thence south-eastwards along the south-western and south-eastern boundary of the said Theron Street (12,59 m), to the western beacon of Erf 1575; thence south-eastwards along the boundaries of the said Erf 1575 and Erf 1576, to the point where the north-eastward extension of the south-eastern boundary intersects the north-eastern boundary of the unnamed road adjacent to the north-eastern boundary of the said Erf 1576; thence north-westwards along the north-eastern

suidoostelike en noordoostelike grense van 3de Straat (12,59 m), tot by die noordoostelike hoek van die kruising van die vermeldde 3de Straat en 1ste Laan (9,45m); vandaar noordoostwaarts langs die suidoostelike grens van die vermeldde 1ste Laan, tot by die noordoostelike kruisingspunt van die vermeldde 1ste Laan en 'n naamlose pad (12,59 m) langs die noordoostelike grens van Erf 4221; vandaar noordwestwaarts langs die suidoostelike grens van hierdie pad sodat dit van hierdie gebied uitgesluit word, tot by die noordelike kruisingspunt van hierdie pad en die naamlose pad (12,59 m) wat langs die noordwestelike grens van Erf 4230 loop; vandaar suidwestwaarts langs die noordwestelike en westelike grense van hierdie naamlose pad sodat dit van hierdie gebied uitgesluit word; tot by die noordelike buke van Erf 5275; vandaar suidwestwaarts langs die grense van die volgende erwe, sodat hulle van hierdie gebied uitgesluit word: die vermeldde Erf 5275, Erve 1684, 1684, 5275, 5279, 5709 en 5710, tot by die suidwestelike buke van die laasgenoemde erf; vandaar noordwestwaarts langs die noordoostelike grens van 10de Straat (12,59 m), tot by die punt waar hierdie grens kruis met die suidwestelike grens van 11de Straat (12,59 m) aangrensend aan Erve 1970 en 1938; vandaar suidwestwaarts langs die suidwestelike grens van die vermeldde 11de Straat sodat dit van hierdie gebied uitgesluit word, tot by die noordelike buke van Erf 1983; vandaar suidwestwaarts langs die grense van die vermeldde Erf 1983 en Erf 1986 sodat hulle van hierdie gebied uitgesluit word, tot by die suidelike buke van die laasgenoemde erf; vandaar suidooswaarts en noordooswaarts langs die suidwestelike en suidoostelike grense van die vermeldde 3de Laan (12,59 m) tot by die suidelike kruisingspunt van die vermeldde 3de Laan en die vermeldde 11de Straat (12,59 m); vandaar suidooswaarts langs die suidwestelike grens van die vermeldde 11de Straat, tot by die noordelike buke van Erf 2246; vandaar suidwestwaarts langs die grense van die vermeldde Erf 2246 sodat dit van hierdie gebied uitgesluit word, tot by die suidelike buke daarvan; vandaar suidooswaarts en noordooswaarts langs die grense van die vermeldde 4de Laan (12,59 m), tot by die suidelike kruisingspunt van die vermeldde 4de Laan en die vermeldde 11de Straat, vandaar suidooswaarts langs die suidwestelike grens van die vermeldde 11de Straat, tot by die noordelike buke van Erf 2246; vandaar suidwestwaarts langs die grense van die vermeldde Erf 2246 sodat dit van hierdie gebied uitgesluit word, tot by die suidelike buke van Erf 7149; vandaar suidwestwaarts langs die grense van die vermeldde Erf 7149 en Erve 7154 en 7153, tot by die punt waar die suidooswaarts uitbreiding van die vermeldde Erf 7153 kruis met die suidwestelike grens van die vermeldde 7de Laan (12,59 m); vandaar noordooswaarts langs die suidoostelike grens van die vermeldde 7de Laan, tot by die suidelike kruisingspunt van hierdie pad en 'n naamlose pad (12,59 m) aangrensend aan die suidwestelike grens van Erf 2559; vandaar suidooswaarts langs die suidwestelike grens van hierdie naamlose pad, tot by die punt waar hierdie grens kruis met die suidwestelike grens van Erf 2676; vandaar suidwestwaarts langs die noordwestelike grens van hierdie naamlose pad, tot by die punt waar hierdie grens kruis met die suidwestelike grens van Grootstraat (12,59 m); vandaar suidwestwaarts langs die suidwestelike grense van die vermeldde Grootstraat en 10de Laan, tot by die punt waar die suidooswaarts uitbreiding van die suidwestelike grens van die vermeldde 10de Laan die hoogwatermerk van die Atlantiese Oseaan kruis; vandaar in 'n algemene westwaarts rigting langs hierdie hoogwatermerk, tot by die punt waar hierdie hoogwatermerk kruis met die oostelike grens van Erf 6087; vandaar noordwaarts langs hierdie grens sodat hierdie erf van hierdie gebied uitgesluit word, tot by die punt waar hierdie grens gekruis word deur die westwaarts uitbreiding van die suidelike grens van Erf 1277; vandaar ooswaarts langs hierdie uitbreiding en die suidelike grense van die vermeldde Erf 1277 en Erve 1279, 1280, 1282 en 1283, sodat hulle van hierdie gebied uitgesluit is, tot by die noordoostelike buke van die laasgenoemde erf; vandaar noordooswaarts in 'n reguit lyn tot by die suidwestelike buke van Erf 1323; vandaar noordooswaarts langs die grense van die vermeldde Erf 1323 en Erve 6122, 1328-31, sodat hulle van hierdie gebied uitgesluit word, tot by die punt waar die suidoostelike grens van die vermeldde Erf 1331 met die suidwestelike grens van Erf 1339 kruis; vandaar suidooswaarts langs die suidwestelike grens van die vermeldde Erf 1339 sodat dit van hierdie gebied uitgesluit word, tot by die punt waar die suidooswaarts uitbreiding van die vermeldde suidwestelike grens kruis met die suidoostelike grens van 'n naamlose pad (12,59 m) aangrensend aan die suidoostelike grens van die vermeldde Erf 1339; vandaar noordooswaarts langs die vermeldde suidwestelike grens van hierdie pad, tot by die suidoostelike kruisingspunt van hierdie pad en Mosselrivierlaan (12,59 m); vandaar noordooswaarts langs die suidoostelike grens van die vermeldde Mosselrivierlaan, tot by die suidelike kruisingspunt van die vermeldde Mosselrivierlaan en Theronstraat (12,59 m); vandaar suidooswaarts langs die suidwestelike en suidoostelike grense van die vermeldde Theronstraat (12,59 m), tot by die westelike buke van Erf 1575;

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boundary of this unnamed road, to where it intersects the south-eastern boundary of the said Theron Street; thence north-easterly along the said south-eastern and north-western boundary of this road, to the point where it intersects the south-eastern boundary of the said Mical River Drive; thence north-easterly along this south-eastern boundary, to the point where this boundary is intersected by the south and extension of the latter boundary of Erf 5729; thence northward along this extension and the boundaries of the said Erf 5729 and Erf 5077, to the northern beacon of the last-mentioned erf; thence north-westward in a straight line across 12th Street, to the eastern beacon of Erf 6883; thence northward along the boundary of the following erven, so as to exclude them from this area: the said Erf 6883, Erven 6832, 6881, 6880, 6779, 1619, 4781 and 6153, to the northern beacon of the last-mentioned area, thence north-westwards in a straight line to beacon HHP (as per Surveyor's Record E.2213/1995 filed in the Office of the Surveyor-General: Cape Town); thence south-westwards in the direction of beacon FP (as per the said survey record) to the point where line HHP to FP is intersected by the north-westward prolongation of the western boundary of Theron Street (25.19 m); thence south-easterly along this prolongation to the point where this western boundary of Theron Street is intersected by the northern boundary of Contour Street (25.19 m); thence westwards in a straight line to the eastern beacon of Erf 5821; thence north-westwards along the boundaries of the following erven, so as to exclude them from this area: the said Erf 5821, Erven 5820, 5819, 5818, 5814, 5313, 5812, 5808, 5807, 5806, 5800, 5799, 5794, 5794, 5793, 5792, 5790, 5789, 5788, 5787, 5736 (Public Place), 5735 to 5771, 6257 (Erf), Close 13 m, 5770, 5765, 5764, 5761 to 5752, 5750, 5749, 5745, the said 6257 (Foordok Drive) 70 m, to the eastern beacon of the said Erf 6757; thence north-easterly in a straight line, to the northern beacon of Erf 7164; thence south-westward along the boundary of the said Erf 7164, so as to exclude it from this area, to the eastern beacon thereof; thence south-westwards in a series of straight lines, through beacon B as per the said E.2234/1995, to the north-eastern beacon of Erf 5728; thence northwards along thereof; thence south-westwards to the north-eastern beacon of Erf 7343; thence westwards along the boundaries of the said Erf 7343, so as to exclude it from this area, to the south-western beacon thereof; thence south-easterly in a straight line, to the north-western beacon of Erf 342; thence south-westwards along the boundary of the said Erf 342, so as to exclude it from this area and south-westwards along the north-western boundary of Erf 4410 (Mountain Drive, 15.74 m), so as to exclude it from this area, to beacon B on diagram 6.6/19-4 of the said Erf 4410; thence westwards in a straight line across the said Erf 733, to the easternmost beacon of Erf 6804; thence north-easterly along the boundary of the following erven, so as to exclude them from this area: the said Erf 6804 (Kajispiering Street 10 m), Erven 6490-6487, 6485, 6484, 6481-6474, to the northern beacon of the last-mentioned area, thence north-easterly in a series of straight lines through beacons C, B and A (as per Surveyor's Record E.919/1978 filed in the Surveyor-General's Office: Cape Town), to the eastern beacon of the said Portion 349 of the farm Oudt River 581, the point of beginning.

UNNEXTRE B

Beginning at the north-eastermost beacon of Erf 4410 Hermanus; thence north-eastwards in a series of bright lines through beacons R4, R3, R2, R1 and R6, to the point where the eastward extension of line R1-R6 intersects the south-western side of Robert Street (13,89 m); thence south-eastwards along the south-eastern boundary of the said Robert Street, so as to include it from this area, to the northern beacon of Erf 307; thence south-westwards along the north-western boundary of the said Erf 307, so as to exclude it from this area, to the eastern beacon thereof; thence westward in a straight line, to the eastern beacon of Erf 722; thence north-westwards along the boundaries of the said Erf 722, Erfen 721, 729 and the said Erf 4410, so as to exclude them from this area, to the north-eastermost beacon of the last-mentioned erf, the point of beginning.

ANNEXURE C

Beginning at the western beacon of Erf 3503 Hermannus; thence south-eastwards along the boundaries of the following erven, so as to exclude them from this area: the said Erf 3503, Erven 3504-6, 3517 and 3518, to the western beacon of the last-mentioned erf; thence south-

oouder suldooswaarts; langs die grense van die vermelde Erf 1575 en Erf 1576, tot by die punt waar die noordoostwaaie uitbreiding van die suldooselike grens kruis met die noordoseelike grens van die noordse pad ongeveer nêrens aan die noordoosteelike grens van die vermelde Erf 1596; vandaar noordwesterwaarts langs die noordoosteelike grens van hierdie naamlose pad, tot waar dit krus met die suldooselike grens van die vermelde "Aronstrank"; vandaar noordwesterwaarts langs die vermalde suidooselike en noordoosteelike grens van hierdie pad, tot by die punt waar dit kruis met die suldooselike grens van die "Kort de Mosselvisser"; Jann, vandaar noordwesterwaarts langs die suldooselike grens, tot by die punt waar hierdie grens deur die suidw. arge uitbreiding van die oostelike grens van Erf 5729 g'druk word; vandaar noordwesterwaarts langs hierdie uitbreiding en die grense van die vermalde Erf 5729 en Erf 5027, tot by die noordelike bakke van die haasgenoemde erf, vandaar noordwesterwaarts in 'n reguit lyn oor 12de Straat tot by die oostelike bakke van Erf 6813; vandaar noordwesterwaarts langs die grens van die volgende erwe sodat hulle s'n hierdie gebied uitgegluit word; die vermalde Erf 6813, Erwe 6812, 6881, 6880, 6879, 1619, 4781, 6115, tot by die noordelike bakke van die haasgenoemde erf, vandaar noordwesterwaarts in 'n reguit lyn tot by bakke NHP (soos volg as Landmeterboek E.7243/1995 in die Kaart in die Kantoor van die Landmeter-generaal te Kaapstad) vandaar suidwesterwaarts in die rigting van bakke EP (volgens vermalde opnameboek) tot by die punt waar lyn NHP tot EP gekruis word deur die noordwesterwaarts se lenging van die werkelike grens van The. ontst. al (25,19m); vandaar suidwesterwaarts langs hierdie verlenging tot by die punt waar hierdie werkelike grens van The. ontst. al deur die noordelike grens van Contourant (25,19m) gekruis word; vandaar weswaarts in 'n reguit lyn tot by die oostelike bakke van Erf 5821; vandaar noordwesterwaarts langs die grense van die volgende erwe sodat hulle s'n hierdie gebied uitgegluit word; die vermalde Erf 5821, Erwe 5820, 3819, 5818, 5814, 5613, 5812, 5808, 5807, 5806, 5800, 5799, 5795, 5794, 5793, 5792, 5790, 5769, 5768, 5767, 5766 (opgeheue plek), 5765 tot 5771, 6257 (Eisla tot 13 m), 5770, 5765, 5754, 5761 tot 5752, 5750, 5749, 5745, die vermalde 6257 (Permiotrofyen 20 m), tot by die werkelike bakke van die vermalde Erf 6257; vandaar s'n noordwesterwaarts in 'n reguit lyn, tot by die noordelike bakke van Erf 7164; vandaar suidwesterwaarts langs die grens van die vermalde Erf 7164 sodat dit van hierdie gebied uitgegluit word, tot by die oostelike bakke daarvan; vandaar suidwesterwaarts in 'n reks reguit lyn tot bakke B soos volg: die vermalde E.12254/1995, tot by die noordoosteelike bakke van Erf 5428; vandaar suidwesterwaarts; vandaar suidwesterwaarts tot by die noordoosteelike bakke van Erf 7343; vandaar suidwesterwaarts langs die grense van die vermalde Erf 7343 sodat dit van hierdie gebied uitgegluit word, tot by die suidwesterlike bakke daarvan, vandaar suidwesterwaarts in 'n reguit lyn, tot by die noordwesterlike bakke van Erf 342; vandaar suldooswaarts langs die grens van die vermalde Erf 342 tot s'n hierdie gebied uitgegluit word en suidwesterwaarts langs die noordwesterlike grens van Erf 4410 (Moutsluisplein 15,74 m) sodat dit van hierdie gebied uitgegluit word, tot by baan B op Diegraaf Erf 7144 van die vermalde Erf 4410; vandaar suidwesterwaarts in 'n reguit lyn tot die vermalde Erf 243 tot by die mees oostelike bakke van Erf 6104; vandaar noordwesterwaarts langs die grense van die volgende erwe, sodat hulle van hierdie gebied uitgegluit word; die vermalde Erf 6891 (K. Kieprijnsgragt 10 m), Erwe 6440-6487, 6485, 6484, 6481-6474, met by die noordelike bakke van die haasgenoemde erf; vandaar noordwesterwaarts in 'n reks reguit lyn deur bakke C en A tot; volgens opnameboek E.917/1918 wat in die Landmeter-generaal se kantoor in Kaapstad te sien is, tot by die oostelike bakke van die vermalde Gradeelte 349 van die fase Ontust River 581, die heining.

GER/ED 5

Dit beginpunt is die mees noordoostelike bak van Erf 410 Hermannus; vandaar noordooswaarts in 'n reeks reguit lyn die bakke R4, R3, R5, R2, R1 en R6 tot by die punt A, wat die ooswaaier uitbuit; van by R1-R6 met die suidwaaierlike kant van Robertstraat (18,59 m) knuip; vandaar middoo- waarts langs die suidwaaierlike frons van die vermaelde Robertstraat, sodat dit van hierdie gebied uitgezigt word, tot by die noordoelike bakke van Erf 307; vandaar suidwaaier waarts langs die noordwaaierlike grens van die vermaelde Erf 307, sodat dit v. a. hierdie gebied uitgezigt word, tot by die oostelike bakke daarvan; vandaar w. e. w. s. in 'n reguit lyn tot by die oostelike bakke van Erf 722, vandaar noordooswaarts langs die grens van die vermaelde Erf 722, Erwe 721, 720 en die verm. P. Erf 4410 sodat hulle van hierdie gebied uitgezigt is, tot by die mees noordoostelike bakke van die laaste genoemde erf, die beginpunt.

GERARD E

Die b. g. punt is die westelike bak van Erf 3503 Hermanus (v. d. Sande).
 sub-oorwaars loop die grens van die volgende erf, omdat hulle van
 hierdie gebied uitgesluit word: die vermeldde Erf 3503, Brw. 3504-6, 3517
 en 3518, tot by die oostelike bak van die laangverreerde erf: v. d. Sande.

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eastward along the south-western boundary of 11th Street (12,59 m), to the point where this boundary intersects the south-westward extension of the south-eastern boundary of Erf 5264; thence north-eastwards along this extension and the said south-eastern boundary of Erf 5264, so as to exclude it from this area, to the eastern beacon of the last-mentioned erf; thence south-eastwards in a straight line, to the northern beacon of Erf 5652; thence south-westwards and south-eastwards along the boundaries of the said Erf 5652 and Erven 4056, 4061, 4063-5, so as to exclude them from this area, to the southern beacon of the last-mentioned erf; thence south-eastwards in a straight line, to the eastern beacon of Erf 4067; thence south-eastwards along the boundaries of the said Erf 4067 and Erven 4068 and 4070, to the southern beacon of the last-mentioned erf; thence south-eastwards in a straight line, to the eastern beacon of Erf 4074; thence south-eastwards and north-eastwards along the boundaries of the said Erf 4074 and Erven 4073, 4077, 1339 and 4075, so as to exclude them from this area, to the point where the south-eastward extension of the south-western boundary of the said Erf 4075 intersects this boundary, so as to exclude the said Erf 4831 from this area, to beacon Res. 15 (as per Survey Record E.2243/1995 filed in the Surveyor-General's Office, Cape Town); thence generally eastwards in a straight line through beacon Res. 14, Res. 13, Res. 12, Res. 11, Res. 10, Res. 9, Res. 8, Res. 7, Res. 6, Res. 5, Res. 4, Res. 3, Res. 2 and Res. 1, to the western beacon of the said Erf 3503, the point of beginning.

ANNEXURE D

Beginning at the point where the south-western boundary of Erf 243 intersects the high-water mark (HWM) of the Atlantic Ocean; thence north-westward along this boundary to the point where this boundary is intersected by the south-eastward prolongation of the north-eastern boundary of Erf 280; thence north-eastwards along the last-mentioned prolongation and the boundaries of the following erven so as to exclude them from this area: the said Erf 280, Erven 6313, 6818, 6273, 7159, 285, 273, 268, 264, 295, 296, 7561, 7560, 272, 321, to the north-eastern beacon of the last-mentioned erf; thence north-eastward, in a straight line to the western beacon of Erf 293; thence south-eastwards along the south-western boundary of the said Erf 293 to the point where the south-eastward prolongation of this boundary is intersected by the south-eastern boundary of Cliff Road (15,74 m); thence north-eastwards along the south-eastern boundary of the said Cliff Road to the western beacon of Erf 310; thence south-eastwards along the boundaries of the said Erf 310 and Erven 6900, 6899 and 311 across the road (9,45 m), 7052, 7051, 315, across Arundel Street (9,45 m), north-westwards along the north-western boundary of the said Arundel Street and north-eastwards along the south-western boundary of the said Cliff Road, to the western beacon of Erf 1668; thence south-eastwards and north-eastwards along the boundaries of the following erven so as to exclude them from this area: the said Erf 1668, 346, 6039, 6030, 351, 352, 353, 6675, 6692, 344, 355, 366, 357, 358, 359, across the passage 3,78 m, 361, 352, 353, 364 and 5302 to the north-eastern beacon of the last-mentioned erf; thence south-eastward along the south-eastward prolongation of the north-eastern boundary of the said Erf 5302 to the point where this prolongation intersects the said high-water mark of the Atlantic Ocean; thence generally south-westwards along this HWM to the point where this HWM intersects the south-western boundary of the said Erf 243, the point of beginning.

suid-ooswaarts langs die suid-ooselike grens van 11de Street (12,59 m), tot by die punt waar hierdie grens die suid-ooswaarts uitbreiding van die suid-ooselike grens van Erf 5264 kruis; vandaar noordooswaarts langs hierdie uitbreiding en die vermeldde suid-ooselike grens van Erf 5264 sodat dit van hierdie gebied uitgesluit word, tot by die oostelike baken van die laasgenoemde erf; vandaar suid-ooswaarts in 'n reguit lyn, tot by die oostelike baken van Erf 5652; vandaar suid-ooswaarts en suid-ooswaarts langs die grense van die vermeldde Erf 5652 en Erven 4056, 4061, 4063-5 sodat hulle van hierdie gebied uitgesluit word, tot by die suidelike baken van die laasgenoemde erf; vandaar suid-ooswaarts in 'n reguit lyn, tot by die oostelike baken van Erf 4067; vandaar suid-ooswaarts langs die grense van die vermeldde Erf 4067 en Erven 4068 en 4070, tot by die suidelike baken van die laasgenoemde erf; vandaar suid-ooswaarts in 'n reguit lyn, tot by die oostelike baken van Erf 4074; vandaar suid-ooswaarts en noordooswaarts langs die grense van die vermeldde Erf 4074 en Erven 4073, 4077, 1339 en 4075 sodat hulle van hierdie gebied uitgesluit word, tot by die punt waar die suid-ooswaarts uitbreiding van die suid-ooselike grens van die vermeldde Erf 4075 met die noordooselike grens van Erf 4831 kruis; vandaar suid-ooswaarts langs hierdie grens sodat die vermeldde Erf 4831 van hierdie gebied uitgesluit word, tot by baken Res. 15 (soos volgens opnameblad E.2243/1995 wat in die Landmeter-generaal se kantoor in Knapstad gelê is); vandaar in 'n algemeen ooswaartse rigting in 'n reguit lyn deur bakens Res. 14, Res. 13, Res. 12, Res. 11, Res. 10, Res. 9, Res. 8, Res. 7, Res. 6, Res. 5, Res. 4, Res. 3, Res. 2, Res. 1, tot by die westelike baken van die vermeldde Erf 3503, die beginpunt.

GEBIED D

Die beginpunt is waar die suid-ooselike grens van Erf 243 die hoogwatermerk (HWM) van die Atlantiese Oseaan kruis; vandaar noordooswaarts langs hierdie grens tot die punt waar hierdie grens deur die suid-ooswaarts uitbreiding van die suid-ooselike grens van Erf 280 gekruis word; vandaar noordooswaarts langs die laasgenoemde uitbreiding en die vermeldde suid-ooselike grens van Erf 280 sodat hulle van hierdie gebied uitgesluit word; die vermeldde Erf 280, Erven 6313, 6818, 6273, 7159, 285, 273, 268, 264, 295, 296, 7561, 7560, 272, 321, tot by die noordooselike baken van die laasgenoemde erf; vandaar noordooswaarts in 'n reguit lyn tot by die westelike baken van Erf 293; vandaar suid-ooswaarts langs die suid-ooselike grens van die vermeldde Erf 293 tot by die punt waar die suid-ooswaarts uitbreiding van hierdie grens deur die suid-ooselike grens van Cliffweg (15,74 m) gekruis word; vandaar noordooswaarts langs die suid-ooselike grens van die vermeldde Cliffweg tot by die westelike baken van Erf 310; vandaar suid-ooswaarts langs die grense van die vermeldde Erf 310 en Erven 6900, 6899 en 311 oor die pad (9,45 m), 7052, 7051, 315, oor Arundelstraat (9,45 m), noord-ooswaarts langs die noord-ooselike grens van die vermeldde Arundelstraat en noordooswaarts langs die suid-ooselike grens van die vermeldde Cliffweg tot by die westelike baken van Erf 1668; vandaar suid-ooswaarts en noordooswaarts langs die grense van die volgende erwe sodat hulle van hierdie gebied uitgesluit word: die vermeldde Erf 1668, 346, 6039, 6030, 351, 352, 353, 6675, 6692, 344, 355, 366, 357, 358, 359, oor die deurgang 3,78 m, 361, 362, 363, 364 en 5302 tot by die noordooselike baken van die laasgenoemde erf; vandaar suid-ooswaarts langs die suid-ooselike uitbreiding van die noordooselike grens van die vermeldde Erf 5302 tot by die punt waar hierdie uitbreiding met die vermeldde hoogwatermerk van die Atlantiese Oseaan kruis; vandaar in 'n algemeen suid-ooswaartse rigting langs hierdie HWM tot by die punt waar hierdie HWM die suid-ooselike grens van die vermeldde Erf 243 kruis, die beginpunt.

EN. 2/3/2000

2 Junie 2000

SENTRALE KAROO DISTRICT COUNCIL

CORRECTION OF PROCLAMATION NO. 17 DATED
23 MARCH 2000

CORRECTION NOTICE

The English version of Schedule 1 of Proclamation No. 17 of 2000, dated 23 March 2000 published in Provincial Gazette 5456 of 7 April 2000, is hereby corrected by substituting the word "Minor" with the word "Main".

P.K. 243/2000

2 Junie 2000

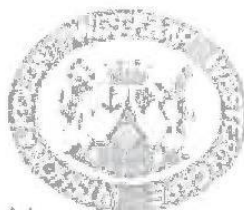
SENTRALE KAROO DISTRIKSRaad

VERBETERING VAN PROKLAMASIE NO. 17 GEDATEER
23 MAART 2000

VERBETERINGSKENNISGEWING

Die Engelse weergawe van Bylae I van Proklamasie No. 17 van 2000, gedateer 23 Maart 2000, gepubliseer in Provinsiale Koerant 5456 van 7 April 2000, word hierby verbeter deur die woord "Minor" te vervang met die woord "Main".

PROVINCE OF WESTERN CAPE



PROVINSIE WES-KAAP

Provincial Gazette

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Stad Kaapstad (Kaapse Vlakte Distrik): Sluiting	1585
Stad Kaapstad (Helderberg Distrik): Hersonering, onderverdeling, afwyking en wysiging van die stedelike sone	1585
Stad Kaapstad (Khayelitsha/Mitchell's Plain Distrik): Hersonering	1585
Stad Kaapstad (Noordelike Distrik): Hersonering, permanente afwyking en goedkeuring van terreinontwikkelingsplan	1587
Stad Kaapstad (Noordelike Distrik): Spesiale vergunning en regulasie-afwyking	1588
Stad Kaapstad (Tygerberg Distrik): Hersonering en onderverdeling	1589

(Aanworske op bladsy 1676)

PROKLAMASIE

DEUR SY EDELE PHILIPPUS JACOBUS OLIVIER,
Administrateur van die Provinsie die Kaap die Goeie Hoop.

KRAGTENS die bevoegdheid my verleen by artikel twee
van die Ordonnansie op Natuurreserwes, 1939 (Ordon-
nansie no. 18 van 1939), verklaar ek hierby dat al die be-
palings van genoemde Ordonnansie op die munisipaliteit
Hermanus van toepassing is.

GOD BENOED DIE KONINGIN!

Gedateer te Kaapstad op bede die 21ste dag van Novem-
ber 1957.

P. J. Olivier,
ADMINISTRATEUR.

No. 182, 1957.

PROCLAMATION

BY THE HONOURABLE PHILIPPUS JACOBUS OLIVIER,
Administrator of the Province of the Cape of Good Hope.

UNDER the powers vested in me by section two of the
Nature Reserves Ordinance, 1939 (Ordinance No. 18 of
1939), I hereby declare that all the provisions of the said
Ordinance shall apply to the Municipality of Hermanus.

GOD HAVE THE QUEEN!

Dated at Cape Town, this 21st day of November, 1957.

P. J. Olivier,
ADMINISTRATOR.

No. 182, 1957.

§ M.H.D.

HELMUTHS MUNICIPALITY.

5th February, 1958.

COPY/ADV:

The Fern Kloof Nature Reserve comprises the properties known as:-

- (1) Fern Kloof Watershed, the boundaries of which are defined by Diagram H. A. 322/1951 annexed to Certificate of Registered Title No. 2750 dated 9th March, 1952, in favour of Mossel River Estate Company Ltd., in extent 82 morgen, 70,552 sq. ft., and
- (2) Fern Kloof, the boundaries of which are defined by Diagram No. 891/1919 annexed to Deed of Transfer No. 8018 dated 11th August, 1919, in favour of J.E. Poole in extent 142 morgen, 122 sq. rds.

The Nature Reserve is bounded on the North and East by the Remainder of Glen Varlooh, on the South by Mossel River West (now Erf 4780, Hermannus), and on the West by the Remainder of lot a of Attaquas Kloof."

[Handwritten signature]

Date:
File No: AN.213/6/4/1/2.
Department of Nature Conservation.
Extension 246.

MR. A.P. VENTER, M.E.C.

THE DEPUTY-ADMINISTRATOR.

NATURE RESERVE ORDINANCE, 1939 : EXTENSION OF RESERVE.

I agree with the recommendation contained in the final paragraph of the following memorandum addressed to me by the Director of Nature Conservation and I recommend accordingly.

PROVINCIAL SECRETARY.

THE PROVINCIAL SECRETARY.

1. By minute No. 2876 dated 12th November, 1957, the Executive Committee resolved that -

- 270
- or 23/1/62
- 4
- (a) the proclamation submitted, applying the provisions of the Nature Reserves Ordinance, No. 18 of 1939, to the Municipality of Hermanus, be issued in terms of section 2 of that Ordinance; and
 - (b) approval be given to the Municipality of Hermanus, in terms of section 3 of the Ordinance, to set aside for purposes of a nature reserve that portion of the municipal commonage known as Fernkloof in extent approximately 224 morgen.

The proclamation appeared in the Official Gazette of 29th November, 1957.

2. Further representations have been made by the Municipality of Hermanus that the boundaries of the existing reserve be extended by the addition of that portion of the Municipal commonage known as Mossel River West in extent approximately 23 morgen.

3. Section/...

- 2 -

3. Section 3 of the Ordinance provides that a council may with the approval of the Administrator set aside land of which it is the owner for the purposes of a nature reserve, on condition that before granting his approval the Administrator has satisfied himself that the land is in every respect suitable for all the purposes of a nature reserve.

4. The portion of the Municipal Commonage, namely Mossel River West, borders on the existing nature reserve and the vegetation is of a similar nature. In my opinion the extension will benefit the reserve as a whole.

5. I accordingly recommend that approval be granted to the Municipality of Hermanus, in terms of Section 3 of the Nature Reserves Ordinance, No. 18 of 1939, to set aside that portion of the Municipal Commonage known as Mossel River West in extent approximately 23 morgen for the purposes of a nature reserve.

DIRECTOR OF NATURE CONSERVATION.

EduB/EAV.

Feb 1992
19/2

INFORMATION : FERNKLOOF NATURE
RESERVE

1. Date of Proclamation : 1959
2. Distance from nearest town : Situated within Municipal area of Hermanus, approximately 2 1/2 miles from the centre of town.
3. Specific purpose for which Reserve was established : As a nature reserve (particularly wild flowers) which includes the preservation and cultivation of Indigenous Flora, especially the Flora which grows end which is known to have grown in the Caledon division.
4. Size : 142 morgen, with a watershed of approximately 62 morgen.
5. The different animal species found and the approximate number of each species : Buck, baboon, porcupine, rock rabbit or hare, wild cat, meerkat, jackal.
6. The different species of birds and the approximate number of each species : No ornithological study has so far been done by the society.
7. The dominant species of flowers, shrubs, trees, etc. : Protea and Erica, Rhos esp. shrubs, Leucospermum, and abundance of Bulbous plants of various species, which include Aristea, Watsonia, ornithogalum, and Moraea s.p. predominating.
8. The type of terrain, climate, rainfall, etc. : Mountainous terrain, comprising of a composition of "Table Mountain Sandstone" and some quartzite. Kloofs, rather dry, extremely sandy, good soils are negligible. Climatic conditions are very hot and dry, with gale force winds throughout the year, hence the lack of natural trees. Trees are being planted to combat wind and soil erosion. Rainfall approximately 25 inches per year with minimum of 19 inches and a maximum of 39 inches over the last 30 years.
9. Maintenance and development during the past twelve months: Maintenance has been confined this year to the entrance of the Reserve where a wild flower garden has been established, laid out with good wide paths to enable invalids in wheel-chairs to be shown around the garden and the maintenance of mountain contour paths. Many trees have been planted.
10. The reserve is an attraction at all times of the year, as plants are in bloom according to their season, and for the bird watcher, there is an abundance of bird life in the garden and in the kloofs, where buck etc. also be seen from time to time and the baboons predominant on the high rock outcrops. Spring is of course the open season for the flora, and Fernkloof has had high praise from visiting botanic touring parties from overseas, and has now become an established yearly visit from tourists.

2/.....

12.11.68

11. Emphasis has been attached to the laying out of the mountain paths which enable young or old to reach the plants within the reserve. The gradients are no steeper than any street in the town and the panoramic views one gets on the 6 miles of paths are unsurpassed. Benches have been placed on these paths at scenic points.
12. Researches for scientific or other purposes so far have not been taken.
13. The reproduction of plant life is being increased by the collection of seed and propagation, and plants are already established where originally rather bare or barer areas occurred. This takes part in our reclamation programme, for instance :- our extensive wild flower garden was in 1960 formerly mostly quarries and a sprawling rubbish dump, with dongas all over. Animals are at all times protected, and notices are placed forbidding dogs in the reserve.
14. Toilets are placed in the reserve for the public. There are four grassed areas for the visitor to rest and picnic whilst no fires are allowed in the area.
15. It is hoped that in the very near future, a large lake will be constructed to encourage the various wild fowl to settle in the reserve, and a building set up for refreshments for the public with an annex for the establishment of an herbarium.

GR
12.11.68

MUNICIPALITY OF HERMANUS

/AF

25th April, 1966.

MEMORANDUM

TO THE TOWN CLERK

re: INFORMATION CONCERNING DETAILS OF
FLORA & FAUNA WITHIN THE NATURE
RESERVE : FERNKLOOF, HERMANUS

- Item (1): Fernkloof Nature Reserve is a mountainous area of approximately 400 morgen.
- (2): Animal species include small buck common in all parts of the reserve, many mountain hares, procyonids which are numerous, meerkat and dassie rather scarce, sand mole and surface mole numerous field rat and mice in all parts, including baboons. Owing to the fact that there are so few dassie and meerkat it can be assumed that other animals for instance Jackals and other nocturnals are within the boundaries of the reserve.
- (3): Owing to the lack of actual forests in the reserve which afford havens for birds there are not many forest birds, but many trees are being established to encourage the birds the common varieties include: Fiscal Shrike, Bok-ma-Kierrie, Wood-Pecker, 1 pair black duck, occasional Kingfishers, Cape sparrow and Canary, numerous sugar birds, Guinea Fowl have not yet made an appearance although they are to be found outside the area. 1 pair of Martial Eagle, various Hawks, Swift Cape Robin, several Owls, Dove, Rock Pidgeon.
- (4): The Flora of the reserve includes the following:
:-
(i) 24 species of trees;
(ii) 25 species of shrubs and climber;
(iii) 78 species of Bulbs;
(iv) 28 species of Proteas;
(v) 35 species of Erica;
(vi) 14 species of Aloe.
- Species of annuals are numerous, with specific flowering periods throughout the year.
- (5): The reserve was established in January 1960.
- (6): The reserve is situated at Mossel River area of Hermanus above Walker Bay, in the Caledon Division.

7/.....

File
H.C.

To The Town Clerk:

25th April, 19

- Item (7): The specific purpose for which the reserve was established was to conserve the natural association between Fauna and Flora which are indigenous to this area, and to build up a flora (in the lower area of the reserve) that is becoming extinct in the Caledon Division. This includes the planting of forest trees, which when mature will encourage the natural Fauna of the surrounding districts to make a haven in the reserve.
- (8): No research is at present being done, records are of course being kept of all materials planted in the reserve.
- Research could be done by voluntary work performed by University students in conjunction with their studies on the various subjects with and allied to nature conservation.
- (9): For the visitor there is ample accommodation in Hermannus, i.e. Hotels etc.

H.F. WOOD.
CURATOR

(SUBMITTED FOR THE INFORMATION OF MEMBERS)

31 December 1968

Mr. I. Williams
The Bungalow
Voelklip
HERN. 76

Proposed Action: The above
Hermannus - Feb
15/5/72

Dear Mr. Williams,

In the following notes I have listed some of my observations and impressions on the natural vegetation of Hermannus with some comments and suggestions on methods of protection and preservation.

Coastal Reserve known as "The Cliffs"

This narrow belt above the high water mark supports a remarkably rich flora. There are some particularly fine stands of coastal bush consisting of Euclea racemosa, Cassia maritima, Colpoa compressa, Pterocelastrus triacanthatus and Phyllis burkei to mention just a few of the dominant species. At several places in the moist ravines, there are fine stands of Rapanea melanophloea commonly called "Gape Beech" or Bosmanhout, the timber of which was much prized by Cabinet-makers in the early days of the Cape. I was amazed to see such magnificent specimens of this beautiful tree growing in such close proximity to the sea. These stands of Rapanea are probably unique in this respect. Other noteworthy trees are the huge specimens of Sideroxylon inerme (malkhout) and Tarsochloanthus camphoratus, which are growing at Piet-se-Bos. What is particularly impressive is the size attained by these beautiful old trees and it is no exaggeration to say that comparable patches of coastal forest would be hard to find anywhere else along the adjacent coastline.

Apart from the forest, the rocky promontories also harbour a specialised and beautiful flora, with such species as Haemanthus coccineus, Amaryllis belladonna and the famous "Hermannus cliff lily" Gladiolus carinatus, all of which flower during the summer and early autumn. It was a great surprise to see Stapelia variegata growing on some of the rocks. Historically, this plant is of tremendous interest as it was one of the first plants ever collected at the Cape, and was described in 1644. I hope these brief notes will have shown how interesting the Hermannus coastal reserve is, and how important it is that this zone be protected in its present state.

Mountain Areas

The mountain areas east and west of Fernkloof support large concentrations of Leucospermum cordifolium, Protea compacta and P. longifolia in their natural state, not to mention numerous species of Sesuvium and Erica. The unique and showy endemic families like Burmanniaceae and Pennaceae are particularly well represented here. Unfortunately the entire area is becoming infested with aliens, chiefly Pinus pinaster, Hakea and Leptocarpum lasiocarpum (the Australian Myrtle). As yet these aliens do not have a complete stranglehold on natural vegetation but they are increasing with alarming rapidity. If eradication is undertaken now, complete control could be achieved at a comparatively moderate cost. The best method of control is to fell the trees at ground level, then leaving them to dry out in the veld. On drying out, the cones and seed capsules open and shed their seeds, which fall to the ground and are eaten by rodents. The destruction of the seed falling to the ground by field mice is of great importance, as it prevents a new cycle of infestation from taking place. If the area is cleared systematically and followed up by the regular weeding out of seedlings, effective control can be achieved. It is vital that control measures to save the mountain areas be put into operation at once, since the cost of eradication of aliens will spiral to exorbitant proportions within a few years.

Extension to Fernkloof

There seems no good reason why the large and rugged mountainous area behind the present Fernkloof reserve should not be included within the boundaries of the present reserve, since it has little value for any other purpose. No development at all should be undertaken apart from a contoured access path for climbers which might be considered in the future. However, broad firebelts should be maintained around the perimeter of this area, with the dual purpose of protecting the vegetation and safeguarding the important catchment areas.

- 2 -

Hoy's Koppie

Finally, it may interest you to know that this koppie is a refuge for three very interesting plants, Phyllipia chamissonis, Aloe succ. ring and also Protea speciosa var. angustata. I sincerely hope that Hoy's Koppie will remain undisturbed and that these three curiosities will continue to thrive in their natural state.

Recently, I have gained the impression that the distinctive character of the natural landscape of Hermanus is disappearing and I do believe that by preserving the coastal reserve and mountain areas, a positive move will have been made towards retaining this natural charm.

Yours faithfully,

J.P. Rourke, M.Sc., F.L.S.

Compton Herbarium, Kirstenbosch.

AN 213/6/4/1

TELEPHONE 36
TELEPHONE 36

MUNICIPAL OFFICE
MUNISIPALE KANTOOR
HERMANUS

Area five is situated in the central area of the town on the northern boundary of the Hermann school site and is known as Hoy's Koppie. It is a hill on which many protests, etc. have been established over a period of many years.

Your comments regarding these proposals will be very much appreciated and as soon as a reply has been received from you I shall proceed with the necessary advertising as required in terms of the Ordinance.

Any further information which you may require will be supplied with pleasure.

Yours faithfully,


TOWN CLERK.

DESCRIPTION OF AREAS TO BE PUT INTO NATURE CONSERVATION AREA

Note: All measurements and areas can only be considered as approximate as these were scaled from attached drawing.

FERNKLOOF AREA. A.B.C.D.E.F.G.H.I.J.K.L.M.A. (1,446 HECTARES.)

From point A, which is the intersection of the northern boundary of the proposed new national road reserve and the right edge of the Rotary Way going up the mountain in a north westerly direction, along the right edge of Rotary Way for a distance of 1,352 metres to point B, which is the intersection of the right edge of Rotary Way and the western boundary of the Hermannus township.

From point B, along the township boundary in a north easterly direction for 80 metres to the township beacon C.

From C (boundary beacon), in a north easterly direction for 510 metres along the projection of the line BC to D, where D lies on the northern boundary of the township.

From D in a south easterly direction for 1,090 metres to E (boundary beacon), along the northern boundary of the Hermannus township and following this boundary for 3,670 metres eastwards to F (boundary beacon), then 1,100 metres along the boundary north eastwards to G (boundary beacon), then 1,735 metres along the boundary north eastwards to H (boundary beacon), then 2,090 metres along the boundary eastwards to I (boundary beacon), then 1,110 metres southwards along the boundary to J (boundary beacon), then 2,870 metres south westwards along the boundary to K (boundary beacon), then 880 metres southwards along the boundary to L (boundary beacon) on the eastern boundary of the Hermannus township.

From beacon L along the township's eastern boundary for a distance of 250 metres in a south westerly direction to the intersection of the northern boundary of the proposed new national road reserve.

From point M along the northern edge of the national road reserve for a distance of 8,600 metres to point A.

FORESHORE AREA 2. N.O.P.Q.N. (46 HECTARES.)

From point N which is the intersection of the high water mark and the straight line joining the southern edges of the 40 ft. road reserves between 14th Street in Messel River West and 11th Street in Veëliklip, eastwards for a distance of 20 metres to O, the western edge of the 40 ft. road reserve.

From O eastwards along the southerly edges of the 40 ft. road reserves facing the sea of the foreshore properties for a distance of approximately 2.5 kilometres to point P, which is the intersection of the southern edge

- 2 -

of the 40 ft. road reserve of 11th Street and the eastern boundary of the Hermanus township.

From point P along the eastern boundary of Hermanus township in a south westerly direction for 470 metres to Q, the high water mark.

From Q in a north westerly direction for a distance of approximately 2.5 kilometres along the high water mark line to R.

FORESHORE AREA 3. R-S-T-U-R. (14 HECTARES.)

From point R, which is the intersection point between the high water mark and a straight line joining the southern edges of the 40 ft. road reserves between 14th Street in Mossel River West and 11th Street in Yeuiklip, along the high water mark line westwards for approximately 1.7 kilometres to point S, which is the intersection point between the high water mark and the eastern edge of the 40 ft. road reserve of the Golf Club road.

From point S in a north easterly direction for 120 metres along the eastern edge of the 40 ft. road reserve to point T, the intersection point with the southern edge of the 40 ft. road reserve of the foreshore plots.

From point T along the southerly edge of the 40 ft. road reserves of the foreshore plots for 1.6 kilometres to point U, the eastern extremity of the 40 ft. road reserve in the Mossel River West area.

From point U in a south easterly direction for 90 metres along line UQ to point R.

FORESHORE AREA 4. V-W-X-Y-V. (12 HECTARES.)

From point V, which is the intersection of the extension of the eastern boundary of erf 396 in Westcliff with the high water mark, along the high water mark line westwards for a distance of approximately 1.5 kilometres to point W, which is the intersection point of the high water mark with the eastern edge of Stil Street produced into the sea.

From point W along the eastern edge of Stil Street reserve produced in a north westerly direction for 90 metres to point X, which is the intersection point of this line with the southern edge of the 40 ft. road reserve on the seaward side of the foreshore plots.

From point X in an easterly direction for approximately 1.5 kilometres along the seaward edge of the 40 ft. road reserve of the foreshore plots to Y, which is the intersection of the 40 ft. road reserve to the south of plot 396 and the eastern boundary of plot 396 extended to the sea.

From point Y in a southerly direction for 30 metres to point V.

3/....

- 3 -

HEY'S KOPPIE AREA. Aa, Ab, Ac, Ad, Ae. (6 HECTARES.)

From point Aa, the south eastern corner of erf 722 in a north westerly direction for 295 metres along the northern boundaries of erven 722, 721 and 720 to Ab, the northern corner of erf 720.

From Ab along the eastern edge of the 50 ft. road reserve of Eighth Avenue in a northerly direction for 170 metres to Ac, where it intersects the southerly edge of the 50 ft. road reserve of Mountain Drive.

From Ac, along the inner edge of the road going round Hey's Koppie in a clockwise route for 310 metres in a southerly direction to Ad, which is the intersection point of the western edge of the 60 ft. Lord Roberts Road reserve with the southern edge of erf 722 produced in a north easterly direction.

From Ad for a distance of 120 metres in a south westerly direction along the southern boundary of erf 722 produced back to Aa.

ARBORETUM AREA 5. E, a, b, c, d, e, f, G, O, N, H. (9 HECTARES.)

Note: For definition of points E, N, O. refer to Foreshore Area 2 description.

From point E in a northerly direction for a distance of 320 metres along the right inner bank of the Mossel River, being the eastern boundary of erf 1617, to point a on the north edge of the bridge road reserve.

From point 'a' in a westerly direction along the road reserve edge for 40 metres to point 'b', the eastern edge of the 40 ft. road reserve on the eastern side of erf 1630.

From point 'b' in a northerly direction for 210 metres along the eastern edge of the road reserve to point 'c', the southern edge of the 40 ft. road reserve of Arc Street.

From point 'c' along the southern edge of the 40 ft. road reserve of Arc Street in a north easterly direction for 210 metres along the southern edge of the 40 ft. road reserve for Arc Street to point 'd', the most easterly corner of the road reserves.

From point 'd' in a north easterly direction for a distance of 750 metres to point 'e', a beacon on the south eastern corner of the existing Fernkloof Nature Reserve.

4/....

- 4 -

From point 'e' in a south easterly direction for 120 metres along the former boundary line as shown to point 'f', being the intersection with the 40 ft. road reserve of erf 4030 boundary line extended northwards.

From point 'f' in a south westerly direction for 480 metres along the 40 ft. road reserve boundary line to 'g', and then a further 540 metres in a southerly direction along the western edge of the 40 ft. road reserve of the most westerly plots in Voëlklip to points O, N and R, it being noted that from the above area the road reserve allocated to the main road going to 7th Street must be deducted.



PROVINSIALE ADMINISTRASIE VAN DIE KAAP DIE GOEIE HOOP
PROVINCIAL ADMINISTRATION OF THE CAPE OF GOOD HOPE

TELEFON : 45-0010.
TELEPHONE

DEPARTEMENT VAN NATUURBEWARING
DEPARTMENT OF NATURE CONSERVATION

TELEGRAMME : 1 NATOUR
TELEGRAPHY ADDRESS
IN REPLY QUOTE: TONYVA DA

ADRES: POBOS 829, PRAPATA
P.O. ADDRESS: P.O. BOX 829, CAPE TOWN

AN 213/5/4/1

11-5-1971

The Town Clerk,
P.O. Box 10,
HERMANUS

Dear Sir,

PROPOSED ESTABLISHMENT OF ADDITIONAL NATURE RESERVES
AT HERMANUS.

Following your application dated 29th September, 1970, for the establishment of additional nature reserves, and my recent inspection of the areas proposed, I would urge your Council to proceed with enlarging the Fernkloof nature reserve by the incorporation of the additional land (area No. 1) adjacent to the existing reserve, and situated on the mountain side of the proposed new coastal road.

With the rapid development taking place generally, it is considered essential that areas of unspoilt nature be set aside timeously as nature conservation areas. From my inspection, I am satisfied that area No. 1 is unique for conservation. The initial expenditure would mainly be in respect of clearing alien vegetation, and essential services such as fire control, including controlled burning. The actual development of the area can be extended over a long period as funds and labour permit from time to time. I therefore do not think that the Council need be unduly worried about the additional financial commitments which this project would entail. I enclose a form to be used when formally applying in terms of Section 24 of Ordinance 24 of 1965, as amended.

As far as areas 2, 3, 4 and 5 are concerned, I am of the opinion that, whilst they are without doubt invaluable additions to Hermanus for outdoor recreational purposes, they can hardly be regarded as falling within the concept of a nature reserve proper. They should rather be regarded as recreational areas and open space. It is felt to be in the interest of both the local residents and the visitors that these areas be retained as such in perpetuity, but their protection could be sought by order of the Council, declaring them nature reserves.

I am, Sir, very respectfully,
Yours faithfully,

W. J. van der Merwe,

Date: 2-2 71
File: AN.213/6/4/1.
Dept. of Nature Conservation.
Ext.: 0211.
MR. F.D. CONRADIE, M.R.C.

THE ADMINISTRATOR.

HERMANUS: ESTABLISHMENT OF A NATURE RESERVE.

I support the attached draft resolution.

PROVINCIAL SECRETARY.

THE PROVINCIAL SECRETARY.

1. The matter for consideration is the extension of the Fernkloof Nature Reserve in the Hermanus municipal area.
2. In terms of Executive Committee Minute No. 2876 of the 12th November, 1957, a nature reserve was established on a portion of the Hermanus municipal commonage in terms of the Nature Reserves Ordinance, 1939 (Ordinance No. 18 of 1939). Proclamation No. 182 of the 22nd November, 1957, was promulgated to give the reserve legal status.
3. On the 25th January, 1962, the Executive Committee, by virtue of Minute No. 287, granted authority for the extension of the nature reserve.
4. In letters dated the 29th September, 1970, and the 22nd July, 1971, the Hermanus Municipality applied for further extensions to the nature reserve.
5. I have personally inspected the proposed area and found it to be unique for conservation purposes. It includes a representative area of unspoiled natural veld typical of the Southern Cape. In view of this, and, in view of the rapid development that

21 28/9

-2-

is at present taking place it is considered essential that unspoiled areas such as this should be set aside (temporarily as a nature conservation area.

The Hermanus Municipality is very nature conservation conscious as is evident from the excellent work which has already been done in the existing reserve. I therefore have no hesitation in supporting their request to enlarge and consolidate the existing reserve to form an ecological entity.

6. In terms of Section 54(1)(a)(ii) the Administrator may establish a nature reserve on land owned by a local authority.

7. As Proclamation No. 182 of the 22nd November, 1957, did not describe the boundaries of the Nature Reserve or assign a name thereto it is felt desirable to repeal this proclamation and issue a new proclamation which includes these provisions, and also describes the boundaries of the nature reserve including the proposed extensions.

8. I support the adoption of the attached draft resolution.

NP DIRECTOR OF NATURE CONSERVATION.
E2-9-1971

RMB/CS.

CSW
2-9-71

RMB
2/9/71

PROKLAMASIE

DEUR DIE ADMINISTRATEUR VAN DIE PROVINSIE DIE KAAP DIE GOEIE HOOP

No. 391, 1971

MUNISIPALITEIT HERMANUS: STIGTING VAN NATUURTUIN

Kragtens artikel 54 (1) (a) (ii) van die Ordinance op Plaatsbewaring, 1965 (Ordinance 26 van 1965), stig ek hierby 'n natuurtuin in die munisipale gebied Hermanus, wys ek hierby die naam "Fernkloof-Natuurtoin" daaraan toe en maaktyd ek hierby die grense daarvan wies in die Bylae hiervan uiteengeset.

Proklamasie 182 van 22 November 1957 word hierby herroep.

Gedaatse in Kaapstad op heide die 14de dag van September 1971.

A. H. VOSLOO, ADMINISTRATEUR

BYLAE

Omskrywing van grense

Vanaf punt A wat die kruispunt is van die noordelike grens van die voorgestelde nuwe nasionale padreserwe en die regterkant van die Rotary Way wat in die berg op gaan in 'n noord-weslike rigting, langs die regterkant van Rotary Way vir 'n afstand van 1 332 meter tot by punt B wat die kruispunt is van die regterkant van Rotary Way en die westelike grens van die Hermanusdorpgebied. Vanaf punt B, langs die dorpgebiedgrens in 'n noord-oostelike rigting vir 'n afstand van 80 meter tot by die dorpgebiedbeaken C. Vanaf C (grensbaken) in 'n noord-oostelike rigting vir 'n afstand van 510 meter langs die verlenging van die lyn BC tot by D, waar D op die noordelike grens van die dorpgebied gelyk is. Vanaf D in 'n suid-oostelike rigting vir 'n afstand van 1 090 meter tot by E (grensbaken), langs die noordelike grens van die Hermanusdorpgebied en met hierdie grens langs vir 'n afstand van 3 670 meter ooswaarts tot by F (grensbaken), daarvandaan 1 100 meter langs die grens noord-ooswaarts tot by G (grensbaken), daarvandaan 1 735 meter langs die grens noord-ooswaarts tot by H (grensbaken) daarvandaan 2 090 meter langs die grens ooswaarts tot by I (grensbaken) daarvandaan 1 110 meter suidwaarts langs die grens tot by J (grensbaken) daarvandaan 2 870 meter suid-ooswaarts langs die grens tot by K (grensbaken), daarvandaan 880 meter suidwaarts langs die grens tot by L (grensbaken) op die oostelike grens van die Hermanusdorpgebied. Vanaf beaken L langs die dorpgebied se oostelike grens vir 'n afstand van 230 meter in 'n suid-weslike rigting tot by die kruispunt van die noordelike grens van die voorgestelde nuwe nasionale padreserwe. Vanaf punt M langs die noordelike kant van die nasionale padreserwe vir 'n afstand van 8 600 meter tot by punt A.

PROCLAMATION

BY THE ADMINISTRATOR OF THE PROVINCE OF THE CAPE OF GOOD HOPE

No. 391, 1971

HERMANUS MUNICIPALITY: ESTABLISHMENT OF NATURE RESERVE

Under section 54 (1) (a) (ii) of the Nature Conservation Ordinance, 1965 (Ordinance 26 of 1965) I hereby establish a nature reserve in the municipal area of Hermanus, assign the name "Fernkloof Nature Reserve" thereto and define the boundaries thereof as set out in the Schedule hereto.

Proclamation 182 of 22 November 1957 is hereby repealed.

Dated at Cape Town this 14th day of September 1971.

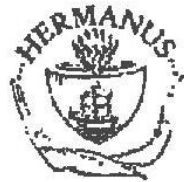
A. H. VOSLOO, ADMINISTRATOR

SCHEDULE

Description of boundaries

From point A which is the intersection of the northern boundary of the proposed new national road reserve and the right edge of the Rotary Way going up the mountain in a north-westerly direction, along the right edge of Rotary Way for a distance of 1 332 metres to point B which is the intersection of the right edge of Rotary Way and the western boundary of the Hermanus township. From point B, along the township boundary in a north-easterly direction for a distance of 80 metres to the township beacon C. From C (boundary beacon), in a north-easterly direction for a distance of 510 metres along the prolongation of the line BC to D, where D lies on the northern boundary of the township. From D in a south-easterly direction for a distance of 1 090 metres to E (boundary beacon), along the northern boundary of the Hermanus township and following this boundary for a distance of 3 670 metres eastwards to F (boundary beacon), thence 1 100 metres along the boundary north-eastwards to G (boundary beacon), thence 1 735 metres along the boundary north-eastwards to H (boundary beacon), thence 2 090 metres along the boundary eastwards to I (boundary beacon), thence 1 110 metres southwards along the boundary to J (boundary beacon), thence 2 870 metres south-westwards along the boundary to K (boundary beacon), thence 880 metres southwards along the boundary to L (boundary beacon) on the eastern boundary of the Hermanus township. From beacon L along the township's eastern boundary for a distance of 230 metres in a south-westerly direction to the intersection of the northern boundary of the proposed new national road reserve. From point M along the northern edge of the national road reserve for a distance of 8 600 metres to point A.

ISIPALITIT



MUNICIPALITY

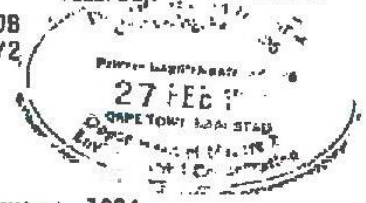
P.O. BOX 20
POSBUS
HERMANUS 7200

In reply please quote Ref. No.
Meld asb. in u antwoord Voor. No.:

CS/JB
F/3/2

TELEPHONE -02831-21122
TELEFOON

Enquiries
Navres Mr Sim



22nd February, 1984

The Director
Department of Nature & Environmental Conservation
Private Bag X9086
CAPE TOWN
8000

For attention Dr J. Neethling, *JN*

27-2-84

Dear Sir,

EXTENSION OF FERNKLOOF NATURE RESERVE

The Fernkloof Advisory Board have requested the Council to include "Hoy's Koppie" and the Mossel River Valley in the proclaimed area of Fernkloof Nature Reserve. As you probably know Fernkloof was enlarged in 1971 to include most of the mountain range to the north of Hermanus.

I have gone back through the archives of the municipality and it appears that the Council had previously requested that both the area known as "Hoy's Koppie" and the Mossel River Valley should be incorporated into the Fernkloof Nature Reserve. This request was refused by your department.

I notice that during 1971 the municipality received an official application form from you which had to be filled in before the proclamation of the enlarged area could be considered. Before undertaking detailed investigations into the actual areas which it is now proposed be incorporated into the reserve I feel that a lot of time and trouble could possibly be saved if your department could indicate whether, in principle, it is in favour of these two areas now being incorporated into the proclaimed area of the reserve. The Fernkloof Advisory Board has also requested the Council to have a survey undertaken of the southern boundaries of the reserve when the present Extension 9, which is a township situated to the north of the existing Golf course, is surveyed and ready for development. This will probably happen during the latter half of 1984 or early in 1985. If we could therefore have some indication of whether the incorporation of "Hoy's Koppie" and the Mossel River Valley are acceptable to you for incorporation into the reserve they can also be properly surveyed at the same time. The Fernkloof Advisory Board is also requesting the Council to enlarge the present reserve towards the eastern boundary of Hermanus at the foot of the mountain known as Glen Varlach. When your views about enlarging the present proclaimed area are known, more detailed sketch plans can be drawn up for scrutiny purpose. In the interim a sketch plan showing most of the municipal area of Hermanus, is attached, and on which the two areas now to be investigated are shown in Red

Your kind assistance in this matter will be very much appreciated.

Yours faithfully,

[Signature]
TOWN CLERK

Die brief sal in die ander taal(s) ook a gestuur word indien u dit binne twee dae na die briedatums hierbo skriftlik verzoek.
If desired a similar letter in the other language will be sent to you on your written request made within seven days of the date of this letter.

P.N. 667 / 1979

28 September 1979

The Administrator has approved the subjoined by-law framed by the Municipal Council of Hermanus.

**HERMANUS MUNICIPALITY: BY-LAW RELATING TO THE ADVISORY BOARD
FOR THE FERNKLOOF NATURE RESERVE**

1. In this by-law, unless inconsistent with the context-

“Advisory Board” means the Advisory Board appointed by the Council in terms of section 8 (1) of the Nature and Environmental Conservation Ordinance, 19 of 1974;

“Council” means the Municipal Council of Hermanus;

“Councillor” means a member of the Council, and

“first meeting” means the first meeting after all the members of the Advisory Board have been appointed, whether such appointment be the first appointment of the members to an Advisory Board or an appointment in terms of section 3(2).

2. The Advisory Board shall consist of not less than seven or more than nine members, at least four of whom shall be appointed by the Council and three by the Administrator of the Cape Province.

3. (1) Members of the Advisory Board shall hold office for a period of three years. A vacancy occurring on the Advisory Board during such period shall be filled in the manner prescribed by section 2 and the person thus appointed shall hold office for the unexpired period of office of his predecessor.

(2) The Administrator and the Council shall within 3 months of the expiration of the term of office of members of the Advisory Board appoint new members in the manner prescribed by section 2.

4. (1) The Advisory Board shall elect a Chairman and a Vice-Chairman for the term of office of the members of the Advisory Board at the first meeting of the Advisory Board and as often as the office of Chairman or Vice-Chairman shall become vacant. If both the Chairman and Vice-Chairman of the Advisory Board are not present at any meeting, the members of the Advisory Board present shall elect one of their number to act as Chairman for that meeting.

(2) The Council shall appoint a person, not being a member of the Advisory Board, to be the Secretary to the Advisory Board. Should the Secretary or his substitute not be present at any meeting, the members of the Advisory Board present shall elect one of their number to act as Chairman for that meeting.

5. The Secretary shall keep the minutes of every meeting of the Advisory Board in a book set aside for that purpose and such minutes shall be submitted by the Secretary for confirmation at the next Advisory Board meeting and, if confirmed, shall be signed by the person presiding thereat.

6. (1) The Advisory Board shall hold such meetings as it may deem fit and may adjourn a meeting from time to time, provided that it shall meet at least once every 3 months. The Advisory Board shall control and regulate its meetings in such a manner as it may deem fit.

(2) All questions before a meeting of the Advisory Board shall be decided by a majority of the members voting thereat and in the event of an equality of votes the chairman shall have a casting vote in addition to his deliberative vote.

(3) The first meeting of the Advisory Board shall be held at a date, hour and place fixed by the Town Clerk, but not later than one month after the appointment of all members of the Advisory Board.

(4) The Secretary shall at least 7 days before a meeting of the Advisory Board notify all members of the place, date and hour of such meeting.

7. (1) Three members, of the Advisory Board, at least one of whom shall be a member appointed by the Administrator, shall form a quorum, and no business shall be transacted unless a quorum is present.

(2) Whenever the Council is of the opinion that there are urgent matters which require the attention of the Advisory Board, the Council may instruct the Secretary to convene a special meeting of the Advisory Board; alternatively, the Secretary shall convene a special meeting of the Advisory Board if so requested by at least three members of the Advisory Board.

8. A member of the Advisory Board who is absent without leave of the Advisory Board from 3 consecutive meetings of the Advisory Board shall cease to be a member of the Advisory Board unless the Advisory Board at the following meeting condones such absence; provided that such person may be re-appointed to be a member of the Advisory Board.

9. A member of the Advisory Board who is also a Councillor shall on ceasing to be a Councillor, cease to be a member of the Advisory Board; provided that such person may be re-appointed to be a member of the Advisory Board.

10. A member of the Advisory Board who desires to resign there-from shall lodge his resignation in writing with the Secretary of the Advisory Board.

11. The Advisory Board shall be entitled to appoint from amongst its members such committees as it may deem desirable to assist it.

12. This by-law promulgated under Provincial Notice 245 dated 10 March 1961 is hereby repealed.

NBD