



# INTEGRATED MANAGEMENT PLAN FOR THE FERNKLOOF NATURE RESERVE, HERMANUS



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## TABLE OF CONTENTS

	PAGE
<b>AUTHORISATION PAGE.....</b>	<b>i</b>
<b>LIST OF TABLES .....</b>	<b>iv</b>
<b>LIST OF FIGURES.....</b>	<b>iv</b>
<b>DEFINITIONS AND / OR EXPLANATIONS OF TERMS.....</b>	<b>v</b>
<b>LIST OF ABBREVIATIONS .....</b>	<b>x</b>
<b>SECTION A: SIGNIFICANCE AND PURPOSE OF THE FERNKLOOF NATURE RESERVE .....</b>	<b>1</b>
A.1. Significance of the Fernkloof Nature Reserve .....	1
A.1.1. International Context.....	1
A.1.2 National / Regional Context.....	1
A.1.3 Local Context.....	2
A.2 Purpose of the Fernkloof Nature Reserve .....	2
A.3. Need for an IMP for the Fernkloof Nature Reserve .....	3
A.4 The Public Participation Process.....	3
<b>SECTION B: ADMINISTRATIVE AND LEGAL FRAMEWORK .....</b>	<b>4</b>
B.1 Institutional Arrangements .....	4
B.2 Legislation Guiding the Administration of the Fernkloof Nature Reserve .....	4
B.3 Declaration Status of the Fernkloof Nature Reserve .....	5
B.4 Regional Planning Context.....	5
B.5 Local Agreements, Leases, Servitude Arrangements and MoU's.....	6
B.6 Broadening Conservation Land Use Management in Areas Surrounding the FNR.....	6
<b>SECTION C: DESCRIPTION OF THE FERNKLOOF NATURE RESERVE .....</b>	<b>7</b>
C.1 Location and Extent of the Fernkloof Nature Reserve .....	7
C.2 Recent History and Cultural Heritage of the FNR .....	7
C.3 Surrounding Land-Use .....	9
C.4 Climate .....	9
C.5 Local Geology and Soils .....	10
C.6 Hydrology .....	11
C.6.1 Surface Water .....	11
C.6.2 Groundwater .....	11
C.7 Vegetation .....	12
C.7.1 Overberg Sandstone Fynbos .....	13
C.7.2 Western Coastal Shale Band Vegetation .....	13
C.7.3 Hangklip Sand Fynbos .....	13
C.7.4 Agulhas Limestone Fynbos .....	13
C.7.5 Cape Lowlands Freshwater Wetlands.....	14
C.7.6 Southern Afrotropical Forest.....	14
C.7.7 Overberg Dune Strandveld.....	14
C.8 Indigenous Animals.....	15
C.8.1 Invertebrates .....	15
C.8.2 Fish.....	15
C.8.3 Reptiles and Amphibians.....	16
C.8.4 Birds .....	16
C.8.5 Mammals .....	16
C.9 Developed Infrastructure of the FNR.....	17
C.9.1 Buildings and Structures .....	17
C.9.2 Mossel River Dams .....	18
C.9.3 Nursery .....	18
C.9.4 Other Developed Infrastructure .....	18
C.9.4.1 Fencing and Access .....	18
C.9.4.2 Fernkloof Garden Area .....	19
C.9.4.3 Hiking Trails and Tracks .....	19



<b>SECTION D: VISION, MISSION AND GOALS.....</b>	<b>20</b>
D.1 Vision and Mission Statements .....	20
D.2 Goals .....	20
D.2.1 Biodiversity Management Goals.....	20
D.2.2 Coastal Area Management Goals .....	21
D.2.3 Co-operative Management Goals.....	21
D.2.4 Tourism Management Goals .....	21
D.2.5 Research and Environmental Education Goal .....	21
D.2.6 Administrative and Financial Management Goals.....	21
D.2.7 Cultural Historical Management Goals .....	21
D.2.8 Risk Management Goals .....	21
<b>SECTION E: ZONATION AND LANDUSE .....</b>	<b>22</b>
<b>SECTION F: RESERVE EXPANSION AND TOURISM DEVELOPMENT.....</b>	<b>22</b>
<b>SECTION G: MANAGEMENT POLICY FRAMEWORK.....</b>	<b>23</b>
G.1 Financial and Human Resources Management.....	23
G.1.1 Financial Management.....	23
G.1.2 Human Resources Management.....	23
G.3 Community Involvement.....	23
G.3.1 Poverty Relief Initiatives .....	24
G.3.2 Environmental Awareness and Education .....	24
G.3.4 Conservation and Neighbour Partnerships .....	24
G.3.5 Research .....	25
G.4 Security and Safety .....	26
G.5 Infrastructure.....	27
G.5.1 Built Infrastructure .....	27
G.5.2 Access Control.....	27
G.5.3 Roads, Tracks and Paths .....	28
G.5.4 Waste Management .....	28
G.5.4.1 Domestic Solid Waste.....	28
G.5.4.2 Sewage.....	28
G.5.5 Water and Energy Saving Measures.....	29
G.6 Cultural Resource Management.....	29
G.7 Natural Resource Management .....	29
G.7.1 Introduction .....	29
G.7.2 Wildlife Management.....	30
G.7.3 Fishery Management .....	31
G.7.4 Invasive Species Management .....	31
G.7.4.1 Plants .....	31
(i) Alien Plant Introductions .....	31
(ii) Existing non-invasive alien plants .....	31
(iii) Declared alien weeds and invasive plants.....	32
G.7.4.2 Animals.....	32
(i) Alien Animals Present in the Nature Reserve .....	32
(ii) Alien Animal Introductions .....	32
(iii) Problem Animal Management.....	32
G.7.5 Fire Management.....	33
G.7.6 Catchment Management.....	33
G.7.7 Coastal Zone Management .....	34
G.7.8 Soil Erosion and Control .....	34
G.8 Natural Resource Utilisation .....	35
G.8.1 Plants and Animals .....	35
G.8.2 Bioprospecting .....	35
G.8.3 Abiotic Resources .....	35
G.9 Control over Illegal Use of Natural Resources.....	355
G.10 Monitoring and Evaluation.....	36
<b>SECTION H: AUDITING.....</b>	<b>37</b>
H.1 Auditing of the Integrated Management Plan.....	37
<b>SECTION I: IMP REVIEW AND AMENDMENT PROCEDURES.....</b>	<b>39</b>
I.1 Requirements for Effective Implementation.....	39

I.1.2 Document Control .....	39
I.2 Requirements for Continual Improvement.....	39
I.2.1 Management and Document Review .....	39
<b>SECTION J: LIST OF ACTIONS CORRELATED WITH MANAGEMENT GOALS .....</b>	<b>40</b>
<b>SECTION K: ACKNOWLEDGEMENTS .....</b>	<b>46</b>
<b>SECTION L: TABLES.....</b>	<b>47</b>

## LIST OF TABLES

<b>Table 1:</b>	Vegetation Types of the current FNR
<b>Table 2:</b>	Applicable Legislation: Biodiversity and Cultural Resource Management and Development
<b>Table 3:</b>	Applicable Legislation: General Reserve Management
<b>Table 4:</b>	Applicable Legislation: Financial and Human Resource Management
<b>Table 5:</b>	Erven included in the full extent of the FNR
<b>Table 6:</b>	Management Units and Parameters

## LIST OF FIGURES

<b>Figure 1:</b>	Regional Locality Map
<b>Figure 2:</b>	Local Context Map
<b>Figure 3:</b>	The average weather in Hermanus (in text)
<b>Figure 4:</b>	Management Units Map

## DEFINITIONS AND / OR EXPLANATIONS OF TERMS

### **Alien Species:**

Means species (plants or animals) which are not indigenous to the Fernkloof Nature Reserve (FNR) and the surrounding area, including hybrids and genetically altered organisms.

### **Biodiversity / Biological Diversity:<sup>1</sup>**

Biological diversity or Biodiversity is the variety of life around us - life of all kinds, from the largest animal to the smallest plant. Its complexity is measured in terms of variations at genetic, species, and ecosystem levels.

Biodiversity plays a critical role in meeting human needs directly while maintaining the ecological processes upon which our survival depends. Biodiversity is the biological and social capital which supports all our lives. It is vital for our survival and is a key measure of the health of our planet. The Western Cape's biodiversity is in a constant state of flux as it responds to natural forces and human activity. Our biodiversity and vast natural resources are under threat from global warming, pollution and escalating development.

Biodiversity is concerned with the kind of world, and the kind of land, that we want to live in and to pass on to our children and grandchildren.

### **Bioprospecting:**

In relation to indigenous biological resources, means any research on, or development or application of, indigenous biological resources for commercial or industrial exploitation, and includes –

The systematic search, collection or gathering of such resources or making extractions from such resources for purposes of such research, development or application (as per the National Environmental Management Biodiversity Act, 2004 [Act No. 10 of 2004] [NEM:BA]).

### **Buffer Zone:**

Means an area surrounding the FNR, either in State control or private land, where collaborative projects and programmes are undertaken to afford additional protection to the FNR.

### **Coastal Zone:**

The Coastal Zone, as defined by the Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) (NEM:ICMA), is the area comprising coastal public property (mainly Admiralty Reserve and land below the High-Water Mark), the coastal protection zone (an area along the inland edge of coastal public property), coastal access land (which the public may use to gain access to coastal public property), special management areas, 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 area.

### **Consent Use:**

Means a land use permitted in terms of a particular zoning with the approval of the Municipality.

### **Conservancy:**

A conservancy constitutes a voluntary agreement between landowners and the provincial government (CapeNature) to manage the environment in a sustainable manner. This is achieved by means of environmental management plans, ecological auditing, co-operation and dedication to the conservation of nature on private land.

The participants form an organisation that is bound by a constitution, with a set of guidelines drawn up by their representatives, and that is registered with CapeNature.

<sup>1</sup> Reference: <http://www.CapeNature.co.za>. Accessed 15 June 2012.

## **Cultural Heritage:**

As defined in 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 [outstanding universal] 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 this Integrated Management Plan (IMP), 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.

## **Development:<sup>2</sup>**

"Development" means any physical intervention, excavation or action, other than that caused by natural forces, which may result in a change in 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 topsoil.

## **Eco-cultural Tourism:**

Means the travel to natural areas to learn about the way of life and cultural history of people, the natural history of the environment, while taking care not to change the environment and contributing to the economic welfare of the local people.

## **Eco-tourism:**

Means responsible travel to natural areas that conserves the environment and improves the well-being of local people<sup>3</sup>

## **Ecosystem:**

Means a dynamic complex of animal, plant and micro-organism communities and their non-living environment interacting as a functional unit (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003] [NEM:PAA]).

## **Ecosystem Services:**

As defined in Section 1 of the NEM:PAA as “environmental goods and services” meaning:

- 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 such as benefits of a spiritual, recreational, aesthetic, inspirational, educational, community and symbolic nature;”

For the purposes of this IMP, sustainable water production is also specifically included under this definition.

## **Endemic:**

Plants endemic to a region are species found in that region and nowhere else on earth.

<sup>2</sup> **Reference:** Government Notice No. R. 99 of 8 February 2012: NEM:PAA Regulations for the Proper Administration of Nature Reserves

<sup>3</sup> **Reference:** <http://www.ecotourism.org/book/ecotourism-definition>. Accessed 27 June 2012.

**Environment:**

“Environment” (as defined in NEMA, (Act 107 of 1998)) 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-being”.

**Fire Control Belt:**

A fire control belt is an area that is cleared (brushcut) in order to provide access for vehicles and equipment in order to contain the spread of wildfires and to implement controlled “back burns”.

**Goals:**

Goals are present, measurable aims, which need to be implemented in the short-term, in order to achieve the Mission of the IMP, as well as the longer-term Vision of the FNR.

**Indigenous Species:**

Means a species (plant or animal) that occurs, or has historically occurred, naturally in a free state in nature within the borders of South Africa, but excludes a species that has been introduced into South Africa as a result of human activity (as per the NEM:BA).

**Keystone Species:**

A keystone species is a plant or animal that plays a unique and crucial role in the way an ecosystem functions. Without keystone species, the ecosystem would be dramatically different or cease to exist altogether.

All species in an ecosystem, or habitat, rely on each other. The contributions of a keystone species are large compared to the species' prevalence in the habitat. A small number of keystone species can have a huge impact on the environment.<sup>4</sup>

**Local Authority Nature Reserve:**

Means a Nature Reserve or protected environment managed by a Municipality (as per the definition of a “local Protected Area” in the NEM:PAA).

**Local Community:**

Means any community of people living or having rights or interests in a distinct geographical area (as per the NEM:PAA).

**Management:**

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 National Environmental Management Biodiversity Act, 2004 (as per the NEM:PAA).

**Management Unit:**

Parcel of land or area managed according to specific regulations or parameters.

**MEC:**

“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 IMP text will refer to the MEC).

**Minister:**

“Minister” means the National Cabinet member responsible for national environmental management.

**Monitoring:**

<sup>4</sup> Reference: [http://education.nationalgeographic.com/education/encyclopedia/keystone-species/?ar\\_a=1](http://education.nationalgeographic.com/education/encyclopedia/keystone-species/?ar_a=1). Accessed 5 March 2014.



Monitoring can be described as the regular, repeatable measurement of natural resources (e.g. the condition of the veld, populations of specific plant or animal species, soil erosion, water quality), and the evaluation of these measurements in terms of management goals.

**Municipality:**

Means: Overstrand Municipality.

**Nature Conservation:**

Means the conservation of naturally occurring ecological systems, the sustainable utilisation of indigenous plants and animals therein, and the promotion and maintenance of biological diversity.

**Nature Reserve:**

Means Fernkloof Nature Reserve.

**Neighbouring Community:**

Means the communities and people living on the properties directly adjacent to the Nature Reserve.

**Natural Heritage:**

As defined in Article 2 of the World Heritage Convention Act, 49 of 1999: “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 outstanding universal 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”.

**Open Access Protected Area (adapted from NEM:PAA):**

Means a Nature Reserve which can be entered and traversed by any means where the entry to such Nature Reserve is not restricted or controlled by any access point or a gate;

**Partnership/s:**

Means a co-operative and/or collaborative arrangement between the FNR and/or the Overstrand Municipality, and/or a third party that supports the achievement of the FNR’s management goals.

**Primary Land Use:**

The use of a property for any purposes specified as a primary use in a land use scheme for that property is permitted without the consent of council, provided that such use conforms to the provisions specified in the particular zone, overlay zone where applicable and definitions in the land use scheme.

**Protected Area:**

Means any of the Protected Areas referred to in Section 9 of the NEM:PAA.

**Public Open Space 1 (OS1):**

Is classified as Nature Reserve with the primary use as nature reserve or conservation.

**Reserve:**

Means Fernkloof Nature Reserve.

**Stakeholders / Interested Parties:**

These are interested individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public.

According to the NEM:BA, “stakeholder” means a person, an organ of state or a community contemplated in Section 82 (1) (a), or an indigenous community contemplated in Section 82(1) (b) of the NEM:BA.

**Sustainable:**

As defined in the NEM:BA, “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 people.

Linked with the word “development”, “sustainable” also means prudent use, long-term thinking, and stewardship.<sup>5</sup>

### **Sustainable Development:<sup>6</sup>**

The term “sustainable development” can be defined as the process through which current and future generations realise their human potential, whilst maintaining diverse, healthy and productive ecosystems, and minimising harm to other life-forms. Sustainable development is not only about ecology or economics, it includes the social, cultural and governance dimensions as well.

The NEMA defines “sustainable development” as “the integration of social, economic and environmental factors into planning, implementation and decision making so as to ensure that development serves present and future generations”.

Any future development of the FNR must be socially, environmentally and economically sustainable, i.e. meet the “**triple bottom line**” criteria for development. Sustainable development of the FNR requires the consideration of all relevant factors including the following:

- a) that the disturbance of ecosystems (and loss of biological diversity) is avoided, or where it cannot be altogether avoided, is minimised and remedied;
- b) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- c) that the disturbance of landscapes and any cultural sites on the FNR is avoided, or where it cannot be altogether avoided, is minimised and remedied;
- d) that 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;
- e) that 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;
- f) that 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;
- g) that a risk-averse and cautious approach is applied (also called the Precautionary Approach) to the general management of the FNR, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
- h) 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.

### **Zoning and Land Use Zones:**

All properties within the municipal area shall be allocated a zone, as listed in this land use scheme, for the purpose of managing land use, the use of buildings and the extent of development.

### **Vision and Mission of the FNR:**

The vision should take the form of a long-term inspirational statement. The Mission is a more objective statement of what needs to be achieved, as described in the Integrated Management Plan (IMP) of the FNR. It is envisaged that this IMP will be revised every 5 years into perpetuity.

<sup>5</sup> **Reference:** Adapted from the NEMA, and from: Glavovic, B. 2000. Our Coast, Our Future. A New Approach to Coastal Management in South Africa. Common Ground Consulting. For the Department of Environmental Affairs and Tourism, Pretoria. 134 p.

<sup>6</sup> **Reference:** Adapted from the NEMA, and from: Glavovic, B. 2000. Our Coast, Our Future. A New Approach to Coastal Management in South Africa. Common Ground Consulting. For the Department of Environmental Affairs and Tourism, Pretoria. 134 p.

## LIST OF ABBREVIATIONS

Annual Hermanus Camp	AHC
Annual Plan of Operations	APOs
Cape Action Plan for People and the Environment	CAPE
Conceptual Development Plan	CDP
National Department: Environmental Affairs	DEA
Cliff Path Management Group	CPMG
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	CARA
Custodians of Rare and Endangered Wild Flowers (SANBI)	CREW
Department of Environmental Affairs	DEA
Department Environmental Affairs and Development Planning	DEA&DP
Department of Water and Sanitation	DWS
Overstrand Environmental Management Framework	EMF
Environmental Assessment Practitioner	EAP
Environmental Control Officer	ECO
Environmental Impact Assessment	EIA
Environmental Management Plan	EMP
Municipal Environmental Management Section	EMS
Expanded Public Works Programme	EPWP
Fernkloof (Nature Reserve) Advisory Board	FAB
Fernkloof Nature Reserve	FNR
Fire Danger Index	FDI
Fire Protection Association (refers to the Greater Overberg Fire Protection Association)	FPA
Global Environmental Facility	GEF
Global Invasive Species Programme	GISP
Heritage Western Cape	HWC
Hermanus Botanical Society	HBS
Interested and Affected Party	I&AP
Integrated Development Plan	IDP
Integrated Management Plan	IMP
Land Use Planning Ordinance, (Ordinance 15 of 1985)	LUPO
The WWF/World Bank's Management Effectiveness Tracking Tool adapted for South Africa	METT – SA
Management by Objectives	MBO
Memorandum of Agreement	MoA
Management of Understanding	MoU
National Environmental Management Act, 1998 (Act No. 107 of 1998)	NEMA
National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)	NEM:ICMA
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	NEM:BA
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	NEM:WA
National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)	NEM:PAA
National Heritage Resources Act, 1999 (Act 25 of 1999)	NHRA
Non-Governmental Organisation	NGO
National Water Act, 1998 (Act No. 36 of 1998)	NWA
Provincial Spatial Development Framework	PSDF
South African Heritage Resources Agency	SAHRA
South African National Biodiversity Institute	SANBI
Spatial Development Framework	SDF
United Nations Educational, Scientific and Cultural Organization	UNESCO
United Nations Environment Programme	UNEP

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Table Mountain Group	TMG
The Nature Conservancy	TNC
Urban Dynamics Western Cape	UDWC
Withers Environmental Consultants	WEC
World Wide Fund for Nature	WWF

## SECTION A: SIGNIFICANCE AND PURPOSE OF THE FERNKLOOF NATURE RESERVE

The significance and purpose of the Fernkloof Nature Reserve (FNR), in terms of its international, national/regional, and local context, and the need for an Integrated Management Plan (IMP), are described briefly in the paragraphs below.

### A.1. Significance of the Fernkloof Nature Reserve

#### A.1.1. International Context

The FNR is located in the Cape Floral Kingdom, an area of global biodiversity significance – so much so that a number of Protected Areas within the Cape Floral Kingdom have together been awarded World Heritage Site status by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

The Cape Floral Kingdom is one of the richest areas for plants in the world. It represents less than 0.5% of Africa's surface area, yet is home to nearly 20% of the continent's flora. The Cape Floral Kingdom displays outstanding ecological and biological processes associated with the fynbos vegetation, which characterises it.<sup>7</sup>

The FNR conserves a unique combination of habitats, ecosystems and species, some of which are classified as critically endangered, endangered or vulnerable in terms of their conservation context. Several plant species are also endemic to the FNR, and to the surrounding area.

#### A.1.2 National / Regional Context

The FNR conserves and protects at least seven different vegetation types including:

- Overberg Sandstone Fynbos;
- Western Coastal Shale Band Vegetation;
- Agulhas Limestone Fynbos; (The presence of this ecosystem must be ground-truthed as the sandstones extend from the Kleinriviersberg to the Klein river estuary).
- Hangklip Sand Fynbos;
- Cape Lowland Freshwater Wetlands;
- Cape Coastal Lagoons; and
- Southern Afro-temperate Forest located in gorges and along streams.

Such vegetation types include a large diversity of habitats including coastal and estuarine areas, seasonal wetlands, rivers and man-made dams, forested gorges and spectacular waterfalls, forested rocky scree slopes, patches of Milkwood Forest, and fynbos-covered mountain slopes, which are underlain by both sandstone and shale -derived soils.

This habitat diversity translates to a staggering diversity of over 1 250 indigenous recorded plant species,<sup>8</sup> including over 65 rare/threatened (Red Data Book) species. *Erica hermani*, *Erica viscaria* subsp. *pustulata* and *Otholobium dreweae* are endemic to the FNR and/or to the surrounding Kleinriviersberge and Babilonstoring mountains.

The Hermanus Botanical Society (HBS) has established an internationally recognised herbarium on the FNR, in which specimens of the plant species recorded within the boundaries of the FNR and in the surrounding environs have been preserved.

<sup>7</sup> Reference: <http://whc.unesco.org/en/list/1007>. Accessed: 8 June 2012.

The Fynbos Biome is considered by many to be synonymous with the Cape Floral Kingdom. However, the "biome" refers only to the two key vegetation groups (Fynbos and Renosterveld) within the region, whereas the "kingdom" refers to the general geographical area and includes other vegetation types in the Forest, Nama Karoo, Succulent Karoo and Thicket Biomes. Reference: <http://www.plantzafrica.com/frames/vegfram.htm>. Accessed 14 February 2014.

<sup>8</sup> Reference: Grant Forbes, CapeNature. pers. comm. 31 May 2012



The species richness per km<sup>2</sup> within its boundaries, makes the FNR comparable with the Kogelberg Biosphere Reserve, an internationally recognised global biodiversity hotspot.

**Table 1** contains the contributions of each of the identified vegetation types towards the total habitat potential of the FNR.

The FNR provides pristine and varied habitats for many mammal, reptile, amphibian, bird and insect species. For example, Drewe's Moss Frog, *Arthroleptella drewesii*, is currently only recorded in two locations on moist, moss covered slopes of the lower Klienriviersberg and Babilonstoring Mountains.<sup>9</sup>

The abovementioned plant and animal species are offered protection in the FNR, since the Reserve provides an uninterrupted, conserved connection between mountainous and coastal/estuarine habitats, and forms a vital component of an existing east-west trending biodiversity corridor.



**Photos 1 and 2:** *Mimetes palustris* and *Erica hermani*.

### A.1.3 Local Context

The FNR surrounds and is closely integrated with, the coastal tourist town of Hermanus and contributes significantly to eco-cultural tourism in the Overstrand Municipal Area. The many well-planned and maintained footpaths within the FNR are easily accessible to the residents, visiting public and tourists from a number of access points.

The well-maintained nursery and cultivated garden area are used by the local public and by visiting tourists to buy indigenous plants, for picnics, and for relaxation. The available conference rooms are also used for holding topical public talks and exhibitions.

In addition, the coastal portion of the FNR (known as the Cliff Path) provides for scenic coastal walks and excellent land-based whale watching opportunities.

The archaeological and the more recent cultural heritage features of the Reserve are also of considerable local importance. Such elements include shell middens created by indigenous Khoekhoen people (also known as Quena) who inhabited the area 2 000 – 10 000 years ago, and the graves of Sir William and Lady Hoy on “Hoy’s Koppie”, the Annual Hermanus Camp (AHC) established in 1908 and the HBS that have been assisting with the management of the Reserve and its Herbarium since the 1950s.

## A.2 Purpose of the Fernkloof Nature Reserve

The FNR delivers important ecosystem services<sup>10</sup> and is a source of spiritual and cultural wellbeing, and outdoor recreation for the inhabitants of and visitors to Hermanus.

<sup>9</sup> Reference: <http://www.iucnredlist.org/details/58058/0> Accessed 30 July 2012.

<sup>10</sup> As defined in Section 1 of the NEM:PAA.

The purposes of a Protected Area are described in Chapter 3: Declaration of Protected Areas, Section 17 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEM:PAA), namely:

“17.(3) *The purposes of the declaration of areas as Protected Areas are—*

- (a) to protect ecologically viable areas representative of South Africa’s biological diversity and its natural landscapes and seascapes in a system of Protected Areas; (b) to preserve the ecological integrity of those areas;*
- (c) to conserve biodiversity in those areas;*
- (d) to protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;*
- (e) to protect South Africa’s threatened or rare species;*
- (f) to protect an area which is vulnerable or ecologically sensitive;*
- (g) to assist in ensuring the sustained supply of environmental goods and services;*
- (h) to provide for the sustainable use of natural and biological resources;*
- (i) to create or augment destinations for nature-based tourism;*
- (j) to manage the interrelationship between natural environmental biodiversity, human settlement and economic development;*
- (k) generally, to contribute to human, social, cultural, spiritual and economic development; or*
- (l) to rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.”*

Interpreted within our local Municipal context all the above mentioned purposes are applicable to Fernkloof Nature Reserve. In essence, this purpose captures the **triple bottom line** principle of **sustainable development**.<sup>11</sup> The **primary purpose** of managing the FNR is, however, the conservation of its unique biodiversity, and the associated ecosystem features and functions.

### A.3. Need for an IMP for the Fernkloof Nature Reserve

The compilation of a management plan is a requirement of the NEM:PAA. (2003) (refer to **Section B.2** below). This IMP entails a revision of the 2001 “*Fernkloof Nature Reserve Management Plan incorporating the Mossel River Valley, a section of the Cliff Path and Hoy’s Koppie*”.<sup>12</sup>

#### A.1.3.1 Primary Functions of an IMP

The **primary functions** of this IMP are to:

- describe all the properties to be proclaimed (refer to **Section C.1** below) and managed as a Protected Area in terms of the NEM:PAA;
- provide information with regard to the biophysical and socio-economic environments of the FNR, and of the surrounding area;
- describe the Vision, Mission and Goals of the FNR to ensure its long term viability in terms of ecological integrity and the provision of ecosystem services and eco-cultural tourism development and education; and
- guide and coordinate management towards achieving set goals.

### A.4 The Public Participation Process

Section 39(3) of the NEM:PAA states that when preparing a Management Plan for a Protected Area, the Management Authority concerned must consult Municipalities, other organs of state, local communities and other interested and affected parties (I&APs) who have, or may have, an interest in the area.

<sup>11</sup> Development must be socially, environmentally and economically sustainable, i.e. must meet the “triple bottom line” criteria for development.

<sup>12</sup> 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.

## SECTION B: ADMINISTRATIVE AND LEGAL FRAMEWORK

### B.1 Institutional Arrangements

The Overstrand Municipality<sup>13</sup> is the designated Management Authority responsible and accountable for the FNR.

The FNR Management Authority is responsible for reporting on the management of the FNR to the designated Western Cape Provincial MEC 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 those matters that may affect the FNR through the relevant Provincial Departments, District and Local Municipalities (refer to **Section H**).

**Action B.1(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).

The management of the FNR is the responsibility of the Overstrand Municipal *Environmental Management Section (EMS)*. The EMS makes reserve management and policy recommendations to the Municipal Council.

To strengthen and support the management of the FNR, partnerships or management agreements should be sought with adjacent conservation orientated landowners, and with CapeNature (refer to **Section B.5**).

This IMP is intended as a guideline in terms of actions that should be implemented to improve the management of the Nature Reserve. The actions listed in this management plan can only be achieved within the context of the existing staff structure within the EMS and within the financial capacity of the Overstrand Municipality. The Municipality can only perform basic maintenance functions and limited ecological functions with the current staff component. Whilst the management plan lists the aspirations of the management authority, the IMP can in no way be prescriptive in terms of budgetary requirements or performance standards.

### B.2 Legislation Guiding the Administration of the Fernkloof Nature Reserve

As the Management Authority of the FNR, the Overstrand Municipality must, *inter alia*, implement 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]). Note that, since the FNR is a formally 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 IMP 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 (promulgated in terms of the NEMA on 4 December 2014), and with the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM: BA).

The FNR management staff must familiarise themselves with the purpose and contents of the applicable legislation listed in **Table 2** (which may not be exhaustive), with any subsequent amendments, and with the associated Regulations that may be revised from time to time.

In addition to the legislation listed in **Table 2**, which deals primarily with Biodiversity and Cultural Resource Management and Development, the following legislation may find application with regard to general Reserve management of the FNR; to any development of buildings or infrastructure, to human resources management, and to financial management of the FNR.

<sup>13</sup> 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.

- Regulations promulgated in terms of the legislation contained in **Table 2** include but are not limited to:
  - Government Notice No. R. 99 of 8 February 2012: NEM:PAA Regulations for the Proper Administration of Nature Reserves;
  - The Western Cape's Nature and Environmental Conservation Ordinance, 1974 (Ordinance No. 19 of 1974)
  - The NEMA EIA Regulations of 4 December 2014;
  - Regulations promulgated in terms of the National Water Act 1998 (Act No. 36 of 1998) (NWA); and
  - Government Notice No. R 138 of 8 February 2008: National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) Regulations on Bioprospecting, Access and Benefit-Sharing.

Other legislation that may also find application with regard to general reserve management and financial and human resource management is included in **Tables 3** and **4** respectively.

**Action B.2(i):** The Government Notice No. R. 99 of 8 February 2012: NEM:PAA Regulations for the Proper Administration of Nature Reserves must be applied. However, bylaws for the management of the FNR promulgated in terms of the Nature and Environmental Conservation Ordinance, 1974 (Ordinance No. 19 of 1974) require updating. In particular, the existing FAB Bylaw should be amended.

### B.3 Declaration Status of the Fernkloof Nature Reserve

The FNR is a declared Protected Area in terms of Section 12 of the 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).<sup>14</sup>

As such, **the Municipality does not have to apply for the re-declaration of the Reserve** in terms of the NEM:PAA.

However, 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.

As such, once approval has been received 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 exceptional biodiversity value of the FNR as well as the landscape features of the surrounding statutory nature reserves, estuaries and coastal corridors, warrants an application to UNESCO for the declaration of the area as an extension of the Cape Floral Kingdom World Heritage Site.

**Action B.3(i):** Collaborate with the CapeNature Protected Area Expansion Programme to have the FNR included in the listing of the Cape Floral Kingdom World Heritage Site.

### B.4 Regional Planning Context

This IMP is aligned with the Overstrand Municipal Integrated Development Plan (IDP), Municipal Spatial Development Framework (SDF), the Overstrand: Towards 2050 Integrated Development Framework (IDF)<sup>15</sup> and with the Provincial SDF (PSDF).

The Reserve itself is zoned as “*Core 1*” in terms of its Municipal Spatial Planning category, to control various activities and for the achievement of various conservation objectives.

In terms of the requirements of the NEM:PAA and the Local Government: Municipal Systems Act 2000 (Act No. 32 of 2000), there should be appropriate planning alignment between the FNR and the

<sup>14</sup> 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).

<sup>15</sup> The IDF contains an Environmental Management Framework (EMF) which conforms to the requirements pertaining to EMF's of the NEMA EIA Regulations (GN No. 547 of 18 June 2010).

surrounding area which is currently reflected in the IDP, SDF, IDF and EMF documents of the Overstrand Municipality.

**Action B.4(i):** The EMS must continue to actively participate in the review processes of the Municipal IDP, SDF, IDF and EMF documents, in order to ensure the maintenance of an effective buffer zone surrounding the FNR through appropriate land-uses adjacent to the Reserve.

### **B.5 Local Agreements, Leases, Servitude Arrangements and MoU's**

A list of local agreements, leases, servitude arrangements and Memorandum of Understanding (MoU) pertaining to the FNR are available from the EMS.

The Biodiversity Conservation Manager must be familiar with the content of these documents and ensure that there is compliance with the conditions contained therein. Copies of all documentation must also be filed manually and digitally at the FNR management offices for easy reference. These copies must also be updated as and when necessary.

### **B.6 Broadening Conservation Land Use Management in Areas Surrounding the FNR**

Opportunities may arise that will enable the establishment of new formal protected areas or other conservation management areas on land bordering onto or in the vicinity of the FNR in collaboration and cooperation with CapeNature and/or with the surrounding private landowners. Directly and indirectly, new tourism opportunities could thus develop with the resulting socio-economic benefits (refer to **Section F**).



## SECTION C: DESCRIPTION OF THE FERNKLOOF NATURE RESERVE

### C.1 Location and Extent of the Fernkloof Nature Reserve

The FNR is located directly adjacent to the picturesque town of Hermanus, the centre of the jurisdiction area of the Overstrand Municipality, which forms part of the Overberg District Municipality in the Western Cape Province (**Figure 1**).

The main body of the FNR is made up of a mountainous area (westernmost parts of the Kleinriviersberge mountain range), which directly abuts the urban edge of Hermanus, with no agricultural land or vacant erven in between.

The FNR also includes fragmented land parcels (of heritage and/or cultural and/or biodiversity importance) namely:

- “Hoy’s Koppie”;
- “Piet se Bos”;
- an area directly north of the Kleinrivier Estuary; and
- narrow strips of land in the Coastal Zone between the highwater mark and cadastral boundaries of erven between the Kleinriver Estuary and the Hermanus New Harbour (which are collectively known as the “Cliff Path”); and
- Annual Hermanus Camp (AHC).

The collective properties that make up the Reserve are referred to in this IMP as the FNR (**Figures 1 and 2**).

The total area of the **existing FNR** is 1801.46 ha. The FNR extends from sea-level to 823.7m above Mean Sea Level (Galpinkop):

The latitudinal and longitudinal extents of the existing FNR are:

Eastern Extent:	34° 24' 11.16" S	19° 20' 20.48" E
Western Extent	34° 24' 33.30" S	19° 12' 35.62" E
Northern Extent	34° 22' 1.67" S	19° 17' 35.75" E
Southern Extent	34° 25' 57.40" S	19° 13' 34.17" E

The above extents were determined by Messrs Urban Dynamics Western Cape (UDWC).

### C.2 Recent History and Cultural Heritage of the FNR

Little or nothing 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.

Evidence of Khoekhoen occupation of the area 2 000 – 10 000 years ago has been found in the FNR (shell middens at the so-called “Rowweklip” and “Rietfontein” sites on the Cliff Path, and in a cave on Hoy’s Koppie).

It is likely that the Khoekhoen herders, who used fire to improve grazing lands for their livestock, did so on the lower slopes of the FNR. It is 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.

In 1923 Mr William Hugh (“Meester”) Paterson, schoolteacher and later Mayor of Hermanus, took examples of local wild flowers from the Hermanus vicinity to 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).<sup>16</sup>

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, and a nursery. A small visitors’ centre was constructed, from which a network of hiking trails were 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.

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 (refer to the attached Government Notices / Gazettes, which are attached in chronological order in **Appendix 1**).

The Khoekoen shell middens and the graves of Sir William and Lady Hoy on “Hoy’s Koppie” are historical cultural heritage features of considerable local importance. In addition, the AHC (established in 1908), the HBS buildings and herbarium (established in the 1970s) can be recognised as “living heritage” features of the FNR.

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.<sup>17</sup>

<sup>16</sup> **Reference:** 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.

<sup>17</sup> **Reference:** Overberg Conservation Services. 1998. Management Plan for the Hermanus Cliff Path (Including Piet se Bos) and Hoy’s Koppie. Unpublished report compiled for the Fernkloof Nature Reserve.

The 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 1<sup>st</sup> 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.<sup>18</sup> 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” Local Heritage Site by Heritage Western Cape (HWC) on 9 January 2015, and has been placed onto the HWC Heritage Register.

### C.3 Surrounding Land-Use

Due to the presence of intact natural vegetation, most of the surrounding properties form a so-called “buffer” around the Reserve. In addition, some of these properties are formally or informally protected areas. Most of the southern boundary of the FNR directly abuts the urban edge of Hermanus.

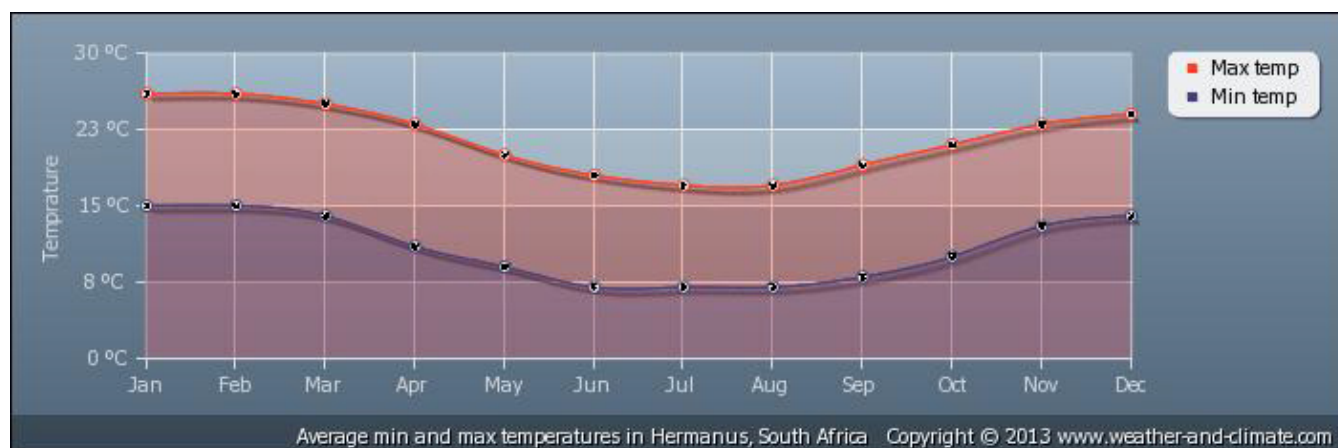
**Action C.3(i):** The list of properties directly adjacent to the FNR should continually be updated to reflect the latest information.

### C.4 Climate

The FNR has a distinctly Southern Western Cape climate (cold wet winters with prevailing north westerly winds and hot dry summers with strong south easterly winds). The FNR normally receives about 450 – 830 mm of rain per year, which falls year-round, but which peaks from May to August (**Figure 3**). South-easterly cloud brings mist precipitation to the eastern and southern slopes at higher altitudes in summer. Frost may occur on 2 or 3 days per year.

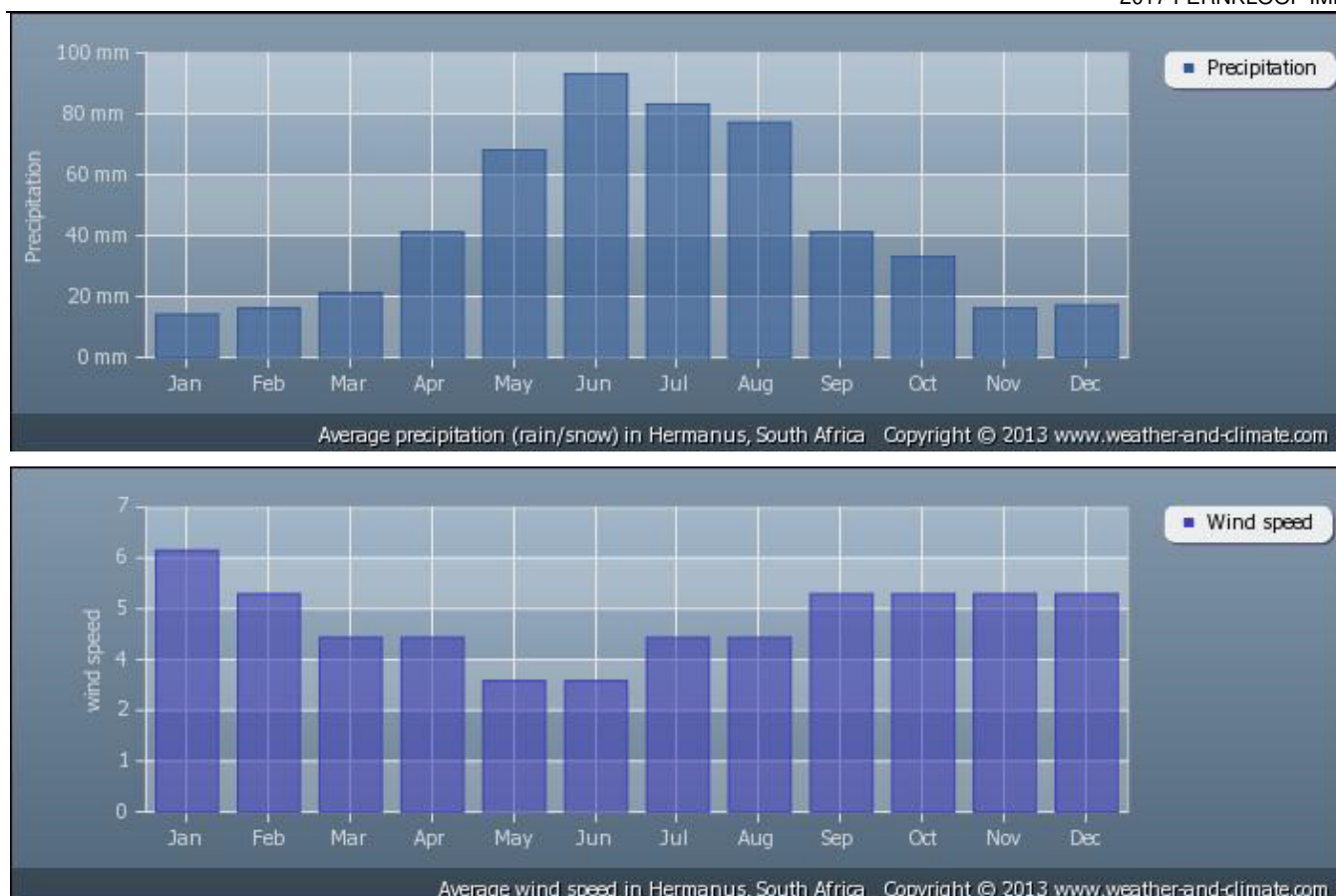
For the main vegetation type of the FNR, namely Overberg Sandstone Fynbos, the mean average maximum and minimum temperatures for January and July are 25.6 °C and 6.3 °C, respectively.<sup>19</sup>

The graphs illustrated in Figure 3 below, display the long term monthly minimum and maximum temperatures, precipitation, and wind speed (in metres/second) for Hermanus, South Africa.



<sup>18</sup> **Reference:** A History of the Annual Hermanus Camp (2010). Available from [http://hermanuscamp.org.za/index\\_files/History\\_of\\_the\\_AHCamp.htm](http://hermanuscamp.org.za/index_files/History_of_the_AHCamp.htm) (Accessed 28 May 2014).

<sup>19</sup> **Reference:** The description of the climate of the FNR was sourced from: Mucina, L., Rutherford, M.C. (eds) (2006). The Vegetation of Southern Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.



**Figure 3:** The average weather in Hermanus<sup>1</sup>

## C.5 Local Geology and Soils

The FNR contains for the most part 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.<sup>20</sup> Such lithosol soils underlie the main vegetation type of the Reserve, namely Overberg Sandstone Fynbos.

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. Albeit that the peat contributes little to soil fertility, it improves the moisture holding capacity of the soil, and so in part accounts for the surprisingly green appearance of the vegetation in the hot 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.

<sup>20</sup> **Reference:** The description of the geology and soils of the FNR was sourced from:

- 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) 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.

The FNR is also characterised by rust-coloured shale bands of 80 – 200m wide at an altitude of approximately 275m above mean sea level. The shale bands weather readily to give rich, brown, loamy soil and provide the smooth slopes of the Reserve. 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.

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 Kleinrivier 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 Cedarberg Formation shales, Table Mountain Group quartzitic sandstones and Cape granites.

The soils of the Southern Afrotropical 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 Cedarberg Formation.

## C.6 Hydrology

### C.6.1 Surface Water

The FNR contains the entire catchment area of the Mossel River, from source to sea.<sup>21</sup> Fifteen named 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 also has three named waterfalls, the Assegaaibos Waterfall, Cave Falls and Roridula Falls.

The eastern boundary of the FNR abuts the Kleinriviersvlei (**Figure 2**), the catchment area of which falls outside the FNR.

### C.6.2 Groundwater

The Peninsula Formation quartzite in the Hermanus area supports an aquifer, which has been exploited by the so-called Gateway, Camphill and Volmoed Well-field to supply Hermanus with potable water.<sup>22</sup>

According to Messrs 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 into or escape from the quartzite through the overlying layers.

<sup>21</sup> The Mossel River is located in the G40H Quarternary Drainage Region.

<sup>22</sup> **Reference:** 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.

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.

## C.7 Vegetation

The Reserve is exceptionally rich in plant species, with more than 1 250 species recorded by the HBS, including over 65 rare/threatened species.<sup>23</sup>

The HBS regularly performs botanical assessments in association with the Custodians of Rare and Endangered Wild Flowers (CREW) in order to monitor populations of rare and threatened vegetation types. The HBS members regularly collect herbarium specimens and information on any new species collected is submitted to the South African National Biodiversity Institute (SANBI).

The existing species checklists of the flora of the FNR (refer to **Appendix 2**) must be continually updated by the HBS as data becomes available.

The FNR also hosts a number of invasive alien plant species, including garden escapes, ruderal (cosmopolitan) weeds, and serious plant invaders such as *Acacia* spp., *Eucalyptus* spp., *Pinus* spp., Stink bean *Paraserianthes lophantha*, and Australian myrtle *Leptospermum laevigatum*.

Note that plant species such as Garden Route Keurboom *Virgilia divaricata*, Thatching Reed *Thamnochortis insignis* and Garden Route Ragwort *Senecio pterophorus*, that are indigenous to South Africa, can also become invasive. These indigenous invaders are presently confined to the lower riverine areas of the Reserve.

Invasive Spreading Century-Plant, *Agave americana* var. *expansa* (a member of the sisal family) has taken hold amongst the aloes on Hoy’s Kopie. In addition, Thatching Grass *Thamnochortus insignis*, is fast becoming established on Hoy’s Kopie, particularly on the northern side.

The management of alien plants (and animals) is described in **Section G.7.4** below.

**Action C.7(i):** The indigenous vegetation types on the FNR must be surveyed, described and mapped, with a view to designing a vegetation monitoring programme.

**Action C.7(ii):** Investigate and implement a vegetation monitoring programme for the FNR.

**Action C.7(iii):** The HBS should continue to monitor known populations of rare plant species or vegetation types, within the mountainous habitats, and along the Cliff Path, and on Hoy’s Kopie. The HBS should make the results of such monitoring known to the Biodiversity Conservation Manager for the purpose of annual reporting (refer to **Section G.10**).

<sup>23</sup> The EMS can be contacted for un-published plant species lists.



**Action C.7(iv):** Plant species lists must be recorded per FNR quarter degree square (3419AC and 3419AD) and submit these lists to the SANBI, in order for the SANBI to be able to accurately keep track of the number and status of plant species within each quarter degree square.

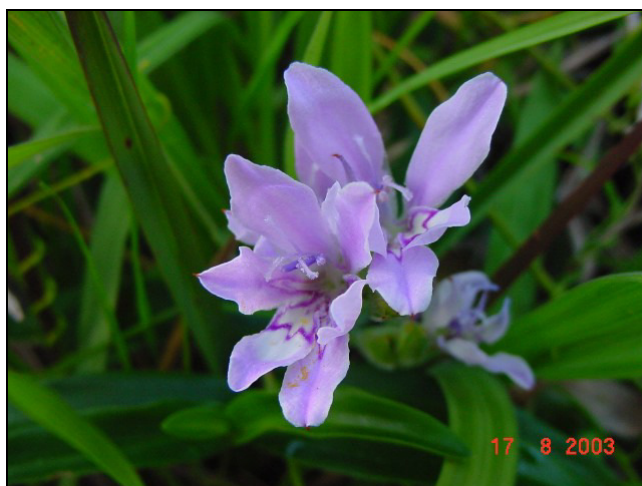
### C.7.1 Overberg Sandstone Fynbos

Low mountains (highest point of 824 m), undulating hills and plains support Overberg Sandstone Fynbos (moderately tall, dense restioid, ericoid-leaved and proteoid shrublands), which constitutes the main vegetation type of the FNR.

Overberg Sandstone Fynbos is classified as “Critically Endangered” in terms of its conservation status in Government Gazette No. 1002, promulgated in terms of the NEM:BA on 9 December 2011. Only 6% of its original extent is statutorily conserved in the Agulhas National Park, FNR, Babilonstoring, Heuningberg, Maanschynkop, Salmonsdam and Caledon Nature Reserves.

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

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 Khoekhoen Cave). Interesting plant species on Hoy’s Koppie include Cliff Lilies, *Gladiolus carmineus* and the mauve *Babiana ambigua*.



**Photos 3 and 4:** *Babiana ambigua* and *Erica galpinii*.

### C.7.2 Western Coastal Shale Band Vegetation

Rust-coloured bands of shale derived soils some 80 – 200m wide, at an altitude of approximately 275m above mean sea level, support Western Coastal Shale Band vegetation.

Although the National formally protected target of 30% has been achieved (45% in statutory and local authority reserves, and an additional 30% in mountain catchment areas), the shale bands in the FNR are limited in extent, contain small populations of several prominent plant species, and support small patches of Afrotropical Forest in gullies, and on saddles.

### C.7.3 Hangklip Sand Fynbos

Hangklip Sand Fynbos, which is listed as “Endangered” in Government Gazette No. 1002 of 9 December 2011, occurs in the extreme western areas of the FNR, mainly on old dunes and sandy bottomlands, and contributes to the habitat and species diversity of the FNR.

At least five endemic plant species and 32 Red Data List plant species occur in this ecosystem (not necessarily on the FNR).

### C.7.4 Agulhas Limestone Fynbos

Agulhas Limestone Fynbos vegetation, listed as “Vulnerable” in Government Gazette No. 1002 of 9 December 2011, occurs chiefly in the south-eastern areas of the Reserve, nearer to the Kleinrivier 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 Kleinrivier Estuary, are dominated by restioid fynbos.

Compared to the other two types of limestone fynbos (namely De Hoop and Canca), Agulhas Limestone Fynbos is the smallest but the most species diverse. Given the lack of distinct structural types recorded in this vegetation, the floristic diversity is astounding.



**Photos 5 and 6:** *Leucadendron linifolium* and *Protea longifolia*.

### C.7.5 Cape Lowlands Freshwater Wetlands

The Cape Lowlands Freshwater Wetlands vegetation type, classified as “Least Threatened” in terms of its conservation status,<sup>24</sup> occurs along the banks of the Kleinrivier Estuary, and is characterised by extensive tall reeds of *Phragmites australis*, temporarily or permanently flooded restiolands, sedgeland as well as macrophytic vegetation embedded in permanent water bodies.

This vegetation has a cosmopolitan character, indicated by the occurrence of a number of species with worldwide distribution in similar habitats, which makes it an important breeding habitat for migratory water birds.

### C.7.6 Southern Afrotemperate Forest

Southern Afrotemperate Forest, which occurs in the gorges and along streams of the FNR, is dominated by *Cunonia capensis*, *Heeria argentea*, *Metrosideros angustifolia*, *Curtisia dentata* and *Rapanea melanophloeos*, with the Cape Keurboom *Virginia oriboides* and the Garden Route Keurboom *Virgilia divaricata* occurring along the middle and lower reaches of the Mossel River. Southern Afrotemperate Forest is classified as “Least Threatened” in terms of its conservation status.

### C.7.7 Overberg Dune Strandveld

The Cliff Path area vegetation includes Overberg Dune Strandveld (closed, evergreen, hard-leaved shrublands up to 4 m tall, and coastal thicket up to 1 m tall), which includes a mix of temperate and subtropical forest species, e.g. Cape beech *Rapanea melanophloeos* and White Milkwood *Sideroxylon inerme*. The Milkwood Forest at Piet se Bos and the remnants of Southern Afrotemperate forest at The Grotto are especially conservation worthy.

Cape May or ‘Aasbossie’ *Coleonema album*-dominated Overberg Dune Strandveld occurs on shallow base-rich sand and ‘Hangertjie’ *Erica plukenetii*-dominated Overberg Dune Strandveld occurs on shallow leached sand on the coastal shelf. Among the more striking species are the Hermanus Cliff Lily *Gladiolus carmineus* and the ‘Rooipypie’ *Gladiolus cunonius*. The *Stapelia variegata* is also of interest.

<sup>24</sup> Cape Lowlands Freshwater Wetlands, Southern Afrotemperate Forest and Overberg Dune Strandveld are classified as “Least Threatened” in terms of their conservation status. **Reference:** Mucina, L., Rutherford, M.C. (eds) (2006). The Vegetation of Southern Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.



Succulent-rich wind-shorn dwarf shrublands along exposed littoral situations on skeletal soils include many examples of Crassulaceae and Mesembryanthemaceae.<sup>25</sup>

Overberg Dune Strandveld is classified as “Least Threatened” whilst Western Cape Milkwood Forest, which is a sub-type of Southern Coastal Forest, is classified as “Endangered” in terms of its conservation status in Government Gazette No. 1002 of 9 Dec 2011.

The Cliff Path Management Group (CPMG) has been planting Milkwood trees and Camphor Bush *Tarchonanthus camphoratus* 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.

**Action C.7.7(i):** The Piet se Bos restoration programme should be continued with.



**Photos 7 and 8:** The Cliff Lily *Gladiolus carmineus*, and Rooipypie *Gladiolus cunonius*.

## C.8 Indigenous Animals

The existing species checklists of the fauna of the FNR (refer to **Appendix 2**) must be updated as data becomes available. A fixed protocol for compiling and maintaining these checklists should be developed to ensure that they provide accurate, comparable and contemporary baseline data for management and scientific purposes.

### C.8.1 Invertebrates

Very little is known of the invertebrates of the FNR and it is therefore important that surveys of the invertebrate fauna are initiated as soon as possible.

Invertebrates play critical roles in the functioning of all ecosystems as they contribute to maintaining soil fertility, decomposition, water quality, pest control and pollination. Several 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.

**Action C.8.1(i):** Initiate a survey of the invertebrate fauna of the FNR.

### C.8.2 Fish

As alien fish (inland 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.

Indigenous fish species such as Cape Galaxias *Galaxias zebrata* and Cape Kurper *Sandelia cayensis* could possibly also still occur in this river system.<sup>26</sup>

<sup>25</sup> **Reference:** Cowling, R.M. 1991. Management of Coastal Zone: Hermanus Cliff Path. Unpublished report for the Cliff Path Management Group of the Fernkloof Advisory Board.

<sup>26</sup> **Reference:** Overberg Conservation Services. 1997. Management Plan for the Mossel River. Unpublished report compiled for the Fernkloof Nature 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.

**Action C.8.2(i):** A comprehensive survey of the inland fish species of the FNR must be initiated, and a species list should be compiled. CapeNature can be approached to assist with such fish surveys. If the survey indicates that there is merit in the introduction of indigenous species, this will be undertaken in conjunction with CapeNature.

### C.8.3 Reptiles and Amphibians

Very little is known regarding the herpetofauna (reptiles and amphibians) of the FNR. Amphibians and reptiles are often indicator species (i.e. their presence or absence is indicative of the state of health of an ecosystem). It is also important to know whether or not any threatened species occur on the FNR, in order to guide appropriate management strategies.

The most common reptiles that could be encountered on FNR include include Puff Adder *Bitis arietans*, Berg Adder *Bitis atropos*, Common Slug Eater *Duberria lutrix*, Brown House Snake *Lamprophis capensis*, Olive House Snake *Lamprophis inornatus*, Mole Snake *Pseudaspis cana*, Spotted or Rhombic Skaapsteker *Psammophylax rhombeatus*, Common Egg-Eater *Dasypeltis scabra*, Boomslang *Dispholidus typus*, Cape Cobra *Naja nivea*, Rinkhals *Hemachatus haemachatus*, Cape Mountain Lizard *Tropidosaura gularis*, Common Mountain Lizard *Tropidosaura montana*, Cape Grass Lizard *Chamaesaura anguina*, Cape Girdled Lizard *Cordylus cordylus*, Southern Rock Agama *Agama atra*, Cape Dwarf Chameleon *Bradypodion pumilum* and Angulate Tortoise *Chersina angulata*.

Amphibians of conservation concern occurring on the FNR include Drewe's Moss Frog *Arthroleptella drewesii*, and Purcell's Ghost Frog, *Heleophryne purcelli*.

**Action C.8.3(i):** A comprehensive survey of the herpetofauna of the FNR must be initiated, and a species list should be compiled.

### C.8.4 Birds

The bird list for FNR is maintained by the Hermanus Bird Club. The current list contains more than 100 species.

Species most likely to be seen include the Cape Sugar Bird *Promerops cafer*, Sunbirds, Cape Rock Thrush *Monticola rupestris* and Cape Rock Jumper *Chaetops frenatus*. Raptors include Jackal Buzzard *Buteo rufofuscus*, Steppe Buzzard *Buteo buteo*, Yellow-billed Kite *Milvus aegyptius* and a pair of Verreaux's Eagles *Aquila verreauxii*. Areas of thick scrub and forest alongside streams support seed and insect-eating species such as the African Olive-Pigeon *Columba arquatrix*, Canaries, Flycatchers and Cape White-eyes *Zosterops pallidus*. The summer months herald the arrival of migrants such as swallows, cuckoos and Steppe Buzzards.

Some birds are adapted to feeding on proteas and ericas, and in this way play vital roles as pollinators.

**Action C.8.4(i):** The existing bird species list must be continually updated (e.g. by the Hermanus Bird Club) and the information submitted to the EMS An MOU should be signed with the HBC for this purpose.

### C.8.5 Mammals

The mammals most likely to be encountered within the FNR are associated with the various intact vegetation types described in **Section C.7** above, and are: Chacma Baboon *Papio ursinus*; klipspringer *Oreotragus oreotragus*; Cape Grey Mongoose *Galerella pulverulenta*; Cape Clawless Otter *Aonyx capensis*; Egyptian Mongoose *Herpestes ichneumon*; and Rock Hyrax *Procavia capensis* (also on Hoy's Koppie), which are all daytime feeders. Others such as Cape Porcupine *Hystrix africaeaustralis*; Large-spotted Genet *Genetta tigrina*; Scrub Hare *Lepus saxatilis*; and Cape Grysbok *Raphicerus melanotis* are nocturnal and their presence is most often only revealed by evidence such as spoor, droppings or effects on vegetation. Cape Mountain Leopard *Panthera pardus* and Caracal *Caracal caracal* are also present within the FNR, and on the surrounding properties containing intact indigenous vegetation.

Several species of rodent make their home at the FNR, including the Cape Spiny Mouse *Acomys subspinosus*, and the Striped Field Mouse *Rhabdomys pumilio*, which is often seen by visitors.

According to the EMS, a total of 58 different mammalian species may potentially occur within the FNR.

**Action C.8.5(i):** The existing mammal species list must be continually updated.

The mountains behind Hermanus are home to at least three troops of Chacma Baboons. One of these troops is resident in the FNR, whilst a larger troop frequents the Vogelgat Nature Reserve.<sup>27</sup>

The Overstrand Municipality used to be involved with the management of baboons in the urban area of Voelklip because CapeNature did not have the capacity or funding to assist. The Municipality however had to stop their involvement in 2014 when the external funding for the running of the project ended.

A number of 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 of informative pamphlets to the public.

In addition the Municipality erected an electrified fence in the FNR in 2008 above the suburb of Voelklip. There are, however, concerns amongst the public regarding the location of the electric fence, and the effectiveness thereof.



**Photos 9 and 10:** Cape Spiny Mouse<sup>28</sup> and Chacma Baboon.<sup>29</sup>

## C.9 Developed Infrastructure of the FNR

### C.9.1 Buildings and Structures

A Botanical Centre is located near the main entrance to the FNR, off Fir Avenue. This facility was built in the 1970s and consists of an auditorium, office complex, staff accommodation, kitchen, storage space, toilet blocks, herbarium, and a nursery. A small visitors' centre is located at the car park where the HBS maintains a wild flower exhibit throughout the year. The Botanical Centre was constructed at the top end of the entrance road terminus by the HBS, and is currently leased to them by the Municipality. An additional Municipal residential dwelling is located to the west of the entrance gate.

Galpin Hut is a single self-catering overnight hut, located near the summit of 'Galpinkop'. The hut was erected by the HBS in the 1970s, and was refurbished by the Overstrand Municipality during 2013.

The AHC Site is located at "De Mond" (i.e. at 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

<sup>27</sup> Reference: <http://www.hermanustimes.co.za/local-guide>. Accessed 21 June 2012.

<sup>28</sup> Reference: [http://wildcliff.org/fauna/acomys\\_subspinosus.html](http://wildcliff.org/fauna/acomys_subspinosus.html). Accessed 27 July 2012.

<sup>29</sup> Reference: <http://flickrhivemind.net/Tags/primates/interesting>. Accessed 27 July 2012.



building (which houses an auxiliary generator for a submersible sewage pump-station). The campsite has been leased to the Annual Hermanus Camp (AHC) for over 100 years.

## C.9.2 Mossel River Dams

Two concrete-faced 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 in about 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 during 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 to irrigate the Fernkloof public gardens, the Fernkloof Indigenous Nursery and occasionally local sports facilities such as the Hermanus Golf Course.



**Photos 11, 12 and 13:** The dams at the FNR. The valve tower poses a threat to the safety of visiting public, as it is being used to jump off and dive into the water. People also dive off the cliffs on the western side of the dam.

**Action C.9.2(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.

## C.9.3 Nursery

A small nursery was started within the HBS lease area at the FNR more than 20 years ago. Today, various indigenous plants are on sale at competitive prices at the nursery, which is managed by the HBS.

**Action C.9.3(i):** Update the Infrastructure Map of the FNR to include the location of all built infrastructure, roads, tracks etc.

## C.9.4 Other Developed Infrastructure

### C.9.4.1 Fencing and Access

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 (refer to **Section C.8.5** above).

To allow the free movement of animals into and from the FNR, the reinstatement of boundary fencing is not envisaged. Whilst 15 new entry point signs were put up during 2011, public entry fees are not currently charged, and no access control is exercised.

### C.9.4.2 Fernkloof Garden Area

A beautifully maintained garden area, complete with wheelchair-friendly paths and benches, is located just inside the main entrance to the FNR. The garden area is currently leased to the HBS, and is maintained by them for community use.

### C.9.4.3 Hiking Trails and Tracks

A total length of  $\pm 65$  km of hiking trails exist on the FNR, including:

- Mountain hiking trails;
- The Cliff Path (which meanders  $\pm 11$  km along the coast from the New Harbour to Piet se Bos, complete with wheelchair paths and  $\pm 220$  in-memorial benches);
- A path up Hoy's Koppie, a portion of which is wheelchair-friendly; and
- The Hermanus Cycle Trail.

All the mountain trails are clearly marked with signage and colour coded markers on the ground. Most of the trails start and end at the HBS Visitor's Centre.

**Action C.9.4.3(i):** Maintenance of the trails is urgently required in certain areas. Such maintenance must be on-going.

A "Hermanus Cycle Trail" has been established by Messrs Hermanus Cycles, in association with other role-players such as the Hermanus Tourism Bureau, and the FNR.

This  $\pm 17$ km circular trail is signposted for clockwise travel, and may be joined inside the entrance to the FNR, and at a number of other points. The surface is mainly that of a jeep track or "twee-spoor" track, but a few substantial stretches of single track hiking path 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.

## SECTION D: VISION, MISSION AND GOALS

### D.1 Vision and Mission Statements

Long-term **vision** for the future of the FNR is:

***“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”; and*

- 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.*

**Mission Statement** (Management Intent):

***“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”.***

### D.2 Goals

The various Actions listed in this IMP and the Management Policy Framework (refer to **Section G** below) underpin the **Goals** listed below, which in turn underpin the Mission, as well as the longer-term Vision of the FNR.

The Vision, Mission and Management Goals together with the relevant management actions provide an integrated management planning framework for the Nature Reserve.

The management authority assigned by the Minister or MEC, to manage the reserve, must submit a management plan for the protected area to the Minister or the MEC’s approval.

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*”]).

**Action D.2(i):** An Annual Plan of Operations (APO) may be developed in accordance with the Management plan and may be submitted to the MEC each year. The APO may also be submitted to CapeNature to keep them informed of activities on the FNR. The development of specific APO’s will be used for implementing approved task-specific management programmes (e.g. alien / invasive vegetation clearing, fire management).

#### D.2.1 Biodiversity Management Goals

1. To effectively conserve and manage the biophysical environment and the biodiversity of the FNR.
2. To institute fire management according to an ecological fire management programme.

3. To institute sound catchment management to ensure sustained flow of good quality water from the Mossel River's natural catchment area.
4. To institute alien / invasive vegetation clearing and management on the FNR according to an on-going time-bound management programme.
5. To expand the current extent of the FNR.

### **D.2.2 Coastal Area Management Goals**

1. To protect and conserve the ecological integrity, natural character, and the economic, social and aesthetic value of the Cliff Path section of the FNR.
2. 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).

### **D.2.3 Co-operative Management Goals**

1. 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.
2. To promote and continue with the integrated management of the Reserve 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.

### **D.2.4 Tourism Management Goals**

1. To develop the commercial eco-cultural tourism potential of the FNR.
2. To develop and maintain high quality visitor infrastructure, facilities and recreational activities.
3. To ensure the safety of the tourists visiting the Reserve.

### **D.2.5 Research and Environmental Education Goal**

1. To encourage, promote and improve research and environmental education at the FNR.

### **D.2.6 Administrative and Financial Management Goals**

1. Ensure the consolidation of all areas managed as the FNR and new proposed areas under a single declaration in terms of NEM:PAA.
2. To generate sustainable funding for the management of the FNR through the development of visitor infrastructure (e.g. nursery, restaurant), other facilities / events (e.g. conferences) and through recreational activities (events).

### **D.2.7 Cultural Historical Management Goals**

1. To incorporate the cultural and heritage features / 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.
2. To plan, site and design all future buildings and infrastructure according to relevant environmental and heritage authority guidelines<sup>30</sup> and legislation.

### **D.2.8 Risk Management Goals**

1. To improve collaborative risk management partnerships with Government and Municipal Departments, and with neighbouring property owners.
2. To develop policies, partnerships and bylaws for the FNR in order to minimise risks and crime.
3. To improve law enforcement and compliance capacity of Reserve staff.

<sup>30</sup> **Reference:** Baumann, N. (2009). Overstrand Heritage Survey: Draft report. The Overstrand Heritage Landscape Group. Available from <http://www.overstrand.gov.za>. (Accessed 12 February 2013).



## SECTION E: ZONING AND LANDUSE

The zoning of the Fernkloof Nature Reserve is zoned Public Open Space 1: Nature Reserve (OS1). Within this area various land use is permitted. The primary land use is conservation and the following consent uses can be considered within the identified management unit. Dwelling units; environmental facilities; transmission apparatus; tourist accommodation; tourist facilities; utility service; any other related use permitted by council.

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 three Management Units; a Conservation Management Unit, a Development Management Unit and a Potential Development Management Unit that guide future use, permissible activities, management and development of the Reserve. (Refer to **Figure 4**, and **Table 6**).

Developments will mostly be located within the Development Management Unit and The Conservation Management Unit will only be for the conservation and protection of the FNR's biological diversity and the integrity of its landscapes and heritage features. Minimal development will be allowed in this unit.

The **Management** Units of the FNR are described in more detail in **Table 6**.

### E.1 DEVELOPMENT APPLICATIONS

Development applications for new land uses and extension of existing land uses must be dealt with in terms of the Overstrand Municipality's by-law on Municipal Land Use planning, this Management plan and all other relevant legislation.

#### Implementation and Monitoring of Development Conditions

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.

## SECTION F: RESERVE EXPANSION

By extending the boundaries of the existing FNR, more conservation worthy land can be gained that also has inherent eco-cultural tourism development potential.

As such, it has been recommended by the EMS to include the Municipal properties listed in **Table 5** into the Reserve. Copies of the title deeds are available from the EMS.



**Photos 14 and 15:** Potential development nodes include areas supporting existing buildings and infrastructure, such as at Maanskynbaai, and within the central FNR entrance and offices area.

## SECTION G: MANAGEMENT POLICY FRAMEWORK<sup>31</sup>

The Actions contained in this IMP aim to give direction and guidance to various responsible parties to ensure that sustainable management of natural resources is realised, i.e. to ensure that conservation and development takes place without negatively impacting on the natural resource base or ecological pattern and process functioning, and to ensure compliance with relevant legislation and policy documents.

### G.1 Financial and Human Resources Management

#### G.1.1 Financial Management

In general, the Reserve must be managed according to an Annual Plan of Operations (APO) (refer to **Action D.2(i)**). An annual budget must be made available for implementing the various APOs within corporate financial parameters (e.g. for alien / invasive vegetation clearing, fire management).

By achieving the Vision, Mission and Management Goals, the EMS will not only contribute to the effective conservation of the natural and cultural heritage of the FNR, but will also help ensure the supply of water to the Gateway Well-Field, and to the three Dams in the Mossel River. In addition, a sustainably managed reserve will enhance the tourism potential of Hermanus and of the Overstrand Municipal Area in general.

Whilst it may be unrealistic to expect that the FNR should be financially totally self-sufficient, revenue from tourism development (refer to **Section F**) and other external funding sources can however reduce the operational budget for the Reserve. As such, profits gained from tourism should be used to subsidise the management of the FNR.

#### G.1.2 Human Resources Management

The current human resource structure and capacity is not adequate to ensure that FNR is managed effectively and meets its Management Goals.

As the management of FNR is a specialised function requiring specialist continuity, it requires a dedicated permanent personnel component. An appropriate minimum staff component must consist of at least a dedicated Reserve Manager, two Senior Field Rangers (Supervisors) and five General Assistants.

In order to effectively manage the full spectrum of FNR management functions, it is imperative that the following actions are fully investigated and implemented.

**Action G.1.2(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.

**Action G.1.2(ii):** Investigate the sourcing of funding (e.g. Greenest Town / Municipal Treasury / LED/Expanded Public Works Programme [EPWP]) to appoint additional staff as required.

**Action G.1.2(iii):** Ensure that capacity building across the FNR staff contingent takes place. Appropriate training courses should be identified on an annual basis. The attendance of training courses pertaining to Nature Reserve and Environmental Management should be mandatory for all FNR staff.

### G.3 Community Involvement

On-going local community involvement in the management of the FNR will be realised, mainly through the continued management of the Reserve by the EMS, whilst considering inputs from FAB,

<sup>31</sup> Note that the general format, and much of the content of this section, was sourced and adapted from the “*Matatiele Nature Reserve: Integrated Environmental Management Plan 2008 – 2012*”, which was compiled by Mr D. Heard for the Matatiele Local Municipality, Eastern Cape Province, South Africa

CapeNature, the CPMG, the HBS, the Hermanus Tourism Bureau, and from other State Authorities, NGOs and the public.

According to the Western Cape's Nature and Environmental Conservation Ordinance, 1974 (Ordinance No. 19 of 1974) an advisory board may be established for the purpose of advising and making recommendations to the management authority in connection with the management, control and development of the local nature reserve. The advisory board shall be constituted in accordance with bylaws or regulations made under section 9 of the Ordinance No. 19 of It must be ensured that the FAB bylaw does not conflict with NEM:PAA in any way, but should be updated to ensure its applicability.

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

### G.3.1 Poverty Relief Initiatives

The FNR management may apply for Governmental poverty relief (e.g. Expanded Public Works Programme [EPWP]) and other funding for specific Reserve management related actions. Priority should be given to training members of the neighbouring community, and to supporting community small, medium and micro enterprises.

**Action G.3.1(i):** Local service providers should be used where possible to maintain buildings and provide services (plumbing, electrical, mechanical)

### G.3.2 Environmental Awareness and Education

Environmental education programmes for neighbouring communities and other stakeholders need to be continued in collaboration with Whale Coast Conservation, 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.

**Action G.3.2(i):** Where possible, sustain the FNR environmental education and awareness programmes specifically for surrounding neighbouring communities and general public interest groups. Collaboration between outdoor adventure operators, the HBS, and environmental education service providers should be facilitated. The use of FNR facilities by the Eco-Schools Programme, the Scouts, school groups etc. should also be promoted.

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.

**Action G.3.2(ii):** Continue to make informative pamphlets available to the public at the Visitors Centre in the FNR, at the Hermanus Tourism Bureau, and at the Old Harbour Museum. Assess and update the informative pamphlets if need be.

**Action G.3.2(iii):** 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.

### G.3.3 Conservation and Neighbour Partnerships

The EMS should develop its management capacity by working collaboratively with other state and private institutions, and with neighbouring landowners, to continually improve communication and natural and cultural heritage conservation management in and around the FNR for the benefit of all.

Partnerships that comply with the management and legal framework as outlined in this IMP, and are supportive of the achievement of the management goals of the FNR, will be encouraged and facilitated.

Conservation Management Partnerships should be investigated and / or formalised with, *inter alia*, the “Working for the Coast” programme, the EPWP, the Department of Environmental Affairs (DEA) Directorate: Oceans and Coasts, CapeNature, SANBI, surrounding conservancies (refer to **Action G.3.4(ii)**).

Such partnerships must at all times be formalised in a Memorandum of Agreement (MoA) / partnership agreement that will be submitted to the delegated Municipal officials for authorisation accompanied with a recommendation from the FAB and EMS. Copies of these agreements must be made available to the partnering institution/person and copies must be filed at the EMS offices, and at the FNR.

MoAs should be reviewed annually or at most three years. Commercial partnerships may, however, be considered for longer periods, but should then be accompanied by stringent agreement conditions. All MoAs must contain cancellation clauses in the event that the natural and cultural heritage, the management goals of the FNR, or its reputation, are being negatively affected.

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.

If it is evident that the agreement conditions are not complied with or any activity by an agreement partner is negatively affecting the natural and cultural heritage, the management goals of the FNR or its reputation, the EMS will have the right to immediately stop the respective activities until the situation is suitably rectified.

**Action G.3.4(i):** List all existing and on-going partnerships with other state bodies, institutions or persons and formalise through written agreements / MoAs.

**Action G.3.4(ii):** Investigate annually any potentially beneficial and desirable partnerships with other state bodies, institutions or persons, and, where feasible, formalise through written agreements according to Municipal protocols and the IMP’s management framework.

Such partnerships could include aspects such as environmental education; fire management; crime prevention; biodiversity management; coastal management; and research.

**Action G.3.4(iii):** Compile an inventory of existing lease-holdings and of privately owned buildings within the boundaries of the FNR. Compile or update written agreements / MoAs with all such lease-holders and landowners within the FNR, focussing on sound environmental management.

**Action G.3.4(iv):** 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.

**Action G.3.4(v):** Investigate and facilitate co-management agreements with long-standing non-commercial institutions (e.g. HBS and AHC) regarding their long leases in the FNR.

### G.3.5 Research

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.

Partnerships and agreements with appropriate academic and research institutions will be promoted to stimulate and encourage the desired research in the FNR. In order to achieve this, the following actions will need to be undertaken:

The EMS and CapeNature as well as external researchers must be requested to identify and prioritise research requirements. This research priority list will then be circulated to tertiary research institutions and made available on the FNR website.

All the FNR baseline abiotic and biotic data collected, and GIS data layers, must be collated and stored in a computer database.

**Action G.3.5(i):** Develop a prioritised FNR biodiversity and cultural heritage research project list.

**Action G.3.5(ii):** Develop / streamline procedures that will ensure that all abiotic and biotic data collected are captured in managed databases and GIS data layers.

**Action G.3.5(iii):** Support and promote biodiversity and/or biophysical management research by students from tertiary education institutions. MoAs with such institutions, or for specific studies, must be completed.

**Action G.3.5(iv):** Investigate establishing a volunteer programme where overseas researchers or tertiary education institutions pay for conducting research in the reserve.

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).

Two hard and two electronic copies of all research publications produced must be provided. One copy each must be lodged within the FNR and one at the EMS office, in a reference library.

## G.4 Security and Safety

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.

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 (see **Section G.1.2** above).

**Action G.4(i):** Ensure that visitors are aware of unsafe areas, and of security rules and regulations (i.e. through informative pamphlets and signage).

**Action G.4(ii):** Investigate the compilation of formal agreements with the Overstrand Protection Services Directorate 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 Kopie).

**Action G.4(iii):** The existing FNR Security Forum, under the Chairmanship of the Overstrand Protection Services Directorate, must be maintained to promote security co-ordination and affectivity.

**Action G.4(iv):** Investigate the establishment of a trained Field Ranger staff component to patrol the FNR and undertake environmental monitoring.

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.

**Action G.4(v):** Develop and implement an integrated emergency and security strategy for the FNR that ensures collaboration with all relevant institutions. Such a plan should include, *inter alia*, measures with respect to wildfires, medical emergencies and criminal incidents.

**Action G.4(vi):** Ensure that the APO includes prioritised safety and security management actions.

**Action G.4(vii):** Investigate the implementation of restricted night-time vehicular access to Rotary Drive, in collaboration with the relevant Departments and adjacent landowners in this area.

## G.5 Infrastructure

### G.5.1 Built Infrastructure

The EMS will maintain, remove, expand or develop infrastructure within the FNR for natural and cultural heritage management, and for eco-cultural tourism purposes (refer to **Section F**. Where applicable, infrastructure development projects must be undertaken in accordance with the relevant legal requirements (i.e. in terms of the NEMA, the NEM:PAA, and the NHRA).

Should the 2014 NEMA EIA Regulations be triggered by an infrastructure development project, such development will also need to take place in terms of an EMP specifically compiled for the construction and operational phases of the project.

Apart from compliance with the relevant legal requirements, proposals for major maintenance projects, or for the removal, expansion or development of major infrastructure must also comply with the IMP's Management Units. The existing and new reserve management and eco-cultural tourism infrastructure within the FNR must at all times be maintained in a safe, functional, clean, serviceable and aesthetically acceptable condition. Similarly, the HBS must maintain their leased infrastructure and the garden area to the highest achievable standards.

All new structures must as far as possible be harmonised with the surrounding environment and landscape character through appropriate siting, organic designs, use of neutral earthly colours, natural building materials, locally indigenous landscaping and screening.

**Action G.5.1(i):** 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.

**Action G.5.1(ii):** Review the desirability and effectiveness of all present FNR infrastructure with regard to:

- Adequacy
- State of repair
- Existing maintenance plans and programmes
- Visitor and staff use
- Environmental impacts (negative and positive)
- Income generation
- Possibilities of outsourcing

**Action G.5.1(iii):** Include infrastructure development and maintenance in the APO and its budget for the FNR.

### G.5.2 Access Control

In general, the EMS will provide and maintain facilities that promote access to the FNR. The FNR's boundary is unfenced. At this stage reinstating 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.

**Action C.5.2(i):** Beacons are only in place at some points along the boundary of the FNR. It is essential that the Reserve boundary points be surveyed and physically demarcated.

### G.5.3 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 Unit specified in this IMP 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.

**Action G.5.3(i):** All vehicle roads and tracks must be evaluated and recommendations made for new vehicle roads and tracks / hiking trails, repair or closure (with rehabilitation measures) of existing ones.

### G.5.4 Waste Management

#### G.5.4.1 Domestic Solid Waste

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.

**Action G.5.4(i):** Develop, install and maintain effective standardised solid waste receptacles for the FNR that are animal and baboon-proof, including fishing-line bins where required.

#### G.5.4.2 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.

**Action: G.5.4(ii):** All existing sewage systems in the FNR must be investigated for legal compliance, and must be replaced / upgraded with appropriate sewage systems.

**Action G.5.4(iii):** 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.

**Action G.5.4(iv):** All leaking sewage and water pipelines, taps and valves must be replaced as soon as their malfunction has been noticed.



**Action G.5.4(v):** All new bulk engineering services such as electricity, sewage and potable water pipelines must be located so as to minimise any negative environmental impacts, including negative aesthetic impacts.

**Action G.5.4(vi):** 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.

## G.5.5 Water and Energy Saving Measures

All existing and new infrastructure in the FNR must include modern water and energy-saving (electricity) devices or measures. In addition to environmental benefits, the installation of water and energy-saving devices has the potential to bring about significant financial savings over time.

All new developments must be designed and constructed using low-impact, “green” designs and locally sourced materials wherever possible. Such buildings are warm in winter and cool in summer, are energy efficient, and minimise water consumption and waste production. Existing buildings should be retro-fitted to the same standard, if budget allows.

**Action G.5.5(i):** Effective environmentally friendly sewage facilities, energy and water-saving devices and technologies should be fitted in existing and new buildings wherever possible.

## G.6 Cultural Resource 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 South African Heritage Resources Agency (SAHRA) must be informed if finds are deemed to be significant by the archaeologist.

**Action G.6(i):** 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).

**Action G.6(ii):** 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.

**Action G.6(iii):** Include the management and maintenance of heritage and cultural resources in the APO and budget for the FNR.

**Action G.6(iv):** Ensure that a detailed MoA is signed between the AHC and the Overstrand Municipality which sets out the rights and obligations of each party.

## G.7 Natural Resource Management

### G.7.1 Introduction

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 (e.g. NEM:ICMA and NEM:PAA);
- preventing the spread of alien / invasive vegetation;
- 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.

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. Scientific fire management which 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.

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.

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 controlled burns.

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

## G.7.2 Wildlife Management

The primary objective of wildlife management at the FNR will be to maintain the diversity of indigenous animals that characterize the various habitat types within the FNR.

A secondary objective would be to enhance the FNR tourism experience through re-introducing suitable mammals and fish species (see **Section. G.7.8** below) that historically occurred in the area, and that are suited to the particular habitats found in the reserve.

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

- achieving management / conservation goals;
- research and monitoring purposes;
- translocation to or from other state or private protected areas; and
- safeguarding 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 in collaboration 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.

Management directives for baboons, and for alien / invasive and problem animals are included in **Sections C.8.5** and **G.7.4** respectively.

### G.7.3 Fishery Management

Refer to **Section C.8.2**. The results of surveys to confirm the existence, status and distribution of the fish species presently occurring in and around the FNR will inform future fishery management guidelines.

**Action G.7.3(i):** If alien fish species do occur within the rivers of the FNR, a management strategy must be developed to eradicate the specific species or minimise their negative impacts.

**Action G.7.3(ii):** Fishery management guidelines must be developed following the results of a comprehensive survey of the fish species of the FNR.

### G.7.4 Invasive Species Management

According to the Global Invasive Species Programme (GISP),<sup>32</sup> biological invasions come about when a species is introduced to an area (or ecosystem) to which it is not native and when it establishes there, spreads and causes damage to biodiversity, damages human health, or hinders development. Invasive species can be alien or indigenous to South Africa.

#### G.7.4.1 Plants

The FNR hosts a number of invasive alien plant species, including garden escapes, ruderal (cosmopolitan) weeds, and serious plant invaders such as *Acacia* spp., *Eucalyptus* spp., *Pinus* spp., Stink bean *Paraserianthes lophantha*, and Australian myrtle *Leptospermum laevigatum* and Spreading Century-Plant, *Agave americana* var. *expansa* (a member of the sisal family). 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.

Note that plant species that are indigenous to South Africa such as Garden Route Keurboom *Virgilia divaricata*, Thatching Reed *Thamnochortis insignis* and Garden Route Ragwort *Senecio pterophorus*, can also become invasive, and have become established within the FNR.

Thatching Grass *Thamnochortus insignis*, is fast becoming established on Hoy's Kopie, particularly on the northern side whilst Garden Route Keurboom is dominant along sections of the lower reaches of the Mossel River.

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 FNR. The HBS needs to 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

A phased 5-year plan to address the existence of non-invasive alien plants within the FNR must be developed.

If considered appropriate by the Management Authority of the reserve, certain non-invasive alien plants may be retained for horticultural purposes (e.g. trees within the Arboretum or Botanical Garden). Such plants should, however, not be replaced should they die. All seedlings of existing non-invasive alien plants must be removed annually.

<sup>32</sup> Reference: <http://www.gisp.org/whatsnew/docs/AfricaASProtectedAreas.pdf>. Accessed 20 June 2012

**Action G.7.4(i):** Develop a phased 5-year plan to address the existing non-invasive alien plants in the FNR.

### (iii) Declared alien weeds and invasive plants

Alien plants declared weeds and invader plants listed under Section 29 of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA) are the most serious threat to the ecological functioning of natural ecosystems as well as water production, and must be controlled in terms of the relevant CARA regulations. 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.

The Municipal EMS Department will be accountable for the planning, initiation and supervision of all invasive plant clearing operations. Therefore, an annual budget and APO must be compiled for annual alien / invasive vegetation clearing. The Biodiversity Conservation 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.

**Action G.7.4 (ii):** Develop an on-going time-bound programme to effectively control declared alien weeds and invader plants within the FNR. Where required, this programme must also address the re-planting / rehabilitation of relevant areas with indigenous plants.

**Action G.7.4(iii):** In addition to clearing declared weeds and invader plants, the following must be undertaken:

- *Virgila divaricata* is an indigenous invasive species, and should be removed from the Reserve.
- Spreading Century-Plants *Agave americana* var. *expansa*, and Thatching Grass *Thamnochortus insignis*, are to be removed from Hoy's Koppie before they spread further.

### G.7.4.2 Animals

Alien animal species can impact on indigenous plants and animals within the FNR, and can be vectors for the spread of diseases and genetic pollution. Wherever possible and appropriate, such animals must be removed from the FNR or humanely euthanased.

The following management guidelines apply.

#### (i) Alien Animals Present in the Nature Reserve

Alien animals that are present and are a threat or potential threat to the ecological processes and/or tourism experience in the FNR will be removed or destroyed.

Alien fish species possibly occur in the Mossel River and/or in the three dams on the reserve. If alien fish species do occur within the FNR, a management strategy must be developed to eradicate the specific species or to minimise their negative impacts (refer to **Action G.7.3(ii)**).

Mallard ducks, feral ungulates, rats and other species (e.g. feral domestic cats and dogs) are all potential threats, and could be found in the FNR sporadically. Such animals must be removed from the Reserve or humanely destroyed as soon as possible after their presence is detected.

#### (ii) Alien Animal Introductions

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.

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.

#### (iii) Problem Animal Management

Alien or indigenous animals that become a danger or excessive nuisance to persons and property due to either habituation or aberrant behavior may be destroyed humanely or captured and removed from the FNR in consultation with CapeNature.

## G.7.5 Fire Management

The EMS shall convene a Fire Management Workshop annually with the Municipal Fire and Disaster Management Department and all other relevant stakeholders.

In addition, the Municipality is required by the Veld and Forest Fire Act, 1998 (Act No. 107 of 1998) to be registered as a member of a local Fire Protection Association. As such, the Municipality will retain membership of the Greater Overberg Fire Protection Association (FPA).

The current management intent is to apply an ecological fire management programme on the FNR, which considers fire safety in terms of infrastructure, and which aims to actively manage for 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 controlled burns.

In order to help ensure that controlled burns are scientifically scheduled, fire monitoring and record-keeping must be undertaken, and the extents of all controlled and uncontrolled burns must be mapped on a GIS system for ease of updating and recording.

The EMS must ensure that Personal Protective Equipment is provided, and that fire training for Reserve staff is undertaken (for emergency situations, and to undertake controlled burns).

The existing wildfire management policy focusses on protecting properties adjacent to the Reserve from wildfires which start on the FNR, and *vice versa*. Fire protection measures include using existing roads and fire control belts as access routes from which wildfires can be fought / managed. In addition, Fire Management Agreements must be signed with neighbouring landowners, a process facilitated by the Greater Overberg Fire Protection Association (refer to **Action G.7.5(iii)**).

At the Annual Fire Management Workshop the planned and unplanned burns of the previous fire season will be reviewed and, based on the Burning Programme, management units will be scheduled for burns in the upcoming fire season, and recorded as the Annual Burning Plan for implementation.

**Action G.7.5(i):** Develop a FNR Fire Best-Practice Manual to outline the following:

- fire management objectives;
- scientific understanding;
- management actions;
- legal compliance;
- personnel training requirements;
- monitoring; and
- research required.

Note that 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), and to be sure that such species are not destroyed by controlled burning operations.

**Action G.7.5(ii):** Formalise MoAs comprising so-called "Fire Management Agreements" with the members of the Greater Overberg Fire Protection Association, in order to allow for:

- legal protection in the event of a wildfire starting on the FNR and crossing over to a neighbouring property or vice versa;
- co-operative fire-fighting on each other's properties in the event of a wildfire; and
- agreement with regard to the positioning and width of fire control belts.

**Action G.7.5(iii):** Establish post fire surveys after 18 months and establish permanent monitoring plots in these areas. Note in particular the re-establishment of any threatened species.

## G.7.6 Catchment Management

The FNR contains the entire catchment area of the Mossel River, from source to sea. Sixteen streams form tributaries of the Mossel River, which feed the three dams. This catchment area also feeds the Gateway Well-Field (which augments the potable water supply to Hermanus).

In order to ensure a sustained supply of good quality water from the Mossel River catchment, it is essential that throughout the catchment the following is ensured:

- 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 caused by soil erosion.
- Strict pollution control and waste management standards must be applied (see **Section G.5.4**).
- Natural wetlands in the catchment are maintained, and any damaged wetlands are rehabilitated.
- Invasive alien plants are removed / controlled (see **Section G.7.4**).
- Aquifer and surface water quality and quantity are monitored (see **Section C.6**).
- Table and discuss adaptive management actions at FAB meetings, if required.

**Action G.7.6(i):** Ensure the continued scheduled monitoring of groundwater (by Messrs Umvoto Africa) to ensure protection of groundwater quality and quantity at the FNR. File the monitoring reports produced at the EMS offices, and at the FNR.

**Action G.7.6(ii):** 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 tertiary research institutions.

### G.7.7 Coastal Zone Management

The FNR includes various fragmented land parcels at or in proximity to the coast and to the Klein River Estuary. These areas must be 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).

In addition, the following specific management actions should be effected in the coastal and estuarine areas of the FNR:

**Action G.7.7(i):** Attendance of the Klein River Estuary Forum Meetings.

**Action G.7.7(ii):** 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.).

### G.7.8 Soil Erosion and Control

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.

The following specific management actions should be effected in order to avoid or mitigate soil erosion within the FNR:

**Action G.7.8(i):** Identify areas in the FNR that may be susceptible to soil erosion for monitoring purposes, based on local geology and soils. Extensive sites of potential or aggravated soil erosion must be mapped and such areas prioritised for rehabilitation in the APO and budget for by the management of the FNR.

**Action G.7.8(ii):** Alien vegetation is to be cleared by competent contractors. Ensure that alien clearing, especially in steep areas is accompanied by phased rehabilitation of natural vegetation, to aid natural succession and prevent erosion.



**Action G.7.8(iii):** 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.

**Action G.7.8(iv):** Certain logical controlled pathways (e.g. steps and boardwalks) should be identified and constructed (e.g. for access to the seashore or viewpoints) (also refer to **Action G.5.2(iii)**).

## G.8 Natural Resource Utilisation

### G.8.1 Plants and Animals

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 there is no long term detrimental effect on the ecological and management functioning of the FNR. The extractive use of animal resources will not be considered, except if such animals are invasive species (e.g. fish).

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

- the necessary consultation with 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.

### G.8.2 Bioprospecting

Requests to collect biological material / samples from the FNR will only be considered from *bone fide* South African research institutions in terms Government Notice No. R 138 of 8 February 2008: NEM:BA Regulations on Bioprospecting, Access and Benefit-Sharing.

The EMS will authorise Bioprospecting applications after conferring with CapeNature and the Department of Environmental Affairs and Development Planning (DEA&DP), if need be.

Bioprospecting activities within the FNR must be closely monitored and regulated in terms the above provisions of the NEM:BA.

### G.8.3 Abiotic Resources

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]).

## G.9 Control over Illegal Use of Natural Resources

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 (refer to **Action G.4(iii)**). All incidents of poaching must be taken seriously, and criminal charges lodged against the perpetrators. All incidents of poaching



must be recorded. This will enable the EMS to determine whether or not 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 FNR Security Forum (refer to **Section G.4**).

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.

**Action G.9(i):** Informative signage and information pamphlets at the visitor's centre and on the Reserve (and possibly at the Tourism Bureau) should indicate that no plants or animals may be picked / moved / disturbed.

**Action G.9(ii):** 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.

## G.10 Monitoring and Evaluation

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

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 understand the causes for any biological and environmental changes noted.

The Biodiversity Conservation Manager will be responsible for continuing with all existing monitoring programmes, and for undertaking the monitoring actions listed in this IMP, 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.

## SECTION H: MONITORING AND EVALUATION

### H.1 Monitoring and Evaluation of the Integrated Management Plan

The focus of an annual environmental and management audit (to be conducted by the Biodiversity Conservation Manager or by an independent specialist environmental consulting firm) should be to assist the Management Authority in achieving the management goals (**Section D.2** refers) and to improve the management effectiveness of the Protected Area.

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 Minister (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 (e.g. the results of an annual audit).

#### AUDITING POLICY:

Environmental and management auditing is to be instituted and maintained as a fundamental management function for revising the Goals and Actions required for the sustainable management of the FNR and its natural and cultural heritage resources.

#### OBJECTIVE:

To maintain scheduled monitoring and supervision over all management activities to ensure environmental sustainability and sound environmental management, whilst ensuring optimal professionalism, productivity, and cost-effectiveness in all work spheres. This specifically refers to the following:

- Achieving all the set Goals for this IMP;
- Ensuring that the set procedures and management actions will achieve the desired results;
- Timeous application of corrective measures when negative impacts arise;
- Ensuring that the available resources are applied in the most effective manner;
- Revising the management actions according to the results of the monitoring and auditing programmes;
- Assessing the success of the management programmes for:
  - Financial and Human Resources Management;
  - Eco-Cultural Tourism and Marketing;
  - Security and Safety;
  - Infrastructure Management;
  - Natural Resource Management;
  - Cultural Heritage Resource Management; and
  - Revise such programmes if poor results are noted.

**Action H.1 (i)** The Biodiversity Manager must manage the implementation of the agreed Annual Plan of Operation (Actions and Monitoring Programmes) throughout each financial year.

**Action H.1(ii):** The Biodiversity Conservation Manager (or an appointed environmental consulting firm) must undertake an annual audit during the first quarter of each calendar year to assess whether the agreed Actions and Monitoring Programmes as listed in this IMP have been implemented. The results of each audit must be submitted to the Environmental Manager within four weeks of the audit date.

**Action H.1 (iii):** The Biodiversity Conservation Manager must assess the results of Actions and Monitoring Programmes as part of the environmental and management audit in April / May of each calendar year.

**Action H.1 (iv):** EMS must submit the results of the annual audit to the DEA&DP and to CapeNature before the end of June each calendar year.

**Action H.1 (v):** The Biodiversity Conservation Manager must implement any adaptive management, corrective or mitigation measures that are required by the annual audit report in accordance with the “Management by Objectives”<sup>33</sup> concept and the available budget. The IMP must be revised in accordance with the findings of the environmental and management audit, if revision is necessary.

Note that, in addition to auditing the results of the specific Actions and Monitoring Programmes listed in this IMP, 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), could be applied to audit the management effectiveness of the FNR’s IMP.<sup>34 35</sup>

<sup>33</sup> Management by Objectives (MBO) concentrates attention on the accomplishment of objectives through participation of all concerned parties. **Reference:** <http://kalyan-city.blogspot.com/2010/06/management-by-objectives-mbo-peter.html>. Accessed 9 July 2012.

<sup>34</sup> **Reference:** Wittridge, O. 2011. Integrated Reserve Management Plan. Helderberg Nature Reserve. City of Cape Town. 122 pp.

<sup>35</sup> Should the METT – SA be applied for environmental and management auditing purposes, it is important that the following be kept in mind:

- 1) The METT – SA is intended to report on trends in and on the effectiveness of day-to-day management, on the implementation of Actions, and on specific projects undertaken on the Reserve. Thus the score is the baseline against which future assessments are made to see if there has been an improvement or degradation.
- 2) The METT – SA score gives an indication of where improvement in management needs to focus.
- 3) The METT – SA is not intended to replace more detailed site-specific assessments (e.g. full environmental and management audits) as part of adaptive management systems.
- 4) The METT – SA has limitations in the quantitative measurement of outcomes and these should be measured by more objective and quantitative systems.
- 5) Low scores in some questions can be a reflection on the organisation that are out of the control of the Biodiversity Conservation Manager or EMS.

## **SECTION I: IMP REVIEW AND AMENDMENT PROCEDURES**

### **I.1 Requirements for Effective Implementation**

#### **I.1.1 Document Control**

The IMP is a basic planning framework guiding key management aspects of the FNR. It is important for the IMP to be revised (improved), if need be, by documenting all actions and management results in a structured format, in accordance with the results of the audits. It will be important for the IMP 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 audits are to be submitted to the EMS of the Overstrand Municipality, the advisory board, CapeNature, and to the DEA&DP on an annual basis.

### **I.2 Requirements for Continual Improvement**

The IMP should be a dynamic document, which depends on continual revision to maintain its relevance. It is, therefore, imperative for the IMP to be updated and revised in accordance with information and data that emerges from the Actions, Monitoring Programmes and Audits, and by adopting and using any new management techniques and technology that may become available in the future. The primary requirement for achieving continual improvement is scheduled reviewing by means of annual internal audits and five-yearly external audits.

#### **I.2.1 Management and Document Review**

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

The scope of each review should be comprehensive, though not all elements of the IMP need to be reviewed at once, and the review process may take place over a defined period of time. The annual and five-yearly audit 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 Audits;
- review the extent to which the goals set in the IMP have been met;
- review the applicability of the IMP 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 IMP after their completion.

The results of the annual audits are to be forwarded to the DEA&DP for compliance checking with the relevant legislation (specifically in terms of the NEM:PAA).

## SECTION J: LIST OF ACTIONS CORRELATED WITH MANAGEMENT GOALS

Goals	Action <sup>36</sup>	Description
D.2.1 D.2.3	<b>Action B.1(i):</b>	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).
D.2.6 D.2.8	<b>Action B.2(i):</b>	The Government Notice No. R. 99 of 8 February 2012: NEM:PAA Regulations for the Proper Administration of Nature Reserves must be applied. However, bylaws for the management of the FNR promulgated in terms of the Nature and Environmental Conservation Ordinance, 1974 (Ordinance No. 19 of 1974) require updating. In particular, the existing FAB Bylaw should be amended.
D.2.6	<b>Action B.3(i):</b>	Collaborate with the CapeNature Protected Area Expansion Programme to have the FNR included in the listing of the Cape Floral Kingdom World Heritage Site.
D.2.6	<b>Action B.4(i):</b>	The EMS must continue to actively participate in the review processes of the Municipal IDP, SDF, IDF and EMF documents, in order to ensure the maintenance of an effective buffer zone surrounding the FNR through appropriate land-uses adjacent to the Reserve.
D.2.6	<b>Action C.3(i):</b>	The list of properties directly adjacent to the FNR should continually be updated to reflect the latest information.
D.2.1	<b>Action C.7(i):</b>	The indigenous vegetation types on the FNR must be surveyed, described and mapped, with a view to designing a vegetation monitoring programme.
D.2.1	<b>Action C.7(ii):</b>	Investigate and implement a vegetation monitoring programme for the FNR.
D.2.1	<b>Action C.7(iii):</b>	The HBS should continue to monitor known populations of rare plant species or vegetation types, within the mountainous habitats, and along the Cliff Path, and on Hoy's Koppie. The HBS should make the results of such monitoring known to the Biodiversity Conservation Manager for the purpose of annual reporting (refer to <b>Section G.10</b> ).
D.2.1	<b>Action C.7(iv):</b>	Plant species lists must be recorded per FNR quarter degree square (3419AC and 3419AD) and submit these lists to the SANBI, in order for the SANBI to be able to accurately keep track of the number and status of plant species within each quarter degree square.
D.2.1	<b>Action C.7.7(i):</b>	The Piet se Bos restoration programme should be continued with.
D.2.1	<b>Action C.8.1(i):</b>	Initiate a survey of the invertebrate fauna of the FNR.
D.2.1	<b>Action C.8.2(i):</b>	A comprehensive survey of the inland fish species of the FNR must be initiated, and a species list should be compiled. CapeNature can be approached to assist with such fish surveys.  If the survey indicates that there is merit in the introduction of indigenous species, this will be undertaken in conjunction with CapeNature.
D.2.1	<b>Action C.8.3(i):</b>	A comprehensive survey of the herpetofauna of the FNR must be initiated, and a species list should be compiled.

<sup>36</sup> Note that the Actions identified in this IMP should be prioritised by the Reserve Management Authority (in collaboration with FAB) and used to formulate (with costing) a FNR Annual Plan of Operations / Business Plan that can be easily updated and submitted to the Minister (or MEC) annually in terms of NEM:PAA Section 41(4) that deals with "subsidiary plans".



D.2.1	<b>Action C.8.4(i):</b>	The existing bird species list must be continually updated (e.g. by the Hermanus Bird Club) and the information submitted to the EMS An MOU should be signed with the HBC for this purpose.
D.2.1	<b>Action C.8.5(i):</b>	The existing mammal species list must be continually updated.
D.2.8	<b>Action C.9.2(i):</b>	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.
D.2.6	<b>Action C.9.3(i):</b>	Update the Infrastructure Map of the FNR to include the location of all built infrastructure, roads, tracks etc.
D.2.1	<b>Action C.9.4.3(i):</b>	Maintenance of the trails is urgently required in certain areas. Such maintenance must be on-going.
D.2.6	<b>Action D.2(i):</b>	An Annual Plan of Operations (APO) may be developed in accordance with the Management plan and may be submitted to the MEC each year. The APO may also be submitted to CapeNature to keep them informed of activities on the FNR. The development of Specific APOs will be used for implementing approved task-specific management programmes (e.g. alien / invasive vegetation clearing, fire management).
D.2.6	<b>Action G.1.2(i):</b>	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.
D.2.6	<b>Action G.1.2(ii):</b>	Investigate the sourcing of funding (e.g. Greenest Town / Municipal Treasury / Expanded Public Works Programme [EPWP]) to appoint additional staff as required.
D.2.6	<b>Action G.1.2(iii):</b>	Ensure that capacity building across the FNR staff contingent takes place. Appropriate training courses should be identified on an annual basis. The attendance of training courses pertaining to Nature Reserve and Environmental Management should be mandatory for all FNR staff.
D.2.6	<b>Action G.3.1(i):</b>	Local service providers should be used where possible to maintain buildings and provide services (plumbing, electrical, mechanical)
D.2.5	<b>Action G.3.2(i):</b>	Where possible, sustain the FNR environmental education and awareness programmes specifically for surrounding neighbouring communities and general public interest groups. Collaboration between outdoor adventure operators, the HBS, and environmental education service providers should be facilitated. The use of FNR facilities by the Eco-Schools Programme and by the Boy Scouts, school groups etc. should also be promoted.
D.2.5	<b>Action G.3.2(ii):</b>	Continue to make informative pamphlets available to the public at the Visitors Centre in the FNR, at the Hermanus Tourism Bureau, and at the Old Harbour Museum. Assess and update the informative pamphlets if need be.
D.2.5	<b>Action G.3.2(iii):</b>	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.
D.2.3	<b>Action G.3.4(i):</b>	List all existing and on-going partnerships with other state bodies, institutions or persons and formalise through written agreements / MoAs.
D.2.3	<b>Action G.3.4(ii):</b>	Investigate <u>annually</u> any potentially beneficial and desirable partnerships with other state bodies, institutions or persons, and, where feasible, formalise through written agreements according to Municipal protocols and the IMP's management framework. Such partnerships could include aspects such as environmental education; fire management; crime prevention; biodiversity management; coastal management; and research.
D.2.3	<b>Action G.3.4(iii):</b>	Compile an inventory of existing lease-holdings and of privately owned buildings within the boundaries of the FNR. Compile or update written agreements / MoAs with all such lease-holders and landowners within the FNR, focussing on sound environmental management.

D.2.3	<b>Action G.3.4(iv):</b>	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.
D.2.3	<b>Action G.3.4(v):</b>	Investigate and facilitate co-management agreements with long-standing non-commercial institutions (e.g. HBS and AHC) regarding their long leases on the FNR.
D.2.1	<b>Action G.3.5(i):</b>	Develop a prioritised FNR biodiversity and cultural heritage research project list.
D.2.1	<b>Action G.3.5(ii):</b>	Develop / streamline procedures that will ensure that all abiotic and biotic data collected are captured in managed databases and GIS data layers.
D.2.5	<b>Action G.3.5(iii):</b>	Support and promote biodiversity and/or biophysical management research by students from tertiary education institutions. MoAs with such institutions, or for specific studies, must be completed.
D.2.5	<b>Action G.3.5(iv):</b>	Investigate establishing a volunteer programme where overseas researchers or tertiary education institutions pay for conducting research in the reserve.
D.2.8	<b>Action G.4(i):</b>	Ensure that visitors are aware of unsafe areas, and of security rules and regulations (i.e. through informative pamphlets and signage).
D.2.8 D.2.3	<b>Action G.4(ii):</b>	Investigate the compilation of formal agreements with the Overstrand Protection Services Directorate 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 Koppe).
D.2.8 D.2.3	<b>Action G.4(iii):</b>	The existing FNR Security Forum, under the Chairmanship of the Overstrand Protection Services Directorate, must be maintained to promote security co-ordination and affectivity.
D.2.8	<b>Action G.4(iv):</b>	Investigate the establishment of a trained Field Ranger staff component to patrol the FNR and undertake environmental monitoring.
D.2.8 D.2.3	<b>Action G.4(v):</b>	Develop and implement an integrated emergency and security strategy for the FNR that ensures collaboration with all relevant institutions. Such a plan should include, <i>inter alia</i> , measures with respect to wildfires, medical emergencies and criminal incidents.
D.2.8	<b>Action G.4(vi):</b>	Ensure that the APO includes prioritised safety and security management actions.
D.2.8 D.2.3	<b>Action G.4(vii):</b>	Investigate the implementation of restricted night-time vehicular access to Rotary Drive, in collaboration with the relevant Departments and adjacent landowners in this area.
D.2.6	<b>Action G.5.1(i):</b>	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.
D.2.6	<b>Action G.5.1(ii):</b>	Review the desirability and effectiveness of all present FNR infrastructure with regard to: <ul style="list-style-type: none"> <li>• Adequacy</li> <li>• State of repair</li> <li>• Existing maintenance plans and programmes</li> <li>• Visitor and staff use</li> <li>• Environmental impacts (negative and positive)</li> <li>• Income generation</li> <li>• Possibilities of outsourcing</li> </ul>
D.2.6	<b>Action G.5.1(iii):</b>	Include infrastructure development and maintenance in the APO and budget for the FNR.

D.2.1	<b>Action G.5.2(i):</b>	Beacons are only in place at some points along the boundary of the FNR. It is essential that the Reserve boundary points be surveyed and physically demarcated.
D.2.1	<b>Action G.5.3(i):</b>	All vehicle roads and tracks must be evaluated and recommendations made for new vehicle roads and tracks / hiking trails, repair or closure (with rehabilitation measures) of existing ones.
D.2.1 D.2.2	<b>Action G.5.4(i):</b>	Develop, install and maintain effective standardised solid waste receptacles for the FNR that are animal and baboon-proof, including fishing-line bins where required.
D.2.1	<b>Action G.5.4(ii):</b>	All existing sewage systems in the FNR must be investigated for legal compliance, and must be replaced / upgraded with appropriate sewage systems.
D.2.1	<b>Action: G.5.4(iii):</b>	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.
D.2.1	<b>Action G.5.4(iv):</b>	All leaking sewage and water pipelines, taps and valves must be replaced as soon as their malfunction has been noticed.
D.2.1	<b>Action G.5.4(v):</b>	All new bulk engineering services such as electricity, sewage and potable water pipelines must be located so as to minimise any negative environmental impacts, including negative aesthetic impacts.
D.2.1	<b>Action G.5.4(vi):</b>	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.
D.2.1	<b>Action G.5.5(i):</b>	Effective environmentally friendly sewage facilities, energy and water-saving devices and technologies should be fitted in existing and new buildings wherever possible.
D.2.7	<b>Action G.6(i):</b>	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).
D.2.7	<b>Action G.6(ii):</b>	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.
D.2.7	<b>Action G.6(iii):</b>	Include the management and maintenance of heritage and cultural resources in the APO and budget for the FNR.
D.2.7	<b>Action G.6(iv):</b>	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.
D.2.1	<b>Action G.7.3(i):</b>	If alien fish species do occur within the rivers of the FNR, a management strategy must be developed to eradicate the specific species or minimise their negative impacts.
D.2.1	<b>Action G.7.3(ii):</b>	Fishery management guidelines must be developed following the results of a comprehensive survey of the fish species of the FNR.
D.2.1	<b>Action G.7.4(i):</b>	Develop a phased 5-year plan to address the existing non-invasive alien plants in the FNR.
D.2.1	<b>Action G.7.4 (ii):</b>	Develop an on-going time-bound programme to effectively control declared alien weeds and invader plants within the FNR. Where required, this programme must also address the re-planting / rehabilitation of relevant areas with indigenous plants.
D.2.1	<b>Action G.7.4(iii):</b>	In addition to clearing declared weeds and invader plants, the following must be undertaken:

		<ul style="list-style-type: none"> <li>• <i>Virgila divaricata</i> is an indigenous invasive species, and should be removed from the Reserve.</li> <li>• 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 Kopie before they spread further.</li> </ul>
D.2.1	<b>Action G.7.5(i):</b>	Develop a FNR Fire Best-Practice Manual to outline the following: Fire management objectives, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required
D.2.1	<b>Action G.7.5(ii):</b>	Formalise MoAs comprising so-called "Fire Management Agreements" with the members of the Greater Overberg Fire Protection Association, in order to allow for: <ul style="list-style-type: none"> <li>• legal protection in the event of a wildfire starting on the FNR and crossing over to a neighbouring property or vice versa;</li> <li>• co-operative fire-fighting on each other's properties in the event of a wildfire; and</li> <li>• agreement with regard to the positioning and width of fire control belts.</li> </ul>
N D.2.1	<b>Action G.7.5(ii):</b>	Establish post fire surveys after 18 months and establish permanent monitoring plots in these areas. Note in particular the re-establishment of any threatened species.
D.2.1	<b>Action G.7.6(i):</b>	Ensure the continued scheduled monitoring of groundwater (by Messrs Umvotu Africa) to ensure protection of groundwater quality and quantity at the FNR. File the monitoring reports produced at the EMS offices, and at the FNR.
D.2.1 D.2.3	<b>Action G.7.6(ii):</b>	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 tertiary research institutions.
D.2.2	<b>Action G.7.7(i):</b>	Attendance of the Klein River Estuary Forum Meetings.
D.2.1	<b>Action G.7.7(ii):</b>	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.).
D.2.1	<b>Action G.7.8(i):</b>	Identify areas in the FNR that may be susceptible to soil erosion for monitoring purposes, based on local geology and soils. Extensive sites of potential or aggravated soil erosion must be mapped, and such areas prioritised for rehabilitation in the APO and budget for the management of the FNR.
D.2.1	<b>Action G.7.8(ii):</b>	Alien vegetation is to be cleared by competent trained staff / volunteers / contractors. Ensure that alien clearing, especially in steep areas is accompanied by phased rehabilitation of natural vegetation, to aid natural succession and prevent erosion.
D.2.1	<b>Action G.7.8(iii):</b>	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.
D.2.1 D.2.2	<b>Action G.7.8(iv):</b>	Certain logical controlled pathways (e.g. steps and boardwalks) should be identified and constructed (e.g. for access to the seashore or viewpoints) (also refer to <b>Action G.5.2(iii)</b> ).
D.2.1	<b>Action G.9(i):</b>	Informative signage and information pamphlets at the visitor's centre and on the Reserve (and possibly at the Tourism Bureau) should indicate that no plants or animals may be picked / moved / disturbed.
D.2.1	<b>Action G.9(ii):</b>	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.
D.2.6	<b>Action H.1(i):</b>	The Biodiversity Manager must manage the implementation of the agreed Annual Plan of Operation (Actions and Monitoring Programmes) throughout each financial year.

D.2.6	<b>Action H.1(ii):</b>	The Biodiversity Conservation Manager (or an appointed environmental consulting firm) must undertake an annual audit during the first quarter of each calendar year to assess whether the agreed Actions and Monitoring Programmes as listed in this IMP have been implemented. The results of each audit must be submitted to the Environmental Manager within four weeks of the audit date.
D.2.6	<b>Action H.1(iii):</b>	The Biodiversity Conservation Manager must assess the results of Actions and Monitoring Programmes as part of the environmental and management audit in April / May of each Calendar year.
D.2.6	<b>Action H.1(iv):</b>	EMS must submit the results of the annual audit to the DEA&DP and to CapeNature before the end of June each calendar year.
D.2.6	<b>Action H.1 (v):</b>	The Biodiversity Conservation Manager must implement any adaptive management, corrective or mitigation measures that are required by the annual audit report in accordance with the "Management by Objectives" <sup>37</sup> concept and available budget. The IMP must be revised in accordance with the findings of the environmental and management audit, if revision is necessary.



## SECTION K: ACKNOWLEDGEMENTS

The Overstrand Municipality would like to formally 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 HBS, the Fernkloof Nature Reserve Advisory Board and the CPMG. 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 FNR 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”*.

The general format, and some of the content of this IMP was sourced and adapted from the *“Matatiele Nature Reserve: Integrated Environmental Management Plan 2008 – 2012”*, which was compiled by Mr D. Heard for the Matatiele Local Municipality, Eastern Cape Province, South Africa.

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

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## SECTION L: TABLES

**Table 1:** Vegetation Types of the current FNR.

Ecosystem	National Status and Criterion	Remaining natural area of ecosystem	Red data and endemic species	% Formally Conserved	National Target	% of FNR
<b>Southern Afro-temperate Forest</b>	Least Threatened	...	...	> 50% of remaining area	34%	<0.1%
	N/A		11 endemic spp.			
<b>Western Cape Milkwood Forest</b>	Endangered	2000ha	...	2% of remaining area	All remaining Milkwood Forests must be protected.	<0.1%
	<b>C</b> Limited geographic extent and faced with imminent threat.		...			
<b>Overberg Sandstone Fynbos</b>	Critically Endangered	86%	105 red data spp.	6% of original area	30%	77.78%
	<b>D1</b> ≥ 80 threatened red data plant species		114 endemic spp.			
<b>Western Coastal Shale Band Vegetation</b>	Least Threatened	...	...	45% of original area	30%	4%
	N/A		7 endemic spp.			
<b>Agulhus Limestone Fynbos</b>	Vulnerable	64%	49 red data spp.	8% of original area	32%	7.4%
	<b>D1</b> ≥ 40 threatened red data plant species		47 endemic spp.			
<b>Hangklip Sand Fynbos</b>	Endangered	45%	32 red data spp.	20% of original area	30%	0.14%
	<b>A1</b> Remaining natural habitat ≤ (biodiversity target + 15%)		5 endemic spp.			
<b>Cape Lowland Freshwater Wetlands</b>	...	...	...	14%	24%	0.79%
	N/A		4 endemic spp.			

**Table 2: Applicable Legislation: Biodiversity and Cultural Resource Management and Development**

NAME OF ACT OR ORDINANCE	PRIMARY FUNCTIONS	RESPONSIBLE AUTHORITY
National Environmental Management Act, 1998 (Act 107 of 1998)	Control of activities that may have a detrimental effect on the environment, preparation and contents of Environmental Impact Reports.	Provincial Department of Environmental Affairs and Development Planning (DEA&DP) and DEA
National Water Act 1998 (Act No. 36 of 1998) and the National Water Amendment Act, 199 (Act No. 45 of 1999)	To provide for fundamental reform of the law relating to water resources.	DWA
National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)	To provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local Protected Areas; for the management of those areas; for inter-governmental cooperation and public consultation in matters concerning Protected Areas, and for matters in connection therewith.	National Department of Environmental Affairs (DEA), Provincial Department of Environmental Affairs and Development Planning (DEA&DP) and CapeNature
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	To provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources.	National Department of Environmental Affairs (DEA), DEA&DP, and CapeNature
Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)	To, <i>inter alia</i> , establish a system of integrated coastal and estuarine management, including norms, standards and policies, in order to promote the conservation of the coastal environment, and maintain the natural attributes of coastal landscapes and seascapes, and to ensure that development and the use of natural resources within the coastal zone is socially and economically justifiable and ecologically sustainable.	DEA and DEA&DP
Animals Protection Act 1963, (Act No. 71 of 1963)	Legislation to consolidate and amend the laws relating to the prevention of cruelty to animals.	DEA
National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)	To reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for the licensing and control of waste management activities.	DEA
Nature and Environmental Conservation Ordinance, 1974 (Ordinance No. 19 of 1974)	Regulates the establishment and management of provincial reserves and private nature reserves, the protection of wild animals, fish in internal waters and flora in the Cape Province.	CapeNature
Western Cape Nature Conservation Board Act, 1998 (Act No. 15 of 1998)	The purpose of this act is to promote and ensure nature conservation, render services and provide facilities for research and training, and to generate income.  Biodiversity Agreements are signed under this act	CapeNature
Western Cape Nature Conservation Laws Amendment Act, 2000 (Act No. 3 of 2000)	To provide for the amendment of various laws on nature conservation.	CapeNature
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	Control of the utilisation and protection of wetlands, soil conservation, and related matters, control and prevention of veld fires, control of weeds and invader plants.	DAFF (Dept. of Agriculture, Forestry and Fisheries)

NAME OF ACT OR ORDINANCE	PRIMARY FUNCTIONS	RESPONSIBLE AUTHORITY
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	Controls for, and protection of, natural and historical monuments, artefacts, relics, archaeological, paleontological or anthropological finds.	Heritage Western Cape
Forest Act, 1984 (Act No. 122 of 1984)	Provides for the protection, management and utilisation of certain plant and animal life, biota and ecosystems, and the prevention and combating of veld, forest and mountain fires. Prohibits vandalism and littering.	DAFF
National Forests Act, 1998 (Act No 84 of 1998).	To reform the law on forests; to repeal certain laws; and to provide for related matters.	DAFF
National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998).	To reform the law on veld and forest fires; to repeal certain provisions of the Forest Act, 1984; and to provide for related matters.	DAFF, local authorities (Fire and Disaster Management Department)
National Forest and Fire Laws Amendment Act, 2001 (Act No. 12 of 2001)	To amend the National Forests Act, 1998, so as to amend certain definitions; to make further provision regarding the possession and disposal of trees and forest products in natural forests etc.	DAFF, local authorities (Fire and Disaster Management Department)
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	To provide for the health and safety of persons at work (e.g. poison application to alien / invasive vegetation) and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work.	National Department of Labour
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)	To provide for enhancing the quality of ambient air for the sake of securing an environment which is not harmful to the health and well-being of the people	DEA and DEA&DP
Animal Diseases Act, 1984 (Act No. 35 of 1984)	Provides for control measures relating to animal diseases	DAFF
Animal Health Act, 2002 (Act No. 7 of 2002)	Regulates animal health	DAFF
Game Theft Act, 1991 (Act No. 105 of 1991)	Regulates the ownership and protection of game	National Department of Justice and Constitutional Development
Mountain Catchment Areas Act, 1970 (Act No.63 of 1970)	Provides for catchment conservation	CapeNature
World Heritage Conservation Act, 1999 (Act No. 49 of 1999)	Incorporates the World Heritage Convention into South African law	South African Heritage Resources Agency and Heritage Western Cape
UNESCO, 1996. Biosphere reserves: The Seville Strategy and the Statutory Framework of the World Network. UNESCO, Paris	Recommendations for developing effective biosphere reserves and for setting out the conditions for the appropriate functioning of the World Network of Biosphere Reserves.	DEA, DEA&DP and CapeNature
Draft Western Cape Bill on Biosphere Reserves, 2009	To facilitate the designation, management and planning of biosphere reserves, and to provide for matters incidental thereto.	DEA&DP, CapeNature
Land Use Planning Ordinance, 1985 (Ordinance No. 15 of 1985)	Applies to the Western Cape and includes sections on structure plans, zoning schemes (i.e. the regulation of development), the way in which applications may be made for new development rights, appeal rights etc.	DEA&DP, DAFF, and Overstrand Municipality
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002 )	Provides for equitable access to and sustainable development of mineral and petroleum resources	Department of Mineral Resources
Problem Animal Control Ordinance, 1957 (Ordinance No. 26 of 1957)	Regulates problem animals	CapeNature

**Table 3: Applicable Legislation: General Reserve Management**

NAME OF ACT OR ORDINANCE
Development Facilitation Act 1995 (Act No. 67 of 1995)
Disaster Management Act, 2002 (Act No. 57 of 2002)
Fencing Act, 1963 (Act No. 13 of 1963)
Firearms Control Act, 2000 (Act No. 60 of 2000)
Fire Brigade Services Act, 1987 (Act No. 99 of 1987)
Hazardous Substances Act, 1973 (Act No. 15 of 1973)
Development Facilitation Act, 1995 (Act No. 67 of 1995)
Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000)
Game Theft Act, 1991 (Act No 105 of 1991)
Local Government: Municipal Structures Act, 1998 (Act No. 117 of 1998)
National Building Standards Act, 1977 (Act No. 103 of 1977)
Hermanus Municipality: Bylaw relating to the Advisory Board for the Fernkloof Nature Reserve P.N. 667/1979 28/9/1979.
Other applicable Municipal Bylaws
Municipal Scheme Regulations

**Table 4: Applicable Legislation: Financial and Human Resource Management**

NAME OF ACT OR ORDINANCE
Criminal Procedures Act, 1997 (Act No. 51 of 1977)
Local Government : Municipal Finance Management Act, 2003 (Act No. 56 of 2003)
Municipal Finance Management Act, 2003 (Act No. 56 of 2003)
Public Finance Management Act, 1999 (Act No. 1 of 1999)
Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997)
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)
Compensation for Occupational Injuries and Diseases Act, 1993 (Act No. 130 of 1993)
Employment Equity Act, 1998 (Act No. 55 of 1998)
Labour Relations Act, 1995 (Act No. 66 of 1995)
Pension Funds Act, 1956 (Act No. 24 of 1956)
Skills Development Act, 1998 (Act No. 97 of 1998)
Skills Development Levies Act, 1999 (Act No. 9 of 1999)
Unemployment Insurance Act, 2001 (Act No. 63 of 2001)

**Table 5: 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 (refer to attached Figures). 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	Glenvarlock	Yes
1/591	Glenvarlock	Yes
2/591	Glenvarlock	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
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		Proposed extension
Erf 4771 (Strip of land north of 5th Street, Hermanus)		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 <sup>th</sup> Avenue and 12 <sup>th</sup> Avenue, Hermanus, presently known as 'The Grotto'.		Proposed extension



**Table 6: Management Units and Parameters (refer to Figure 4)**

Description	Use	Activities	Infrastructure
<b>Conservation Management Unit</b>			
Natural area for the conservation of endemic and threatened species, low intensity recreation and the implementation of management activities for the protection of natural areas. This area is designated for the conservation and enjoyment of nature.	Resource Management Use	Fire management, alien invasive species management, infrastructure management, research, monitoring, law enforcement and compliance monitoring.	Vehicle tracks and tarred roads, fences, gates, fire access routes, jeeptrack, dams, pump stations, bridges, power line servitudes, boardwalks, safety and security cameras, gateway monitoring and relay stations.
	Low impact nature based recreational use	For example (but not limited to): Environmental education and interpretation (including guiding), hiking, bird watching, photography, mountain biking in designated areas, flower picking (for exhibitions only).	Hiking trails, mountain bike trails, overnight huts, bird hides, 4X4 trails.
<b>Development Management Unit</b>			
Developed areas for the provision of access, management infrastructure, accommodation, high intensity recreation and commercial use. 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 zone.	Low/High intensity management and recreational use.	For example (but not limited to): adventure and team-building activities, commercial and community activities, educational activities, research activities, picnicking and tourism activities, landscape viewing.	Management offices, nursery, herbarium, tourism office, botanical gardens, model aircraft flying sites, utility areas and management infrastructure.
<b>Potential Development Management Unit (Cross-hatched with yellow)</b>			
Areas identified for potential development of access, management infrastructure, accommodation, high intensity recreation and commercial use. 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 zone.	Low/High intensity management and recreational use.	For example (but not limited to): Bird watching, landscape viewing and retail, zip-lining, 4X4 trails, Astronomy, camping and picnicking, boat launching, hospitality services.	Birdhides, educational centres, cable way with landing stations, coffee shop, conference facility, Astronomy centre, parking areas, accommodation units, picnic sites, public launching sites, ablution facilities, zip-lining cables and platforms.

## **Figure 1: Regional Locality Map**

## **Figure 2: Local Context Map**

## **Figure 4: Management Units Map**