



Management Plan

for the Grotto Bay Nature Reserve

Western Cape, South Africa

Protected Area Management Plan

2025-2035

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STATUS

The Grotto Bay Private Nature Reserve was declared under the Western Cape Nature Conservation Ordinance, 19 of 1974.

Declaration Date:	Government Gazette Notice:
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AUTHORISATION

This Protected Area Management Plan for the Grotto Bay Nature Reserve was drafted and recommended by the Grotto Bay Homeowners Association.

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PART A • Strategic Management Plan

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Abbreviations

APO	Annual Plan of Operation
CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Area
CBD	Convention on Biological Diversity
CEO	Chief Executive Officer
CoAE	Certificate of Adequate Enclosure
CFR	Cape Floristic Region
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMA	Catchment Management Authority
CR	Critically Endangered
DEA&DP	Department of Environmental Affairs and Development Planning
DEA	National Department of Environmental Affairs
DAFF	Department of Agriculture, Forestry and Fisheries
DoA	Department of Agriculture Western Cape
DWA	National Department of Water Affairs
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EN	Endangered
ESA	Ecological Support Area
EWT	Endangered Wildlife Trust
FEPA	Freshwater Ecosystem Priority Area
FPA	Fire Protection Association
GIS	Geographical Information System
IDP	Integrated Development Plan (Municipal)
IUCN	International Union for the Conservation of Nature
LC	Least Concern
LT	Least Threatened
LUPA	Western Cape Land Use Planning Act
MA	Management Authority
MAB	Man and the Biosphere Programme
MCA	Mountain Catchment Area
MCM	National Department of Marine and Coastal Management
MEC	Member of the Executive Council
METT	Management Effectiveness Tracking Tool
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPA	Marine Protected Area
NBA	National Biodiversity Assessment
NEM:BA	National Environmental Management: Biodiversity Act
NEM:PAA	National Environmental Management: Protected Areas Act
NEMA	National Environmental Management Act
NFEPA	National Freshwater Ecosystem Priority Area
NGO	Non-governmental Organisation
NN	No Natural
NPAES	National Protected Area Expansion Strategy
NR	Nature Reserve
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act

ONA	Other Natural Area
PA	Protected Area
PAMP	Protected Area Management Plan
PBSAP	Western Cape Provincial Biodiversity Strategy and Action Plan
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SDF	Spatial Development Framework
SMP	Strategic Management Plan
SOB	State of Biodiversity Report
SPLUMA	Spatial Planning and Land Use Management Act
SDF	Municipal Spatial Development Framework
SEA	Strategic Environmental Assessment
SMME	Small, Micro and Medium Enterprises
SMP	Strategic Management Plan
SWOT	Strengths, weaknesses, opportunities and threats analysis
TMF	Table Mountain Fund
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCC	United Nations Framework Convention on Climate Change
VU	Vulnerable
WCBB	Western Cape Biodiversity Bill
WCBF	Western Cape Biodiversity Framework
WCBSP	Western Cape Biodiversity Spatial Plan
WCPAES	Western Cape Protected Area Expansion Strategy
WWF-SA	World Wildlife Fund for Nature South Africa

PART A

STRATEGIC MANAGEMENT PLAN

BACKGROUND

Purpose of the plan

Management plans for biodiversity stewardship sites are strategic documents that provide the framework for the development and operation of biodiversity stewardship sites. They inform management at all levels, from the landowner through to support staff within CapeNature. The purpose of the management plan is to:

- Provide the primary strategic tool for management of [Insert site's name], informing the need for specific programmes and operational procedures.
- Provide for capacity building, future thinking and continuity of management.
- Enable the landowner to develop and manage [Insert site's name] in such a way that its values and the purpose for which it has been established are protected.

Structure of the plan

Section 1:	Background. Provides an overview of the guiding legislation, an introduction to protected area management planning centred on the adaptive management cycle with a focus on implementing the management support framework.
Section 2:	Site Description. Provides an introduction of the site and ownership as well as the administrative structure. This section looks to establish the context of the biodiversity stewardship site, including the regional and local planning, zonation plan as well as management units. These all provide the basis for the strategic management framework that follows.
Section 3:	Strategic Management Framework. Lays out the management authority's high-level strategic decisions that guide the operational management of the reserve.
Section 4:	Operational Management Guidelines. Provides guiding principles and factors to be considered for coordinated actions.

Guiding Legislation

There is a large body of legislation that is relevant to the management of Nature Reserves, but the primary legislation guiding the management of protected areas is the National Environmental Management: Protected Areas Act (No.57 of 2003) (Hereafter referred to as the Act). The Act establishes the legal basis for the creation and administration of protected areas in South Africa, as its objectives include provisions "for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes". The Act sets out the mechanisms for the declaration of protected areas and the requirements for their management.

In the Western Cape, CapeNature is the Provincial Conservation Authority and its Biodiversity Stewardship Programme facilitates the establishment and management of protected areas on private land.

A detailed list of relevant legislation is provided in Appendix A. Landowners should familiarise themselves with the purpose and contents of the statutes and their subsequent amendments and regulations.

Purpose of declaring protected areas

According to S17 of NEM:PAA, the purpose of declaring an area as a protected area are:

- i) to protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected areas;
- ii) to preserve the ecological integrity of those areas;
- iii) to conserve biodiversity in those areas;
- iv) to protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;
- v) to protect South Africa's threatened or rare species;
- vi) to protect an area which is vulnerable or ecologically sensitive;
- vii) to assist in ensuring the sustained supply of environmental goods and services;
- viii) to provide for the sustainable use of natural and biological resources;
- ix) to create or augment destinations for nature-based tourism;
- x) to manage the interrelationship between natural environmental biodiversity, human settlement and economic development;
- xi) generally, to contribute to human, social, cultural, spiritual and economic development;
or
- xii) to rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.

Declaration status of Grotto Bay Nature Reserve

Grotto Bay Private Nature Reserve was declared under the Western Cape Nature Conservation Ordinance, 19 of 1974. Private nature reserves are protected areas which have been established under both national and provincial legislation prior to the operation of the National Environmental Management: Protected Areas Act of 2003 and are recognised as nature reserves in terms of section 12 and 23 of the Act.

Grotto Bay has undertaken the Verification and Validation process for Private Nature Reserves and is in the process of becoming compliant with the Regulations for Protected Areas in South Africa, as set out under the 2003 Protected Areas Act.

See **Appendix B** – Copy of Grotto Bay Nature Reserve Declaration Notice.

Adaptive management

The preparation of this management plan has been undertaken based on the guiding principles of adaptive management, which is a structured, iterative process in which decisions are made using the best available information, with the aim of obtaining better information through monitoring of performance (Figure 1.1). In this way, decision making is aimed at achieving the best outcome based on current understanding, whilst accruing the information needed to improve future management. Adaptive management can lead to revision of a part or, if necessary, the whole management plan.



Figure 1.1 The adaptive management cycle.

Adaptive management enables landowners and managers to:

- Learn through experience.
- Take account of, and respond to, changing factors that affect the biodiversity stewardship site.
- Develop or refine management processes.
- Adopt best practices and new innovations in biodiversity conservation management.
- Demonstrate that management is appropriate and effective.

Management Support Framework

The National Environmental Management of Protected Areas (NEMPA) Act of 2003 mandates that a management plan must be prepared by the management authority, as outlined in Sections 39 and 41. This plan must include a program for implementation and its associated costs (APO and budget). Section 43 further requires the management authority to monitor and report annually.

To support effective Protected Area management, a range of tools and a structured support system have been developed. These tools provide meaningful assistance and guidance from the provincial conservation authority to landowners. Key components include:

- **Integrated Management Plans:** A template that integrates with the Protected Area (PA) management system.
- **APO Implementation:** An Annual Plan of Operation (APO) that serves as both a management tool and a reporting mechanism based on the PA management plan.
- **Monitoring & Management Solutions:** Identified management gaps from the Management Review, METT Assessments, and PAMP are addressed in the APO, with customized monitoring and implementation strategies.
- **Effective Data Collection, Storage & Analysis:** Development of efficient, secure, and robust data platforms can be tailored to the needs of the PA.

These have all helped contribute towards effective management where improved management decisions can be made from the combined use of these tools. The Management Support Framework, Figure 1.2, provides for an overview on where these tools and structures integrate. In this framework, the Protected Area Management Plan is at the centre. This Management Plan is developed according to the relevant Key Performance Areas (KPA) and the associated objectives. The APO then translates the Management Plan into prioritized and scheduled actions. Monitoring and evaluation tools, such as the Management Review and METT assessment, are provided to management authorities to help enable focused management and technical support.

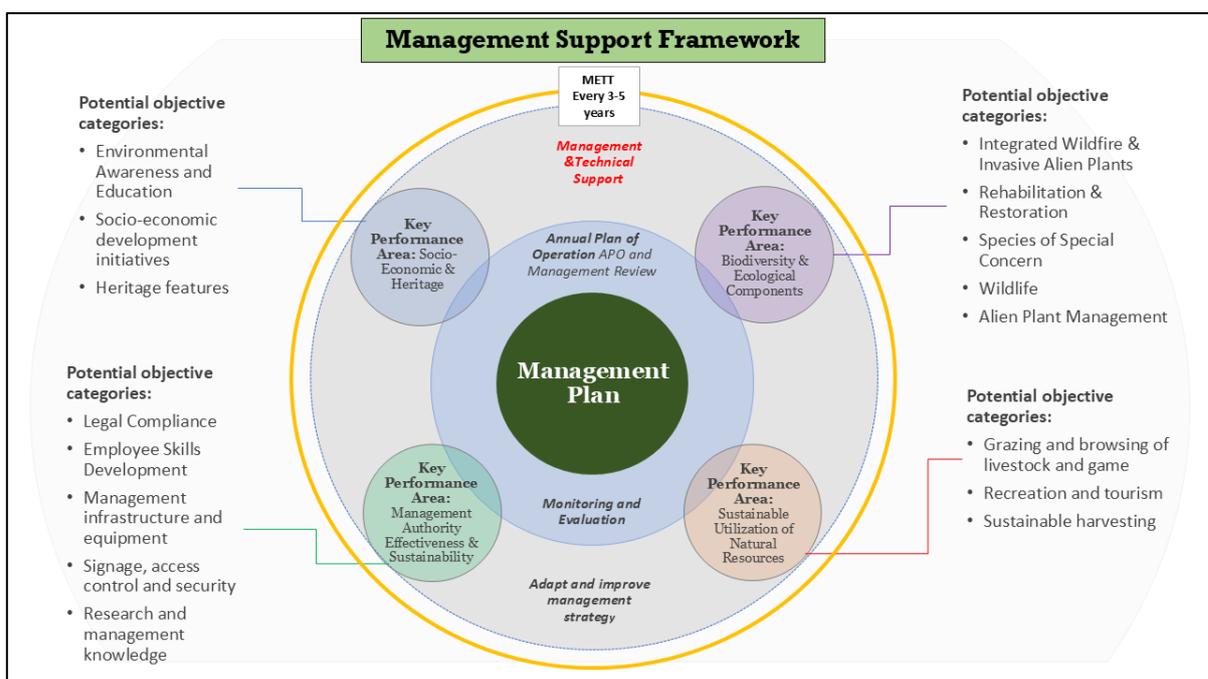


Figure 1.2 The Management Support Framework.

The Annual Plan of Operation

The Annual Plan of Operation (APO) forms an integral part (Part B) of the Protected Area Management Plan. The APO is documented within an associated excel spreadsheet (as shown in **Annexure E**) and enables the synthesizing of the Protected Area Management Plan. The following reasons enable better tracking of management progress which leads to better management support for landowners. This APO process allows for:

- for ease of use as a management tool;
- to facilitate updates and changes;
- to simplify the annual audit process;

- to simplify the drafting of subsequent versions of the APO after the annual review and planning workshop.

The Annual Plan of Operation template, or APO as it is commonly referred to, was developed and now maintained through a partnership between Conservation Outcomes, Conservation Management Solutions, and CapeNature with funding made available by the Table Mountain Fund. The initial development of the APO template was made possible by a WWF Nedbank Green Trust grant, and a partnership with Conservation Outcomes. The original template has further been customised specifically for the needs of CapeNature and their Stewardship Program.

This APO tool is intended to be used, firstly, as a tool to facilitate the management of day-to-day tasks of the protected area. Secondly, to provide a platform to compile and submit the Annual Report, and lastly to provide a structure to undertake an Annual Review of management interventions carried out for the year. The APO links directly to the protected area management plan's Key Performance Areas and Objectives. In essence, the APO is a work plan or a short-term schedule for implementing the Operational Plan of the protected area management plan (PAMP). It typically lists tasks required, who will be responsible for each task, when each task will need to be undertaken, and the budget required to implement the work plan.

In the APO, specific Management Activities under each Objective are assigned to a staff member and a time period for completion of the task agreed to. Performance and progress of each assigned staff member's tasks can be tracked monthly throughout the year and problems addressed at regular team meetings. The intention is that if the Management Activities are completed under each Objective and KPA, then the overall Objectives of the protected area will be met and management effectiveness of the protected area will improve.

The second function of the APO tool is its ability to automatically generate an Annual Report based on the contents of the APO. This report can be used to inform the Provincial Conservation Authority, the protected area board, or donor organisations on progress of management of the protected area for the year.

The third function is the ability to undertake an Annual Review of the management effectiveness of the protected area. This can either be in the form of a self-assessment by the management team on the ground, or as a facilitated self-assessment carried out with the guidance and support of an extension officer, or an assessment carried out in the presence of a CapeNature official.

Monitoring and Evaluation

Monitoring and evaluation are an essential component of the adaptive management process. Long-term monitoring and evaluation form a clear management baseline and enables the reserve management team to determine if the implemented management activities are achieving the intended outcomes in terms the identified Objectives within each Key Performance Area (KPA). It is recommended that the Protected Area undertakes an Annual Management Review which is built into the APO tool. Additional ecological indicators may be required to effectively monitor species and ecosystem health. Every action in the APO has a Key Performance Indicator (KPI) and target. The Key Performance Indicator reflects whether an action has been identified as being completed, on track, major issues, minor issues, abandoned or planned. The target is the evidence that has been identified as necessary to complete the activity. Monitoring and reporting on these targets enable the assessment of management effectiveness. The KPIs and targets can also be used to measure the performance of personnel responsible for implementing the different aspects of the management plan. During the annual review and planning workshop, performance against KPI targets must be assessed in order to accurately inform the actions in the following year's APO.

The Annual Review and Planning Workshop

Management Review

The purpose of undertaking an annual management review of the protected area management plan will be to:

- Determine how effectively the management plan has been implemented.
- Assist in determining the focus for the annual plan of operation and the setting of appropriate time frames and budgets.
- Enable effective adaptive management by identifying changes and modifying management interventions.

This Management Review enables insights for more focussed discussion when the Stewardship Facilitator undertakes a site visit. This annual review and APO Annual Report will form the basis of the management plan review. This should include records of recommendations for update/changes to the annual revision of the management schedules as well as the ten-year plan (**Section 1.9**).

Drafting the next year's APO

Either as part of the review process or directly after the review, the reserve management team should compile the list of management actions for the following years APO.

The following steps should be taken:

- Using the Management Review of the previous year's management actions under each Management Objective. Make note of actual performance relative to the year's plan previously set. Discuss challenges experienced and ways to overcome them.
- You can now revise the year ahead's plan, the associated actions, evidence, responsible person, priority of the action, budget and deadlines, if necessary. If the evidence used previously was found to be an ineffective indicator, specify a different requirement.
- Systematically work through the APO by first addressing the weak management points picked up in the management review and prioritise accordingly.

Ten-year revision of the Strategic Management Plan

Legislation stipulates a maximum of a ten-year management period prior to the revision of the (Part A) Strategic Management Plan (SMP). The SMP can be revised after a shorter management period and this is recommended for a newly establish Nature Reserve where significant management outcomes and infrastructure development is taking place.

Annual Costing Plan

The annual budget is captured in the Annual Plan of Operation. See **Appendix E** (copy of APO).

Site Description

Introduction

Grotto Bay Private Nature Reserve, 356 ha in size, is situated in the Swartland Local Municipality, which forms part of the West Coast District Municipality. The nature reserve links with Ganzekraal Conservation Area and forms part of the bigger north/south (WCNP Buffer Zone) and east/west (DCCP) landscape-scale corridors. Two of the vegetation types found on the property are the critically endangered Atlantis Sand Fynbos and Swartland Shale Renosterveld. A portion of the property contributes to the Western Strandveld Floodplain Wetland and the Modder Rivier estuary. Grotto Bay Estate is present on portion 721/3 with a total of 220 plots (of which 196 currently built), which have access to the Nature Reserve. The Nature Reserve is a reactive site for the Estate developments. The Green belts and open areas within the estate are also well managed and kept in the natural state with a dedicated Conservation/Estate Manager.

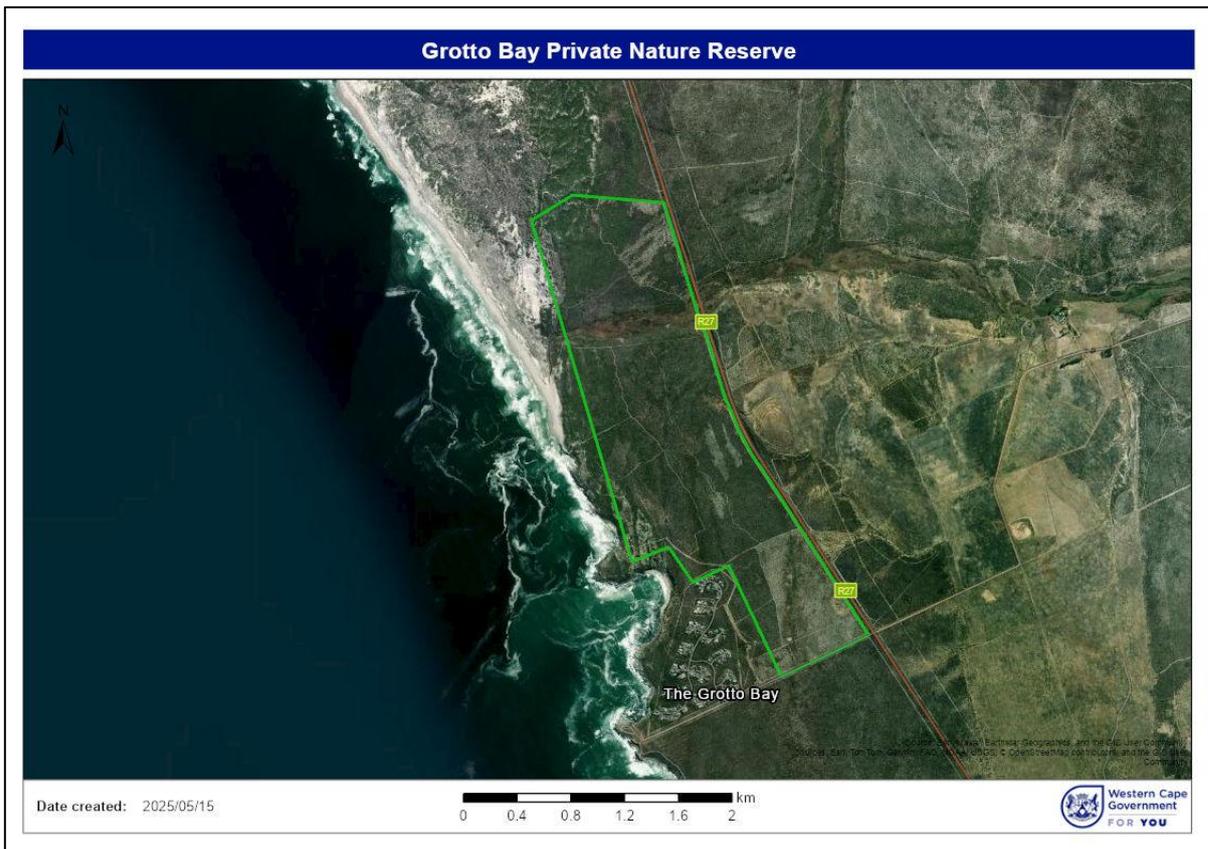


Figure 2.1 Regional location of Grotto Bay Nature Reserve.

The map below (**Figure 2.2**) indicates the area that the Grotto Bay Homeowners Association manages, which includes the Grotto Bay Nature Reserve and the Grotto Bay Estate (not part of the nature reserve).



Figure 2.2 Location of Grotto Bay Nature Reserve and Grotto Bay Estate.

Landowner details

Owner	Grotto Bay Homeowners Association
Contact person/s	Jacqui Miller or Roy Lawrence
Contact details – Tel.	0829213621 0836800341
Contact details – email	Jacqui@grottobay.org manager@grottobay.org
Management Authority	Grotto Bay Homeowners Association
Property descriptions	Remainder of Portion 2 of the Farm Modderivier No. 721, Registration Division Malmesbury, in the Province of Western Cape
Title deed number	T89835/1993
Total property area	356.1678 ha - Grotto Bay Private Nature Reserve; 63.7 ha - Grotto Bay Estate

Administrative structure

The landowner is appointed as the Management Authority for the Nature Reserve as agreed to in the Management Agreement concluded between CapeNature and the landowner. In the case of the Grotto Bay Nature Reserve, the Management Authority is the Grotto Bay Homeowners Association.

Where applicable, management decisions can be made collaboratively between the Management Authority and CapeNature, however the Management Authority is responsible for the management of the reserve and carries the ultimate decision-making responsibility. The Management Authority is required to submit a copy of their Annual Plan of Operation to CapeNature.

Management decisions are made according to the following organogram for the Grotto Bay Homeowners Association (**Figure 2.3**).

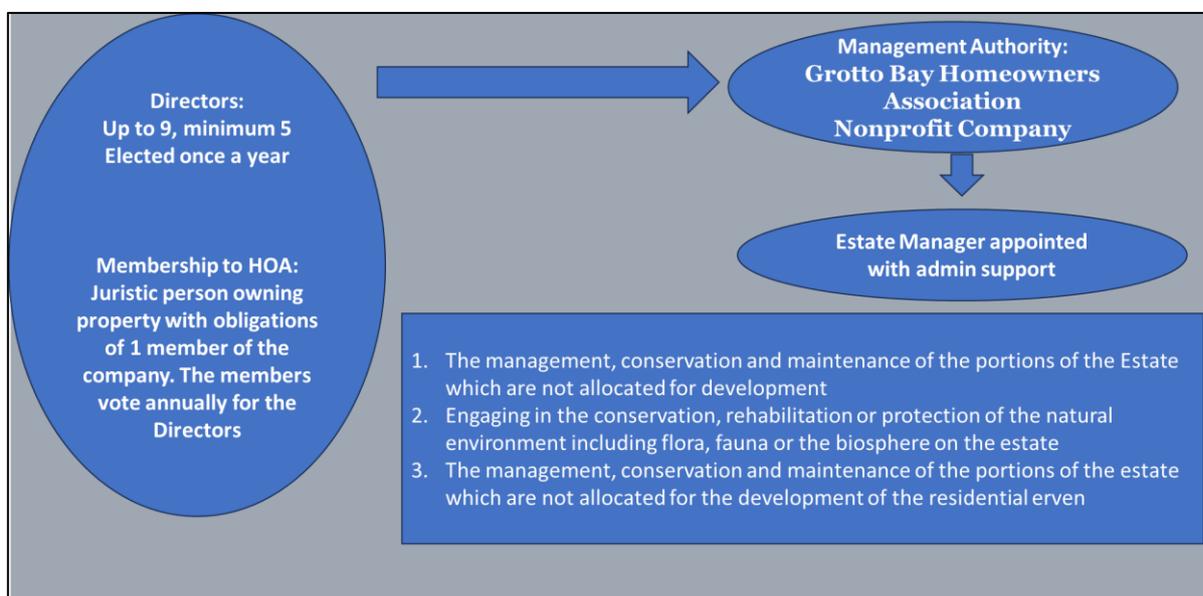


Figure 2.3 Administrative structure of the Grotto Bay Homeowners Association.

Key Attributes

The values of a site are those remarkable attributes that led to it being identified as a priority for conservation. The values are important in planning and management, as they highlight the reasons behind the site being declared as a protected area. Summarising these key attributes into specific biodiversity targets then enables measurable goals to be generated and aimed at conserving and enhancing the reasons for the site being recognised as a priority for conservation. These targets are designed to ensure that protected areas effectively contribute to the overall conservation of biodiversity and the sustainable use of natural resources.

The values of Grotto Bay Nature Reserve include:

Natural values	<ol style="list-style-type: none"> 1. Atlantis Sand Fynbos (CR) 251.4 ha Contribution towards the Conservation Target = 1.22% 2. Cape Seashore Vegetation (LT) 1.49 ha Contribution towards the Conservation Target = 0.78% 3. Langebaan Dune Strandveld (LT) 89.1 ha Contribution towards the Conservation Target = 1.18% 4. Swartland Shale Renosterveld (CR) 11.96 ha Contribution towards the Conservation Target = 0.01%
Ecosystem service values	<ul style="list-style-type: none"> • Essential habitat for priority species: a number of threatened plant species occur.

	<ul style="list-style-type: none"> • Marine, estuarine, and coastal systems: coastal strip associated with property; Modder River estuary (open for about 3 months of the year). • Freshwater ecosystems: Modder River - Permanent upper foothill river; Western Strandveld Floodplain wetland, CR lowland Renosterveld river type with associated wetlands. • Strategic water source area • Climate change and connectivity corridor: on the edge of the Riverlands – Pella – Bokbaai Climate Corridor • Proximity to protected areas: Close to Bokbaai Nature Reserve
Recreation values	Supports the sustainable utilisation of natural resources for recreation purposes: hiking trails with sign boards.
Socio-Economic values	Contribution to the local economy through an environmental centre that is available and used for environmental education, and by supporting and hosting various environmental researchers.

Summary of management challenges and opportunities

A summary of the key management challenges and opportunities, addressed in the management plan are highlighted in the table below.

Table 2.1 Management challenges and opportunities related to Grotto Bay Nature Reserve.

Key Performance Area	Opportunities and Challenges
BIODIVERSITY & ECOLOGICAL COMPONENTS	
Fire Management	Grotto Bay Nature Reserve follows a block-burn schedule with well-managed and maintained firebreaks. It is a priority to maintain membership with the Greater Cederberg Fire Protection Association and ensure adequate measures are taken to prevent fires from damaging infrastructure.
Alien and Invasive Species Control	On Grotto Bay Private Nature Reserve, there is minimal alien invasive vegetation as the management authority has managed this historically and it is still ongoing. Alien species are continuously monitored and controlled using the guidelines provided in the management plan. Within the estate, there is an opportunity to focus on resident's gardens and encourage the planting of locally endemic plants, and education around invasive garden plants, for example - homeowners can put together a "locally endemic" and "alien invasive" garden list. There is also an opportunity to broaden the management of alien invasives by checking potential threats around compost and waste designated areas.
Aquatic and riparian systems/Water Management	The flood plain of the Modder River is regularly inspected, especially around the parking area. There is an ongoing opportunity to encourage residents to participate in regular river- and beach clean-up days as litter on the beaches is a concern for residents. The effects of climate change on water availability are a concern, and there is an opportunity to better understand the risk and possible mitigation strategies.
Rehabilitation and restoration	Although there are no degraded areas/transformation present, there is an opportunity to use fixed point photography to monitor any potential soil erosion. If development does take place within the estate, there is an opportunity to make use of any cleared top soil if and when construction takes place. Climate-change related wind erosion is a possible future concern.
Priority Species Management	Grotto Bay Nature Reserve is home to a number of threatened fauna and flora species. There is an opportunity to create a Grotto Bay project on iNaturalist (can be private) and use this to add to the plant list. It is a priority to maintain the relationship with the Custodians of Rare and Endangered Wildflowers (CREW) to help with plant monitoring. Opportunity to monitor and record any leopard activity through the Leopard Data Portal, established by The Cape Leopard Trust.
Wildlife Management	The reserve is home to a number of wildlife species, including leopards. To better monitor the leopards in the area or any threat to wildlife, residents can be encouraged to use the Cape Leopard Trust Leopard Data Portal. This includes reporting leopard sightings, threats to leopards, or snares by taking a photo and recording the location. A group of ornithologists regularly visits the reserve for bird-ringing, there is an opportunity to establish a similar relationship with the LEPSOC COREL butterfly group.

	<p>Camera traps are used to record and monitor faunal populations on the reserve. There is an opportunity to create a WhatsApp/Google form sightings group where wildlife sightings can be collected and monitored.</p> <p>Of concern is the possibility of abalone poachers crossing the nature reserve to obtain access to the sea – this is an ongoing threat that should be monitored with the necessary caution and sensitivity.</p> <p>Opportunity to create a specific WhatsApp group for monitoring poaching-related activities.</p>
SUSTAINABLE UTILISATION OF NATURAL RESOURCES	
Recreation	<p>Grotto Bay Nature Reserve has hiking routes, with signage, that residents can make use of and is also open to the public. There is an opportunity to investigate the option asking day visitors/hiking visitors to pay a "conservation fee" using SnapScan for example.</p> <p>Opportunity to engage with CapeNature on the zonation map and any infrastructure planning (potential EIAs) related to recreation (e.g., development of a bird-hide or other recreational facilities around the estate).</p>
Sustainable Harvesting	<p>Seeds are sometimes collected for the SANBI millennium seed bank project, and cuttings taken from the reserve for the Darling Flower Show. These relationships should be maintained and there is an opportunity to, more formally, track these activities using an activity register.</p> <p>A resident of the Grotto Bay estate keeps bees on the reserve – this can also be monitored using an activity register.</p>
SOCIO-ECONOMIC & HERITAGE	
Environmental Awareness and Education	<p>Grotto Bay has a Learning/Education Centre, which is used as an education hub for various environmental education purposes and trainings, for example by CapeNature. There is an opportunity to engage with organisations that already have an environmental education program (Nature Connect) to use the space, and to develop a system to keep record of bookings.</p> <p>Residents have the opportunity to attend talks on snakes, fire training and first aid. Opportunity to add other topics such as garden regulations (e.g., locally endemic garden plants).</p>
Socio-economic Development Initiatives	<p>For Grotto Bay Nature Reserve to be represented within the landscape and contribute to the broader landscape initiative, it is necessary to investigate relevant platforms that Grotto Bay can be represented on such as the neighbouring conservancies and Conservation at Work.</p> <p>There is also an opportunity to maintain a communication plan with neighbours to build and maintain relationships and, for example, to record when Grotto Bay cuts fire breaks for neighbours.</p>
MANAGEMENT AUTHORITY EFFECTIVENESS & SUSTAINABILITY	
Legal Compliance	<p>Grotto Bay Nature Reserve is required to be compliant with the National Environment Management: Protected Areas Act (NEMPAA).</p> <p>Implementation of annual review and update of management plan.</p> <p>Annual protected area management report to CapeNature.</p>
Employee Skills Development	<p>Opportunity to create a list of development opportunities for management authority and staff.</p> <p>Necessary to maintain health and safety requirements.</p>
Management Infrastructure and Equipment	<p>General road work: drainage</p> <p>Ensure that all necessary infrastructure to support personnel in implementing the management plan is in place</p>
Signage, Access Control and Security	<p>There is a need to maintain adequate signage from the public road, indemnity signage at the access gate, and signage for the hiking trails. Opportunity to investigate the installation of information boards from The Cape Leopard Trust and SANBI.</p>
Research and Management Knowledge	<p>Grotto Bay already has the benefit of having research taking place. There is an opportunity to allow for further studies to take place on key fauna and flora etc. and to generate a standard MoU with potential researchers to ensure the feedback of knowledge and results.</p>

Historical and current land use

The property is in very good condition, and is well-managed and maintained. Although the surrounding areas were historically used for grazing, Grotto Bay Nature Reserve has no degraded areas or transformation present.

Ecological context

This section describes the ecological factors that influence biodiversity and ecological processes on Grotto Bay Nature Reserve.

Climate and weather

The climatic conditions of Grotto Bay Private Nature Reserve are influenced by its location on the West Coast of South Africa. The maximum temperatures are experienced in January (average daily max = 32 °C) and minimum temperatures usually occur in July (average daily min = 8 °C).

The area is characterized by a Mediterranean climate with warm, dry summers and cold, wet winters. Precipitation primarily occurs in the winter months, from May–August (see **Figure 2.4**).

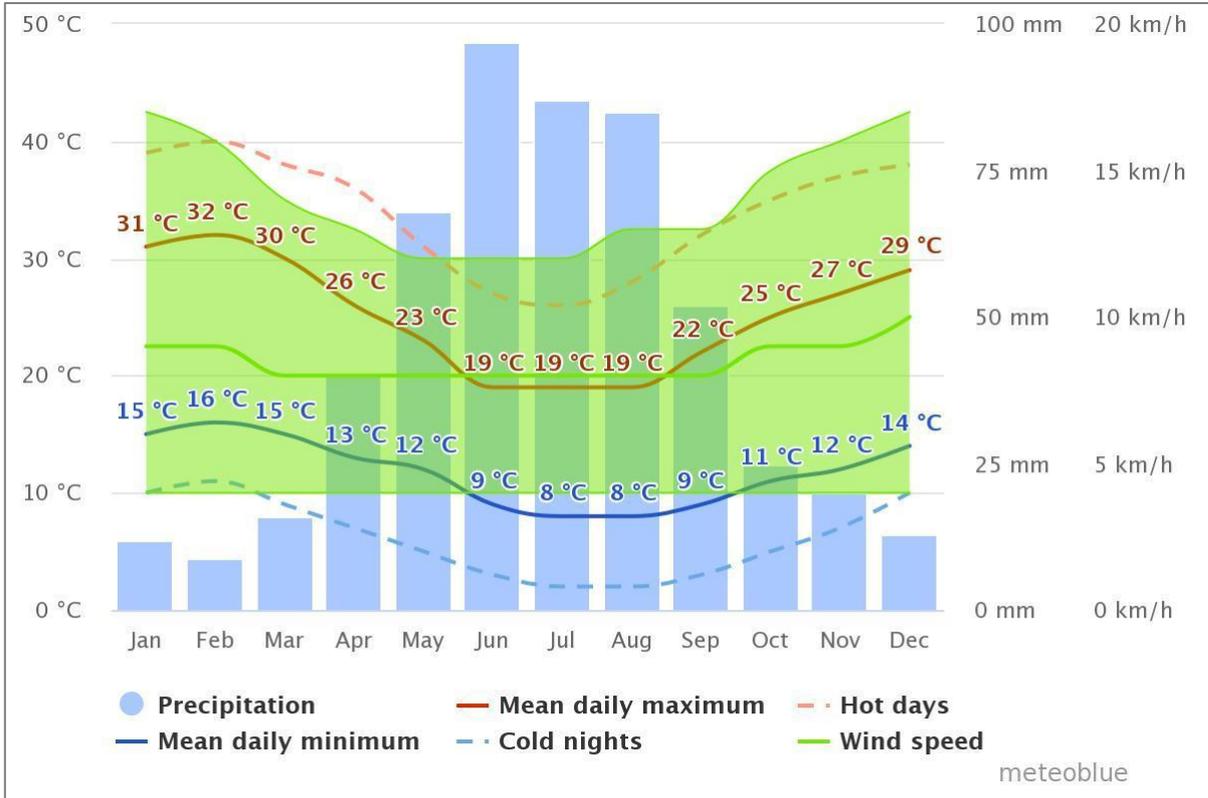
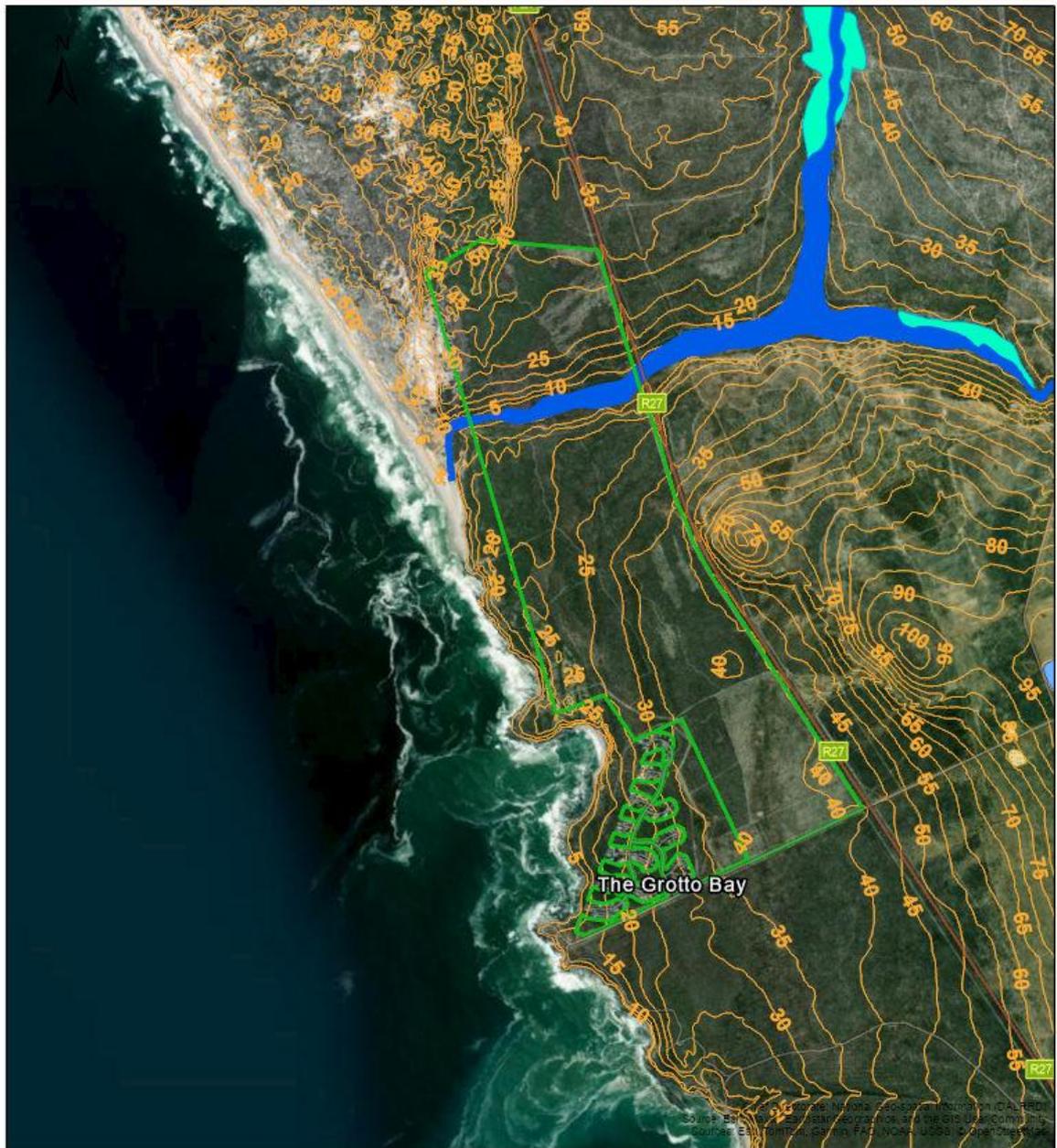


Figure 2.4 Graph depicting temperature, wind, and precipitation for Grotto Bay Nature Reserve. The Meteoblue climate diagrams are based on 30 years of hourly weather model simulations.

Topography, Hydrology and Soils

The Grotto Bay Private Nature Reserve is characterized by low lying terrain, at a very low altitude between 20-40 masl. The geology of the area is dominated by the Sandveld group which is characteristically very sandy. There are no NFEPA wetlands on the property, but the Modder Rivier runs through the northern section of the site and the property contributes to the Western Strandveld Floodplain Wetland and the Modder Rivier estuary (see **Figure 2.5**).

Topography and Hydrology of the Areas Managed by the Grotto Bay



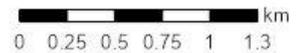
Legend

Hydrological Areas

Type

-  Flood Bank Area
-  Non-perennial pan

-  Open Reservoir
-  Perennial River
-  5m Contours



Map Center: Lon: 18°18'43.8"E
Lat: 33°29'18.3"S

Scale: 1:36,112

Date created: May 15, 2025



Figure 2.5 Topography and Hydrology of Grotto Bay Nature Reserve.

Vegetation

The Cape Floristic Kingdom, one of six world floral kingdoms, is internationally renowned for its special rich flora containing an estimated 9 000 species of vascular plants of which almost 69% are endemic (restricted to the region). This makes it one of the richest regions in the world in terms of botanical diversity. It is characterized by five endemic families and by the conspicuous presence of, amongst others, species belonging to the families Aizoaceae, Ericaceae, Fabaceae, Iridaceae, Orchidaceae, Proteaceae, Restionaceae, Rutaceae and Scrophulariaceae (Goldblatt & Manning, 2000).

Grotto Bay Nature Reserve contains the following four vegetation types (see **Figure 2.6**) and contributes to securing vegetation targets:

- Atlantis Sand Fynbos (CR) 251.4 ha
Contribution towards the Conservation Target = 1.22%
- Cape Seashore Vegetation (LT) 1.49 ha
Contribution towards the Conservation Target = 0.78%
- Langebaan Dune Strandveld (LT) 89.1 ha
Contribution towards the Conservation Target = 1.18%
- Swartland Shale Renosterveld (CR) 11.96 ha
Contribution towards the Conservation Target = 0.01%



Figure 2.6 Vegetation types found on Grotto Bay Nature Reserve. Species lists are included as Appendix C.

Fire regime

Fire is an essential ecosystem process in fynbos. It provides the disturbance and stimulus that has contributed to the unprecedented floristic response we experience in our landscape. Fire is an ecosystem process that is essential for the continued functioning of the ecosystem as well as the continued evolution of biota therein. Due to fragmentation of the natural landscape however, fire can no longer operate naturally on a landscape scale. We therefore need to facilitate the process

within these smaller compartments to ensure persistence of biodiversity whilst ensuring the safety of persons and property.

Wildfires as well as the use of fire as a management tool pose serious potential risks. Consult the National Veld and Forest Fire Act (101 of 1998) to acquaint yourself with the legal obligations of landowners in fire-prone landscapes.

Grotto Bay Nature Reserve follows a block-burn schedule with well-managed and maintained firebreaks. Fire breaks are checked and maintained annually. Please see below for details on the current fire management regime / block burn schedule (**Figure 2.7** and **Table 2.4**).



Figure 2.7 Fire management units of Grotto Bay Nature Reserve, which link up with the table below.

Table 2.4 Block burn schedule used by Grotto Bay Nature Reserve.

Block	Description	Adjacent to	Last burn	Single/split burn	Planned burn
5	Longitudinal block adjacent to Grotto drive - SE corridor	GB drive	2021	single	2041
7	South eastern corner of the estate	R27	2021	single	2041
2	North eastern corner of the estate	R27	2023	single	2043
1	North western corner of the estate	Sea	2023	single	2043
4	Smallest block, north western front of the housing estate	Sea & housing estate	2025	single	2045
6	Form barrier between housing estate and block 7	Housing estate	2025	single	2045

3	Larger East/west running block on the northern side	Sea and R27	never	Possibly split	2027
8	Block straddling Skuinsrots	Sea	never	Split	2029
9	Largest block, adjacent to R27	R27	never	Split	2031
10	Sea facing, running north/south	Sea	never	single	2033
11	Middle block between 10 and 9	None	never	single	2035

Historical fires and veld age in and around the nature reserve can be seen in **Figure 2.8**.



Figure 2.8 Veld age map of Grotto Bay Nature Reserve.

Invasive species

Any land management programme in South Africa will inevitably include an alien plant control program. Alien control programs are essential to protect valuable resources such as surface and ground water, biodiversity and the landscapes of our country.

In terms of Section 76 of the National Environmental Management: Biodiversity Act (No.10 of 2004), the management authority of a protected area must incorporate an invasive species control plan in the protected area management plan. This is addressed in Section 4.1 below.

An alien control program however requires a high level of commitment, coordination between landowners and authorities, professional planning and implementation and a good dose of common sense. The guidelines provided are compiled from a wide source and will hopefully provide insight to land managers in order for financial and human resources to be effectively used in an integrated control programme.

Grotto Bay Nature Reserve actively manages the alien invasives present on the reserve, which includes regular monitoring and clearing activities. Although some alien invasive species are present, the densities are low and they are absent across most of the site. There is a *Phragmites* infestation in the river course and *Typha* occurs in the water holes near the Conservation Centre.

Species of conservation concern

Grotto Bay Nature Reserve is home to a number of threatened species (please see expanded list under **Appendix C**). These include the following:

Flora

- *Amphithalea ericifolia* (CR)
- *Argyrolobium velutinum* (EN)
- *Lebeckia plukenetiana* (EN)
- *Leucadendron lanigerum* var. *lanigerum* (EN)
- *Macrostylis villosa* subsp. *villosa* (EN)
- *Microdon capitatus* (EN)
- *Rafnia lancea* (EN)
- *Romulea eximia* (EN)
- *Xiphotheca reflexa* (EN)
- *Caesia sabulosa* (VU)
- *Lachnaea grandiflora* (VU)
- *Leucospermum tomentosum* (NT)

Fauna

- Cape leopard
- Caracal
- African Wild Cat
- Small Spotted Genet
- Cape Grysbok
- Common Duiker
- Steenbok
- Rock Dassie
- Porcupine
- Honey Badger
- Small Grey Mongoose
- Water Mongoose

- Cape Clawless Otter
- Cape Dune Mole Rat
- Common Mole Rat
- Brants Whistling Rat
- Vlei Rat
- Striped Mouse

Regional and local planning context

The Protected Area Expansion Strategy and Implementation Plan

The Protected Area Expansion Strategy and Implementation Plan is a response to the National Protected Area Expansion Strategy (NPAES) (SANBI & DEAT, 2010) which calls on Provinces to develop implementation plans in support of the NPAES and in support of provincial conservation efforts and priorities. The NPAES, which provides a broad national framework for Protected Area expansion in South Africa, also identifies areas of importance to be targeted for Protected Area expansion in the country, and mechanisms to achieve this.

The Western Cape Protected Area Expansion Strategy addresses the formal declaration of priority natural habitats as protected areas to secure biodiversity and ecosystem services for future generations. This strategy is aligned with the concepts and goals of the NPAES.

The Strategic Development Framework and Integrated Development Plan

This section refers to the Integrated Development Plans (IDP), Spatial Development Frameworks (SDF), and Land Use Management Systems (LUMS) of the district and local municipalities within which the protected area falls.

Grotto Bay is located within the Swartland Local Municipality, which forms part of the West Coast District Municipality (WCDM). The district comprises five local municipalities: Matzikama, Cederberg, Bergrivier, Saldanha Bay, and Swartland. All municipalities have access to the Atlantic Ocean, and the N7 national road connects all except Saldanha Bay, which is accessed via the R27. The district spans approximately 31,124 km².

Regional and Local Planning Context

The WCDM has adopted a comprehensive Integrated Development Plan (IDP) 2022–2027, with annual updates, including the 2024–2025 Strategic Framework, which guides development priorities, infrastructure investment, and environmental sustainability.

The Spatial Development Framework (SDF) aligns with the IDP and emphasizes sustainable land use, biodiversity conservation, and climate resilience. The SDF identifies coastal and estuarine systems, such as the Berg River Estuary, as critical ecological assets requiring protection and integrated management.

Biodiversity and Bioregional Planning

The district is recognized for its exceptional biodiversity, shaped by diverse topography and climate. It includes six vegetation types, such as Karoo, False Karoo, and Sclerophyllous Bush, and is home to unique freshwater ecosystems like the Olifants-Doring River system, which supports endemic fish species.

The Cape West Coast Bioregional Plan, developed in accordance with the Biodiversity Act, provides a spatially explicit framework for conserving critical biodiversity areas (CBAs) and ecological support areas (ESAs). This plan informs land-use planning and environmental decision-making across the district, including in protected areas like Grotto Bay.

Environmental Management Frameworks (EMFs)

The WCDM has implemented Environmental Management Frameworks (EMFs) under the National Environmental Management Act (NEMA) EIA Regulations. These frameworks guide sustainable development by identifying environmental sensitivities, opportunities, and constraints. EMFs are particularly relevant in coastal zones, estuarine systems, and areas of high biodiversity value.

The West Coast EMF integrates with the Integrated Coastal Management Programme, which includes estuary management plans for the Berg River, Olifants River, and Verlorenvlei. These plans aim to balance ecological integrity with socio-economic development and are supported by local task teams and forums.

Protected Areas and Conservation Targets

Currently, protected areas cover approximately 5% of the WCDM and 6% of the core planning domain, falling short of the 10% national target. Expanding the protected area network is essential to ensure representation of the district's biodiversity and to support ecosystem services that underpin community wellbeing.

The local and regional planning context is illustrated by the map shown in **Figure 2.9**.

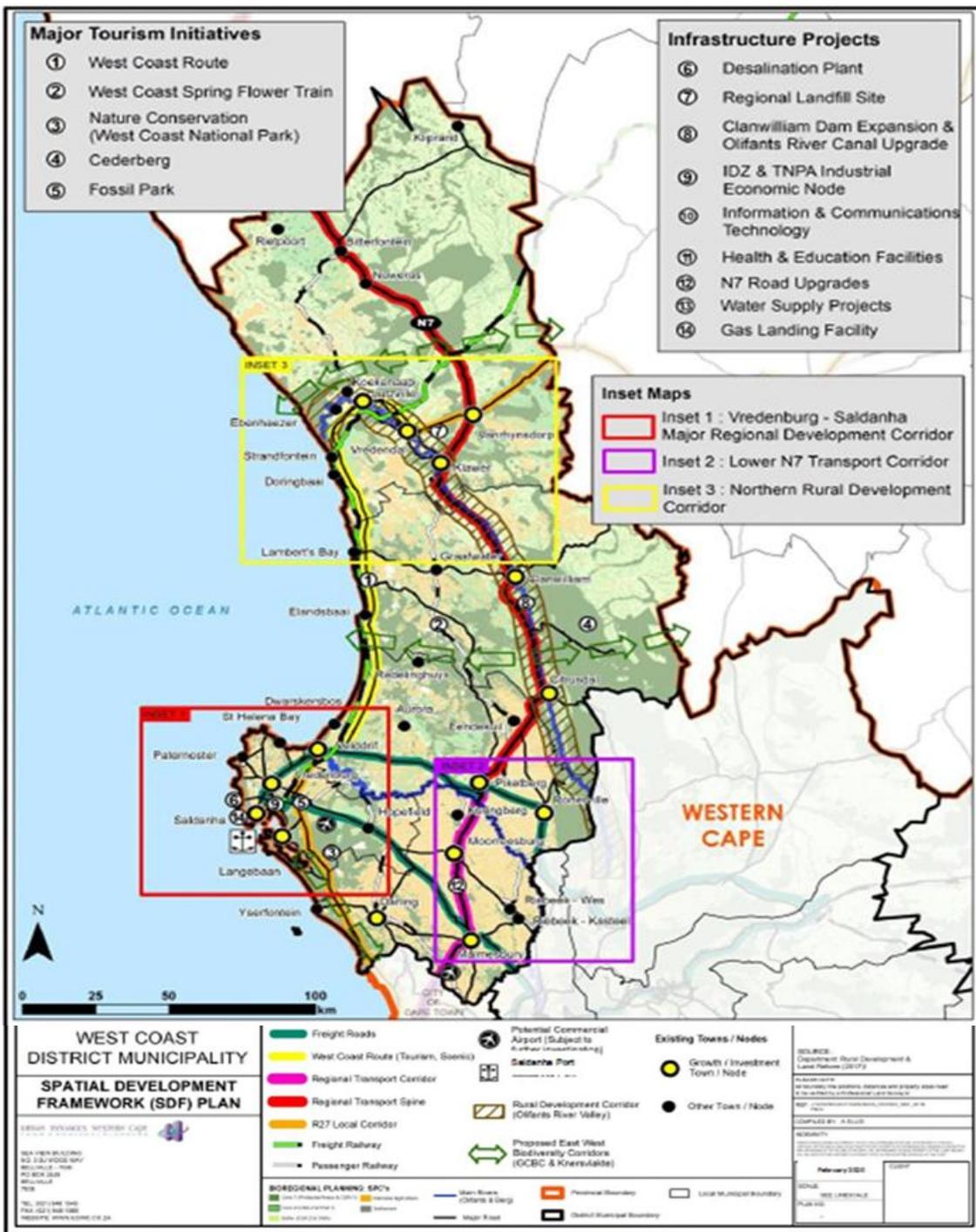


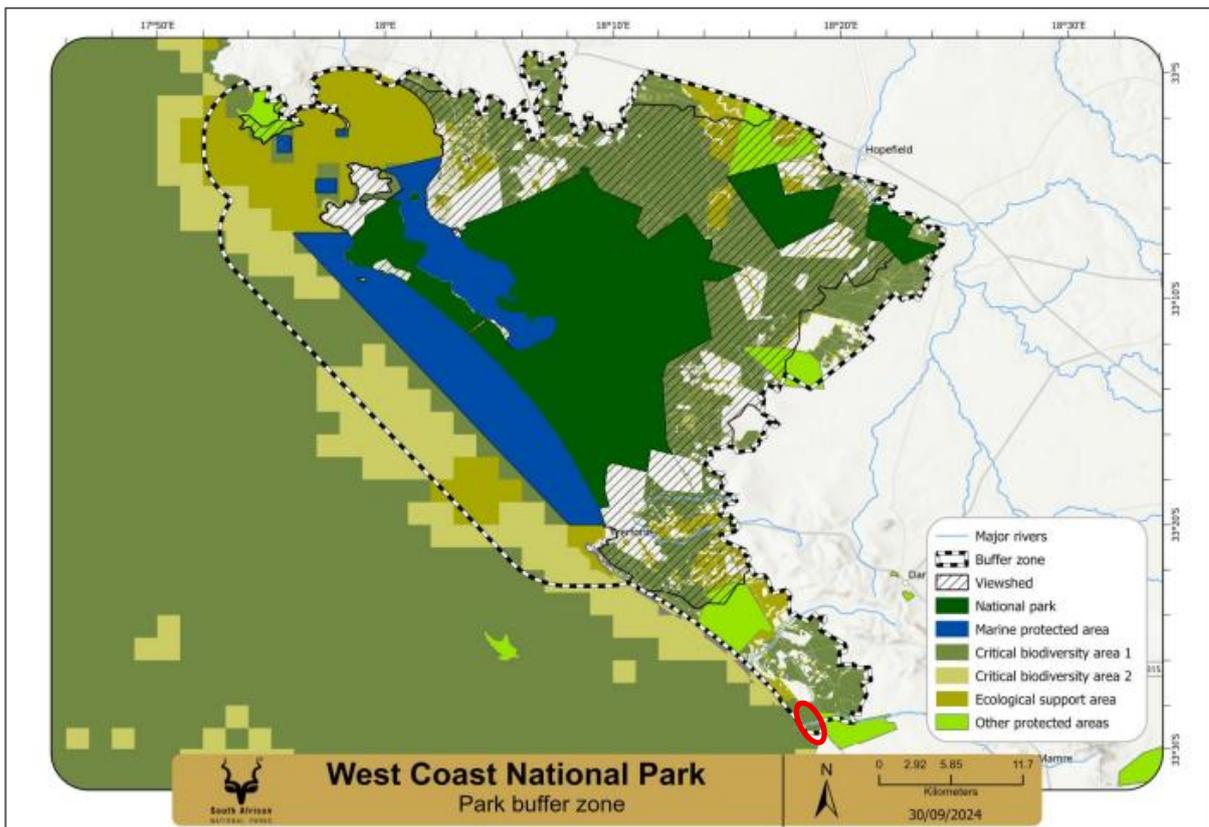
Figure 2.9 The Municipal IDP/SDF regional planning for the area.

North/south West Coast National Park Buffer Zone and east/west DCCP landscape-scale corridors

A large part (northern half) of Grotto Bay Nature Reserve falls within the north/south West Coast National Park Buffer Zone (Figure 2.10). The park buffer zone shows the areas within which land use changes could affect a national park. The buffer zone, in combination with guidelines, serves as a basis for identifying the focus areas in which park management and scientists should respond to EIA's, helping to identify the sort of impacts that would be important at a particular site, and serving as the basis for integrating long term protection of a national park into the spatial development plans of municipalities (SDF/IDP) and other local authorities.

The current extent of the West Coast National Park is included in a conservation focused category in the land use maps included in the Spatial Development Frameworks (SDFs) of the local and district municipalities in which the park is located. These SDFs are the spatial components of municipal Integrated Development Plans (IDPs). The park interacts with the appropriate local government processes such as SDF and IDP development on an ongoing basis as part of the Bioregional Programme, in order to ensure that issues such as appropriate development of Buffer Zones around parks are also incorporated into proactive land use planning instruments such as SDFs and IDPs.

The delineation of the buffer zone around West Coast National Park is informed by the Critical Biodiversity Area map for the Saldanha Bay Municipality. Critical Biodiversity Areas in the surrounding landscape were evaluated in terms of their importance to West Coast National Park. Criteria included proximity, adjacency and connectivity to the park focusing on the need to link West Coast National Park to inland protected areas, and to other portions of the West Coast Biosphere Reserve. The northern and eastern edges of the buffer zone were broadly defined by the edge of the remaining intact high priority areas, with further delineation along major logistical boundaries such as the Hopefield Road. In addition, critical lagoon areas adjacent to the park were included.



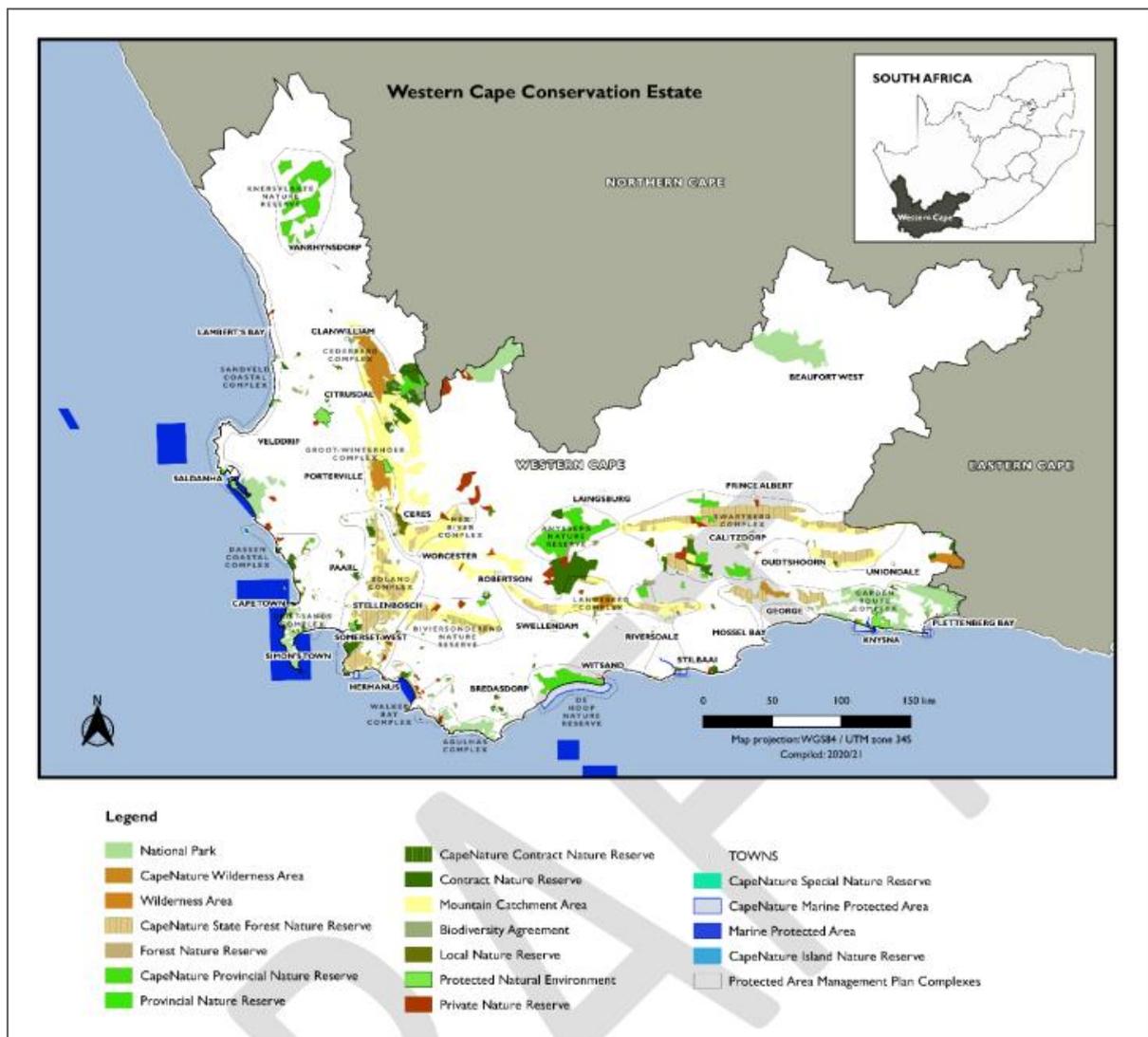
Grotto Bay Nature Reserve also falls within the east/west Dassenberg Coastal Corridor Partnership (**Figure 2.11**). SANParks' protected area expansion focal areas include the West Coast Corridor (the north/south corridor that buffers the National Park and stretches into the Dassenberg Coastal Corridor Partnership (DCCP) (the latter corridor is jointly implemented by the City of Cape Town and CapeNature). These two corridors make up the West Coast Node that forms part of the protected area expansion activities funded through the fifth replenishment of the Global Environment Facility 5.

Figure 2.11 The protected area network of the Western Cape Province as of March 2020, indicating the Dassenberg Coastal Corridor (Draft Western Cape Protected Area Expansion Strategy 2021-2025).

Zonation plan

The purpose of the zonation of Grotto Bay Nature Reserve is to control the intensity and type of land use within the reserve in efforts to ensure the main goal of biodiversity conservation is met. On this basis, within some zones, the permissible intensity of use will be relatively higher than in others. Refer to the zonation map, **Figure 2.11**, below which illustrates the following:

- The site’s boundaries.



- Infrastructure within the reserve.
- The different zones within the reserve.

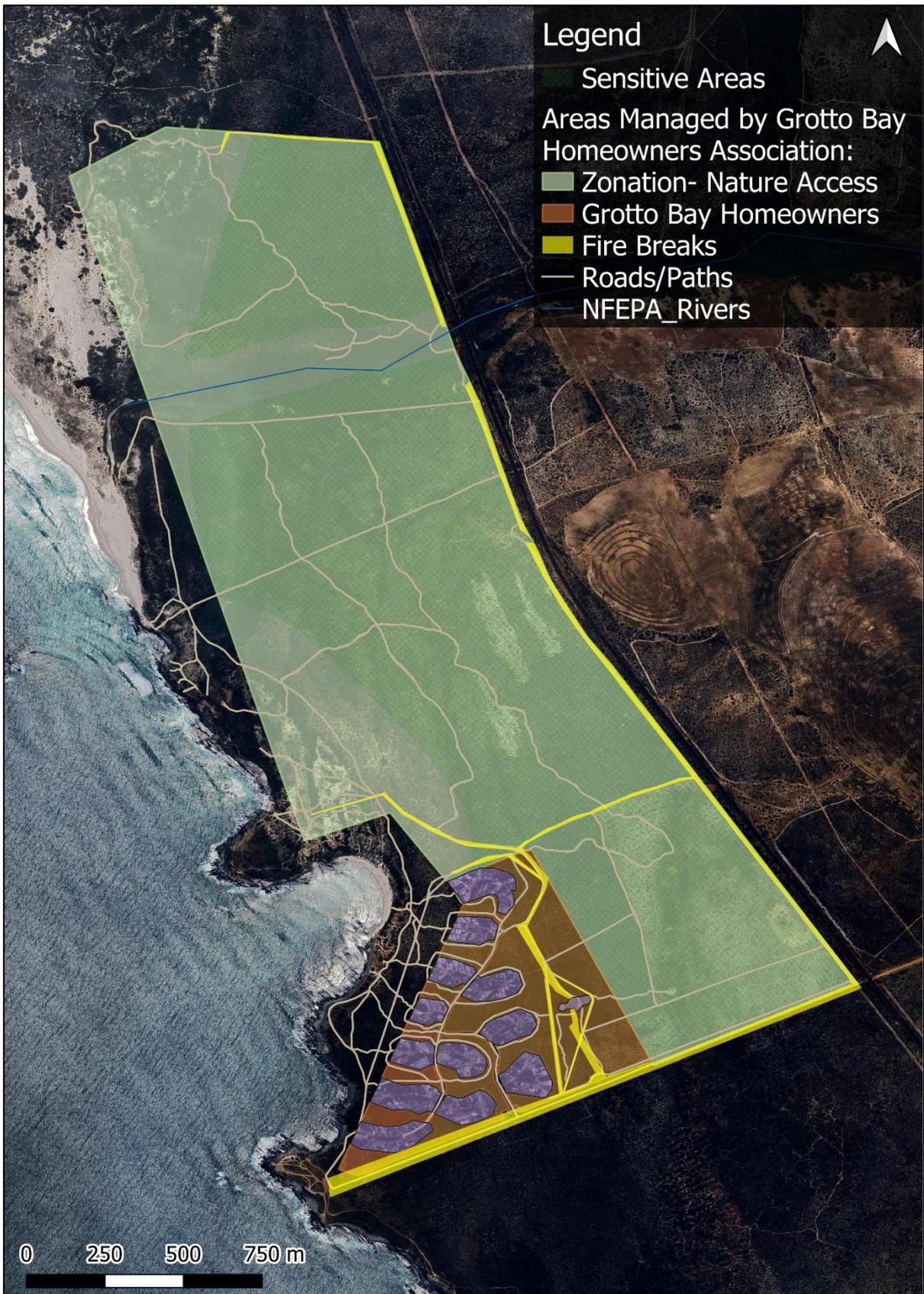


Figure 2.11 Zonation map of Grotto Bay Nature Reserve.

Development Plans

Grotto Bay Nature Reserve has no further development intentions. In the Housing Estate, present on 721/3, there are a total of 220 plots, of which 196 have been built on. Possible housing estate developments include a multi-purpose court bear the education/conservation centre and a bird-hide. The Grotto Bay Nature Reserve is a reactive site for Estate developments.

Strategic Management Framework

The strategic management framework is aimed at providing the basis for the protection, development and operation of the protected area over a ten-year period. It consists of the vision, purpose and objectives of Grotto Bay Nature Reserve. It has been prepared collaboratively through a process involving the landowner the Grotto Bay Homeowners Association, site manager and CapeNature.

Purpose

The purpose is the foundation on which all future actions are based and is in line with the key ecological attributes reserve and the overall management philosophy of the management authority.

Purpose

- i) to protect ecologically viable areas representative of Atlantis Sand Fynbos, Cape Seashore Vegetation, Langebaan Dune Strandveld and Swartland Shale Renosterveld, thereby contributing to conserving South Africa's biological diversity and its natural landscapes;
- ii) to preserve the ecological integrity of the area under the Grotto Bay Homeowners Association's influence;
- iii) to protect threatened or rare species characteristic of the region;
- iv) to protect and preserve the freshwater ecosystems within the area; and
- v) to safeguard the marine, estuarine and coastal systems within the area

Vision

The vision statement below describes the desired long-term, over-arching outcome that is a result of the effective management of the reserve.

Vision

To conserve the natural beauty, biodiversity, and wilderness state of the nature reserve for our own and future generations.

Management Objectives under Key Performance Areas

The objectives that follow are intended to provide the basis for the achievement of the vision.

The objectives are derived from the Vision and Purpose and are grouped under Key Performance Areas (KPAs). Tables 3.1–4 below set out the key performance areas, the objective for each key performance area and the key deliverables of each objective.

In the Annual Plan of Operations (APO), the objectives below are prioritised in terms of importance and urgency and detailed management activities are described that will deliver the desired outcomes under each objective.

Table 3.1 Biodiversity and ecological components: objectives and deliverables.

KPA: Biodiversity and ecological Components		
OBJECTIVE	OBJECTIVE STATEMENT	KEY DELIVERABLES (TARGETS)
Integrated Wildfire and Invasive Alien Plants	To manage invasive alien plants and the risks associated with uncontrolled wildfire in an integrated way to limit negative impacts on biodiversity and ecosystem function as well as the risks to human safety and infrastructure from wildfire.	<p><u>Wildfire:</u></p> <ul style="list-style-type: none"> • Allow natural fire processes to take place. • Reduced risk of uncontrolled wildfire. • Staff trained and equipped to manage wildfires. • Monitor extent of wildfires and establish thresholds of concern. <p><u>Invasive Aliens:</u></p> <ul style="list-style-type: none"> • Eradicate invasive alien species using mechanical and biological control methods. • Reduce combustible material to reduce intensity and spread of wildfires. • Effective monitoring to prevent further introductions of invasive aliens.
Aquatic and riparian systems	To conserve the biodiversity and ecosystem function of aquatic and riparian systems on the reserve.	<ul style="list-style-type: none"> • Health of aquatic ecosystems is determined. Threats are identified. • Management actions are identified and implemented to safeguard and improve aquatic health. • Monitoring programme in place to identify changes in ecosystem health. • Effectively functioning seeps, wetlands, streams, rivers and riparian areas in the reserve.
Rehabilitation and restoration	To identify areas of degraded ecosystems and/or habitat in the reserve, understand the causes of degradation and implement restoration/rehabilitation measures.	<ul style="list-style-type: none"> • Limit the loss of biodiversity and disruption to ecological processes due to degraded habitat. • Extent and cause of degradation determined, and restoration/rehabilitation measures planned. • Soil erosion effectively prevented and eroded sites restored/rehabilitated.
Species of special concern	To ensure the optimal long-term population health and ecological function of any plants and animals of special concern.	<ul style="list-style-type: none"> • Monitoring of populations of species of special concern. • Identify and implement specific management requirements.
Wildlife	To ensure effective conservation of faunal species, populations and inter-relationships in order to enhance biodiversity and maintain and improve ecosystem functioning.	<ul style="list-style-type: none"> • Monitor and evaluate the health of faunal populations. • Monitor and evaluate the impact of fauna on the ecosystem.

Table 3.2 Sustainable utilisation of natural resources: objectives and deliverables.

KPA: Sustainable utilisation of Natural Resources		
OBJECTIVE	OBJECTIVE STATEMENT	KEY DELIVERABLES
Recreation	To support the sustainable utilisation of natural resources for recreation purposes.	<ul style="list-style-type: none"> • Recreation infrastructure and operations do not have a negative impact on any of the conservation objectives of the reserve. • Recreation infrastructure design and construction comply with development planning requirements.
Sustainable harvesting	To ensure the sustainable use of natural plant resources in a manner that ensures the conservation of biodiversity and minimal ecological disturbance in the areas where harvesting operations occur.	<ul style="list-style-type: none"> • Accurate and up-to-date records of all harvesting activities maintained. • Monitor and evaluate potential long-term impacts of harvesting operations.

Table 3.3 Socio-economic and heritage: objectives and deliverables.

KPA: Socio-economic and heritage		
OBJECTIVE	OBJECTIVE STATEMENT	KEY DELIVERABLES
Environmental Awareness and Education	Stakeholders receive an increased awareness and understanding of the importance and value of functioning ecosystems and nature conservation.	<ul style="list-style-type: none"> • Increase awareness about the value of functioning ecosystems. • Address specific management issues such as security, poaching, etc. • Environmental education / training provided through the use of facilities.
Socio-economic development initiatives	To work with relevant stakeholders to make a meaningful contribution towards the socio-economic environment of the area.	<ul style="list-style-type: none"> • Manage and maintain relevant platforms that the Nature Reserve and Management Authority can be represented on • Positive relationships with neighbours and key community role players and groups.

Table 3.4 Management authority effectiveness and sustainability: objectives and deliverables.

KPA: Management Authority effectiveness and sustainability		
OBJECTIVE	OBJECTIVE STATEMENT	KEY DELIVERABLES
Governance and institutional arrangements		<ul style="list-style-type: none"> •
Legal Compliance	To ensure all reserve declaration documentation is in order and that all activities are compliant with relevant legislation and policies.	<ul style="list-style-type: none"> • Fully compliant with the Protected Area legislation.

Employee skills development	Managers and staff are supported in the implementation of the management plan by ensuring they have the necessary knowledge and skills to perform their management responsibilities.	<ul style="list-style-type: none"> • Training needs are identified. • Informal and/or formal training is provided. • Management support and mentorship is provided.
Management infrastructure and equipment	The reserve has the necessary infrastructure and equipment to enable the cost-effective achievement of the management objectives.	<ul style="list-style-type: none"> • Infrastructure needed to support personnel in implementing the management plan is in place. • Personnel have the necessary vehicles and equipment to carry out management activities. • Infrastructure is adequately maintained, and equipment serviced and kept in safe working order.
Signage, access control and security	Signage, access control and security measures are put in place that effectively address related threats.	<ul style="list-style-type: none"> • The perimeter boundary of the reserve is clearly marked with fencing and signage. • Access onto the property in remote areas is restricted with locked gates and controlled through a limited number of managed entry points. • Security measures are put in place to address specific threats.
Research and management knowledge	Knowledge on how to achieve management objectives is gathered, documented and shared with the team to increase management effectiveness.	<ul style="list-style-type: none"> • Address knowledge gaps through desk-top research, scientific research and getting advice from experts. • Use increased knowledge and research findings to improve management effectiveness.

Best Practice Guidelines

This section describes the best practice guidelines for each of the objectives under the key performance areas. The specific management actions for each objective can be viewed in the Annual Plan of Operations (APO).

Biodiversity and ecological components Integrated Wildfire and Invasive Alien Plants

Wildfire

Fire plays an important role in southern African ecology, and has important effects on vegetation composition, regeneration, primary productivity and nutrient cycling. The most important use of fire for conservation management is to maintain viable populations of all existing plant and animal species. The use of fire to achieve other management objectives should always take this into account. These may include: reduction in fuel load to prevent unmanageable wildfires, the control of invasive alien plants, increase in water yield from catchments, or improving grazing. In developing a fire management strategy for the site, the following guiding principles should be adhered to:

- Burning should be undertaken in such a way that it maintains spatial and temporal heterogeneity within the landscape.
- A patch mosaic of burnt and un-burnt areas should be maintained - this follows the precautionary principle, which suggests that a variety of burn practices and veld ages is the best way to maintain species diversity.
- The burning of areas should be undertaken in such a way that promotes patchy burns (i.e. within the block being burnt, some patches will remain un-burnt rather than aiming for a complete burn).
- Season - burn vegetation at the end of autumn, never in winter or spring. Generally, a late summer or early autumn burn is best for fynbos species, however, prescribed burning in the summer months (Nov – Feb) is seldom advised due to the risk of runaway fires. Burning is usually only feasible in March and April. The season for prescribed burns in the Western Cape is the 15 January – 15 May.
- Frequency - do not burn too frequently. Fynbos should be burnt at intervals between 8 and 20 years, while Renosterveld at 7 to 12-year intervals. No fire should be permitted in fynbos until at least 50% of the population of the slowest-maturing species in an area have flowered for at least three successive seasons. Similarly, a fire is probably not necessary unless a third or more of the plants of these slow-maturing species are senescent (i.e. dying or no longer producing flowers and seeds). Prescribed burns should generally not occur more often than every seven years as this may result in a loss of species that have not matured and produced seeds. Research suggests that, under natural conditions, fynbos should be burnt between eight and 20 years after the last fire. Fire at intervals greater than 25 years may result in the fynbos becoming senescent.
- The intensity of a fire is influenced by the fuel load, fuel moisture, relative humidity and wind speed. The intensity can be manipulated by either reducing the fuel load (i.e. burning more often) or by selecting the conditions that will lead to the desired type of fire. Most fynbos species require high intensity fires for survival; however, low intensity burns are often favoured for safety reasons.

- Burning must be undertaken with consideration of the biodiversity conservation requirements of the site and the need to protect rare and endangered species.
- The fire breaks should be prepared and maintained annually in a manner that is least damaging to the environment and aesthetics of the property. To this end where possible current management roads and tracks should be utilised.
- Burning and fire management must be undertaken in a safe manner that is legally compliant with the National Veld and Forest Fire Act (No.101 of 1998).

Management actions:

See Annual Plan of Operation.

Invasive Alien Plants

Landowners are under a legal obligation to control invading alien plants occurring on their properties. Planning this procedure is essential for the long-term success of the programme. A listed invasive species means any species, which is listed in terms of Section 70 of the Biodiversity Act, whose establishment and spread occurs outside of its natural distribution range. In undertaking invasive plant control, the following guiding principles should be adhered to:

- Invasive plant control will require an ongoing programme that prioritises key infestations along water courses, drainage lines and upper catchment areas.
- Initial clearing efforts should focus on areas of young, less dense alien plants, as well as those areas containing infestations that are most likely to spread into new areas.
- The ability and resources available for follow up operations should determine the size and location of the initial clearing operation.
- All follow-up requirements must be strictly adhered to otherwise the problem will be exacerbated.
- Strategic partnerships and poverty relief programmes such as the Working for Water programme should be utilised.

Management actions:

See Annual Plan of Operation.

Rehabilitation and restoration

Areas of the reserve that have been degraded due to past human activities (over-grazing or inappropriately sited roads and tracks), or are left exposed due to alien plant clearing activities, can have a negative impact on the biodiversity value of the protected area. The primary goal of restoration following degradation is to re-establish a structurally representative stand of indigenous vegetation that fulfils the major ecosystem functions, and prevents any further soil structure loss. Where soil structure and other ecological components are intact, the management objective is to restore the area back to a natural state. Where these components have been disturbed, the management goal is to rehabilitate the site so that vegetation resembles the structure and species composition of the naturally occurring vegetation type. It is important to note that disturbed areas that can only be rehabilitated to structurally resemble a natural state can still perform an important role in ecological connectivity.

In addressing soil erosion, the following guiding principles should be adhered to:

- Prioritize areas requiring post-alien clearance restoration actions, as resources are usually limited, as well as those continuing to degrade.

- Aim to conserve what remains, i.e. minimise the loss of indigenous seed banks and soil, and in this way restoration costs may be kept to a minimum.
- Areas impacted by soil erosion should be stabilised and re-vegetated with indigenous plant species to prevent the spread of listed invasive plant species.
- Areas susceptible to soil erosion or showing early signs of soil erosion such as loss of vegetation cover, must be managed to prevent soil erosion.
- Keep records of all invaded sites being restored. Records should include alien vegetation clearance methods and dates, restoration actions, and results of alien and indigenous vegetation monitoring.

Management actions:

See Annual Plan of Operation.

Aquatic and riparian systems

Essentially, aquatic systems are landscape features. Rivers and streams carve a channel through which they flow and are continuous longitudinal systems that are also recognisable by their lateral dimension, the actual water and the riparian zone. Wetlands, although obvious during the rainy season, are somewhat more amorphous. They are more easily recognised by their vegetation, as supported in the National Water Act (36 of 1998) "...land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil."

As such, water and these systems are one of the most important natural resources in South Africa and the effective management of catchments, wetlands and river systems secures the availability of this resource for current and future generations. Wetlands play an important role in improving water quality and are also home to unique biodiversity.

The impact of siltation due to erosion and stream bank degradation, as well as pollution and eutrophication, have significant negative impacts on wetlands and river systems. For this reason, erosion and pollution control measures should always be a priority management objective.

River systems require a minimum *ecological reserve* of water flow in order to support aquatic ecosystems. Upstream extraction for agricultural, industrial and domestic use can significantly impact river health downstream. It is important to note that landowners do not own the water travelling over or under their lands and any water extraction therefore requires a water use license from the Department of Water and Sanitation.

In managing these aquatic systems, the following guiding principles should be maintained:

- Where possible, manage the aquatic system together with landowners both up- and down-stream.
- Prevent excessive water abstraction from rivers, in order to maintain seasonal flow differences.
- Prevent nutrient enrichment of the water / river / wetland system (these systems are naturally acidic and have characteristically low nutrient levels).
- Maintain a buffer area adjacent to the river and wetland habitats, clear of alien plants or impacts.

- Clear all alien plants from riparian areas, and rehabilitate where required (mainly bank stabilisation).
- Manage access points into these areas, include roadways and livestock access.
- Establish permanent water monitoring points to highlight potential impacts and management interventions.

Management actions:

See Annual Plan of Operation.

Species of special concern

There are a number of species of special concern in the Grotto Bay Nature Reserve (see **Section 2.7.6** and **Appendix C** for species lists).

Species of special concern should be recorded and monitored, and any threats to the species reduced or managed. If the species has a biodiversity management plan, this should be adhered to.

Management actions:

See Annual Plan of Operation.

Wildlife

Many wildlife species are indigenous to the Western Cape region, and the conservation of these species is an important contribution to maintaining ecosystem functioning. Any wildlife management program must integrate the ecological and socio-economic objectives, so as to maximise the value to biodiversity and the protected area, but also to minimize the human-wildlife conflict.

Please see **Section 2.7.6** and **Appendix C** for species lists of Grotto Bay Nature Reserve.

Management actions:

See Annual Plan of Operation.

Sustainable utilisation of Natural Resources

Recreation

Recreation in natural areas is an excellent tool for reconnecting people with the environment. Besides the important educational function, it is also a possible income stream and there are several opportunities that can be developed without compromising the conservation integrity of the area.

In developing recreation within the protected area, the following guiding principles should be adhered to:

- Recreational developments and infrastructure must be appropriate to the site's values and must not threaten its biodiversity or ecological function.
- In developing recreational infrastructure / opportunities, requirements for environmental authorisation must be considered and adhered to.
- Recreation products should be designed to capitalise on the unique beauty and biodiversity features of the site.
- Recreation opportunities within the site should be carefully assessed to determine their viability.

Management actions:
See Annual Plan of Operation.

Sustainable Harvesting

Sustainable harvesting is about satisfying today's demands without threatening the supply for future generations. In order to prevent the degradation of the system on which you rely, it is important to understand the autecology of the species and the ecological requirements of the vegetation type. It is important, therefore, to make certain that species are harvested in a manner that minimizes harvesting impact on individual populations. These standards are as follows:

- Ensure the broader vegetation type is correctly managed.
- Ensure that harvesting occurs at the right time of the year.
- Protect the seed bank of the species, allowing continual regeneration.
- Do not introduce extra-limital species and cultivars or hybrids into natural vegetation. We should not create genetic instability and jeopardise the evolutionary outcome of existing species.
- A cautionary approach must be followed whereby an amount not exceeding 50 % of the flower heads produced on a yearly basis by a plant shall be removed.
- No harvesting may occur one year prior to a burn, or seeding plants between one and five years after a burn.
- Correct harvesting equipment that is in good working condition must be used at all times.
- No breaking or uprooting of plants is allowed.
- Binding twine must be transported in a closed container and it is the responsibility of pickers to remove binding twine from their harvesting location.
- No litter must be left in the harvesting location.
- Maintain an exclusion block representative of all harvestable species utilized, to ensure population persistence

Management actions:
See Annual Plan of Operation.

Socio-economic and heritage

Environmental Awareness and Education

The protected area provides the ideal practical learning space to teach people about the value of nature and conservation. Whilst a degree of awareness and knowledge is likely to flow outwards from the reserve through the engagement of employees with the broader community, a dedicated environmental awareness and education programme is far more effective. Such programmes can achieve specific educational goals and therefore help to address key threats relating to human behaviour.

Management actions:
See Annual Plan of Operation.

Socio-economic development initiatives

Poverty and the associated social issues are prevalent in most rural communities in South Africa and the protected area offers a location that can serve as a development node within the rural landscape. It is recommended that the Management Authority partner with other organisations and community groups to identify socio-economic development needs and then decide in which area to play a role. Expanding the reach of the *biodiversity economy* to achieve positive socio-economic impacts in the communities closest to the reserve should be a primary goal.

Management actions:

See Annual Plan of Operation.

Management Authority effectiveness and sustainability

The objectives in this key performance area are often overlooked in management plans as it is 'taken for granted' that the Management Authority has already addressed them in other areas of their business. These objectives are however fundamentally important for the long-term, successful implementation of the protected area management plan.

Legal Compliance

Through the landowners of the protected area, the management authority has been mandated to enforce laws related to the conservation of the site, which prohibit particular activities. In fulfilling this role, the management authority of Grotto Bay Nature Reserve will adhere to the following guiding principles:

- The management authority will comply with its legal and reporting commitments, according to the NEM:PAA.
- The management authority will adhere to legislative requirements and permitting for all development, water management and biodiversity management activities.

Management actions:

See Annual Plan of Operation.

Employee skills development

The addition of specialised protected area management activities to the existing operations of the Management Authority often requires the acquisition of new knowledge and skills by the existing employees and management team on the property. It is the responsibility of the Management Authority to assess the knowledge and skills of their human resources relative to the new/additional roles and responsibilities they are assigned and to identify and address knowledge and skills gaps.

Management actions:

See Annual Plan of Operation.

Infrastructure and equipment

In order for the reserve to operate appropriately, adequate infrastructure needs to be developed and maintained both for management and tourism purposes. In addressing infrastructure needs at the site, the following guiding principles will be adhered to:

- Infrastructure must be provided to ensure the effective management and operation of the nature reserve.
- Infrastructure must be maintained to avoid any damage to the environment and ensure the safety of staff and visitors to the site.

Management actions:

See Annual Plan of Operation.

Signage, access control and security

Access to the Nature Reserve needs to be controlled and conditions of entry for visitors into the Nature Reserve should be clearly stipulated on signboards at access points. Fencing needs to be effective in terms of demarcating the property boundary, restricting or allowing the movement of wildlife and livestock and performing a security function if required. Law enforcement efforts should be coordinated with the relevant authorities including CapeNature and the South African Police Service in addressing offences and breaches of the law. Law enforcement at the site will be undertaken through surveillance, monitoring and appropriate reaction in the event of an offence.

Management actions:

See Annual Plan of Operation.

Research and management knowledge

In order to effectively achieve the intended outcomes of the management objectives, the Management Authority needs to apply sound knowledge and, at times, the findings of scientific research to determine the most effective management strategy. Much of this knowledge may historically reside with the management authority; however, some specialised insights may need to be gathered from partner organisations and/or subject matter experts.

In some cases, specific research may be required to determine the best course of action to achieve a desired outcome. Establishing partnerships with academic institutions, making the reserve an attractive site for student researchers and compiling a list of management problems that can be addressed by research projects will help to grow the knowledge base through scientific research.

Management actions:

See Annual Plan of Operation.

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Appendices

APPENDIX A - List of statutes to which the Nature Reserve is subject

Biodiversity and Cultural Resource Management and Development:

- Animals Protection Act [No. 71 of 1962]
- Atmospheric Pollution Prevention Act [No. 45 of 1965]
- Conservation of Agricultural Resources Act [No. 43 of 1983]
- Constitution of the Republic of South Africa [No. 108 of 1996]
- Criminal Procedures Act [1977]
- Environment Conservation Act [No. 73 of 1989]
- Forest Act [No. 122 of 1984]
- Hazardous Substances Act [No. 15 of 1973]
- Western Cape Heritage Management Act [No. 10 of 1997]
- Western Cape Nature Conservation Management Act [No. 9 of 1997]
- National Environmental Management Act [No. 107 of 1998]
- National Environmental Management: Biodiversity Act [No. 10 of 2004]
- National Environmental Management: Protected Areas Act [No. 57 of 2003]
- National Forests Act [No. 84 of 1998]
- National Heritage Resources Act [No. 25 of 1999]
- National Water Act [No. 36 of 1998]
- National Water Amendment Act [No. 45 of 1999]
- National Veld and Forest Fire Act [No 101 of 1998]
- Nature Conservation Ordinance [No. 15 of 1974]

General Management:

- Companies Act [No.71 of 2008]
- Promotion of Access to Information Act [No. 2 of 2000]
- Occupational Health and Safety Act [No. 85 of 1993]
- Western Cape Planning and Development Act [No. 5 of 1998]
- Development Facilitation Act [No. 67 of 1995]
- Disaster Management Act [No. 57 of 2002]

- Fire Brigade Services Act [No. 99 of 1987]
- Local Government: Municipal Systems Act [No. 32 of 2000]
- National Road Traffic Act [No. 93 of 1996]
- National Building Standards Act [No. 103 of 1977]
- Water Services Act [No. 108 of 1997]

Human Resource Management:

- Basic Conditions of Employment Act [No. 75 of 1997]
- Broad-Based Black Economic Empowerment Act [No. 53 of 2003]
- Compensation for Occupational Injuries and Diseases Act [No. 130 of 1993]
- Employment Equity Act [No. 55 of 1998]
- Labour Relations Act [No. 66 of 1995]
- Occupational Health and Safety Act [No. 85 of 1993]
- Pension Funds Act [No. 24 of 1956]
- Skills Development Act [No. 97 of 1998]
- Skills Development Levies Act [No. 9 of 1999]
- Unemployment Insurance Act [No. 63 of 2001]

APPENDIX B - Copy of Grotto Bay Nature Reserve declaration

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Provinsie Wes-Kaap: Provinsiale Koerant 5839

8 Maart 2002

PROVINCIAL NOTICES

The following Provincial Notices are published for general information.

G. A. LAWRENCE,
ACTING DIRECTOR-GENERAL

Provincial Building,
Wale Street,
Cape Town.

P.N. 60/2002

8 March 2002

CITY OF CAPE TOWN:

HELDERBERG ADMINISTRATION

REMOVAL OF RESTRICTIONS ACT, 1967

I, André John Lombaard, in my capacity as Assistant Director in the Department of Planning, Local Government and Housing: Western Cape, acting in terms of the powers contemplated by section 2(1) of the Removal of Restrictions Act, 1967 (Act 84 of 1967), duly delegated to me in terms of section 1 of the Western Cape Delegation of Powers Law, 1994, and on application by the owner of Remainder of Portion 1 and Remainder of Portion 48 (Bleak House) (a portion of Portion 1) Consolidated Farm Zandvliet No. 664, Stellenbosch, remove conditions 1.F. and 2.F. contained in Deed of Transfer No. T.30572 of 1987.

P.N. 61/2002

8 March 2002

WEST COAST DISTRICT MUNICIPALITY:

ESTABLISHMENT OF A PRIVATE NATURE RESERVE:
GROTTO BAY PRIVATE NATURE RESERVE

Notice is hereby given in terms of section 12(4) of the Nature Conservation Ordinance, 1974 (Ordinance 19 of 1974), that the Minister of Environmental Affairs and Development Planning has granted approval to the Grotto Bay Homeowners Association to establish a private nature reserve on their property, being Remainder of the Farm Modder Rivier No. 721, Malmesbury, situated in the area of the West Coast District Municipality, to which the name "Grotto Bay Private Nature Reserve" has been assigned and the boundaries of which are as indicated on a map filed in the office of the Chief Executive Officer: Western Cape Nature Conservation Board, Colonial Mutual Building, Room No. 518, 106 Adderley Street, Cape Town.

P.N. 62/2002

8 March 2002

CITY OF CAPE TOWN:

CAPE TOWN ADMINISTRATION

REMOVAL OF RESTRICTIONS ACT, 1967

I, Adam Johannes Cloete, in my capacity as Assistant Director in the Department of Planning, Local Government and Housing: Western Cape, acting in terms of the powers contemplated by section 2(1) of the Removal of Restrictions Act, 1967 (Act 84 of 1967), duly delegated to me in terms of section 1 of the Western Cape Delegation of Powers Law, 1994, and on application by the owner of Erf 39961, Cape Town at Athlone, removes conditions B.3.(b) and (d) in Deed of Transfer No. T.51005 of 2001.

PROVINSIALE KENNISGEWINGS

Die volgende Provinsiale Kennisgewings word vir algemene inligting gepubliseer.

G. A. LAWRENCE,
WAARNEMENDE DIREKTEUR-GENERAAL

Provinsiale-gebou,
Waalstraat,
Kaapstad.

P.K. 60/2002

8 Maart 2002

STAD KAAPSTAD:

HELDERBERG ADMINISTRASIE

WET OP OPHEFFING VAN BEPERKINGS, 1967

Ek, André John Lombaard, in my hoedanigheid as Assistent-Direkteur in die Departement van Beplanning, Plaaslike Regering en Behuising: Wes-Kaap, handelende ingevolge die bevoegdheid beoog in artikel 2(1) van die Wet op Opheffing van Beperkings, 1967 (Wet 84 van 1967), behoorlik aan my gedelegeer ingevolge artikel 1 van die Wes-Kaapse Wet op die Delegasie van Bevoegdhede, 1994, en op aansoek van die eienaar van Restant Gedeelte 1 en Restant Gedeelte 48 (Bleak House) ('n gedeelte van Gedeelte 1) Gekonsolideerde Plaas Zandvliet Nr. 664, Stellenbosch, hef voorwaardes 1.F. en 2.F. vervat in Transportakte Nr. T.30572 van 1987, op.

P.K. 61/2002

8 Maart 2002

WESKUS DISTRIKSMUNISIPALITEIT:

STIGTING VAN 'N PRIVATE NATUURRESERVAAT:
GROTTOBAAI PRIVATE NATUURRESERVAAT

Kennisgewing geskied hierby kragtens artikel 12(4) van die Ordonnansie op Natuurbewaring, 1974 (Ordonnansie 19 van 1974), dat die Minister van Omgewingsake en Ontwikkelingsbeplanning goedkeuring verleen het aan die Grotto Baaï Huiseienaarsvereniging om 'n private natuurreservaat op hul eiendom, synde Restant van die Plaas Modder Rivier Nr. 721, Malmesbury, geleë in die gebied van die Weskus Distriksmunisipaliteit, te stig, waaraan die naam "Grotto Baaï Private Natuurreservaat" toegewys is en waarvan die grense is soos aangedui op 'n kaart geliasseer in die kantoor van die Hoof Uitvoerende Beampte: Wes-Kaapse Natuurbewaringsraad, Koloniale Mutual-gebou, Kamer Nr. 518, Adderleystraat 106, Kaapstad.

P.K. 62/2002

8 Maart 2002

STAD KAAPSTAD:

KAAPSTAD ADMINISTRASIE

WET OP OPHEFFING VAN BEPERKINGS, 1967

Ek, Adam Johannes Cloete, in my hoedanigheid as Assistent-Direkteur in die Departement van Beplanning, Plaaslike Regering en Behuising: Wes-Kaap, handelende ingevolge die bevoegdheid beoog in artikel 2(1) van die Wet op Opheffing van Beperkings, 1967 (Wet 84 van 1967), behoorlik aan my gedelegeer ingevolge artikel 1 van die Wes-Kaapse Wet op die Delegasie van Bevoegdhede, 1994, en op aansoek van die eienaar van Erf 39961, Kaapstad te Athlone, hef voorwaardes B.3.(b) en (d) in Transportakte Nr. T.51005 van 2001, op.

APPENDIX C - Species lists

Plant species

Chlorophytum triflorum, *Aizoon paniculatum*, *Apatesia helianthoides*, *Carpanthea pomeridiana*, *Carpobrotus acinaciformis*, *Carpobrotus edulis*, *Cleretum bellidiforme* (= *Dorotheanthus llidiformis*), *Conicosia pugioniformis*, *Disphyma crassifolium*, *Drosanthemum floribundum*, *Jordaniella dubia*, *Mesembryanthemum crystallinum*, *Ruschia macowanii*, *Ruschiella argentea* (= *Lampranthus argenteus*), *Tetragonia fruticosa*, *Tetragonis sp.*, *Atriplex semibaccata*, *Bassia diffusa* (= *Chenolea diffusa*), *Sarcocornia capensis* (= *Arthrocnemum capense*), *Sarcocornia perennis* (= *Arthrocnemum perenne*), *Brunsvigia orientalis*, *Haemanthus pubescens*, *Searsia glauca*, *Searsia laevigata villosa*, *Arctopus echinatus*, *Dasispermum capense* (= *Stoibrax capense*), *Dasispermum suffruticosum*, *Cynanchum africanum*, *Microloma sagittatum*, *Quaqua incarnata*, *Zantedeschia aethiopica*, *Asparagus capensis*, *Asparagus rubicundus*, *Asparagus lignosus*, *Aloe perfoliate*, *Kniphofia uvaria*, *Trachyandra ciliata*, *Trachyandra divaricata*, *Trachyandra falcata*, *Trachyandra hispida*, *Amellus tenuifolius*, *Arctotheca calendula*, *Arctotheca populifolia*, *Arctotis angustifolia*, *Arctotis breviscapa*, *Arctotis hirsuta*, *Arctotis revoluta*, *Arctotis stoechadifolia*, *Athanasia rithmifolia*, *Berkheya rigida*, *Bolandia elongata* (= *Senecio scapiflorus*), *Cineraria alchemilloides*, *Cotula coronopifolia*, *Cotula turbinata*, *Crassothonna cylindrica* (= *Othonna cylindrica*), *Didelta carnosus* var. *tomentosa*, *Dimorphotheca pluvialis*, *Eriocephalus africanus*, *Eriocephalus racemosus*, *Euryops thunbergii*, *Felicia bergeriana*, *Felicia heterophylla*, *Felicia tenella*, *Gazania krebsiana*, *Gazania maritima*, *Gorteria personata*, *Gymnodiscus capillaris*, *Helichrysum moesianum*, *Helichrysum revolutum*, *Leysera gnaphalodes*, *Metalasia muricata*, *Nidorella foetida*, *Oncosiphon grandiflorum*, *Oncosiphon suffruticosum*, *Osteospermum dentatum*, *Osteospermum incanum*, *Osteospermum moniliferum*, *Osteospermum monstrosum* (= *Osteospermum clandestinum*), *Osteospermum monstrosum* (= *Tripteris clandestina*), *Othonna coronopifolia*, *Othonna perfoliata* (= *Othonna filicaulis*), *Othonna quercifolia*, *Plecostachys serpyllifolia*, *Pteronia divaricate*, *Senecio arenarius*, *Senecio halimifolius*, *Senecio hastatus*, *Senecio littoreus*, *Senecio sarcoides*, *Ursinia anthemoides*, *Anchusa capensis*, *Lobostemon glaucophyllus*, *Heliophila Africana*, *Heliophila refracta*, *Staavia radiata*, *Cyphia crenata*, *Cyphia digitata*, *Lobelia comosa*, *Wahlenbergia paniculata*, *Silene aethiopica* (= *Silene clandestina*), *Silene undulata*, *Spergularia media*, *Ornithoglossum viride*, *Cotyledon orbiculate*, *Crassula dichotoma*, *Crassula muscosa*, *Crassula natans*, *Crassula tomentosa*, *Tylecodon grandifloras*, *Tylecodon paniculatus*, *Kedrostis nana*, *Ficinia nigrescens*, *Hellmuthia membranacea*, *Scabiosa incisa*, *Euclea racemosa*, *Erica mammosa*, *Clutia daphnoides*, *Euphorbia burmannii*, *Euphorbia caput-medusae*, *Euphorbia genistoides*, *Euphorbia mauritanica*, *Euphorbia tenax* (= *Euphorbia arceuthobiooides*), *Aspalathus albens*, *Aspalathus hispida*, *Aspalathus quinquefolia*, *Aspalathus spinescens*, *Dipogon lignosus*, *Indigofera procumbens*, *Lessertia frutescens* (= *Sutherlandia frutescens*), *Lessertia rigida*, *Lotononis prostrata* var. *peduncularis*, *Melolobium exudans*, *Otholobium hirtum*, *Rafnia angulata* subsp., *Wiborgia fusca*, *Frankenia pulverulenta*, *Cysticapnos vesicaria*, *Orphium frutescens*, *Sebaea albens*, *Erodium moschatum*, *Geranium incanum*, *Pelargonium capitatum*, *Pelargonium cucullatum*, *Pelargonium gibbosum*, *Pelargonium hirtum*, *Pelargonium lobatum*, *Pelargonium longicaule*, *Pelargonium multiradiatum*, *Pelargonium myrrhifolium*, *Pelargonium suburbanum bipinnatifidum*, *Pelargonium triste*, *Wachendorfia brachyandra*, *Wachendorfia multiflora* (= *Wachendorfia parviflora*), *Caesia sp.*, *Albuca canadensis* (= *Albuca maxima*), *Albuca cooperi*, *Albuca flaccida*, *Albuca juncifolia*, *Lachenalia aloides* var. *Lachenalia bulbifera*, *Lachenalia longibracteata*, *Lachenalia mutabilis*, *Lachenalia punctata* (= *Lachenalia rubida* var.

punctata), *Lachenalia variegata*, *Massonia echinata* (= *Massonia angustifolia*), *Ornithogalum thyrsoides*, *Pauridia serrata* (= *Spiloxene serrata*), *Aristea Africana*, *Aristea dichotoma*, *Aristrea bakeri*, *Babiana ambigua*, *Babiana ringens*, *Babiana tubiflora* LC or *Babiana tubulosa* NT (= *Babiana tubulosa*), *Chasmanthe aethiopica*, *Ferraria crispa*, *Ferraria divaricate*, *Geissorhiza aspera*, *Geissorhiza excapa*, *Gladiolus carinatus*, *Gladiolus gracilis*, *Gladiolus pulcherrimus*, *Hesperantha falcata*, *Ixia paniculata*, *Lapeirousia anceps*, *Lapeirousia jacquini*, *Melasphaerula graminea* (= *Melasphaerula ramosa*), *Moraea flaccida*, *Moraea fugax*, *Moraea gawleri*, *Moraea minor*, *Moraea setifolia*, *Moraea tripetala*, *Romulea flava* / *cf tabularis*, *Romulea cf flava*, *Romulea hirsute*, *Sparaxis bulbifera*, *Watsonia meriana*, *Ballota Africana*, *Leonotis Leonurus*, *Salvia africana-caerulea*, *Salvia africana-lutea*, *Salvia lanceolata*, *Stachys aethiopica*, *Cassytha ciliolate*, *Septulina glauca*, *Hermannia althaeifolia*, *Hermannia linifolia*, *Hermannia multiflora*, *Hermannia pinnata*, *Hermannia scordifolia*, *Hermannia ternifolia*, *Cissampelos capensis*, *Adenogramma glomerata*, *Limeum africanum*, *Pharnaceum incanum*, *Pharnaceum lanatum*, *Pharnaceum linatum*, *Morella cordifolia*, *Grielum grandiflorum*, *Olea europaea Africana*, *Disa bracteate*, *Pterygodium crispum* (= *Corycium crispum*), *Pterygodium orobanchoides* (= *Corycium orobanchoides*), *Satyrium odorum*, *Hyobanche sanguinea*, *Oxalis compressa*, *Oxalis flava*, *Oxalis hirta*, *Oxalis luteola*, *Oxalis obtuse*, *Limonium purpuratum* (= *Afrolimon purpuratum*), *Ehrharta calycina*, *Ehrharta villosa*, *Imperata cylindrica*, *Pentameris sp.*, *Muraltia spinosa* (= *Nylandtia spinosa*), *Polygala myrtifolia*, *Rumex lativalvis*, *Anagallis arvensis*, *Leucadendron saligna*, *Elegia elephantina* (= *Chondropetalum elephantinum*), *Restio eleocharis* (= *Ischyrolepis eleocharis*), *Staberoha distachyos*, *Thamnochortus erectus*, *Thamnochortus spicigerus*, *Willdenowia incurvate*, *Phyllica cephalantha*, *Phyllica plumosa*, *Trichocephalus stipularis*, *Agathosma bisulca*, *Agathosma imbricata*, *Diosma oppositifolia*, *Colpoon compressum* (= *Osyris compressa*), *Thesium capitatum*, *Thesium confusum* (= *Thesidium fragile*), *Thesium spinosum*, *Viscum capense*, *Viscum rotundifolium*, *Chaenostoma uncinatum* (= *Sutera uncinata*), *Diascia capensis*, *Harveya squamosa*, *Hebenstretia dentata*, *Hebenstretia repens*, *Hebenstretia robusta*, *Hemimeris racemosa*, *Hemimeris sabulosa*, *Lyperia tristis*, *Manulea rubra*, *Manulea thyrsoflora*, *Manulea tomentosa*, *Nemesia affinis*, *Nemesia bicornis*, *Nemesia versicolor*, *Oftia africana*, *Orobanche ramosa*, *Phyllopodium cephalophorum*, *Polycarena lilacina*, *Zaluzianskya villosa*, *Lycium afrum*, *Lycium ferocissimum*, *Lycium tetrandrum*, *Solanum africanum*, *Solanum guineense*, *Solanum linnaeanum*, *Stilbe ericoides*, *Passerina corymbosa* (= *Passerina vulgaris*), *Struthiola striata*, *Roepera flexuosa*, *Roepera morgsana*, *Roepera spinosa*.

General fauna lists

Mammals: Cape leopard, Caracal, African Wild Cat, Small Spotted Genet, Cape Grysbok, Common Duiker, Steenbok, Rock Dassie, Porcupine, Honey Badger, Small Grey Mongoose, Water Mongoose Cape Clawless Otter.

Reptiles: Angulate Tortoise, Cape Cobra, Boomslog, Skaapsteker, Puff Adder, Southern Adder, Rhombic Egg Eater, Mole Snake, Common Brown Harlequin Snake, Common Slug Eater, Cape Legless Stink, Round Headed Worm Lizard.

Amphibians: Cape River Frog, Cape Sand Frog, Cape Chirping Frog, Banded Stream Frog.

Bird lists

Fiery-necked nightjar, *Bar-throated Apalis*, *Bank Cormorant*, *Grey-winged Francolin*, *Black-shouldered Kite*, *Bokmakierie*, *Blacksmith Lapwing*, *Long-billed Crombec*, *Chestnut-vented Tit-Babbler*, *Common/Steppe Buzzard*, *Diderick Cuckoo*, *Three-banded Plover*, *Sanderling*,

European Bee-eater, European Sand Martin, Common Starling, Barn Swallow, Common Fiscal, Fiscal flycatcher, Banded Martin, Yellow-billed Duck, Yellow-billed Kite, Yellow Canary, Speckled Mousebird, African Stonechat, Spotted Thick-knee, Cape Robin-Chat, Cape Wagtail, Cape Sparrow, Common Sandpiper, Common Tern, Helmeted Guineafowl, Cape Turtle Dove, Cape Grassbird, Red-eyed Dove, Sandwich Tern, Greater Striped Swallow, Grey-headed Gull, Grey-backed Cisticola, Layard's Titbabbler, Hadedda Ibis, Hartlaub's Gull, African Hoopoe, House Sparrow, Malachite Sunbird, , Cape Spurfowl, Yellow Bishop, Cape White-eye, Cape Canary, Cape Penduline Tit, Cape Sugarbird, Cape Bulbul, Cape Weaver, Karoo Prinia, African Reed Warbler, African Penguin, Southern Double-collared Sunbird, Little Swift, Whimbrel, Egyptian Goose, Pin-Tailed Whydah, Speckled Pigeon, Rock Martin, Curlew Sandpiper, Crowned Cormorant, Claas's Cuckoo, Namaqua Dove, Neddicky, Orange-throated Longclaw, Reed Cormorant, Common Waxbill, Laughing Dove, Southern Red Bishop, Red-winged Starling, Cape Bunting, Red-faced Mousebird, Sacred Ibis, Karoo Scrub Robin, Ruddy Turnstone, Southern Masked Weaver, Black-headed Heron, Kelp Gull, African Black Oystercatcher, Southern Black Korhaan, Cape Cormorant, Rock Dove/Common Pigeon, White-fronted Plover, Lark-like Bunting, Ostrich, Spur-winged Goose, White-breasted Cormorant, Pied Crow, Pied Starling, White-throated Canary, White-throated Swallow, White-backed Mousebird, Great White Pelican, Leveillant's Cisticola, Brown-throated Martin, Karoo Prinia, Bokmakierie, Grey-backed Cisticola, Southern Double-Collared Sunbird, Red-capped larks.

Birds of prey (raptors) occurring on site include Steppe Buzzard, Yellow billed Kite, Spotted Eagle Owl, Barn Owl, Rock Kestrel, Jackal Buzzard, African Harrier Hawk and the threatened Black Harriers

Threatened Plant species

Leucospermum tomentosum: VU
Lachnea grandiflora: VU
Nemesia strumosa: NT
Amphithalea ericifolia subsp. *erecta*: CR
Argyrolobium velutinum: EN
Aspalathus lotoides: VU
Lebeckia plukenetiana: EN
Leucadendron lanigerum: EN
Leucospermum hypophyllocarpodendron subsp. *hypophyllocarpodendron*: VU
Leucospermum tomentosum: VU
Macrostylis villosa: EN
Microdon capitatus: EN
Protea burchelli: VU
Rafnia lancea: EN
Romulea eximia: EN
Wurmbea capensis: VU
Xiphotheca reflexa: EN
Drosanthemum calycinum: NT
Lampranthus explanatus: NT
Lampranthus filicaulis: VU
Ruschia diversifolia: VU
Ruschia indecora: NT
Gethyllis ciliaris ciliaris: NT
Senecio foeniculoides: CR

Aspalathus ternate: NT
Wachendorfia brachyandra: VU
Lachenalia pustulata: NT
Babiana nana nana: EN
Freesia viridis viridis: NT
Hermannia "myrrhifolia": EN
Limonium purpuratum (= *Afrolimon purpuratum*): EN
Muraltia macropetala: VU
Leucadendron lanigerum lanigerum: EN
Leucospermum hypophyllocarpodendron: VU
Serruria decipiens: VU
Phylica harveyi: VU
Manulea corymbosa: VU

APPENDIX D – Zonation and special management overlay categories

Zonation categories

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Nature Access	<p>Conservation: To manage and direct visitor use, and plan infrastructure to minimise impact on sensitive environments.</p> <p>To actively manage users and visitor impacts.</p> <p>Allows for minimal or more intensive biodiversity management intervention.</p> <p>Provide additional protection to sensitive or threatened habitats, species or other features by Special Management Overlays</p> <p>Users: To provide easy access to natural landscapes with low expectation of solitude at all times.</p> <p>Can buffer wilderness or Primitive Zone.</p>	<p>Areas with extensive lower sensitivity habitats:</p> <p>Areas able to accommodate higher numbers of visitors regularly, with no identified sensitive or regionally rare biodiversity.</p> <p>Extensive areas able to accommodate roads, trails and tracks without high risk of erosion and degradation.</p> <p>Areas accessible for regular management of roads and trails</p> <p>Areas where roads and trail infrastructure can be located with low visibility from the surrounding landscape, particularly from adjacent Primitive or Wilderness Zones.</p> <p>Usually, areas that require active fire management with firebreaks to stay within thresholds of concern, but may also include natural burning regimes.</p>	<p>Guided or unguided nature observation.</p> <p>Day hiking trails and/or short trails.</p> <p>Bird hides, canoeing, mountain biking & rock-climbing where appropriate.</p> <p>Other activities if specifically considered and approved as part of specific reserve zoning scheme.</p> <p>Motorised 2x4 self-drive access on designated routes.</p> <p>No accommodation or camping.</p> <p>Frequent interaction with other users.</p>	<p>Some deviation from natural/pristine state allowed particularly on less sensitive or already disturbed/transformed sites.</p> <p>No accommodation; but ablution facilities may be provided.</p> <p>May have defined or beaconed hiking routes, tourism and management access roads, and management tracks and firebreaks.</p> <p>Infrastructure should be designed to reduce impacts of higher visitor numbers.</p> <p>Roads open to the public should be accessible by 2x4 sedan. Full width tarred or surfaced roads or roads and tracks to accommodate two vehicles are appropriate.</p> <p>Unsurfaced roads may be surfaced if a road planning exercise has confirmed that the location is suitable.</p>	<p>No special access control or permits required for this zone.</p> <p>Will cater for larger number of visitors than primitive zone</p> <p>Vehicle access on dedicated routes, with pedestrian access from parking areas or adjacent Development Zones.</p> <p>On water – only non-motorised crafts allowed</p>	<p>Visitor Management:</p> <p>More frequent monitoring of these areas is necessary to prevent damage or degradation.</p> <p>More frequent footpath maintenance must be scheduled for busy routes, with particular attention paid to use of railings or other access control to prevent damage to sensitive areas.</p> <p>Unless visitor access can definitely be intensively guided and managed, re-route trails away from any sensitive local habitats or plant and animal species.</p> <p>Trail layout, design and construction must be specified to reduce maintenance requirements under higher use.</p> <p>Visible & audible human impacts to adjacent Primitive or Wilderness Zones should be mitigated</p> <p>Conservation Management:</p> <p>Habitats with lower or higher management requirements. May be natural burning zones.</p> <p>Prevent or restore visible trampling or any other visitor impact.</p> <p>Rehabilitate non-useful roads to natural vegetation.</p> <p>Consumptive Use:</p> <p>Sustainable use may be appropriate subject to a formal assessment and application in accordance with CapeNature policies.</p>

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development – Low Intensity	<p>Conservation: To locate the zone and infrastructure to minimise impact on sensitive environments.</p> <p>To actively manage users and visitor impacts on adjacent sensitive areas.</p> <p>Provide additional protection to sensitive or threatened habitats, species or other features by Special Management Overlays</p> <p>Users: To provide access to adjacent natural landscapes with little expectation of solitude.</p> <p>To provide primarily self-catering accommodation or camping.</p> <p>Can provide for Environmental Education accommodation and access into surrounding landscapes.</p>	<p>Areas with extensive degraded or transformed footprints.</p> <p>Natural or semi-natural habitats only when use of these areas is essential to minimise infrastructure/use impacts over whole reserve.</p> <p>Areas able to accommodate high numbers of visitors regularly, with no identified sensitive or regionally rare biodiversity.</p> <p>Areas able to accommodate roads, trails and accommodation infrastructure without risk of erosion or degradation.</p> <p>Areas easily accessible from reserve management centre.</p> <p>Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment.</p> <p>Areas not visible from Primitive or Wilderness Zones.</p> <p>Areas where new infrastructure can be located with low visibility from the surrounding landscape.</p> <p>Areas with available potable water, and not sensitive to disposal of treated wastewater via soak away.</p>	<p>Picnicking.</p> <p>Walking or bicycle access into adjacent areas.</p> <p>Self-catering accommodation and camping.</p> <p>Meeting, workshops or mini-conference activities for no more than the number of people that can be accommodated overnight in the zone.</p> <p>Can provide for Environmental Education accommodation and access into surrounding landscapes, but this must be carefully planned not to conflict with visitor use.</p>	<p>Reception offices.</p> <p>Self-catering accommodation and camping for up to 100 guests in total at any time¹</p> <p>No more than 6-8 beds per unit.</p> <p>Single small lodges for up to 30 guests are permissible if all facilities are contained in a compact footprint, this represents the total accommodation for the zone, and any restaurant or catering facilities are for overnight guests only.</p> <p>If possible, roads should be narrow with separate incoming and outgoing routes, otherwise double vehicle width roads are strongly advisable for safety and usability.</p> <p>Roads in this zone should be surfaced wherever possible to reduce management cost and environmental impacts.</p> <p>Development and infrastructure may take up a significant proportion of the zone, but planning should ensure that area still provides relatively natural outdoor experience.</p>	<p>Motorised self-drive 2x4 sedan car access.</p> <p>Tour bus access</p> <p>Parking areas</p> <p>This zone should be used to provide parking and walk-in access for day visitors to adjacent Nature Access zone if possible.</p>	<p>Visitor Management:</p> <p>Use built and infrastructure solutions to such as railings, hard surfacing and boardwalks to manage undesirable visitor impacts.</p> <p>Accept some impact on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay.</p> <p>Frequent footpath and road maintenance must be scheduled for high impact routes.</p> <p>Visible impacts to adjacent Zones should be mitigated</p> <p>Conservation Management:</p> <p>Provide access and generate revenue.</p> <p>Management should aim to mitigate the impacts of the high number of visitors.</p> <p>L largely transformed habitats with lower management requirements. Usually fire exclusion areas.</p> <p>Prevent or restore visible trampling or any other visitor impact.</p> <p>Plan for a compact overall development footprint, avoiding dispersed infrastructure that will increase fire risk and/or environmental footprint. This is most critical in fire-prone environments.</p> <p>Consumptive Use:</p> <p>Sustainable use may be appropriate subject to a formal assessment and application in accordance with CapeNature policies.</p>

¹ Although this sounds high this is still in line with many CapeNature sites that would fall within this zone definition and E.g. configured as 10 x 4-sleeper self-catering units and 15 campsites this seems completely reasonable.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development - Management	<p>Location of infrastructure and facilities for Reserve Administration & Conservation management facilities</p> <p>Not compatible with tourism</p>	<p>Areas with extensive degraded or transformed footprints.</p> <p>Natural or semi-natural habitats only when use of these areas is essential to minimise infrastructure/use impacts over whole reserve.</p> <p>Areas able to accommodate high disturbance, with no identified sensitive or regionally rare biodiversity.</p> <p>Areas not visible or audible from Development - Low / High Intensity zone, but in close proximity to any other Development Zones.</p> <p>Areas providing easy access to reserve and infrastructure.</p> <p>Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment.</p> <p>Areas not visible from Primitive or Wilderness Zones.</p> <p>Areas where new infrastructure can be located with low visibility from the surrounding landscape.</p> <p>Areas with available potable water, and not sensitive to disposal of treated wastewater via soak away.</p>	n/a	<p>Any reserve management infrastructure including offices, sheds, garages, stores, etc.</p> <p>Roads required to access these should be surfaced to reduce long-term maintenance costs and environmental impact.</p>	none	<p>Visitor Management:</p> <p>Accept some impact on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay.</p> <p>Frequent footpath and road maintenance must be scheduled for high impact routes.</p> <p>Visible impacts to adjacent Zones should be mitigated</p> <p>Conservation Management:</p> <p>Management should aim to contain all activities within the smallest possible footprint.</p> <p>L largely transformed habitats with lower management requirements. Usually fire exclusion areas.</p> <p>Prevent or restore trampling or any other management impact.</p> <p>Plan for a compact overall development footprint, avoiding dispersed infrastructure that will increase fire risk and/or environmental footprint. This is most critical in fire-prone environments.</p> <p>Consumptive Use:</p> <p>Sustainable use unlikely to be possible in small zone.</p>

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
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Development - Production	Commercial or subsistence farming (only applicable to privately owned & managed Contract Nature Reserves)	Areas identified for production farming Areas with extensive degraded or transformed footprints. Natural or semi-natural habitats only when use of these areas is supported by a bioregional plan and specialist site assessment.	May allow agri-tourism	Any agricultural infrastructure.	May allow agri-tourism	Agricultural best practise to support surrounding natural areas, particularly with regard to river and wetland buffer areas.
Development – Private Areas	Private dwelling and surrounds (only applicable to privately owned & managed Contract Nature Reserves)	Private homestead Areas with existing degraded or transformed footprints. Natural or semi-natural habitats only when use of these areas is supported by a bioregional plan and specialist site assessment.	n/a	Dwellings and private accommodation areas. Roads to access these.	No access to the public without permission from landowner	Should have no negative impacts on the surrounding conservation area

Special Management Overlays

Additional forms of zonation that can overlap any of the above zones.

Special Management overlays	Objective of zone	Characteristics	Type of Activities	Facilities / Infrastructure	Type of Access	Management Guidelines
Cultural Feature protection	Protection of localised identified important Cultural Feature	Could overlap any other zone, Permanent, temporary or temporal zone to manage important cultural or heritage features	Specific activities dependent on ability to manage activity and feature in question.	Usually none, but specific infrastructure dependent on feature in question.	Specific access dependent on ability to manage access and feature in question.	Feature specific – as required
Species/Habitat protection	Protection of localised identified important Biodiversity Feature	Could overlap any other zone, Permanent, temporary or temporal zone to manage important cultural or heritage features	Specific activities dependent on ability to manage activity and feature in question.	Usually none, but specific infrastructure dependent on feature in question.	Specific access dependent on ability to manage access and feature in question.	Feature specific – as required
Visual protection	Protection of localised sensitive viewsheds and particularly for Wilderness Zone viewsheds	. Sensitive viewsheds and particularly for areas within Wilderness Zone viewsheds	Specific activities dependent on ability to manage activity and feature in question.	No roads, firebreaks or buildings. No visible infrastructure Trails may be appropriate	Walking access likely to be appropriate	Feature specific – as required
Natural Resource Access	Access to identified sustainable consumptive use resources as per a resource management plan	Areas with identified natural resources formally assessed as not sensitive to harvesting and provided with a sustainable harvesting plan.	Harvesting of identified resources	None	Specific access dependent on feature in question.	Feature specific – as required
Rehabilitation		This should fall under specific management objectives for any zone				

Research is permissible in all zones, except Species/Habitat protection or Cultural Protection where it may be considered on a case-by-case basis. Research that requires extensive destructive harvesting, or manipulation of more than a few square meters of habitat should not be considered in any of the Protection overlays, except where research outputs are considered essential for management of that ecosystem research cannot be done at an equivalent site elsewhere, and research results are certain to contribute substantially to management objective.

APPENDIX E – Annual Plan of Operation

Annual Plan of Operation Template Nature Reserve 2025																	
KPA	Objective	Objective Statement	This Years Plan	Budget	Management Activities	Evidence	Resp. Person	Priority	Annual Status	Q1 Jan-Mar			Q2 Apr-Jun				
Integrated Wildfire Control	To manage the risks associated with uncontrolled wildfire in an integrated way to limit negative impacts on biodiversity and ecosystem function as well as the risks to human safety and infrastructure from wildfire.	Annual block burn (4 & 6) and ensuring fire breaks are in place; fire risk monitoring.	RO		Pre-season wildfire risk assessment to identify fire-prone areas and map fire hotspots if required due to a good season: aliens, vegetation age & fuel loads, new infrastructure, road condition and access, etc. (September) (VULCAN risk assessment).	Fire Readiness Plan	Estate Manager	Medium	Planned	J	F	M	A	M	J		
					Maintain membership of the FPA (January) - Greater Cederberg Fire Protection Association.	FPA Membership	Estate Manager										
					Pre-season meetings: attend FPA & other local meetings (typically June).	Meeting Attendance	Estate Manager										
					Ensure firebreaks are in place where possible and maintain APRs access routes (November).	Fire Breaks/Fire break agreements	Estate Manager										
					Maintain prescribed burn plan and execute.	Communication	Estate Manager										
					Annual fire training days.	Communication	Estate Manager										
					Fire risk monitoring and update at gate.	WhatsApp groups & incident report book	Estate Manager										
					Maintain equipment register.	Logbook & inventory sheet	Estate Manager										
					Routinely check serviceability of radio and comms systems.		Estate Manager										

