Penguin (Bird) Island Nature Reserve Complex

Protected Area Management Plan 2015 - 2020

Prepared by
Lee Saul and Adrian Fortuin

DATE APPROVED: 27 MARCH 2015

Citation
Penguin (Bird) Island Nature Reserve Protected Area Management Plan. (2015) Saul, L. & Fortuin, A.

The Penguin (Bird) Island Nature Reserve Complex comprises the following:

The Fish Protection Act, 1893 (Act No. 15 of 1893 of the Cape of Good Hope) as amended in accordance with section 2 of this Act the present basic operative authority for the control of the State Guano Islands, sea birds and seals have been granted by Proclamation No. 158 of 1936, as amended.

Penguin (Bird) Island Nature Reserve was established as a Provincial Nature Reserve in terms of Section 6 the Nature Conservation Ordinance, 1974, on 9 March 1998 and proclaimed in the Provincial Gazette of 18 March 1988 by Proclamation No. 12/1988.

Elands Bay State Forest was declared as a state forest reserve in terms of the Forest Act, 1984 (Act No. 122 of 1984).

EXECUTIVE SUMMARY

To be in compliance with the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003), CapeNature is required to develop management plans for each of its nature reserves. In developing the management plan for Penguin (Bird) Island Nature Reserve, CapeNature strives to establish biodiversity conservation as a foundation of a sustainable economy providing ecosystem services, access and opportunities for all.

The Penguin (Bird) Island Nature Reserve Complex is comprised of Penguin (Bird) Island Nature Reserve and Elands Bay State Forest. Penguin (Bird) Island Nature Reserve is a 2.2 hectare island located approximately 280 km northwest of Cape Town, and lies about 100 m off-shore of the town Lamberts Bay on South Africa's West Coast. Elands Bay State Forest covers an area of approximately 617 ha and is located on the West Coast of South Africa, approximately 180 km north of Cape Town and adjacent to the town of Elands Bay. The Nature Reserve Complex falls within the West Coast District Municipality (WCDM) and the Cederberg Local Municipality (CLM). The Reserve Complex experiences a typical Mediterranean climate which is characterised by hot, dry summers and moderately cold, wet winters.

The Penguin (Bird) Island Nature Reserve Complex Management Plan is divided into six main chapters. The paragraphs below provide a synopsis of each chapter in relation to both Penguin (Bird) Island Nature Reserve (PART I) and Elands Bay State Forest (PART II) respectively.

Chapter One delves into the rationale for CapeNature developing Protected Area Management Plans (PAMPs) for its Provincial Nature Reserves and refers to the "*Guidelines for the Development of a Management Plan for a Protected Area in terms of the National Environmental Management: Protected Area Act*". It furthermore highlights CapeNature's application of an Adaptive Management Cycle when drafting and where to apportion focus for the 5-yearly PAMP. Lastly it details the structure, approval and the revision of the PAMP.

Chapter Two outlines the Strategic Management Framework of the Penguin (Bird) Island Nature Reserve Complex. It consists of the vision, purpose, values and objectives of Penguin (Bird) Island Nature Reserve and summarizes its opportunities, challenges, and threats. The vision of Penguin (Bird) Island Nature Reserve is the conservation of the island biodiversity with an emphasis on the Cape gannet colony. Its purpose is the conservation of Penguin (Bird) Island Nature Reserve's biodiversity through effective management and partnerships, while providing sustainable quality products for tourism and environmental education. The vision of Elands Bay State Forest is to utilise its strategic position to contribute towards

biodiversity conservation within the greater Sandveld region. The purpose is to serve as a coastal link within the Sandveld Core Corridor, as part of the Greater Cederberg Biodiversity Corridor. It should be noted that Penguin (Bird) Island Nature Reserve and Elands Bay State Forest's purposes were both aligned with the criteria listed in Section 17 of the National Environmental Management: Protected Areas Act (NEM: PAA). The values of the Penguin (Bird) Island Nature Reserve Complex were grouped into four main categories, i.e., natural, social, cultural/historic and eco-tourism.

The Penguin (Bird) Island Nature Reserve Complex's objectives were derived from the vision and purpose and represent Key Performance Areas (KPAs) in which achievement must be obtained in order to support the management intention. The prioritised objectives for Penguin (Bird) Island Nature Reserve are as follow:

1. To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet.
2. To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.
3. To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.
4. To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.
5. To provide environmental education opportunities on marine and island ecosystems, with emphasis on the cultural and historical significance of offshore islands.

The prioritised objectives of Elands Bay State Forest are:

1. To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor.
2. To conserve a unique West Coast dune habitat.

The last section of Chapter Two summarises the relevant strengths, weaknesses, opportunities and threats (SWOT) for Penguin (Bird) Island Nature Reserve Complex. This section comprises a matrix of factors that have either a positive or adverse effect on the objectives listed above. Environmental Education (EE) and Invasive Alien Plants (IAPs) appear to be common threads in both the SWOT analyses of Penguin (Bird) Island Nature Reserve and Elands Bay State Forest. In terms of Penguin (Bird) Island Nature Reserve EE is seen as a weakness due to a lack of resources; an opportunity due to the uniqueness of the reserve and finally the location of Lamberts Bay inhibits the rollout of EE on a regional scale. In terms of IAPs in Elands Bay, it is seen as a weakness due to a lack of control measures; an opportunity due to its job creation potential and lastly a threat due to a potential increase in infestation levels.

Chapter Three begins with a synopsis of the location and extent of the Penguin (Bird) Island Nature Reserve Complex. It proceeds to summarise the Reserve Complex's history and ecological context. In terms of Penguin (Bird) Island Nature Reserve, emphasis is placed on key mammalian and avifauna occurring on and around the island; with sections devoted to Cape fur seals, Cape gannets, African penguins and Cormorants. The remaining sections review the cultural heritage, the socio-economics of the WCDM and CLM including the financial injection that CapeNature provides through its Expanded Public Works Programme (EPWP) Full Time Equivalent (FTE) projects. The chapter is concluded with a review of the Reserve Complex's key operational infrastructure such as roads, buildings and signage.

Chapter Four provides the planning context for the Penguin (Bird) Island Nature Reserve Complex. It outlines the relationship between a significant number of WCDM Spatial Development Framework (SDF) objectives and the operations of CapeNature within the ambit of the WCDM. The second part of the chapter deals with the expansion of Penguin (Bird) Island Nature Reserve and Elands Bay State Forest respectively. In terms of Penguin (Bird) Island Nature Reserve, the proposed 500 m seasonal buffer zone around the western hemisphere of the reserve will provide young gannets with an unhindered area from which to take of or land during the fledgling period annually from January to April. A lack of staff at Elands Bay State Forest will see stewardship extension work still being carried out by the Greater Cederberg Biodiversity Corridor co-ordination unit. BirdLife-SA is currently assisting CapeNature with the transfer of state-owned land to CapeNature that will see the Verlorenvlei Ramsar site being afforded Provincial Nature Reserve Status.

Chapter Five outlines the Conservation Development Framework (CDF) of the Penguin (Bird) Island Nature Reserve Complex. The CDF for the Penguin (Bird) Island Nature Reserve Complex provides for the zonation of the complex based on for the results of a sensitivity analysis. These zones will guide operational, ecological and tourism management. The latter will ensure a quality tourism product aimed at the domestic and international markets for Penguin (Bird) Island Nature Reserve specifically. The Concept Development Plan (CDP) outlines the current infrastructure as well as future considerations. Penguin (Bird) Island Nature Reserve has seen significant upgrades to its existing infrastructure which includes the construction of an exhibition building, a revised visitor's centre with an upgraded penguin pool, curio shop, aquarium area and staff offices. Furthermore additional strategic interventions are required to increase the population sizes of key avifauna species.

Chapter Six summarises the Penguin (Bird) Island Nature Reserve Complex's Strategic Management Framework (SIF). This section focusses on putting measurable actions in place to ensure that the Reserve Complex achieves its management objectives over the 5-year duration of the PAMP. It summarises the key points from chapters two to five and allocates specific actions and outcomes that will inform the Annual Plan of Operations (APO) as well

as CapeNature's Annual Performance Plan (APP) targets. Additionally it allocates a proposed budget per section, required for implementation.

Key points from the Penguin (Bird) Island Nature Reserve SIF include:

- **Legal Status and Reserve Expansion**
  Investigate proclaiming the reserve under NEM: PAA
  Investigate the establishment of an ecological buffer zone around the eastern side of the island
- **Regional Integrated Planning and Cooperative Governance**
  Implement CapeNature MOU with SANCCOB
  Represent Penguin (Bird) Island Nature Reserve of the Regional Coastal Committee
- **Ecosystem and Biodiversity Management**
  Prioritise projects for inclusion in the Ecological Matrix
- **Wildlife Management**
  Active management of Damage Causing Animals (DCAs)
- **Law Enforcement and Compliance**
  Train Environmental Management Inspectors (EMIs) and Peace Officers
- **Disaster Management**
  Compilation and implementation of a disaster management plan for Penguin (Bird) Island Nature Reserve
- **Socio-Economic Framework**
  Ensure the continued implementation of Sustainable Livelihood Programme projects that will benefit the surrounding communities.
- **Awareness, Youth Development and Volunteers**
  Provide quality environmental education initiatives centred on marine ecosystems and the cultural and historical significance of offshore islands.
- **Management Effectiveness**
  Ensure annual Management Effectiveness Tracking Tool (METT) assessments indicate an annual upward trend by prioritising and embedding actions from audit results into the Penguin (Bird) Island Nature Reserve's Annual Plan of Operation (APO).

Key points from the Elands Bay State Forest SIF include:

- **Legal Status and Reserve Expansion**
  Investigate proclaiming the reserve under NEM: PAA
  Assist with the proclamation of the Verlorenvlei Provincial Nature Reserve
- **Ecosystem and Biodiversity Management**
  Prioritise projects for inclusion in the Ecological Matrix
- **Invasive and Non-invasive Alien Species Management**

AUTHORISATION

This management plan for the Penguin (Bird) Island Nature Reserve was drafted and recommended by the Reserve Management Committee (RMC), a multi-disciplinary team consisting of:

Reserve Management Committee:

- Mr Elbè Cloete — Regional Manager
- Mr Morris Floris — Protected Area Manager
- Mr Adrian Fortuin — Conservation Manager
- Ms Lee Saul — Regional Ecologist
- Mr Marius Wheeler — Ecological Coordinator
- Ms Sunet Basson — Community Conservation Manager
- Mr Johan Burger — Conservation Services Manager
- Mr Wentzel Hornimann — Conservation Services Officer

The RMC was supported by:

- Mr Kevin Shaw — Ornithologist
- Ms Sheila Henning — GIS Technician
- Dr Lesley Gibson — GIS Scientist

This Penguin (Bird) Island Nature Reserve management plan is recommended by:

Name and Title	Signature	Date
CapeNature – Penguin (Bird) Island Nature Reserve Mr A. Fortuin CONSERVATION MANAGER		25/3/2015
CapeNature – Western Region Mr M. Floris PROTECTED AREAS MANAGER		25/03/2015
CapeNature – Western Region Mr E. Cloete REGIONAL MANAGER		25/03/2015
CapeNature – Directorate: Conservation Management Ms G. Cleaver-Christie EXECUTIVE DIRECTOR		26/03/2015
CapeNature Dr R. Omar CHIEF EXECUTIVE OFFICER		27/03/15
Western Cape Nature Conservation Board Conservation Committee Dr E. February CHAIRPERSON OF THE BOARD CONSERVATION COMMITTEE		27/03/15
Western Cape Nature Conservation Board Prof G. Maneveldt CHAIRPERSON OF THE BOARD		27.03.15

And approved by:

Name and Title	Signature	Date
Environmental Affairs and Development Planning Mr A. Bredell PROVINCIAL MINISTER		

ACKNOWLEDGEMENTS

The authors would like to express their gratitude to all those who contributed to this management plan, including members of the public, community forums, and the following individuals:

- Mr Terence Coller (CapeNature – Conservation Services Officer) for input provided for the initial draft
- Dr Lesley Gibson (CapeNature – GIS Scientist) for hydrological and geological input and scientific review
- Council for Geoscience for geological data and Mr Coenie de Beer for assistance
- Ms Sheila Henning (CapeNature – GIS Technician) for map designs
- Mr Julian Conrad of GEOSS - Geohydrological and Spatial Solutions for input into the geohydrology section
- Ms Coral Birss (CapeNature – Mammalian Ecologist) for mammal information
- Ms Lauren Waller (CapeNature – Regional Ecologist) for avifauna information
- Mr Kevin Shaw (CapeNature – Ornithologist) for avifauna and botanical information
- Mr Marius Wheeler (CapeNature – Ecological Coordinator) for avifauna and mammal information
- Mr Guy Palmer (CapeNature – Biodiversity Manager) for mammal information
- Mr Andre Mitchell and Mr Deon Hignett (CapeNature – Law Support Services) for legal assistance
- Mr Jaco van Deventer (CapeNature – Programme Manager Wildlife Management) for technical review
- Dr Rob Crawford (Department of Environmental Affairs: Oceans and Coasts) for external review
- Mr Charl du Plessis and Mr Sean Ranger, Footprint Environmental Consultants (independent consultants) for managing the stakeholder engagement process.

Prevent domestic livestock (in particular goats) access to Elands Bay State Forest.

- **Law Enforcement and Compliance**

  Train EMIs and Peace Officers.

- **Socio-Economic Framework**

  Identify potential community based natural resources management initiatives.

- **Management Effectiveness**

  Ensure annual METT assessments indicate an annual upward trend by prioritising and embedding actions from audit results into the Elands Bay State Forest's APO.

LIST OF TABLES: PART I - Penguin (Bird) Island Nature Reserve

LIST OF TABLES: PART II - Elands Bay State Forest

LIST OF FIGURES: Part I - Penguin (Bird) Island Nature Reserve

LIST OF FIGURES: Part II – Elands Bay State Forest

ABBREVIATIONS: Penguin (Bird) Island Nature Reserve Complex

APO	Annual Plan of Operations
BCLME	Benguela Current Large Marine Ecosystem
BCU	Biodiversity Crime Unit
BMP	Biodiversity Management Plan
BMS	Biodiversity Monitoring System
CARA	Conservation of Agricultural Resources Act
CDF	Conservation Development Framework
CEO	Chief Executive Officer
CGS	Council for Geoscience
CLM	Cederberg Local Municipality
CPF	Co-ordinated Policy Framework
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning
DEA: O&C	Department of Environmental Affairs: Oceans and Coast
EIA	Environmental Impact Assessment
EMI	Environmental Management Inspector
EPWP	Expanded Public Works Programme
FTE	Full Time Equivalents
GIS	Geographical Information System
HA	Hectares
HRM	Human Resource Manager
IBA	Important Bird Area
ICM	Integrated Catchment Management
IDP	Integrated Development Plan
IRMP	Integrated Reserve Management Plan (IRMP)
IUCN	International Union for Conservation of Nature and Natural Resources
KM	Kilometres
M	Metres
MM	Millimetres
MASL	Meters above sea level
MEC	Member of Executive Council
METT-SA	Management Effectiveness Tracking Tool for South Africa
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MUCP	Management Unit Clearing Plan
NEM: PAA	National Environmental Management: Protected Areas Act
NPAES	National Protected Area Expansion Strategy
OHS	Occupational Health and Safety
OHSA	Occupational Health and Safety Act
PAAC	Protected Area Advisory Committee
PAMP	Protected Area Management Plan
QEM	Quarterly Ecological Meeting
RMC	Reserve Management Committee

SANCCOB	Southern African Foundation for the Conservation of Coastal Birds
SANParks	South African National Parks
SARDB	South African Red Data Book
SDF	Spatial Development Framework
SMME	Small, medium and macro enterprises
SMP	Strategic Management Plan
SOB	State of Biodiversity
SOBR	State of Biodiversity Report
SOP	Standard Operating Procedures
SU	Stellenbosch University
SWOT	Strengths, weaknesses, opportunities and threats analysis
ToR	Terms of Reference
TPC	Threshold of Potential Concern
U-AMP	User Asset Management Plan
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WAAC	Wild Animal Advisory Committee
WCDM	West Coast District Municipality
WCNCB	Western Cape Nature Conservation Board
WCPAES	Western Cape Protected Area Expansion Strategy
WfW	Working for Water
WWF-SA	World Wild Fund for Nature – South Africa

TABLE OF CONTENTS

1. INTRODUCTION

1.1. BACKGROUND TO CAPENATURE PROTECTED AREA MANAGEMENT PLANS

In compliance with the National Environmental Management: Protected Areas Act (NEM: PAA), 2003 (Act No. 57 of 2003), CapeNature is required to develop management plans for each of its protected areas. The object of a management plan is to ensure the protection, conservation and management of the protected area concerned in a manner which is consistent with the objectives of NEM:PAA and for the purpose for which it was declared. The approach to, and format of all CapeNature management plans is directed by the *Guidelines for the Development of a Management Plan for a Protected Area in terms of the National Environmental Management: Protected Area Act* (Cowan & Mpongoma 2010). All CapeNature management plans must be read in conjunction with CapeNature's Co-ordinated Policy Framework (CPF) ((Cleaver-Christie *et al.* in prep).

Management plans are strategic documents that provide the framework for the development and operation of protected areas. They inform management at all levels, from the Conservation Manager to support staff within CapeNature. The purpose of the management plan is to:

- Provide the primary strategic tool for management of the protected area informing the need for specific programmes and operational procedures;
- Provide for capacity building, future thinking and continuity of management; and
- Enable the management of the protected area in such a way that its values and the purpose for which it has been established are protected.

When drafting management plans, CapeNature applies the adaptive management cycle, as shown in Figure 1.1.

Adaptive management enables CapeNature to:

i. Learn through experience;
ii. Take account of, and respond to, changing factors that affect the protected area;
iii. Develop or refine management processes;
iv. Adopt best practices and new innovations in biodiversity conservation management; and
v. Demonstrate that management is appropriate and effective.

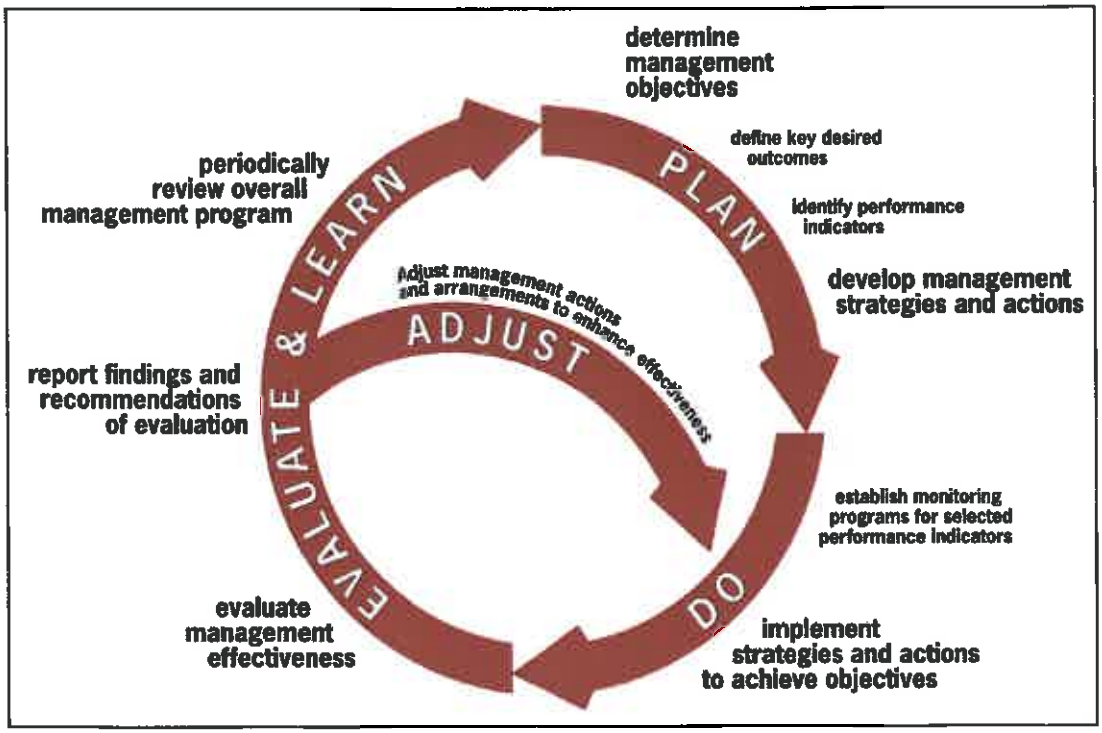

Figure 1.1: Adaptive management cycle (CSIRO 2012)

The management plan indicates where reserve management intends to focus its efforts in the next five years (2015-2020). The management plan thus provides the medium-term operational framework for the prioritised allocation of resources and capacity in the management, use and development of the reserve.

The management plan focuses on strategic priorities rather than detailing all operational and potential reactive courses of action in the next five years. The timeframe referenced in the Strategic Implementation Framework (SIF) follows financial years (1 April to 31 March), with Year 1 commencing from signing of the management plan by the Provincial Minister: Environmental Affairs and Development Planning. While planning for some emergencies is part of the management plan, it remains possible that unforeseen circumstances could disrupt the prioritisation established in this management plan. These should be addressed in the annual review and update of the management plan. The scope of the management plan for protected areas is constrained by a reserve's actual or potential performance capability (such as available personnel, funding, and any other external factors) to ensure that the plan is achievable and sustainable.

1.2 STRUCTURE OF THE MANAGEMENT PLAN

All CapeNature management plans are structured as follows (see Figure 1.2):

Section 1:	Outlines the background, structure and authorisation processes of the management plan.
Section 2:	Outlines the strategic management framework, which sets out the vision, purpose, values and objectives for the protected area and summarises its opportunities, challenges, and threats.
Section 3:	Provides a description of the protected area and its ecological and operational context.
Section 4:	Sets out the regional and local planning context of the protected area.
Section 5:	Outlines the conservation development framework and the concept development plan for the protected area.
Section 6:	Outlines the strategic implementation framework of the protected area.
Section 7:	References and Definitions of Terms

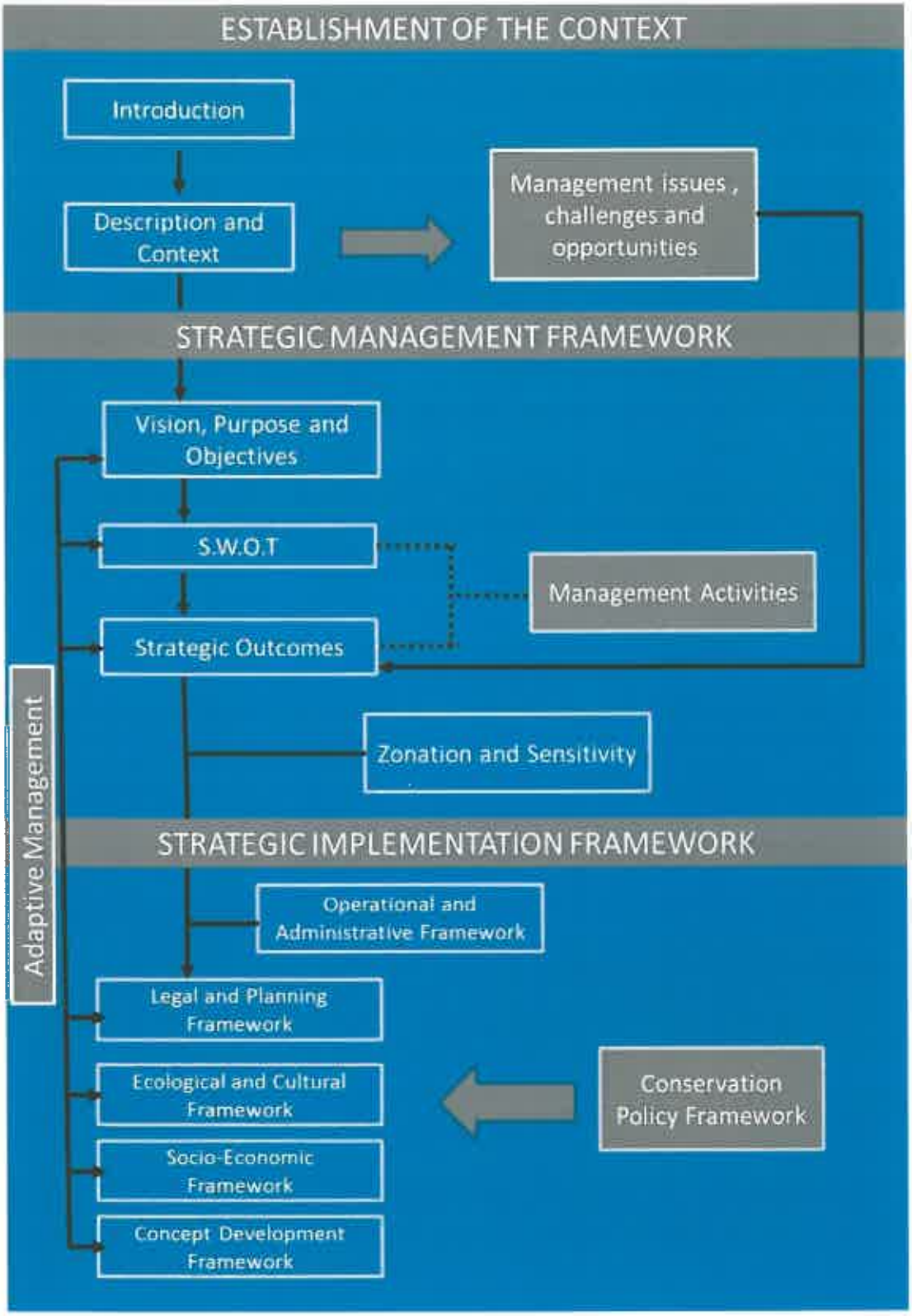

Figure 1.2: Structure of the Management Plan

1.3 APPROVAL AND REVISION OF THE MANAGEMENT PLAN

The management plan is drafted by the Reserve Management Committee (RMC). The scientific and technical content of the management plan is then internally reviewed according to Waller (2013). The edited management plan then undergoes an independent external review before being recommended for stakeholder participation where comments are considered and the management plan is once again edited where necessary. The management plan is then reviewed by the CapeNature Executive and recommended by the Chief Executive Officer (CEO) to the Western Cape Nature Conservation Board Conservation Committee. The Board Conservation Committee then recommends the management plan to the Western Cape Nature Conservation Board (WCNCB) for approval after which it is submitted to the Department of Environmental Affairs and Development Planning (DEA&DP) for ministerial approval. The approval process of the protected area management plan is outlined in Figure 1.3.

The protected area management plan is reviewed annually to track progress on the SIF discussed in section 6, and the document will be updated and reviewed every five years.

Figure 1.3: Approval and Review of the Management Plan

PART 1

PENGUIN (BIRD) ISLAND NATURE RESERVE

PROTECTED AREA MANAGEMENT PLAN

2015-2020

2. THE STRATEGIC MANAGEMENT FRAMEWORK OF PENGUIN (BIRD) ISLAND NATURE RESERVE

The strategic management framework is aimed at providing the basis for the protection, development and operation of the protected area over a five year period. It consists of the vision, purpose, values and objectives of Penguin (Bird) Island Nature Reserve and summarises its opportunities, challenges, and threats.

A planning session, facilitated by the Regional Ecologist and guided by the Conservation Manager, defined the vision and purpose of the protected area. This umbrella statement indicates the management intent of the Penguin (Bird) Island Nature Reserve which in turn defines the management objectives. The management objectives were evaluated using the *Procedure for Defining Conservation Management Objectives and Goals* (Coombes & Mentis 1992) and were categorised into objectives, action plans and tasks. The management objectives were prioritised through a pairwise comparison process and the results were used to populate the SIF (see Section 6). Actions plans were associated with objectives, and tasks (activities) were identified within each action plan.

2.1 THE VISION OF PENGUIN (BIRD) ISLAND NATURE RESERVE

The vision describes the overall long-term goal for the operation, protection and development of Penguin (Bird) Island Nature Reserve:

The vision of Penguin (Bird) Island Nature Reserve is: The conservation of the island biodiversity with emphasis on the Cape gannet colony.

2.2 THE PURPOSE OF PENGUIN (BIRD) ISLAND NATURE RESERVE

The purpose is the foundation on which all future actions are based and is in line with the overall management philosophy of the organisation.

According to Section 17 of NEM: PAA, the purpose of declaring an area as a protected area is:

a) to protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected areas;
b) to preserve the ecological integrity of those areas;
c) to conserve biodiversity in those areas;
d) to protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;
e) to protect South Africa's threatened or rare species;
f) to protect an area which is vulnerable or ecologically sensitive;
g) to assist in ensuring the sustained supply of environmental goods and services;
h) to provide for the sustainable use of natural and biological resources;
i) to create or augment destinations for nature-based tourism;

j) to manage the interrelationship between natural environmental biodiversity, human settlement and economic development;
k) generally, to contribute to human, social, cultural, spiritual and economic development; or
l) to rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.

The Penguin (Bird) Island Nature Reserve was declared for all purposes listed in the Act and its specific purpose is:

The conservation of Penguin (Bird) Island Nature Reserve's biodiversity through effective management and partnerships, while providing sustainable quality products for tourism and environmental education.

2.3 THE VALUES OF PENGUIN (BIRD) ISLAND NATURE RESERVE

Values are those characteristics that deem the protected area unique in terms of its ecological, cultural and social aspects. The values of Penguin (Bird) Island Nature Reserve include:

Natural values	Penguin (Bird) Island Nature Reserve was mainly established for the conservation of the Cape gannet (*Morus capensis)*. One of only six colonies in the world. Other avifuana that utilise the reserve are the Bank cormorant (*Phalacrocorax neglectus)*, Crowned cormorant (*Phalacrocorax coronatus)*, Cape cormorant (*Phalacrocorax capensis)* and White-breasted cormorant (*Phalacrocorax lucidus)*, Swift tern (*Sterna bergii bergii)*, Hartlaub's gull (*Larus hartlaubi*) and Kelp gull (*Larus dominicanus vetulabirds).*
Social values	The reserve contributes to the local economy through Expanded Public Works Programme funded job creation projects
Cultural and historic values	The island has a rich guano scraping history, which ceased in 1990.
Eco-tourism values	Penguin Island Nature Reserve is the main tourist attraction in the area as it is the only Gannet colony accessible to visitors

2.4 THE OBJECTIVES OF PENGUIN (BIRD) ISLAND NATURE RESERVE

The objectives were derived from the vision and purpose and represent Key Performance Areas (KPA) in which achievement must be obtained in order to support the management intention. Objectives, which are not measurable or testable, are then prioritised through the development of action plans and translated into strategic outcomes which are set out in the Strategic Implementation Framework.

The prioritised objectives are:

Objective 1 To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet.

Objective 2 To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.

Objective 3 To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.

Objective 4 To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.

Objective 5 To provide environmental education opportunities on marine and island ecosystems, with emphasis on the cultural and historical significance of offshore islands.

2.5 SUMMARY OF MANAGEMENT STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS OF PENGUIN (BIRD) ISLAND NATURE RESERVE

A SWOT analysis is a strategic planning method used to evaluate the relevant strengths, weaknesses, opportunities, and threats. It involves specifying the objectives and identifying the internal and external factors that are favourable or adverse in achieving that objective. The analysis identifies the following strengths, weaknesses, opportunities and threats in the Penguin (Bird) Island Nature Reserve:

Table 2.1: Management strengths, weaknesses, opportunities and threats of Penguin (Bird) Island Nature Reserve

Strengths	Obj 1	Obj 2	Obj 3	Obj 4	Obj 5
An island that is easily accessible to the public	✓		✓		✓
Community involvement through Protected Area Advisory Committee (PAAC)		✓		✓	
Good partnerships with reserve stakeholders		✓		✓	
Good stakeholder and research partnerships		✓		✓	
Weaknesses					
Island security and uncontrolled access		✓			
Small size of the island	✓	✓			
Lack of integrated internal planning and communication	✓	✓	✓	✓	✓
Reserve boundary is not surveyed		✓			
Lack of interpretation and environmental education resources			✓		✓
Lack of staff development and capacity especially hospitality and media liaison skills		✓	✓		
Opportunities					
Unique West Coast tourism opportunity		✓	✓		
Unique environmental education and awareness opportunities		✓			✓
Unique environmental education platform		✓			✓
Unique biodiversity	✓	✓	✓		✓
Significant cultural and historical heritage		✓			✓
Threats					
Unknown climate change effects	✓	✓	✓	✓	✓
Food availability for seabirds in general	✓	✓			
Managing a seabird species having a habitat that spans different departmental mandates	✓	✓			
The location of Lamberts Bay still inhibits tourism and environmental education opportunities at a broader regional scale due to limited infrastructure		✓	✓		✓
Winter storms impact negatively on tourism, operational management and equipment		✓	✓		

3. DESCRIPTION AND CONTEXT OF PENGUIN (BIRD) ISLAND NATURE RESERVE

3.1 LOCATION AND EXTENT OF PENGUIN (BIRD) ISLAND NATURE RESERVE

Penguin (Bird) Island Nature Reserve is located approximately 280 km northwest of Cape Town, and lies about 100 m off-shore of the town Lamberts Bay on South Africa's West Coast. It has the latitude 32° 05' 22.13'' S and longitude 18° 18' 07.65" E. Bird Island Nature Reserve is approximately 2.2 ha in size, and is 298 m long and 236 m wide. The island is flat and low-lying, with the highest point above sea level being only 10 m.

Lamberts Bay is one of two coastal towns (the other being Elands Bay) falling within the Cederberg municipal area of the WCDM. The CLM covers an area of 7 338 km^2 and with an estimated population of 50,000, it has on average less than 10 people occupying one square km. In relation to the other municipal areas, Cederberg municipality has a relatively limited growth potential, which can be linked to the fact that the encompassing towns are relatively small and scattered in the landscape; the tourism attractions are unique but fail to draw large numbers of visitors; stricter fishing quotas coupled with dwindling fishing resources along the Atlantic coast and no significant new development projects in the area that can attract investors or supply chain additions (Cederberg Municipality 2014). Penguin (Bird) Island Nature Reserve is only comprised of the island land parcel and no title deed number is assigned to it.

Figure 3.1: Regional Location of Penguin (Bird) Island Nature Reserve

3.2 HISTORY OF PENGUIN (BIRD) ISLAND NATURE RESERVE

The island was formerly managed as a guano island under the control of the Ministry of Fisheries through a dedicated division, the Union Government Guano Islands (UGGI). Bird populations were then protected by legislation and access to these colonies were controlled by a permit system and the presence of a headman on the island (Rand 1963).

Historically, African Penguins were the dominant sea bird species on the island, but in 1910, the first pair of Cape gannets arrived and begun to breed. The small colony was protected within a fenced area until it outgrew this space.

The growing colony along with the cormorant and penguin colonies became the focus of a guano harvesting industry. Several pieces of infrastructure were built to conserve the guano from being washed away by winter rains. They include the building of a concrete retaining wall to the south of the colony. The area that is underlying the gannet colony was paved with cobbles to form a uniform working surface for guano scraping. Other infrastructure built at this time included the guano scrapers quarters (now part of the visitor's center), a loading platform and crane. The scraping of guano on the island for commercial purposes was discontinued in 1990.

Due to the importance of the gannets to the tourism sector of Lamberts Bay, the first viewing platform on the Island was financed by the town. The platform was a wooden platform on 3m high concrete pillars. A one meter high wire fenced path led to the tower. This fence was hazardous to gannets and several birds perished due to it. In 1998, a new hide was built and the old hide and fence were subsequently removed. The wire fence was replaced by low rock walls. In 2001, the guano building was restored and converted into a museum, aquarium, penguin enclosure and restaurant. The 2014 upgrades to the guano building has seen a revamp of the penguin pool and seating area; the building of touch pools for interpretation purposes, new fish tanks being included and the conversion of the aquarium area into an office complex.

The location of the island within the harbour of Lamberts Bay has meant that it has been used as part of the harbour infrastructure. A concrete harbour wall was built on the southern side of the island in 1957. A second harbour wall was constructed north of the island in the 1960's. Several navigational structures were constructed including navigation beacons. The remains of these structures still exist. Subsequent constructions include a causeway connecting the island with the mainland after the old western entrance to Lamberts Bay harbour was closed. As a result, a number of alien plants and a lesser number of alien animals have become established on the island. Additional harbour improvements included the construction of several rock and concrete retaining walls along the eastern side of the island. Dredged sand was pumped in behind these structures to increase the island's surface area.

3.3 ECOLOGICAL CONTEXT OF PENGUIN (BIRD) ISLAND NATURE RESERVE

This section reflects the ecological conditions of Penguin (Bird) Island Nature Reserve.

3.3.1 Climate and weather

Penguin (Bird) Island Nature Reserve experiences a temperate, Mediterranean-type climate, with hot, dry summer and cool, relatively wet winter seasons. The Atlantic Ocean and cold Benguela current has a tempering effect on temperatures. Rainfall generally occurs as a result of cold fronts moving in from the South Atlantic Ocean. Northerly and northwesterly winds predominate in winter. In summer southerly and southwesterly winds dominate. The western part of the island is frequently inundated by the sea during spring high tides and storm surge events (Figure 3.3). Additionally, during storm surge events, waves are capable of breaking over the breakwater wall and inundate a large section of the western part of the island (Figure 3.2). Extreme events can result in the entire island being inundated with a detrimental effect on the breeding cycle of the birds. As a precautionary measure to public safety, the island is usually closed when breaching events occur.

Figure 3.2: Storm surge extent on Penguin (Bird) Island Nature Reserve (photo: Y. Chesselet)

Climate data was obtained from the Nortier Agricultural farm, which is approximately 8 km northeast of the island. The data spans the period March 1998 until August 2014 (Figure 3.3). The warmest mean maximum monthly temperature is experienced during February (27.1 °C) while the coolest mean maximum is experienced during August (8.9 °C). Rainfall is generally not limited to the winter months. It however peaks during the period of May to August, with an average maximum experienced during June (23.51 mm).

It should be noted that the existing automated weather station situated on the island has been in operation since May 2014, with data being retrieved on a quarterly basis.

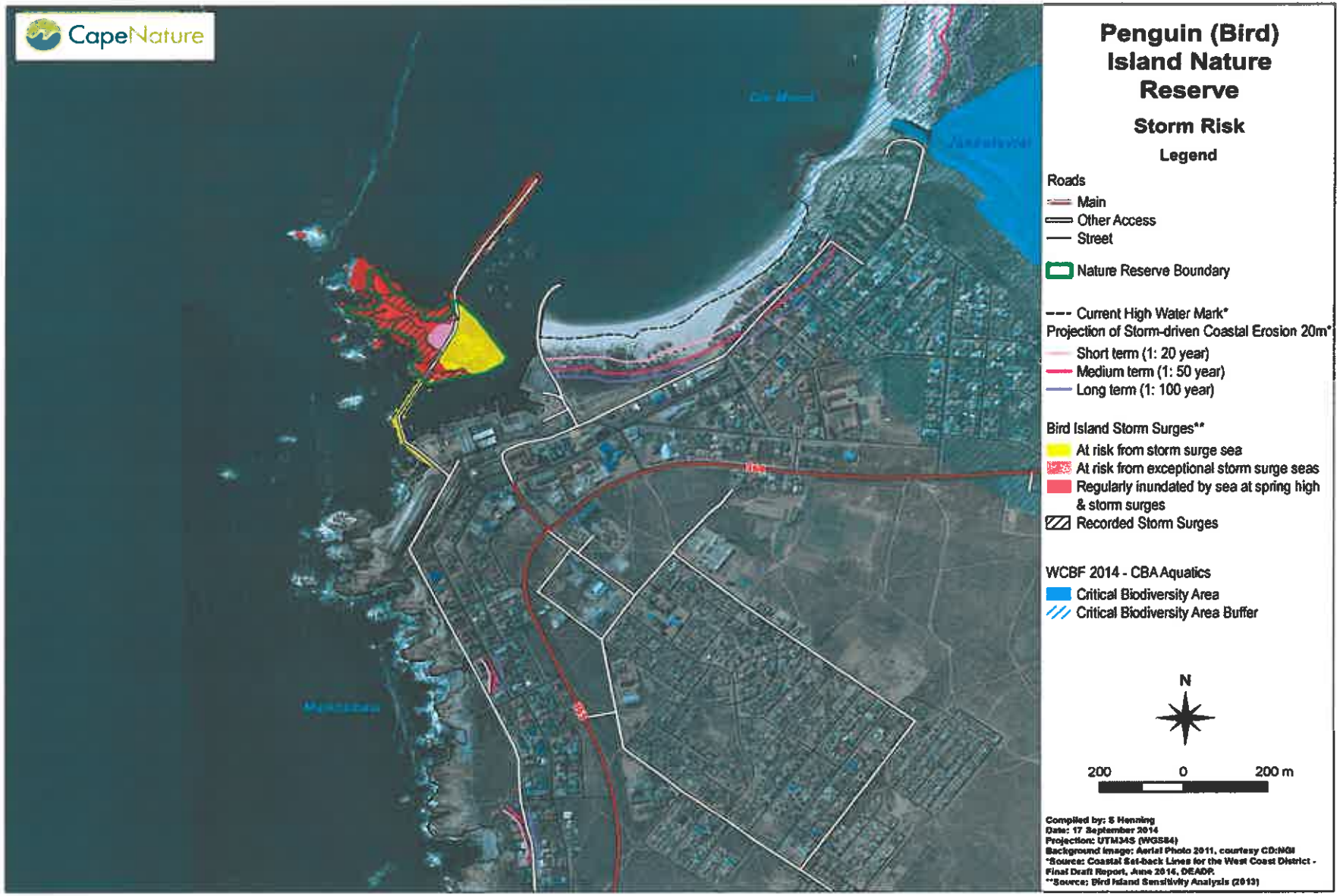

Figure 3.3: Storm risk on Penguin (Bird) Island Nature Reserve

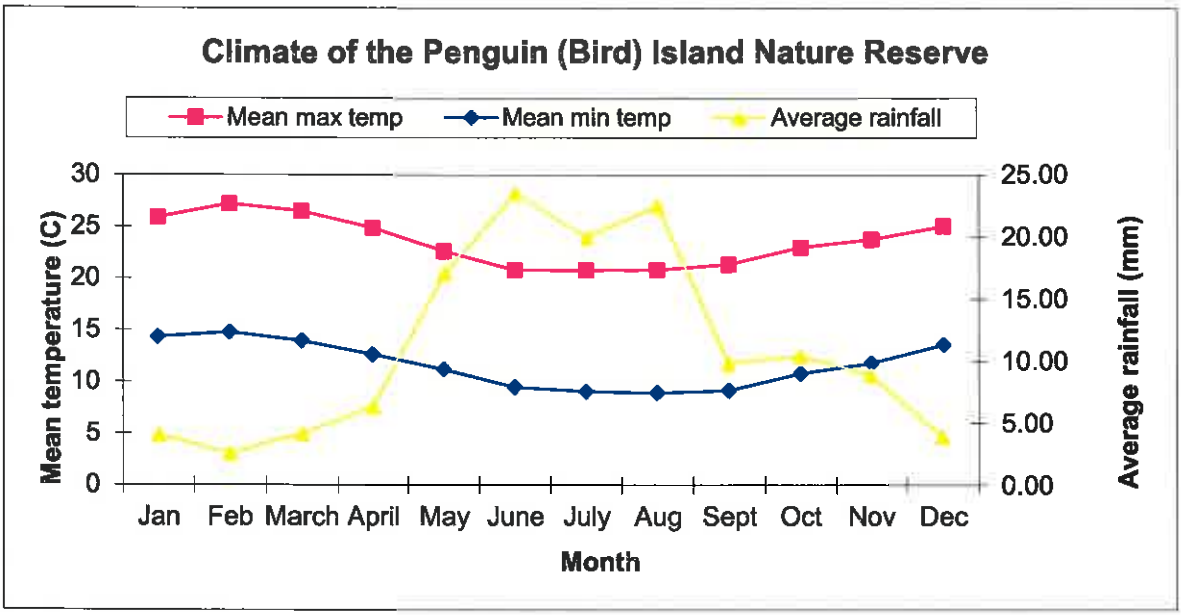

Figure 3.4: Climate of Penguin (Bird) Island Nature Reserve (1998 – 2014)

3.3.2 Topography

Figure 3.5 depicts the topography of Penguin (Bird) Island Nature Reserve. Penguin (Bird) Island Nature Reserve is approximately 2.2 ha in size, and is about 298m long and 236m wide. The island is flat and low-lying, the highest point being only 10 meters above sea level (MASL). The relatively small area coupled with a relatively low area is indicative of the islands susceptibility to storm surges.

3.3.3 Geology and soils

Outcrops and underlying bedrock on Penguin (Bird) Island Nature Reserve belong to the Piekenierskloof Formation, the lowermost lithostratigraphic unit of the Table Mountain Group. It overlies the Neoproterozoic Gariep Supergroup and Malmesbury Group unconformably. The absence of diagnostic biogenic traces and fossils in the Piekenierskloof Formation precludes its accurate dating, but a combination of tectonic and isotopic data from the underlying sequences suggest an Early Ordovician age (ca 480 Ma).

The island is predominately comprised of white/cream quartzite, with small patches of conglomerate and shale lenses. The pebbles within the conglomerate include quartzite, granite and jasper. According to Thamm (1993), sandstone constitutes approximately 70 - 100% and conglomerate 0 - 30% of the sequence, with mudrock being less than 5%. The presence of two distinct lithofacies associations in the Piekenierskloof Formation has led to its subdivision into the De Hoek Member (trough and planar cross-bedded sandstone with localised horizontal bedding) and the Rest Member (conglomerate, oligomictic granule- to cobble-sized clasts, matrix-supported and clast-supported, coarse-to very coarse-grained

sandstone interbeds). Due to the small limited spatial extent of the exposed outcrop, it is difficult to determine which of the two members is represented on Bird Island.

Intrusive into the Piekenierskloof Fomation are at least two intersecting dark red trachyte dykes (Figure 3.6) traversing the north eastern headland, with an approximate age of 130-140 million years. The larger dyke is north-south trending with a shorter dyke being orientated approximately east-west. There are several outcrops of banded metamorphic rock suggesting that there may be several more dykes buried under surface sediments or underwater.

Overlying the Piekenierskloof Formation to the west of the causeway are coarse sand and pebbles. To the east of the causeway, are anthropogenic sediments consisting of dredged sand and shells (Figure 3.6).

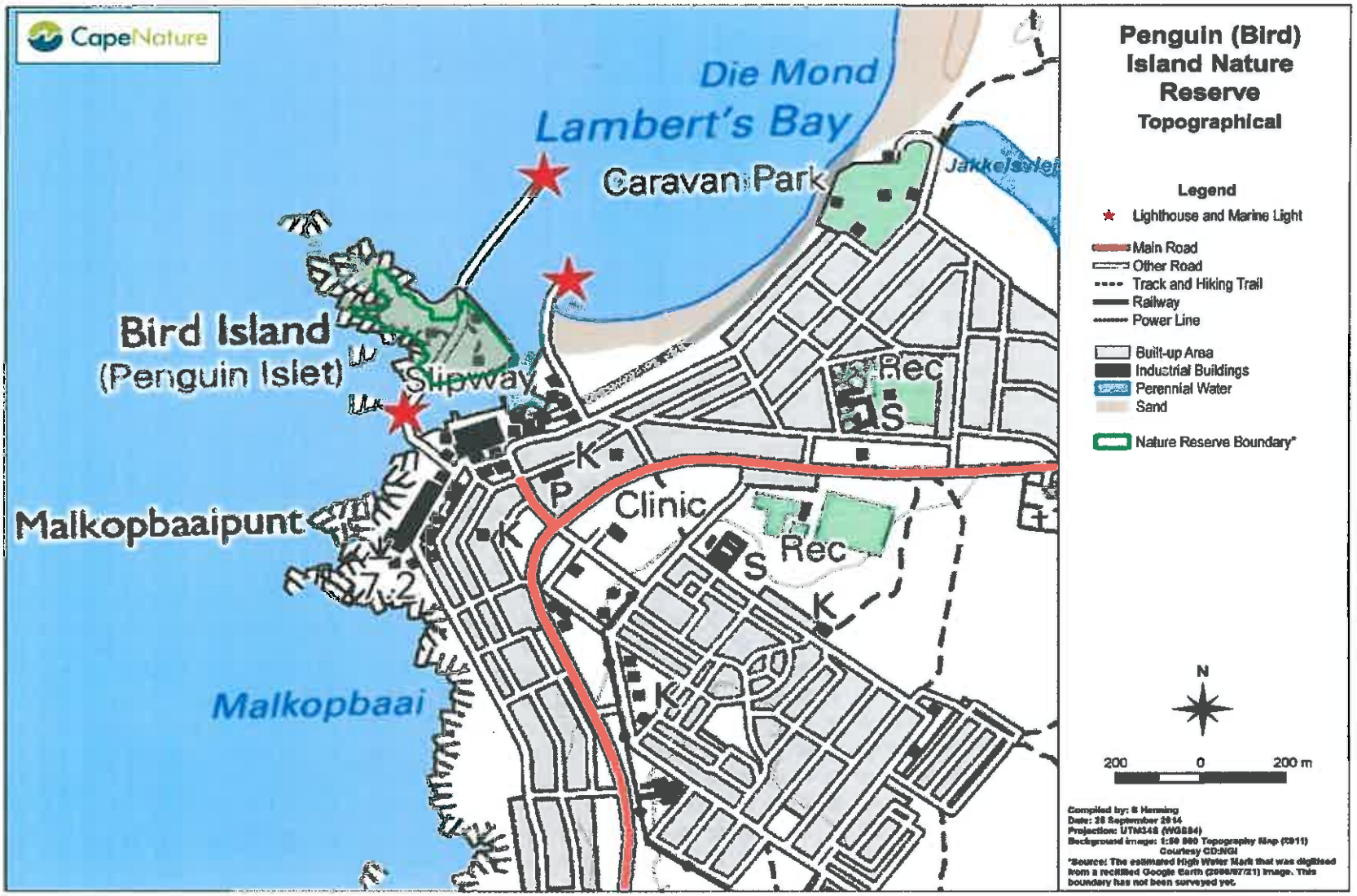

Figure 3.5: Topography of Penguin (Bird) Island Nature Reserve

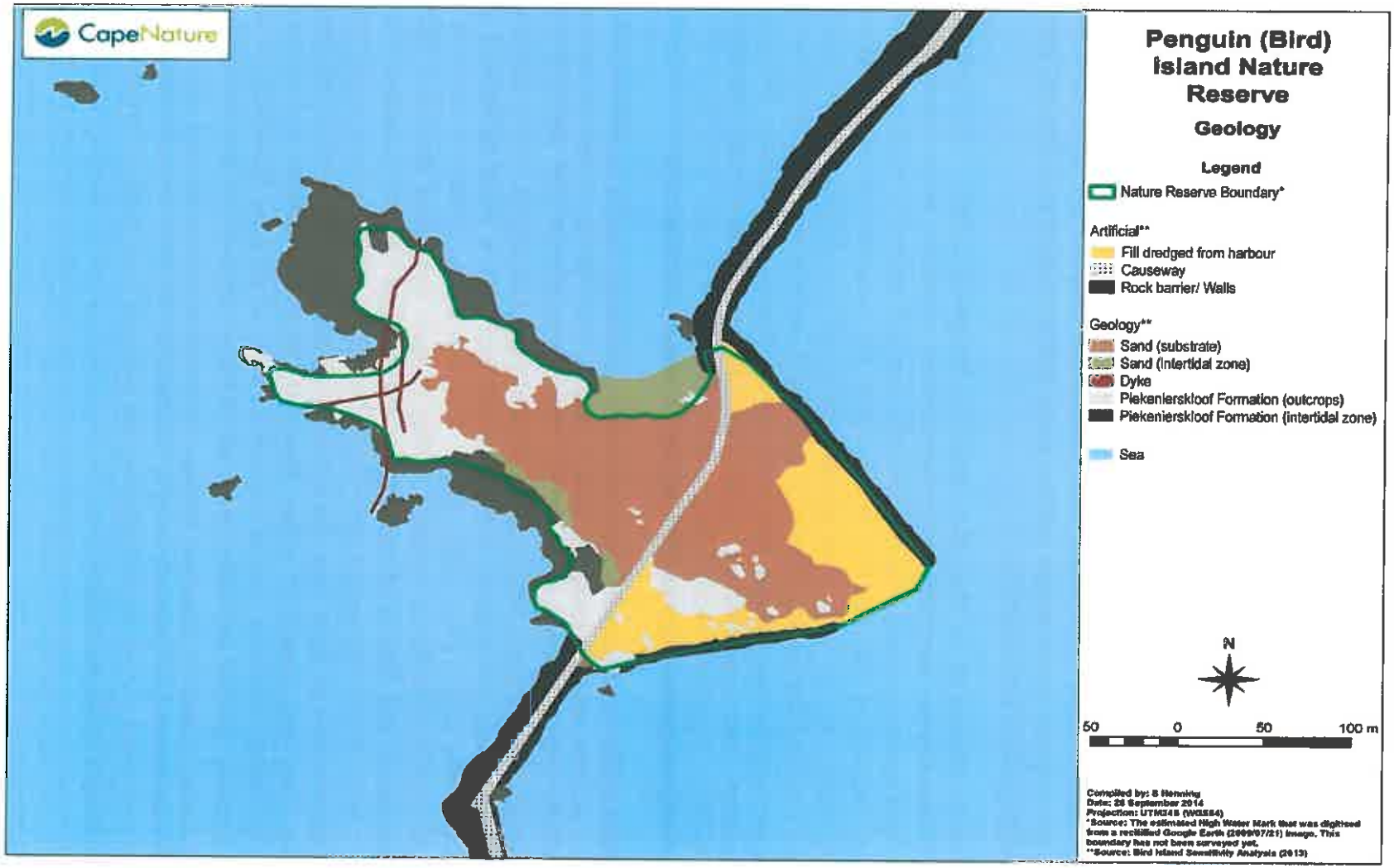

Figure 3.6: Geology of Penguin (Bird) Island Nature Reserve

3.3.4 Aquatic systems

There is no freshwater ecosystem on Penguin (Bird) Island Nature Reserve. The island relies solely on water piped from the mainland for the provision of freshwater.

3.3.5 Marine systems

Penguin (Bird) Island Nature Reserve falls within the Benguela Current Large Marine Ecosystem (BCLME), one of several recognised large marine ecosystems worldwide. The BCLME Programme served as a forerunner to the Benguela Current Convention (BCC) which came into existence in 2008. Countries falling within the BCLME region are South Africa, Namibia and Angola. Several avian marine predator species such as the African Penguin, Cape gannet, and four marine cormorant species breeding on Penguin (Bird) Island Nature Reserve enjoy trans-national distributions and movements between the BCC countries. These species are endemic to the region and the states that are signatory to the BCC have sole responsibility for their conservation.

The west coast is influenced by the cold, upwelling Benguela current. Nutrient-rich upwelled waters fertilise microscopic floating phytoplankton. Upwelling events result in the west coast being a higher productive system than the east and south coasts (Branch *et al.* 2010). This has resulted in the lucrative fisheries that are concentrated in this region. Although more productive, the west coast supports far fewer species than the east coast. The West coast, including the waters offshore of Bird Island, is characterised by prolific kelp forests which are absent from the east and south coasts (Branch *et al.* 2010). The large plankton populations feed large offshore stocks of pelagic fish such as Pilchard (*Sardinops sagax)*, and Anchovy *(Engraulis encrasicolus)*, which are in turn preyed upon by marine predators, including numerous seabirds and fish such as Snoek (*Thyrsites atun)*.

There is, however evidence that the Benguela ecosystem is undergoing change which can be attributed to a number of anthropogenic factors such as over-fishing as well as natural drivers e.g climate change (Blamey *et al.* 2015). The distribution of both Anchovy and Sardine has shifted, where the majority of the biomass of these two species used to occur to the west of Cape Agulhas, the majority of the biomass since 1996 is found to the east of Cape Agulhas (van der Lingen *et al.* 2002, 2005). This shift is also evident in those bird species such as Cape Gannet *Morus capensis*, African Penguin *Spheniscus demersus*, Swift Tern *Thalasseus bergii,* that feed predominantly on Anchovy and Sardine (Crawford *et al.* 2007, Crawford *et al.* 2011). The population of Bank Cormorant (*Phalocrocorax neglectus*), which feed predominantly on West Coast Rock Lobster (*Jasus lalandii*), has declined along the west coast, while the population either remained stable or increased in the south (Crawford *et al.* 2008), following similar changes to that of its prey (Cockcroft *et al.* 2008). While Anchovy, Sardine and Rock Lobster are all fished commercially and the change in distribution could be attributed to over fishing, the breeding distribution of a number of other seabirds that do not feed primarily on prey harvested by fisheries have also moved to the south and east (Blamey *et al.* 2015) indicating that pressure from fishing is not the only driver forcing changes to this ecosystem.

3.3.6 Vegetation

Very little is known about the vegetation on Penguin (Bird) Island Nature Reserve. The very high levels of nitrates and phosphates in guano, in conjunction with high salt levels in dredged sediments had prevented plant growth. The decline of sea bird populations and the leaching of salt out of the soil, has allowed some species to become established. Vegetation composition, however, remains sparse.

3.3.6.1 Terrestrial vegetation

Penguin (Bird) Island Nature Reserve's vegetation is classified as 'Cape Seashore Vegetation' (Mucina & Rutherford 2006), with features of this vegetation type including beaches, herbaceous and dwarf-shrubby vegetation (some-times succulent) which is often dominated by a single pioneer species.

3.3.6.2 Marine vegetation

The aquatic marine vegetation of Bird Island is largely dominated by kelp forest and consists of 3 main species Sea bamboo (*Ecklonia maxima)*, Split fan kelp (*Laminaria pallida)* and Spined kelp (*Ecklonia radiata).*

3.3.7 Invasive species

The island ceased to be an island by definition, i.e. completely surrounded by water, when the breakwater wall was built in 1938. Animal invaders that have gained access to the island via the harbour wall are limited to a small number of species and include the House mouse (*Mus musculus*), feral cats (*Felis spp.*), caracal (*Caracal caracal*) and Water mongoose (*Atilax paludinosus*). Water mongoose sightings are not uncommon and individuals have been known to attack gannets on the island.

3.3.8 Mammalian fauna

CapeNature's mammal chapter in the State of Biodiversity Report, 2012, contains recommendations regarding the priority species for the organisation for the next five years. It is informed by the South African Red Data Book (SARDB) and not the International Union for Conservation of Nature and Natural Resources (IUCN) status. The IUCN Red Book Status is an international assessment whereas the SARDB is considered a regional assessment and more appropriate for our prioritisation. A total of 91 species potentially occur within the Penguin (Bird) Island Nature Reserve Complex (Bird Island and Elands Bay State Forest). Below is a summary of the status of the relevant species:

- 55 species are listed indigenous terrestrial mammals, 18 from specimen records and two from observation records contained in the CapeNature State of Biodiversity (SOB) Database. 35 additional species are listed from references relating to the distribution of these species hence potentially occurring in the entire reserve complex.
- 12 species are listed indigenous terrestrial mammal species which are considered Extinct in the wild in the reserve complex area.

- One species is listed alien invasive species: the house mouse from Eurasia which is listed as one of the top 100 worst invasive species by the IUCN.
- Seven bat species of which one have specimen records – one from reserve complex and another from outside the reserve (from the African Chiropteran Report)
- 20 whale and dolphin species are listed of which two are coastal/inshore species. Two species are from specimen records from strandings along the coast

3.3.8.1 Cape fur seal

The Cape fur seal (*Arctocephalus pusillus pusillus)*, is a subspecies of fur seal that mainly occurs along the South African and Namibian west coast. Some animals are found in southern Angola as well as along the south coast of South Africa as far east as East London (Hoffmeyer &Gales 2008). The first record of seals hauling out on Penguin (Bird) Island Nature Reserve was in 1956, but few animals were recorded until 1983 (Oosthuizen & David 1998).

According to Kirkman *et al.* (2007), a Cape fur seal colony can be regarded as a breeding colony the first time a pup count exceeds 100 animals. Cape fur seals started to breed on Penguin (Bird) Island Nature Reserve in 1986 however numbers remained relatively low up until 1996 when there was a rapid spike in seal pups born (Kemper *et al.* 2007). According to Seakamela (pers. comm.) the last four Cape fur seal breeding seasons (2011-2014) produced 485, 681, 367 and 738 pups respectively (Figure 3.7). Indications are that the Cape fur seal colony on Penguin (Bird) Island Nature Reserve attributed to a general lack of food availability for many marine top predators breeding along the South African west coast (Waller *et al.* unpublished). Kotze (pers.comm) suggests that the improved 2014 breeding season may be attributed to seals foraging further for their food as opposed to only visiting their traditional hunting grounds.

Seabird predation by Cape fur seals, including the detrimental effect on seabird colonies is well documented. Makhado (2009), Makhado *et al.* (2006) and Wolfaardt and Williams (2006) indicate that in many instances the predation levels of Cape fur seal on a number of seabird species that include Cape gannet, African penguin, Bank cormorant and Cape cormorant is unsustainable. Wolfaardt and Williams (2006) attribute the demise of the Bank cormorant and African Penguin breeding colonies at Penguin (Bird) Island Nature Reserve in part to the impact of Cape fur seal predation. A worrying trend is that Cape fur seal populations as well as their predation impact on seabirds are on the rise in southern Africa (Makhado 2009).

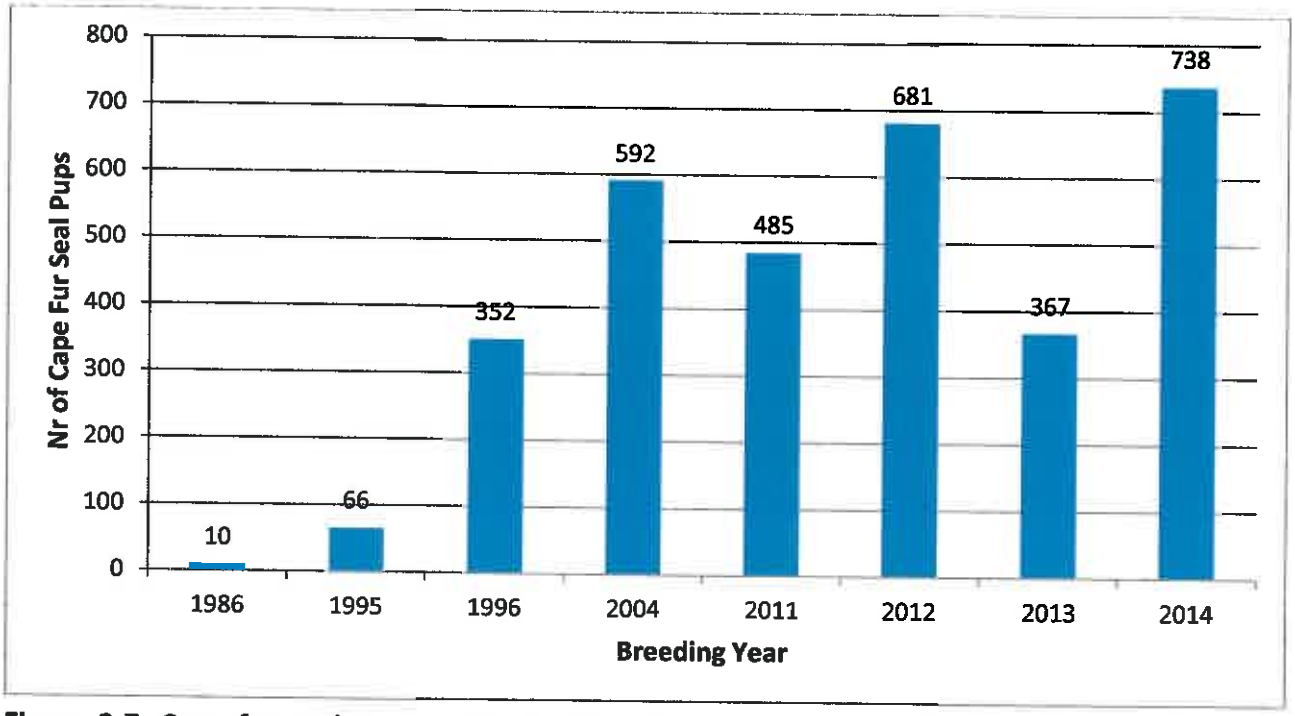

Figure 3.7: Cape fur seal pup counts for Bird Island Lamberts Bay (Kirkman *et al.* 2007; Seakamela pers. comm.)

During the 2005 Cape gannet breeding season on Penguin (Bird) Island Nature Reserve, Cape fur seal predation resulted in more than 200 adult gannets being killed and the birds deserting the entire breeding season (Wolfaardt &Williams 2006). Not only did this have a detrimental effect on the gannet colony but also on the regions tourism with less people visiting the island. Apart from adult gannets being killed, their fledglings are also particularly vulnerable to seal predation. During the Cape gannet fledgling season on the island, generally between February and April, young gannets fledge and form crèche groups close inshore to the island. During these times, particularly when climatic conditions are favourable, Cape fur seals will target and kill young gannets sitting on the water. Table 3.1 depicts the predation impact on the Penguin (Bird) Island Nature Reserve Cape gannet colony during the last five breeding seasons (2009-2013). During the last breeding season (2013), fledglings lost to seal predation peaked at 19.34 %.

Table 3.1: Cape Fur Seal Predation percentage (%) relative to the size of the Cape gannet breeding population 2009 to 2013

Breeding season	Number of fledglings lost (CapeNature 2014).	Predation percentage (%) relative breeding population size.
2009	183	2.61
2010	287	3.18
2011	565	6.27
2012	427	4.74
2013	780	19.34

**Cape Gannet population figures obtained from Makhado et al. 2012*

According Makhado (2009), seal predation on Cape gannets is a learned behaviour that is driven by a few select animals. These are mainly young adult bulls that either kill for food purposes or for playing. Up to five young seals were observed shadowing a predating adult during the 2013 breeding season and it is believed that the number of seals that have learned this behaviour is substantial. The FTE monitors observed 780 gannet fledglings being killed during the latter part of the breeding season. This number could however be higher. During a study at Malgas Island, Makhado *et al.* (2006) found that most Cape gannet fledglings were attacked by seals between 10:00 and 18:00 during daytime. This is in accordance with what has been observed at Penguin (Bird) Island Nature Reserve.

3.3.8.1a Management requirements

In order to manage and limit the size of the Cape fur seal breeding colony on Penguin (Bird) Island Nature Reserve, a defined area has been set aside where seals will be allowed to come ashore and breed. It is situated on the western side of the island and the area is defined by drawing an imaginary line from northeast to southwest along a tidal channel. Cape fur seals are actively discouraged from crossing this line by chasing them back whenever they cross (Figure 3.8). Where there are instances of identifiable seals repeatedly crossing this line, lethal control will be applied. The decision to limit the spatial extent of the seal colony on the island was taken in consultation with the Department of Environmental Affairs: Oceans and Coasts and has already been implemented since 2006. Seal pup counts (Table 3.1) suggest that despite the spatial limitations being put on the seal colony this does not necessary limit the number of seals breeding and occurring in that area. In fact, Figure 3.7 would indicate that seal numbers are increasing over time. Further monitoring of Cape fur seal pup numbers is critical to establish the effectiveness of this control method. Further monitoring of Cape fur seal pup numbers is critical to establish the effectiveness of this control method. Preliminary evidence suggests that despite the spatial limitations put on the seal colony this does not necessarily limit the number of seals breeding and occurring in that area, suggesting that the seal density is increasing.

The predation of Cape gannet adults and fledglings by Cape fur seals is mostly a learnt behaviour that poses a significant risk to both the gannet breeding colony as well as other breeding seabirds found on the island. Fledglings leaving the island during the peak period of February and March are the most susceptible (vulnerable to attacks) when touching down in the coastal waters less than 500 m from the island. CapeNature, in conjunction with the Department of Environmental Affairs: Oceans and Coasts, have opted to lethally control problematic seals that are observed to continually target and kill Cape gannets. Identification and control of such individuals are done by the Bird Island monitoring team during the early part of the fledgling season. Makhado (2009) also concur that lethal control

of individual problem seals should be implemented as soon as predation is observed to minimise the chance of more animals learning this behaviour and to limit predation impact. Only Cape fur seals that target gannets on an ongoing basis will be lethally controlled in accordance with relevant legislation and permits. CapeNature will review the impact of this control method annually to determine its effectiveness.

3.3.8.1b Monitoring requirements

In accordance with basic seal monitoring (Kirkman 2007), the following two parameters are monitored at Penguin (Bird) Island Nature Reserve. Seal pup counts are conducted by aerial census on a 1-3 year cycle. Secondly, seal diet sampling is monitored by means of monthly scat analysis. Both monitoring projects are implemented by the Department of Environmental Affairs: Oceans and Coasts, with assistance from CapeNature where relevant. Furthermore, monitoring the numbers of Cape gannets lost to seal predation is conducted daily by CapeNature during the fledgling season. Additionally, Cape gannet mortalities attributed to seal predation are also recorded during monthly beach patrols north and south of the island.

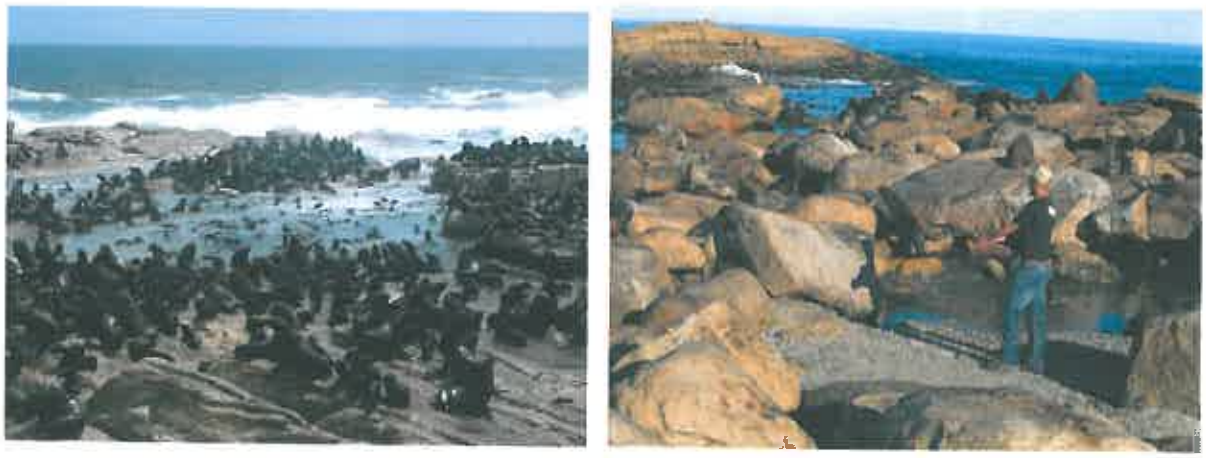

Figure 3.8: Seal population and perimeter monitoring (photos: Y. Chesselet)

3.3.8.2 Water Mongoose

Water mongoose (*Atilax paludinosus)* has a wide distribution range in sub-Saharan Africa and is only absent from the more arid regions of Namibia, Botswana and South Africa. The species is classified as Least Concern according to the South African Red Data Book (Friedmann & Daly 2004). It is always associated with moist habitats but can forage some distance from water when necessary. The diet includes virtually all water associated animals from mammals to insects and even fruit on occasion.

Figure 3.9: Water Mongoose capture by a trap camera on Penguin (Bird) Island

They are capable swimmers and can forage underwater. They are generally solitary but females can be accompanied by one to three offspring until they become independent after several months. They are generally nocturnal (Figure 3.9) but there are records of them being active at other times of the day (Skinner & Smithers 1990)

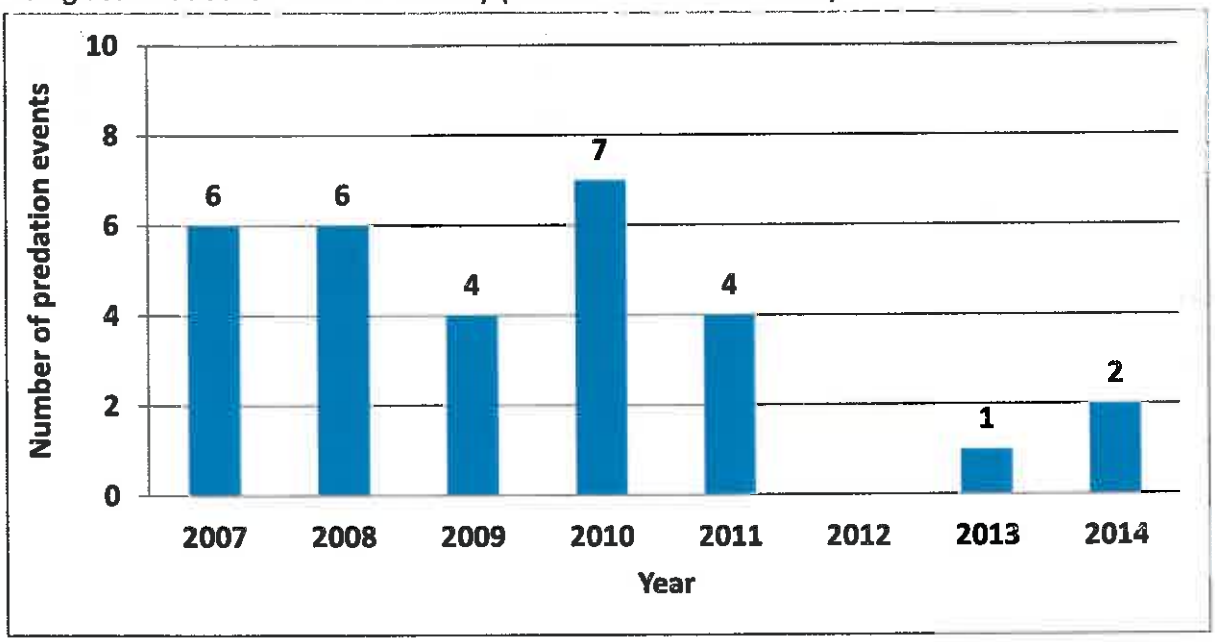

Figure 3.10: Predation events caused by Water Mongoose on Penguin (Bird) Island from 2007 to 2014

Water mongoose has been observed on Penguin (Bird) Island and gain access by crossing the causeway or swimming across. Between 2007 and 2014 and average of four water mongoose predation events per year has been recorded (Figure 3.10). This equates to 58

mortalities recorded in total with the majority of records being Cape cormorant mortalities followed by Cape gannets and only one recorded incident of terns being predated by Water mongoose (Table 3.2). The impact of these events is not as marked in comparison to the impact of Cape Fur Seals as discussed in section 3.3.8.1. It is however managements intent to reduce all disturbance to breeding seabirds as far as possible. For this reason, all predation events are recorded and the impacts of water mongoose monitored by trap cameras. Water mongoose caught in set cage traps are removed from the Island and euthanized as per CapeNature's internal policy.

Table 3.2: Mortalities of species predated by Water Mongoose on Penguin (Bird) Island from 2007 to 2014

Year	Total Mortality	Cormorant Mortality	Gannet Mortality	Tern Mortality
2007	10	5	5	
2008	12	11	1	
2009	7	4	3	
2010	14	13	1	
2011	8	7	1	
2012				
2013	5			5
2014	2		2	

3.3.9 Avifauna

Eighty-five species of birds have been recorded on Penguin (Bird) Island Nature Reserve (Table 3.3). A number of these species are terrestrial birds that are recorded infrequently on the island due to its proximity to the mainland. The Cape gannet (Figure 3.12), which breeds on the island in substantial numbers, is the most important bird species, both from a biological and tourism aspect. The species breeds on six islands off the coast of Namibia (Mercury, Ichaboe and Possession Islands) and South Africa (Penguin (Bird) Island Nature Reserve, Malgas Island and Algoa Bay Bird Island) (Kemper *et al.* 2007). The Penguin (Bird) Island Nature Reserve colony is currently the fourth largest with an estimated number of 8500 breeding pairs (CapeNature 2014).

Table 3.3: Avifaunal species of conservation concern that occur on Penguin (Bird) Island Nature Reserve

English Name	Scientific Name	Global IUCN Category (IUCN 2011)	Regional IUCN Category
African Black Oystercatcher	*Haematopus moquini*	Near Threatened	Least Concern
African Penguin	*Spheniscus demersus*	Endangered	Endangered
Bank Cormorant	*Phalacrocorax neglectus*	Endangered	Endangered
Cape Cormorant	*Phalacrocorax capensis*	Endangered	Endangered

English Name	Scientific Name	Global IUCN Category (IUCN 2011)	Regional IUCN Category
Cape Gannet	*Morus capensis*	Vulnerable	Vulnerable
Caspian Tern	*Sterna caspia*	Least Concern	Vulnerable
Crowned Cormorant	*Phalacrocorax coronatus*	Near Threatened	Near Threatened
Great White Pelican	*Pelecanus onocrotalus*	Least Concern	Near Threatened
Greater Flamingo	*Phoenicopterus ruber*	Near Threatened	Least Concern
Lesser Flamingo	*Phoenicopterus minor*	Near Threatened	Near Threatened
Southern Giant-Petrel	*Macronectes giganteus*	Least Concern	Near Threatened

Other than the Cape gannet, a number of threatened species have been recorded on the island but they are either vagrants or occur in low numbers. Vagrant species include both lesser and greater flamingo, great white pelican, southern giant petrel and more recently the African penguin. Species such as African black oystercatcher, Caspian tern, and both Cape and Crowned cormorants visit the island regularly but in low numbers. Cape and Crowned cormorants roost and breed on the roofs of the factories adjacent to the harbour, while small populations of Greater and Lesser flamingos frequent the nearby Jakkalsvlei River estuary. Pre 1970 data (Figure 3.11) indicate that a significant higher number of species roosted and bred on the island compared with the current status (Figure 3.12). This is predominantly due to the expanded infrastructure footprint the colonisation of seals on the island and an increase in visitor numbers. These will be expanded on in the relevant chapters.

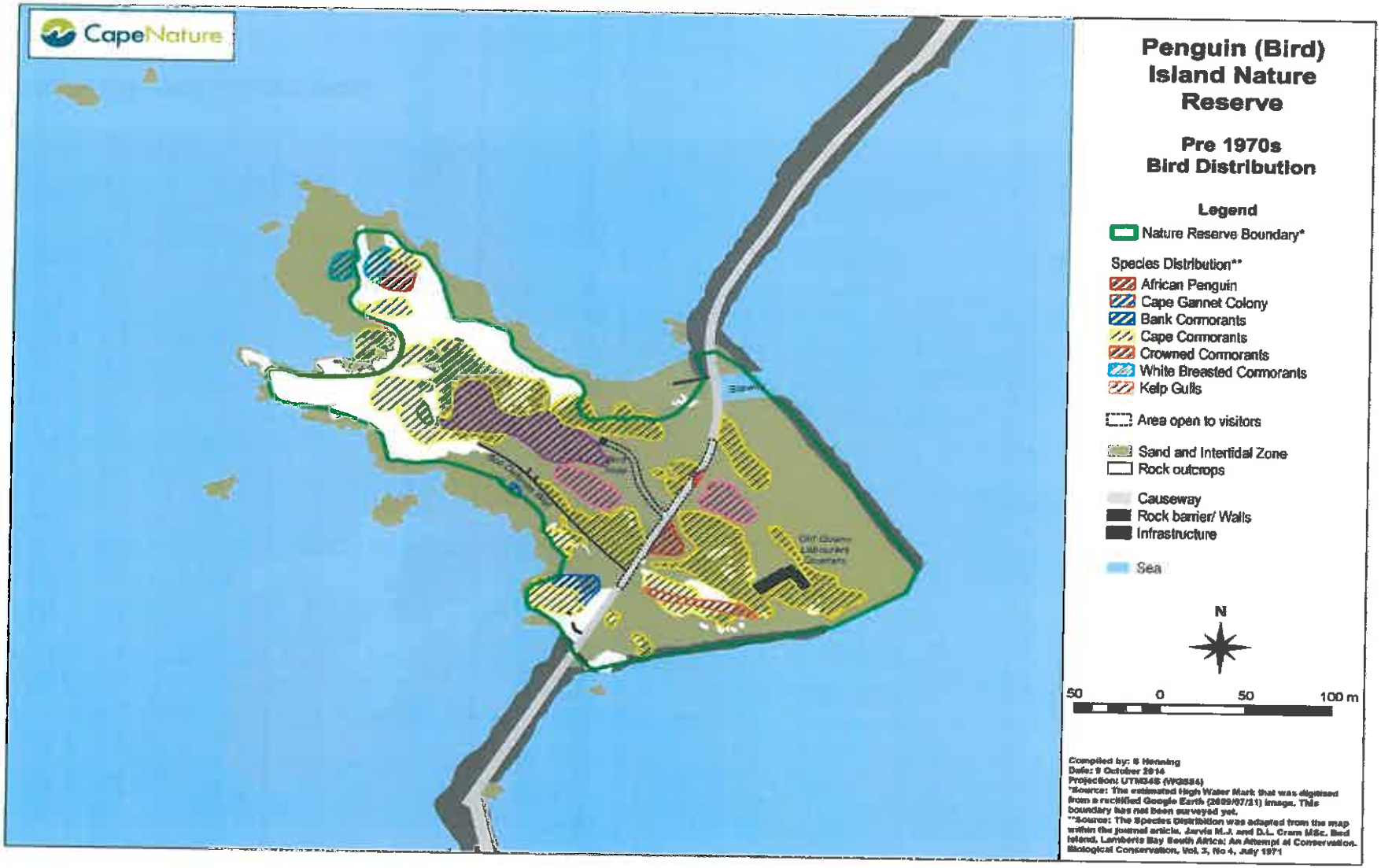

Figure 3.11: Pre 1970's bird distribution

Figure 3.12: Current bird and seal distribution

3.3.9.1 Cape gannet

Figure 3.13: Cape gannet taking off (photo: A Fortuin)

The species breed on six islands, three of which are in Namibia and the other three (Penguin (Bird) Island, Malgas Island and Algoa Bay Bird Island) occur within the coastal waters of South Africa. The Cape gannets breeding on the South African islands constitute 93% of the total breeding population (Kemper *et al.* 2007). Regular surveys undertaken by the Department of Environmental Affairs of the breeding populations on these islands indicate that the biggest breeding colony is on Bird Island, Algoa Bay, while Penguin (Bird) Island has the smallest colony (Makhado *et al.* 2012). Despite this, Cape gannets are the most numerous and most important species on the island. A high percentage of the management actions are centred around this species, in terms of mitigating any of the threats impacting on the Cape gannet colony.

Figure 3.14: Rogue seal in the gannet colony (photo: Y. Chesselet)

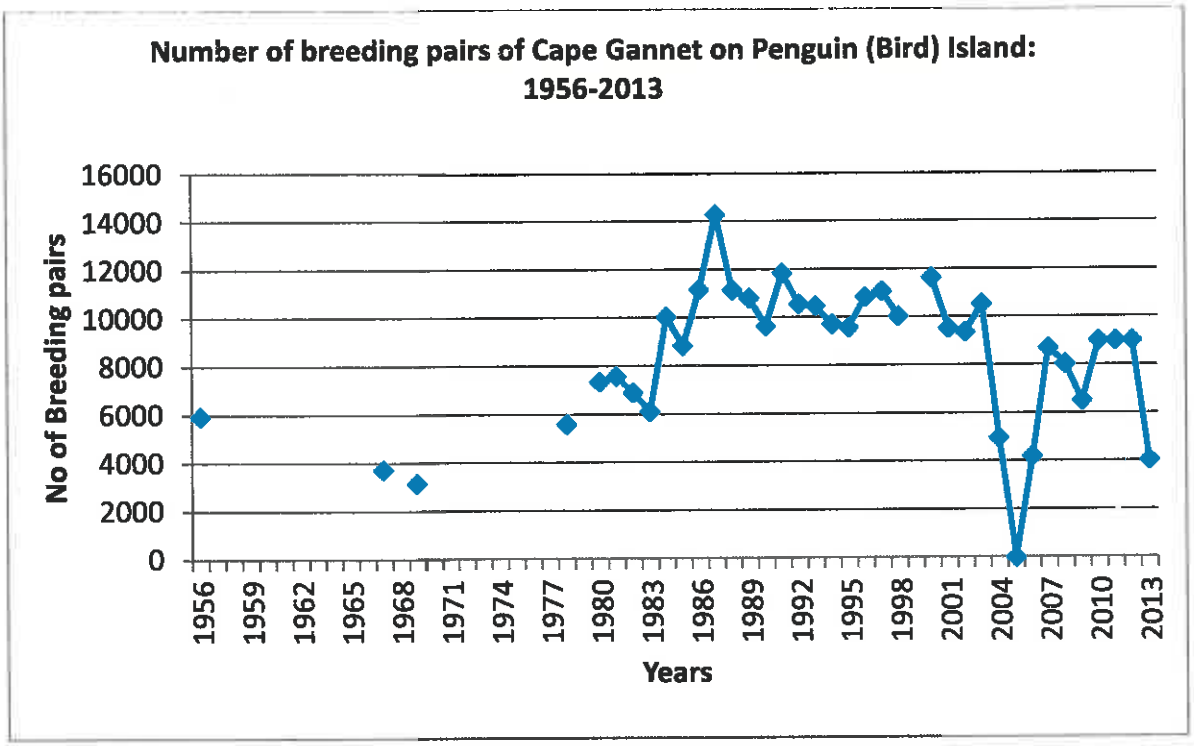

Figure 3.15: Cape gannet breeding pairs

Figure 3.15 depicts the annual census of breeding pairs on Penguin (Bird) Island Nature Reserve, which indicate that there was an initial increase in numbers in the late 1980's early 1990's, thereafter a gradual decline till 2005 (Makhado *et al.* 2012). In 2005 the Cape gannets abandoned breeding on the island presumably due to regular forays by seals into the colony (Figure 3.14) to prey on nesting adult birds (Wolfaardt & Williams 2006). The following year birds were encouraged to breed on the island with the assistance of strategically placed decoys and numbers increased till in 2012 there were 9 000 breeding pairs (Makhado *et al.* 2012). The survey done in 2013 revealed that there were only 4 000 breeding pairs indicating a possible further decline in the number of breeding birds along the West Coast. These trends are similar to the breeding population of Cape gannets at Malgas Island near Saldanha Bay (Makhado *et al.* 2012) and are attributed to changes in the ecosystem. This has resulted in distributional changes of pelagic fish to the south and east and subsequent similar distributional pattern changes of Cape gannets (Crawford *et al.* 2007a, 2014, Pichegru 2007). The decline in the Cape gannet population is further corroborated by comparative analysis of reporting rates from the first and second South African Bird Atlas Projects where reporting rates were used as an indication of abundance. The species was listed 19th of the 125 species with the most severe major decreases in reporting rates (Underhill & Brookes 2014).

Figure 3.16: Cape gannet chicks at different growth stages (photos: A. Fortuin & Y. Chesselet)

3.3.9.2 Kelp gull

The Kelp gull (*Larus dominicanus)* (Figure 3.17) is a widespread gull species that occurs throughout the southern hemisphere; including the whole of the South African coastline (Hockey *et al.* 2005). Jarvis and Cram (1971) reported Kelp gulls breeding on Penguin (Bird) Island Nature Reserve in two localities during 1971 (Figure 3.10). At present, Kelp gulls do breed on the island albeit in low numbers. Official counts of Kelp gulls breeding in the greater Lamberts Bay area have been recorded since 1976. According to a draft paper (Whittington *et al.* in draft) the number of breeding pairs recorded for the Penguin (Bird) Island Nature Reserve area has been steadily increasing (Figure 3.16).

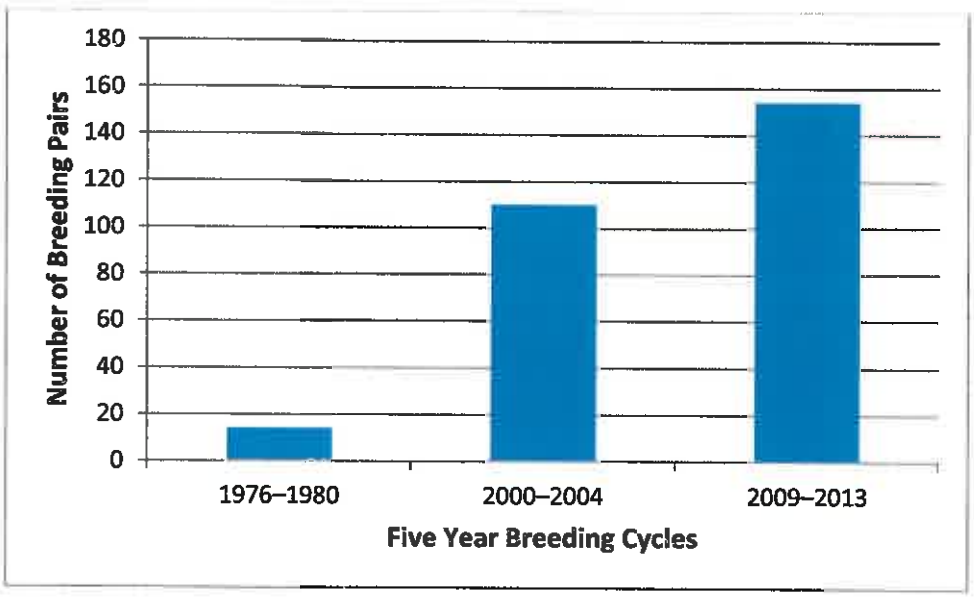

Figure 3.17: Numbers of Kelp gull breeding pairs for the breeding periods 1976–1980, 2000–2004 and 2009–2013. (*Whittington et al.* in draft).

This is supported by an increase in casual observations of Kelp gulls on both the island and surrounding Lamberts Bay town in recent years. Whittington *et al.* (in draft) attributes this increase to two main factors; Kelp gulls being predators of eggs and chicks of other seabirds species, as well as the availability of organic waste, particularly around human settlements. At Penguin (Bird) Island Nature Reserve, Kelp gulls have been observed feeding off organic waste from the potato factory in the harbour and nearby landfill site for a number of years. Furthermore, Kelp gulls have been known to predate on the eggs of Cape gannets breeding on the island. Table 3.4 lists the predation figures for the past five breeding cycles (CapeNature 2014). The predation percentage indicated in Table 3.4 is in relation to the total breeding output of the Cape gannet colony for a particular season.

Table 3.4: Kelp gull predation relative to the size of the Cape gannet breeding population 2009 to 2013

Breeding season	Number of Cape gannet eggs lost. Source CapeNature 2014	Predation percentage relative to the size of the Cape gannet breeding population. (%)
2009	667	9.5
2010	574	6.3
2011	444	4.9
2012	689	7.6
2013	1520	37.6

**Cape Gannet population figures obtained from Makhado et al. 2012*

Breeding Cape gannets nesting on the island are generally not well protected against aerial predators, such as Kelp gulls, which prey on their eggs during the laying and incubating period. The problem is exacerbated when the density of Cape gannet nests in the colony is reduced as has been observed during the 2013/14 breeding season. This may explain the unusually high numbers of eggs lost to Kelp gull predation during the 2013 breeding season (Table 3.4). Certain Kelp gulls become masters at stealing Cape gannet eggs. Not only do they steal a significant number of eggs, but as a result there is also a temporal shift in part of the Penguin (Bird) Island Nature Reserve's Cape gannet colony's breeding season; with affected pairs having to re-lay their eggs. This contributes to more Cape gannet chicks being born later and as a result these chicks stand a higher risk of being abandoned towards the end of the breeding season.

Figure 3.18: Kelp gull (*Larus dominicanus*) (photo: Y. Chesselet)

3.3.9.2a Management requirements

Egg predation is a natural occurrence in bird breeding colony. On Penguin (Bird) Island Nature Reserve, predation of Cape gannet eggs by Kelp gulls is a learned behaviour and predation levels of 10 % and higher is cause for concern; especially considering that only a few culprit Kelp gulls are responsible for this level of predation. Egg predation is one of a number of threats that Cape gannets face. Fortunately this threat can be managed to some degree.

In order to manage the predation impact that Kelp gulls have on the Cape gannet colony at Penguin (Bird) Island Nature Reserve, CapeNature has decided to lethally control problematic Kelp gulls. Identification and control of such individuals will be done by the Bird Island monitoring team during the first part of the breeding season. Only Kelp gulls that target eggs on an ongoing basis will be lethally controlled in accordance with relevant legislation and permits. CapeNature will review the impact of this control method annually to determine its effectiveness.

3.3.9.2b Monitoring requirements

Kelp gull breeding pairs are currently monitored both on Bird Island and in the surrounding Lamberts Bay town area to monitor their population level. This monitoring is conducted on a monthly basis by the Department of Environmental Affairs: Oceans and Coasts. Monitoring of Kelp gull predation is conducted daily by CapeNature during the Cape gannet breeding season. All instances of lethal Kelp gull control will also be recorded by

CapeNature. It is essential to maintain these monitoring projects to monitor and evaluate the success of the management intervention.

3.3.9.3 African penguin

The African penguin (*Spheniscus demersus*) (Figure 3.19) is one of 16 birds endemic to Southern Africa (Kemper *et al.* 2007). It is estimated that globally there were between 1.5 and 3 million African penguins in the early 20th century (Shannon & Crawford 1999). The population subsequently collapsed and the global population in 2009 was estimated at 26 000 (Crawford *et al.* 2011). As a result of this decline, the species was listed as Endangered by the IUCN (IUCN 2011). The population has continued to decline, and it is estimated that there were approximately 17 000 breeding pairs of African penguins in South Africa during the 2013 breeding season (Department of Environmental Affairs 2013).

Penguin (Bird) Island Nature Reserve is considered the northernmost breeding locality of African penguins in the Western Cape Province. The Penguin (Bird) Island Nature Reserve colony was a colony that experienced African penguin egg collection. Based on estimates of the minimum number of penguins required to produce the average annual number of eggs collected, it is estimated that there were 44 000 African penguins at Penguin (Bird) Island Nature Reserve for the decade 1900 to 1909 (Frost *et al.* 1976). In 1956, aerial photographs were taken and the breeding population was estimated at 250 pairs (Underhill *et al.* 2006). This however is considered an underestimate, given that some breeding pairs nest in burrows or under boulders (Frost *et al.* 1976). Breeding numbers fluctuated around an average of 22 nests from 1991 to 1998 and then decreased, and the colony was considered locally extinct in 2006 (Crawford *et al.* 2008).

Figure 3.19: Penguins on Penguin (Bird) Island beach (photo: K. Shaw)

Historical factors implicated in the overall population decline include egg exploitation and habitat alteration and disturbance associated with commercial exploitation of guano (Frost *et al* 1976). On Penguin (Bird) Island Nature Reserve, it is estimated that 7675 and 4067 eggs were harvested over the decades of 1870 to1879 and 1900 to 1909 respectively (Frost *et al* 1976). The number of eggs that were collected is likley to have been higher, since partially incubated eggs were discarded, and loss of eggs and young penguin chicks to Kelp gulls during the penguin egg collection was common (Frost *et al* 1976).

In addition to the disturbance caused by egg collection, breeding was disrupted by the commercial exploitation of guano (Frost *et al.* 1976). African penguins burrowed in the accumulated guano, and the removal of this nesting habitat forced them to nest on the surface, exposing the birds to heat exposure and extreme weather events and increasing predation of eggs and chicks by Kelp gulls (Frost *et al.* 1976). The central area on Penguin (Bird) Island Nature Reserve was also paved with flat stones to facilitate guano scraping, further reducing the quality of nesting habitat (Jarvis &Cram 1971).

More recently, it is predation effects (Makhado 2009) and reduced availability of pelagic fish due to competition with commercial fisheries and altered distribution of prey that have been implicated in contributing to the overall African penguin population decline (Crawford *et al* 2011). Between 1997 and 2005, the centre of gravity of purse-seine catches of sardine moved 400 km south-east (Fairweather *et al.* 2006). This placed sardine increasingly distant from localities in the north of the Western Cape such as Penguin (Bird) Island Nature Reserve, out of range of breeding seabirds that have restricted foraging range when breeding like the African penguin. Predation of penguins by Cape fur seals was considered unsustainable at Penguin (Bird) Island Nature Reserve, where seals killed 4% of adults annually (Crawford *et al.* 2001).

Oiling is a threat that has affected African penguins historically, and a threat that continues in present times. Petroleum oiling of African penguins (and other seabirds) occurrs through catostrophic oiling events when ships run aground or through chronic oiling as a result of the illegal practise of bilge and tank washing out at sea (Frost *et al.* 1976). Oiling affects the natural waterproofing of the birds, and so they are unable to go out to feed. Furthermore, as they preen themselves to try and clean their feathers, they injest the oil which can cause internal physiological damage. African penguins at Penguin (Bird) Island Nature Reserve were also vulnerable to accidental oiling through the effluent of the fish factory that was situated in the harbour in the recent past. In 1974, large quantities of natural fish oil, predominantly from anchovy (*Engraulis capensis)*, were released into the sea due to a failure of the oil recovery system in the factory (Percy FitzPatrick Institute 1974) at Lamberts Bay Harbour. It is estimated that at least 100 African penguins, 700 Cape gannets and 7 000 Cape cormorants were killed (Percy FitzPatrick Institute 1974).

With the cessation of breeding at Penguin (Bird) Island Nature Reserve in 2006, the separation of breeding localities in Namibia and the Western Cape increased to 600 km (Crawford *et al.* 2008), fragmenting the population. Smaller colonies provide *loci* for population growth, as well as *refugia* should populations of that species face significant threats in other colonies in their distribution. In order to provide a *loci* for future population growth should the distribution of forage prey change (Underhill *et al.* 2006), and once the local threats to this species have been effectively mitigated, it is CapeNature's intent to allow the natural re-establishment of African penguins at Penguin (Bird) Island Nature Reserve. Seal predation remains a concern, specifically on Cape gannets (Makhado *et al.* 2006). Once Seal predation has been managed to acceptable levels of predation (Makhado *et al.* 2009), the natural establishment African penguins will be permitted to occur. Failing this, re-establishment will be guided by the African penguin Biodiversity Management Plan (BMP). (Department of Environmental Affairs 2013)

Currently, all African penguins that come ashore at Penguin (Bird) Island Nature Reserve are caught and sent to Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) to be released with other penguins that have completed the rehabilitation process. Injured birds caught on the island are stabilised (according to protocols provided by SANCCOB) and transported to SANCCOB when necessary.

Wolfaardt *et al.* (2009), document the long-term impact of oiling events on African penguins as evidenced through reduced breeding success and reduced participation in breeding. Evidence is given to support the capture and rehabilitation of oiled birds, while caution is raised about the long-term physiological costs to adult birds. In order to reduce the impact of oiling, and reduce the time that a bird is contaminated with oil, CapeNature staff monitor the island regularly for oiled penguins, particularly during the winter months where rough seas are thought to cause sunken containers and wrecks, to shift and release oil. CapeNature works closely with SANCCOB and all oiled and injured birds from Penguin (Bird) Island Nature Reserve are sent to SANCCOB for rehabilitation. From 2001 to 2013, 113 African penguins were admitted to SANCCOB from Penguin (Bird) Island Nature Reserve as a result of oiling, injuries, dehydration, emaciation and disease.

3.3.9.4 Cormorants

Historically, cormorants (Figure 3.20) were considered species of economic importance due to the annual guano yields obtained from the island. However, the species is very sensitive to disturbance and will abandon nests with whole flocks recorded leaving the island en masse if breeding pairs are continually disturbed (Jarvis *et al.* 1971). For this reason, the numbers recorded on the island has decreased over time as disturbance levels have increased.

Four cormorant species were recorded to have bred on the island during the 1960's to early 1970's. Species recorded included Bank cormorant, Cape-cormorant, Crowned-cormorant and White breasted cormorant (Figure 3.11). The Cape cormorant population, in particular, was widely distributed over the island with 30 000 breeding pairs recorded at that time (Jarvis *et al.* 1971). White breasted and Crowned cormorants were also recorded to breed in much smaller numbers with mention of between 30 and 40 breeding pairs in the 1960's and Bank Cormorants in even smaller numbers of between 5 and 10 breeding pairs (Jarvis *et al.* 1971).

The population of Crowned cormorants around Lamberts Bay fluctuated between 3 and 29 breeding pairs between 1978/79 and 2008/09 increasing to 83 breeding pairs in 2010/11 (Crawford *et al.* 2012). The South African population of this species has remained stable since the late 1970's, possible because they forage on fish that is not commercially harvested and can adapt to prey that is locally abundant. There has, however, been an eastward shift of the non-breeding territory and numbers of breeding birds have increased on the southern islands e.g. Dyer Island (Crawford *et al.* 2012), indicating a possible distribution shift towards the south and east.

The White-breasted Cormorant can be found on both coastal and inland waters (Hockey *et al.* 2005). The coastal population of this species within South Africa has remained stable for the last three decades (Crawford *et al.* 2012). Similar to the Crowned cormorant the White-breasted cormorant does not forage on fish species that are harvested commercially and it is possibly the reason why their populations have remained stable.

Global population trends of the Cape Cormorant *Phalacrocorax capensis* has been influenced by a number of factors, including abundance and distribution of food, suitable breeding habitat as well as disease and predation (Crawford et al 2007b). The species forages predominantly on fish species that are commercially harvested (Hockey *et al.* 2005) and the impact of over fishing as well as the susceptibility of the species to out breaks of avian cholera (Crawford *et al.* 1992, Williams & Ward 2002), has impacted negatively on the global population. The provision of suitable breeding habitat in the form of guano platforms in Namibia has, however, favoured the species and the data suggests that the population in 2007 was more or less at the same level as it was 50 years ago (Crawford *et al.* 2007b). The population at Penguin (Bird) Island Nature Reserve has however, declined substantially over the same period, with similar declines experienced at other West Coast localities (Dassen, Jutten, Malgas and Vondeling Islands). These declines are attributed to the southward and eastward shifts of Sardine, predation by Cape fur seals (*Arctocephalus pusillis*) and mortality from avian cholera (Crawford *et al.* 2007b).

Bank Cormorants *Phalacrocorax neglectus* used to breed on Penguin (Bird) Island Nature Reserve, but since 1999 is extinct as a breeding species (Crawford *et al.* 2008). Substantial

decreases in populations at two of the biggest colonies at Dassen and Malgas Islands have resulted in the decline of the Western Cape population of the species (Crawford *et al.* 2008). Unlike the other cormorants that have a preference for fish prey, Bank Cormorants in the Western Cape feed predominantly on West coast rock lobster *Jasus lalandii* (Hockey *et al.* 2005). Rock lobsters are commercially harvested and it is suggested that the declines at Dassen and Malgas Islands are due to limiting food resources (Crawford *et al.* 2008). It is not only limiting food resources that have impacted on the bank cormorant population. At Penguin (Bird) Island Nature Reserve the extinction of the colony can be partially attributed to colonisation of the breeding areas by Cape fur seals Arctocephalus pusillius (Crawford et al. 1999). Furthermore the oil spills that resulted from the sinking of the *Apollo Sea* (1984) and *Treasure* ships (2000) impacted on the Bank Cormorant colony on Robben Island with a 20% mortality recorded after the *Treasure* oil spill (Crawford *et al.* 2008).

Despite the low numbers of Cape and Crowned cormorants on the island they do occur in substantial numbers on the mainland in close proximity to the island where they have shown a preference to roost and breed on the roofs of the factories adjacent to the harbour (Crawford *et al.* 2012).

Post guano scraping and in particular during the early 2000's their numbers drastically declined (Figure 3.12) (Crawford *et al.* 2012). This can be attributed to a marked decrease in pelagic West Coast fish stocks; the increase in the seal population and minimal management interventions to curb subsequent seal predation. It should be noted that Cape and Crowned cormorants occur in substantial numbers on the mainland in close proximity to the island. They tend to roost and breed on the roofs of the factories adjacent to the harbour (Crawford *et al.* 2012).

Since 2006, a concerted effort has been made to manage the encroaching seal population on the island as well as attempts to attract cormorants back to the island. Initial efforts included placing cormorant decoys on the island. More recently cormorant breeding poles have been placed on the eastern side of the island (Figure 3.20), which has a greater than 90 % occupation rate and deemed a success story for the species. It is envisaged to build on the success of these by placing more poles and platforms to attract breeding birds. Management will also be investigating the screening of pathways and high traffic areas to reduce disturbance to birds and encourage the movement of cormorants off the factory roofs and back onto the island.

Figure 3.20: Cormorant breeding poles on the eastern side of the island (photo: A Fortuin)

3.3.9.5 Terns

Swift terns *Sterna bergii* forage substantially on anchovy and sardine. Unlike some of the other marine bird species that feed predominantly on these two commercially harvested fish species, Swift Terns have not been affected by the decline in these fish stocks. This is probably ascribed to the nomadic nature of the species as well as a weak fidelity to breeding sites (Crawford 2009).

Figure 3.21: Roosting Swift and Sandwich Terns (Photo: K Shaw)

The West coast population of swift terns fluctuated between 1400 and 4700 breeding pairs for the period 1984 to 1999 and thereafter increased to 13000 in 2008. During this entire period the species only bred in 1996 (179 breeding pairs) and 1997 (383 breeding pairs) on Lamberts Bay Bird Island (Crawford 2009). As a breeding site the Island is therefore not important, but the species does use the island regularly as a roost site. Table 3.5 illustrates minimum, maximum and average numbers of tern species that use the island as a roost site (CapeNature unpublished data).

Table 3.5: Minimum and maximum numbers of Tern species recorded on Penguin (Bird) Island

English Name	Scientific name	Minimum Count	Maximum Count	Average
Caspian Tern	*Sterna caspia*	1	1	1
Common Tern	*Sterna hirundo*	2	676	195.4
Arctic Tern	*Sterna paradisaea*	15	15	15
Sandwich Tern	*Sterna sandvicensis*	1	10	3.7
Swift Tern	*Sterna bergii*	10	450	144.7

3.3.9.6 Hartlaub's gulls

Hartlaub's gulls *Larus hartlaubii* are nomadic changing breeding localities and on occasions changing breeding sites within localities (Crawford *et al.* 2003). Determining the population size is complicated by this nomadic nature of the species. Peak breeding periods do not necessarily occur at the same time, varying between localities within the same year, and varying between years at the same locality further complicating attempts to determine population size (Crawford *et al.* 2003). It is estimated that between 1984 and 1989 the Western Cape population was between 10 000 and 11 000 breeding pairs (Williams *et al.* 1990). Crawford *et al.* (2003) predicted that between 1990 and 2001 the number of Hartlaub's gulls did not exceed this estimate and may even have decreased since the 1980's.

Figure 3.22: Hartlaub's Gulls (*Larus hartlaubii*) (Photo: Johan Visagie)

Williams *et al.* (1990) established that Hartlaub's gull did not breed on the Island prior to 1989. Breeding was observed for the first time on Penguin (Bird) Island Nature Reserve in 1994, occurring between the years 1994 to 1997 and 1999 to 2001 (Crawford *et al.* 2003). Twenty surveys carried out between 2012 and 2014 by reserve staff indicates that numbers vary between 4 and 250 birds. These birds were all roosting birds and no breeding was recorded during this period (CapeNature unpublished data).

3.3.10 Reptiles

No reptile species have been recorded on Penguin (Bird) Island Nature Reserve

3.3.11 Amphibians

No amphibian species have been recorded on Penguin (Bird) Island Nature Reserve.

3.3.12 Fish

This section focusses solely on fish species of importance to the seals on the island. It is acknowledged that there are a number of additional species occurring in the waters off the island. Scat samples obtained from the Penguin (Bird) Island Nature Reserve seal colony has been used to establish the prey composition of the seals occurring on the island. Fish were the most common prey category, occurring in most of the scats, whereas cephalopods and crustaceans occurred in negligible amounts. Of the eight species listed (Table 3.6), Horse mackerel made up 48 % of the seals diet. Although seals can travel up to 220 km within a

single foraging trip, the identifiable prey remaining in the scat probably represent prey eaten within 24 hours of the seal coming ashore. Scats therefore represent local rather than distant feeding conditions (Seakamela *et al.* In prep.).

Table 3.6: Fish species predated on by Penguin (Bird) Island Nature Reserve seals

Common name	Scientific name
Anchovy	*Engraulis encrasicolus*
Cape hake	*Merluccius capensis*
Gurnards	*Chelidonichthys spp.*
Hector's lantern fish	*Lampanyctodes hectoris*
Horse mackerel	*Trachurus trachurus*
Pelagic goby	*Sufflogobius bibarbatus*
Pilchard/Sardine	*Sardinops sagax*
Round herring	*Etrumeus whiteheadi*

3.3.13 Invertebrates

No invertebrate species have been recorded on Penguin (Bird) Island Nature Reserve.

3.4 CULTURAL HERITAGE CONTEXT OF PENGUIN (BIRD) ISLAND NATURE RESERVE

The island is of considerable cultural value to the local community as it is the only historical guano island which may be visited. The old warehouse used during the guano-scraping era may be considered of historical interest as it is older than 60 years and therefore may be classified as a National Monument. This long history of human involvement left behind some structures and artefacts including the guano scrapers' quarters and guano collecting area, with a paved appearance.

3.5 SOCIO-ECONOMIC CONTEXT

The CLM is sparsely populated with a population density of about 5.35 per km^2 and a household density of 1.41 per km^2. 85 % of inhabitants' home language is Afrikaans. Three towns, Elands Bay, Graafwater and Lamberts Bay, are within reasonable proximity of Penguin (Bird) Island Nature Reserve. Elands Bay is considered an isolated settlement that functions as a holiday town and frequented by surfers. Its main economic base, fishing, is showing a downward trend. Agriculture and in particular potato farming, contributes to its economy. Baboon Point has been declared a Provincial Heritage Site due to the strong link to early evidence of Khoi and San interactions. Graafwater is located halfway between Clanwilliam and Lamberts Bay. The railway station situated in the town was the initial

catalyst for the town's establishment. Most inhabitants are seasonal workers on the surrounding agricultural farms. Lamberts Bay owes its existence to the fishing industry and harbour. The processing factories for fishmeal, lobster packaging and potato chips make substantial contributions to the local economy. The town's tourism sector is mainly driven by the annual spring flower blooms along the West Coast and the Cape gannets on Penguin (Bird) Island Nature Reserve (Cederberg Municipality 2014).

According to the CLM 2014/15 Integrated Development Plan (IDP) review (2014), the agriculture and fish sector shed nearly 6200 jobs from 2000 to 2010. This has contributed significantly to the nearly 37.2 % of inhabitants within the municipal area being unemployed. Unemployment is mainly concentrated amongst the youth (15 to 34 years) as the youth accounts for 64 % of the unemployed in 2011. The age group 25 to 34 years is particularly vulnerable at 30 % of the total unemployed. The report also indicated that there was an increase in the number of households headed by females and a decrease in the proportion of households living in formal dwellings. Elands Bay reportedly displays very high levels of social needs (Cederberg Municipality 2014).

Current socio-economic upliftment efforts by CapeNature are centred on the provision of Full Time Equivalent employment for individuals from Lamberts Bay. The Reserve FTE project has provided its employees with a unique opportunity to get involved with two important activities of the Penguin (Bird) Island Nature Reserve. Namely, they partake in the daily monitoring of birds and mammals on the island as well as interacting with tourists and school groups visiting the island. The data collected by the monitors are collated and forms part of the reserve's monthly reports but more importantly the quarterly and annual reports are sent to the Department of Environmental Affairs (Oceans & Coasts). Their ecological activities include:

- Monitoring of Gull predation on Gannet Eggs.
- Monitoring of Seal predation on Gannet chicks.
- Daily records of Gannet and seal numbers.
- Weekly beach patrols
- Assisting with Coordinated Waterbird Counts (CWAC)
- Assisting with South African Bird Atlas Project Two surveys (SABAP2)
- Annual ringing of Gannet chicks

Tourism activities include the dissemination of information pertaining to the history of the island, the interactions between gannets in the colony as well as the effects of seal and gull predation on the gannet population.

The FTEs often assist visiting researchers with fieldwork conducted on the island. This has assisted in creating good working relationships with the reserve's partners.

Figure 3.23: Marine week celebrations with local school (photo: L Engelbrecht)

Environmental education and awareness programmes are currently developed for thematic programs such as International Beach Clean-up and Marine Week (Figure 3.23). Reserve staff engages with school groups on a variety of topics relevant to the island. The upgraded visitor centre, newly completed exhibition building, outdoor classroom area and bird hide will allow for enriching experience during these sessions. Currently visits to the island are arranged on an *ad hoc* basis and should ideally be formalised and should include schools from neighbouring towns too.

3.6 OPERATIONAL MANAGEMENT WITHIN PENGUIN (BIRD) ISLAND NATURE RESERVE

3.6.1 Infrastructure

Figure 3.25 and Table 3.7 depict and list the infrastructure found on Penguin (Bird) Island Nature Reserve respectively. The sections below provide an overview of Penguin (Bird) Island Nature Reserve's infrastructure.

3.6.1.1 Roads/Jeep Tracks

The break-water wall provides road access to the island. Portnet Harbour officials gain access onto the island via the breakwater wall for maintenance of the lighthouse which is situated north of the island. Visitor parking is provided by the harbour through a controlled access point next to the Oceana Group chips factory on the mainland. Apart from Portnet, no public vehicle access is generally allowed onto the island as it has been shown to disturb roosting birds and in particular the tern roosting area situated next to the break-water wall at the southern section of the island. Reserve staff is also prohibited from driving onto the island unless required for operational purposes or an emergency event.

3.6.1.2 Pathways

Pathways on the island give visitors access to the tourism infrastructure. The Lamberts Bay Working for the Coast team assists with maintenance of these paths when required. Visitors are requested to remain on pathways at all times and appropriate signage has been erected.

3.6.1.3 Buildings

Maintenance and repairs of buildings including the bird hide (Figure 3.24) are prioritised and included on the schedule of Department of Transport and Public Works. Minor maintenance and repairs to buildings are identified and attended to by reserve management.

Figure 3.24: The Bird hide on Penguin (Bird) Island Nature Reserve (photo: Y. Chesselet)

3.6.1.4 Environmental management

No waste disposal sites are available within the Penguin (Bird) Island Nature Reserve. All waste from Penguin (Bird) Island Nature Reserve is removed from the reserve and disposed of at the municipal refuse site in Lamberts Bay.

Potable water is obtained via a pipeline from the mainland running along the break-water wall for use at Penguin (Bird) Island Nature Reserve. Apart from the new penguin pool and related upgrades, all building infrastructure facilities on Penguin (Bird) Island Nature Reserve are linked to a closed sewerage system located on the island. The municipality is responsible for sewerage removal when required.

The upgraded penguin pool complex (completed in 2014) includes a newly designed penguin pool; two touch pools and two fish tanks for display purposes. The biolytic design is a semi-closed system that requires seawater uptake only in the event of excessive water loss or the occasional flushing event.

3.6.1.5 Signage

Signage on route to Penguin (Bird) Island Nature Reserve and on reserve itself is inadequate and outdated. During the current tourism upgrade, all signage on the reserve will be updated and a request for signage on route to the island has been submitted. Additionally a map will be produced to orientate visitors and highlighting key attractions on the island.

Table 3.7: Infrastructure located on Penguin (Bird) Island Nature Reserve

Reserve Name	Feature Name	Location	Feature Type
Penguin (Bird) Island Nature Reserve	Bird Hide	Centre of island	Tourism
Penguin (Bird) Island Nature Reserve	EE (Exhibition) Centre	Centre of island	Tourism
Penguin (Bird) Island Nature Reserve	Whale display	Northeast on island	Tourism
Penguin (Bird) Island Nature Reserve	Salt water pump	Northeast on island	Pump
Penguin (Bird) Island Nature Reserve	Weather station	Northeast on island	Weather station
Penguin (Bird) Island Nature Reserve	Visitor Centre	East on island	Tourism

Figure 3.25: Infrastructure map of Penguin (Bird) Island Nature Reserve

4.1 REGIONAL AND PROVINCIAL PLANNING OF PENGUIN (BIRD) ISLAND NATURE RESERVE

Penguin (Bird) Island Nature Reserve falls within the boundaries of the West Coast District Municipality. The district is made up of five municipalities which are Matzikama in the North, Cederberg centrally positioned with Berg River, Saldanha Bay and Swartland Municipalities in the South. It is specifically located within the boundaries of the Cederberg Local Municipality.

The economic activities of the surrounding area, Lamberts Bay Town, is mainly a fishing community, but cattle and potato farming also contribute to the local economy of the area. The IDP and SDF for the WCDM run on a five year cycle, the current cycle is 2012 to 2017. The IDP is a basic strategic plan for the development in the WCDM. The WCDM-SDF is the spatial expression of the WCDM-IDP. Consequently, the SDF is a policy document to be used by organs of state as a guideline in decision-making. According to the WCDM-SDF six objectives were identified of which four speak directly to the operations of CapeNature within the WCDM.

- Objective 2 – Facilitate job creation;
- Objective 4 – Conserve and strengthen a sense of place for all;
- Objective 5 – Ensure wise use of existing resources;
- Objective 6 – Conserve biodiversity resources.

The main components of this SDF pertaining to Penguin (Bird) Island Nature Reserve are:

- the conservation of the heritage of the area;
- the conservation of the biodiversity resources of the area;
- the development of tourism opportunities;
- the creation of jobs.

4.2 EXPANSION OF THE PENGUIN (BIRD) ISLAND NATURE RESERVE

The expansion of protected areas in South Africa is informed by the National Protected Area Expansion Strategy (NPAES). This strategy provides a broad national framework for protected area expansion in South Africa by identifying large areas which should be targeted for formal declaration and introduces a suite of mechanisms which could aid in achieving this.

In response to the NPAES which calls on provinces to develop implementation plans in support of the NPAES and in support of provincial conservation efforts and priorities, CapeNature has produced a Protected Area Expansion Strategy and Implementation Plan (Purnell *et al.* 2010) The CapeNature strategy addresses the formal proclamation of priority natural terrestrial habitats in the Western Cape Province as protected areas to secure biodiversity and ecosystem services for future

generations. Although aligned to the concepts and goals of the NPAES, this strategy is informed by immediately available resources and therefore highlights some different spatial priorities.

The CapeNature PAES will be updated to accommodate national and provincial strategy with regard to Marine Protected Area expansion. It will interact with other organs of state towards contributing to the National Biodiversity Assessment (NBA, previously NSBA) to inform Marine Protected Area (MPA) Expansion. South Africa's MPA's are declared in term of the Marine Living Resources Act, 1998 (Act No. 18 of 1998) which is administered by the DEA: Oceans & Coasts. This will be the primary informant to any MPA expansion pertaining to Penguin (Bird) Island Nature Reserve.

A consideration to provide some formal conservation status to the 500m marine buffer around Penguin (Bird) Island is being considered (Fig 4.1). The proposal is to facilitate better management of the island by being able to effectively limit disturbance to breeding seabirds and monitor and protect fledging seabirds. This is specifically with the aim to ensure that during the months of January to April fledgling Cape gannets leaving the island from the north and south west will be unhindered when landing on the water. It is envisaged that this buffer area will be zoned to not negatively impact on the functioning of the harbor and the small and large vessel which use the Lamberts Bay harbour. Any consideration to affect this will be in full partnership with DEA: Oceans and coast whose mandate this is.

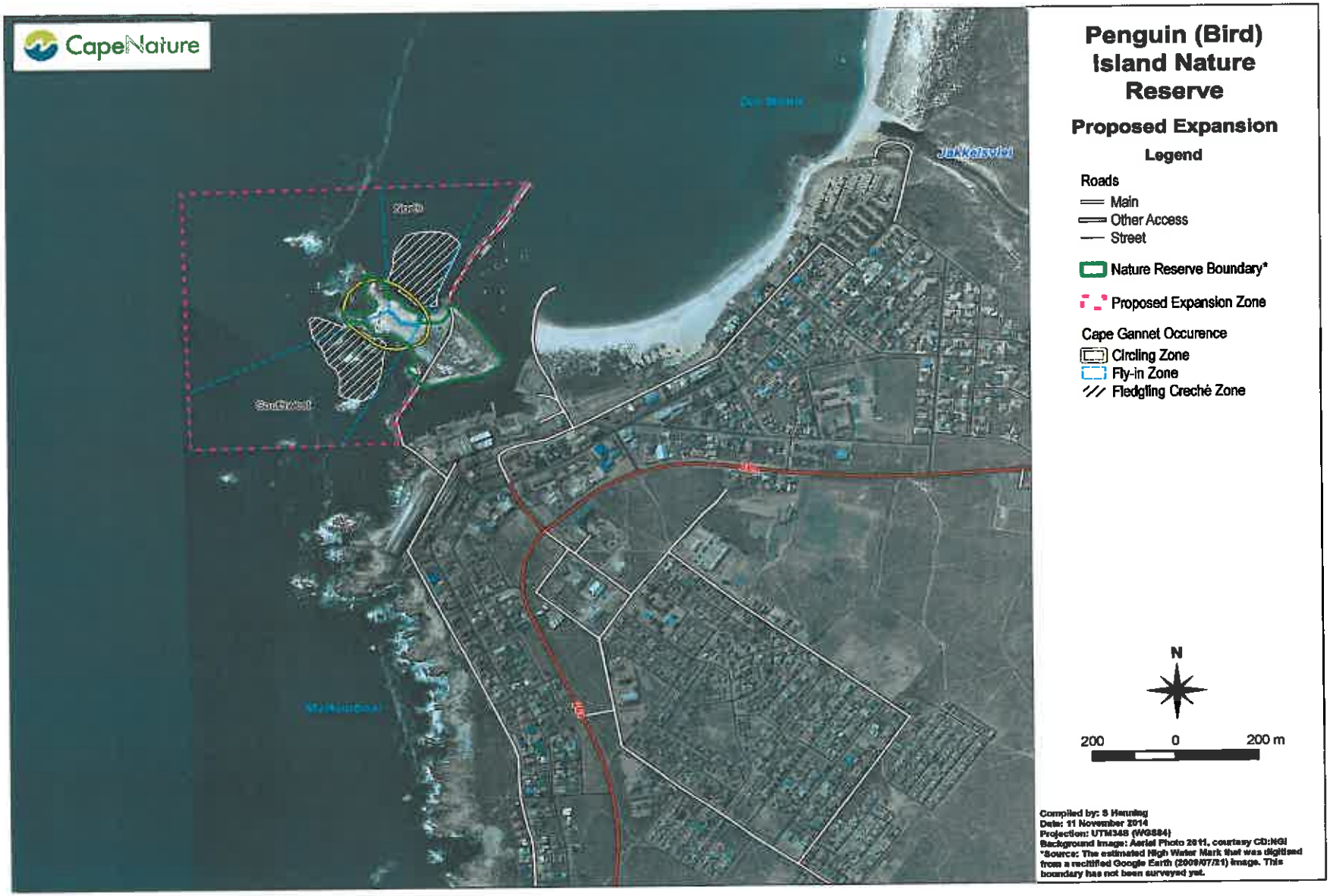

Figure 4.1: Priority Biodiversity Areas of Penguin (Bird) Island Nature Reserve

5. CONSERVATION DEVELOPMENT FRAMEWORK OF PENGUIN (BIRD) ISLAND NATURE RESERVE

5.1 SENSITIVITY ANALYSIS

Sensitivity mapping of reserve biodiversity, heritage and physical environment forms is the main informant of spatial planning and decision-making in protected areas. It is intended to:

- inform all planned and ad-hoc infrastructure development e.g. location of management and
- tourism buildings and precincts, roads, trails, firebreaks;
- inform whole-reserve planning and formalisation of use and access as a Reserve Zonation Scheme; and
- support conservation management decisions and prioritisation.

The sensitivity maps allow for direct comparison of sites both within and between reserves to support CapeNature's planning at local and regional scales. The process highlights:

- sites with the highest regional conservation value;
- areas where human access or disturbance will have a negative impact on biodiversity or heritage, and specific environmental protection is required;
- areas where physical disturbance or infrastructure development will cause higher environmental impacts, and/or higher construction and on-going maintenance costs; as well as
- areas where there is significant environmental risk to infrastructure.

The method ensures that the location, nature and required mitigation for access, activities, and infrastructure development within protected areas can be guided by the best possible landscape-level biodiversity informants.

The process accommodates both expert-derived information and more objective scientific data and the decisions are defensible and based on a transparent process.

Biodiversity, heritage and physical features are rated on a standard scale of 1 to 5, where 1 represents no or minimal sensitivity and 5 indicates maximum sensitivity (Figure 5.1). Additional features such as visual sensitivity, fire risk and transport costs can also be included. Higher scores represent areas that should be avoided for conventional access and infrastructure, or where specific mitigation would be required in order to address identified environmental sensitivity. A score of 5 typically represents areas where mitigation for conventional access or infrastructure development would be extensive, costly or impractical enough to be avoided at all costs, or features so sensitive that they represent a 'no go' area. For biodiversity features highest scores represent high priority sites where conservation management cannot be compromised.

Sensitivity maps cannot replace all site-scale investigation, but they are ideal for rapidly reviewing known environmental risks, and guiding whole-reserve planning to minimise overall negative environmental impact.

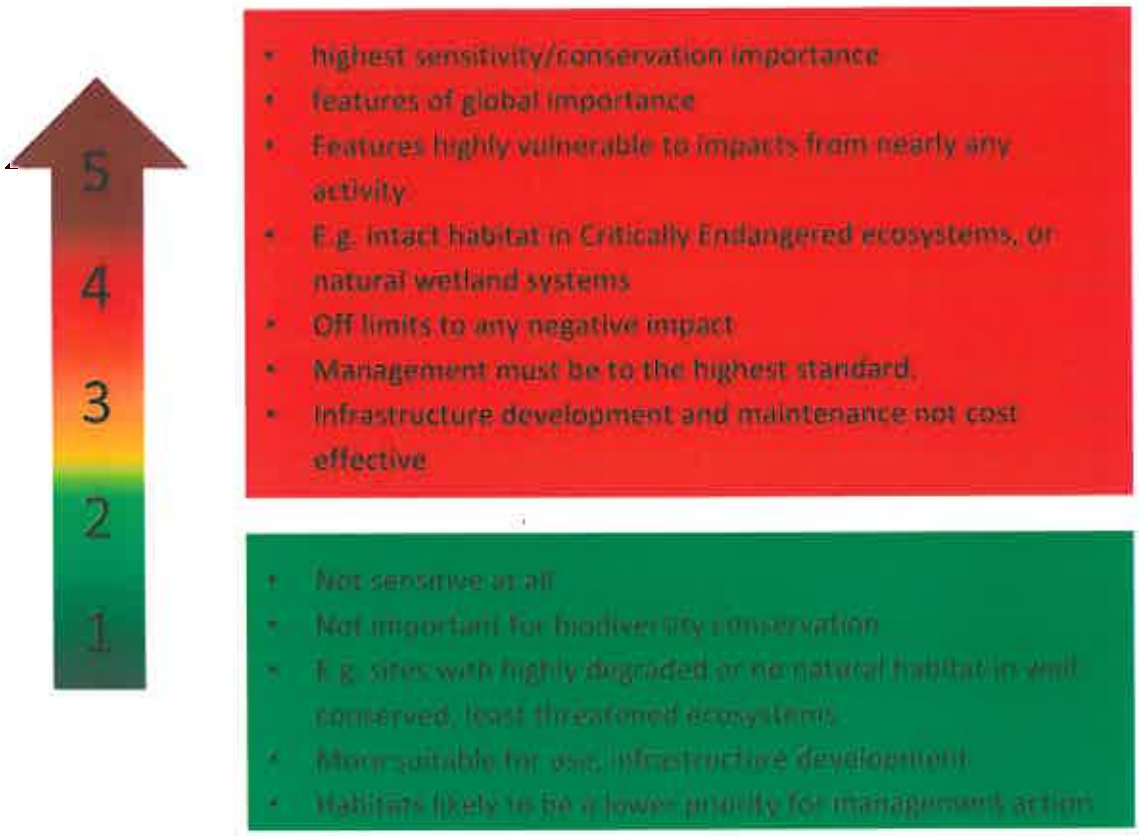

Figure 5.1 CapeNature Method for Sensitivity Scoring and Synthesis (Kirkwood in prep.)

5.2 PENGUIN (BIRD) ISLAND NATURE RESERVE – SENSITIVITY ANALYSIS

Penguin (Bird) Island is a low-lying offshore island of 2.2 hectares, providing vital breeding habitat and refuge for a number of seabird species, including highly threatened species of global importance. Historical guano-collecting infrastructure represents important heritage features. The flat terrain means that a large area is also vulnerable to physical damage during storm surge conditions. As a result of the presence of these highly sensitive features concentrated within a relatively small area, Penguin (Bird) Island must be characterised as a highly sensitive reserve overall. Any new infrastructure development must be approached with extreme caution, and planning must take relevant sensitivity features into account.

Table 5.1: Sensitivity of Penguin (Bird) Island Nature Reserve in terms of biodiversity, heritage and physical features

	Class	Sensitivity layer	Description
Biophysical sensitivity: ANY infrastructure or access	Biodiversity	Ecosystem representivity	The regional framework of the South African Vegetation Map does not include the offshore islands, but vegetation of Penguin (Bird) Island can be characterised as Azonal Coastal Vegetation. All similar Western Cape islands are statutorily or functionally conserved, and largely intact although should probably be considered degraded as a result of historic guano mining and harvesting of birds, eggs and seals. Terrestrial ecosystem representivity is therefore considered low where natural or lowest where non-natural as a result of human transformation.
		Special Habitat	No special habitats are known, and their presence is extremely unlikely.
		Species	All breeding and roosting areas of seabirds have been mapped by reserve staff and are scored as highest sensitivity for threatened species, with moderate sensitivity only applied where these less threatened species coincide with existing, actively used management infrastructure. No plant species of conservation concern are known and would be highly unlikely in this habitat.
	Heritage	Heritage	A number of historical buildings and structures associated with historical guano collecting occur on the island. However, the preservation of these buildings in their original state has been compromised with building renovations and human activity over time. The heritage value of these features is therefore compromised and features are scored as low to lowest sensitivity.
	Physical	Slope	The island is uniformly flat, with slope sensitivity mapped as lowest sensitivity throughout.
		Substrate	Soils are relatively stable and not prone to erosion with substrate sensitivity mapped as lowest sensitivity throughout.

		Hydrological	The western part of the island is frequently inundated by the sea during spring high tides and storm surge events (Figure 3.3). Additionally, during storm surge events, waves are capable of breaking over the breakwater wall and inundate a large section of the western part of the island (Figure 3.2). Extreme events can result in the entire island being inundated. This entire area is therefore mapped as highest hydrological sensitivity.

The sensitivity of Penguin (Bird) Island Nature Reserve is shown in Table 5.1 and Figure 5.2. The lowest sensitivity can be found along the walkway providing access through the island as well as the existing development footprint which includes the exhibition building, the Southern right whale display and the visitor center. The moderately sensitive area includes the area west of the visitor center where Cape cormorants historically bred. Although not actively used, it is the adjacent buildings and walkways which generate a sufficient disturbance that prevent birds from roosting in this area.

5.2.1 Future considerations

- The walkways leading to the bird hide, exhibition building, life size whale and visitor centre should be screened to ensure minimal disturbance of roosting and nesting birds and to attract birds such as Cormorants back to the island.
- The current bird hide location is within the highest sensitivity area. The hide is located too close to sensitive breeding area of gannets and limits expansion of the colony. The hide is also often inundated during storm surge events. The location of the bird hide should be reviewed and moved to a more suitable location to reduce disturbance to breeding seabirds

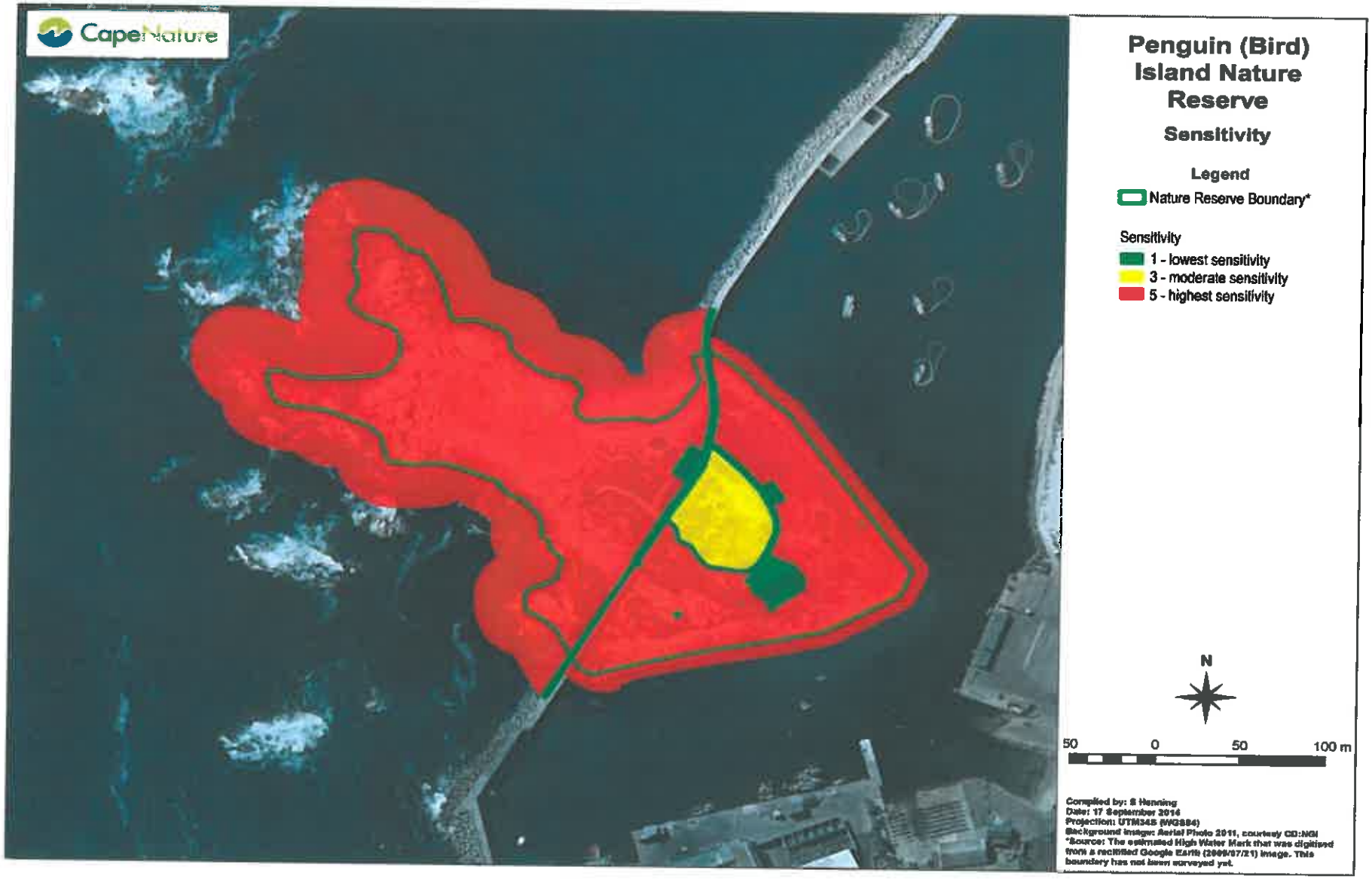

Figure 5.2 Sensitivity map of Penguin (Bird) Island Nature Reserve

5.2 ZONATION OF PENGUIN (BIRD) ISLAND NATURE RESERVE

Protected area zonation provides a standard framework of formal guidelines for conservation, access and use for particular areas. Zonation goes beyond natural resource protection and must also provide for:

- appropriate visitor experience;
- access and access control;
- environmental education; and
- commercial activities.

Ideally, zonation development should be done at the same time as infrastructure development planning. Good planning must aim to reduce cumulative environmental impacts and the long-term operating costs of all activities. Zonation and infrastructure development planning must be guided by:

- existing infrastructure and use;
- potential future infrastructure and access requirements; and
- careful evaluation of overall impact, construction costs and operating costs versus likely benefits;
- alternatives for every component.

Zonation requires input from all appropriate internal CapeNature stakeholders, and is a key component of the management plan which is to be evaluated during the Stakeholder Participation Process.

CapeNature's zonation categories (See Table 5.1) were developed by an internal workshop process completed in September 2010. Existing protected area zoning schemes worldwide were examined to develop a simple and powerful scheme that provides for the required range of visitor experience, access and conservation management. Particular effort was made to maintain consistency with the best developed South African zonation schemes, in particular those of South African National Parks (SANParks) and Ezemvelo KZN Wildlife (EKZNW). CapeNature's zonation categories have fewer tourism-access categories, but provide more detailed and explicit guidelines with regard to zone objectives and characteristics. Furthermore, CapeNature's zonation includes new zones specifically required in the context of highly sensitive biodiversity sites and zoning of privately owned Contract Nature Reserves.

Table 5.2: Guide to CapeNature Zones on Penguin (Bird) Island Nature Reserve. (Highlighted categories are applicable to the nature reserve)

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Wilderness / Wilderness (declared)	***Users:*** To provide an experience of solitude in pristine landscapes with minimal evidence of human presence or use. ***Conservation:*** To limit visitor numbers and use to minimise impact. Minimal management intervention for visitor or biodiversity management. Include sensitive or threatened habitats & species in this low use zone when contiguous sites meet the criteria for wilderness.	Completely wild and rugged landscapes (or being restored to this). Areas where users have little chance of encountering any other human presence or group. Sight or sound of human activities outside zone barely discernible and at far distance; Preferably no human impact or infrastructure inside the zone other than trails. Natural burning regimes, with no active fire management and road/firebreak infrastructure. Areas with minimal Invasive Alien Plant infestations, where IAP control can be done without vehicle access. Area must meet the definition and requirements of the National Environmental Management: Protected Areas Act 57 of 2003. If formally declared in terms of the act, zone = "Wilderness (declared)"; if not = "Wilderness".	"Leave-no-trace" activities: Overnight hiking, without any sleeping facilities, formal campsites, or with only basic, un-serviced shelters. "Carry in, Carry out" principle for all food and waste. Guided or unguided nature observation. --- No fires	No infrastructure of any type if possible. No roads or vehicle tracks. No structures except small existing buildings of cultural, historic or aesthetic value. These can be used as un-serviced sleeping shelters for hikers & provided with composting toilets. Narrow permanent walking trails. No signage except small, unobtrusive markers for closed routes, or at trail junctions. **NB** – in the mountainous, slow-growing fynbos of the Western Cape, the traditional wilderness concept of access without defined trails is unsafe and rapidly results in undesirable user-created trails and erosion.	Unguided visitor access only on foot. Visitors have freedom to use various trails. Use of donkeys, horses or other animals with an official guide only on designated historical routes and trails, or existing roads, and only where this will not cause trampling, erosion or any degradation. Limits on visitor numbers and/or control of routes and access so that zone objectives are met. Use of non-motorised canoe or flotation device on rivers can be acceptable where entry is by foot or by river from outside the zone. --- No fires No vehicle access No access without zone permit	***Visitor Management:*** Manage to conserve natural and cultural resources, ecological processes and wilderness integrity. Leave no trace ethic. Restrict numbers of visitors and allow for no-use rest periods if required. Limited management interventions. Management measures may be carried out in extreme conditions, but tread lightly principles must apply. Since visitor use cannot be intensively managed, re-route trails away from any areas with sensitive local habitats or plant and animal species. Trail layout, design and construction must reduce maintenance requirements. ***Conservation Management:*** Habitats with minimal management requirements, typically natural burning zones. Prevent or restore visible trampling or any other impact. Rehabilitate non-essential roads to natural vegetation. Re-zone essential roads out of Wilderness Zoning. ***Consumptive Use:*** Not compatible

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Primitive	***Users:*** To provide an experience of solitude in natural landscapes with little nearby evidence of human presence. Can provide access to and buffer Wilderness Zones. ***Conservation:*** To limit visitor use, numbers and infrastructure to minimise impact in sensitive environments. To reduce need for management of users and visitor impacts. Allows for minimal or more intensive biodiversity management intervention. *Include extensive areas of sensitive or threatened habitats & species in this low use zone when sites do not meet the criteria for wilderness.*	Intrinsically wild appearance & character. Areas where users will seldom encounter other human groups or presence. Any visible human impact or infrastructure inside the zone is unobtrusive. Human activities outside zone may be audible or visible in places. Areas remote from management centres, or otherwise difficult or expensive to access for management. Areas that might not meet the criteria for Wilderness but can serve as undeveloped visual buffers for Wilderness. Areas that may have natural burning regimes, with no active fire management and road/firebreak infrastructure OR areas that require active fire management to stay within thresholds of concern.	Guided or unguided nature observation Primarily intended for hiking or walking access. Only allows for 4x4 routes or vehicle access if specifically considered and noted. Only allows for non-hiking accommodation node if specifically considered and noted.	Deviation from natural state to be minimised. Infrastructure should not be visible from Wilderness Zones. May provide isolated, small, unobtrusive accommodation facilities for up to 16 guests on restricted footprints, particularly for overnight hiking trails. May have defined or beaconed hiking routes, management access roads, tracks and firebreaks. All roads, tracks or trails to be located and constructed to reduce maintenance, visibility and erosion. Where un-surfaced tracks will result in erosion, use concrete strip or interlocking pavers to stabilise. Re-route unstable or erosion-prone road sections if this will lower long-term visual and environmental impact. New roads for visitor access only justified if also required for management access. Avoid wide surfaced roads or roads and tracks wider than required for a single vehicle.	Visitor access only by permit. Control of visitor numbers, frequency and group sizes to meet zone objectives. Only users of facilities/activities will access to this zone. Defined or non-defined hiking and day trail routes. On foot always. Bicycle, 2x4 or 4x4 vehicle, or horseback on designated routes only. --- No access without zone permit	***Visitor Management:*** Manage to conserve natural and cultural resources, ecological processes and wild appearance & character. Restrict numbers of visitors and allow for no-use rest periods if required. All facilities will be small, very basic, self-catering and distributed to avoid contact between users. There should be limited if any interaction between groups. Since visitor use usually cannot be intensively managed, re-route trails away from any areas with sensitive local habitats or plant and animal species. Trail layout, design and construction must reduce maintenance requirements. Visible & audible human impacts from adjacent zones should be mitigated. ***Conservation Management:*** Habitats with lower or higher management requirements. May be natural burning zones. Usually remote areas so roads and trails should be planned and constructed assuming infrequent maintenance. Prevent or restore visible trampling or any other visitor impact. Rehabilitate non-useful roads to natural vegetation. ***Consumptive Use:*** Sustainable use can be appropriate under controlled circumstances subject to a formal assessment and application in accordance with CapeNature policies.

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

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development – Low Intensity	***Users:*** To provide access to adjacent natural landscapes with no expectation of solitude. To provide primarily self-catering accommodation or camping. Can provide for Environmental Education accommodation and access into surrounding landscapes. ***Conservation:*** To locate the zone and infrastructure to minimise impact on sensitive environments. To actively manage users and visitor impacts on adjacent sensitive areas. *Provide additional protection to sensitive or threatened habitats, species or other features by Special Management Overlays*	Areas with existing degraded or transformed footprints. Natural or semi-natural habitats only where essential to minimise impacts over whole reserve. Areas able to accommodate high numbers of visitors regularly, with no identified sensitive or regionally rare biodiversity. Areas able to accommodate roads, trails and accommodation infrastructure without risk of erosion or degradation. Areas easily accessible from reserve management centre. Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment. Areas where new infrastructure can be located with low visibility from the surrounding landscape. Areas not visible from Primitive or Wilderness Zones. Areas with available potable water, and not sensitive to disposal of treated wastewater via soak away.	Picnicking. Walking or bicycle access into adjacent areas. Self-catering accommodation and camping. Meeting, workshops or mini-conference activities for no more than the number of people that can be accommodated overnight in the zone. Can provide for Environmental Education accommodation and access into surrounding landscapes, but this must be carefully planned not to conflict with visitor use.	Reception offices. Self-catering accommodation and camping for up to 100 guests in total at any time[1] 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. If possible roads should be narrow with separate incoming and outgoing routes, otherwise double vehicle width roads are strongly advisable for safety and usability. Roads in this zone should be surfaced to reduce management cost and environmental impacts. Development and infrastructure may take up a significant proportion of the zone, but planning should ensure that area still provides relatively natural outdoor experience.	Motorised self-drive 2x4 sedan car access. Tour bus access. Parking areas. This zone should be used to provide parking and walk-in access for day visitors to adjacent Nature Access zone if possible.	***Visitor Management:*** Use infrastructure solutions such as railings, hard surfacing and boardwalks to manage undesirable visitor impacts. Accept negative impacts on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay. Frequent footpath and road maintenance must be scheduled for high impact routes. Visible impacts to adjacent Zones should be considered and mitigated. ***Conservation Management:*** Provide access and generate revenue. Management should aim to mitigate the impacts of the high number of visitors. Largely transformed habitats with lower management requirements. Usually fire exclusion areas. Prevent or rehabilitate visible trampling or any other visitor impact. 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. ***Consumptive Use:*** Sustainable use may be appropriate subject to a formal assessment and application in accordance with CapeNature policies.

[1] Although 100 guests seem high this is in line with CapeNature sites that would fall within this zone definition, e.g. configured as 10 x 4-sleeper self-catering units and 15 campsites.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development – High Intensity	***Users:*** To provide access to adjacent natural landscapes with no expectation of solitude. To provide low and/or higher density accommodation. May provide some conveniences such as restaurants and shops. ***Conservation:*** To locate the zone and infrastructure to minimise impact on sensitive environments. To actively manage users and visitor impacts on adjacent sensitive areas. *Provide additional protection to sensitive or threatened habitats, species or other features by Special Management Overlays*	Areas with extensive degraded or transformed footprints. Natural or semi-natural habitats only where benefits outweigh impacts. Areas able to accommodate very high numbers of visitors regularly, with no identified sensitive biodiversity. Areas able to accommodate roads, trails and accommodation infrastructure without risk. Areas easily accessible from reserve management centre. Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment. Areas where new infrastructure can be located with low visibility from the surrounding landscape. Areas not visible from Primitive or Wilderness Zones. Areas with available potable water, and not sensitive to disposal of larger amounts of treated wastewater.	Restaurants and small shops. Picnicking. Walking or bicycle access into adjacent areas. Accommodation in small hotels, lodges and higher density self-catering accommodation and/or camping. Meetings, workshop or mini-conference activities for no more than the number of people that can be accommodated overnight in the zone.	High density tourism development nodes`. Modern amenities including restaurants & shops. Self-catering accommodation and camping for over 100 guests in total at any time. Lodges or small hotels. Roads in this zone must be surfaced to reduce management cost and environmental impacts. Development and infrastructure may take up a significant proportion of the zone, but planning should ensure that area still provides relatively natural outdoor experience.	Tour bus access. Motorised self-drive sedan car access. Parking areas. Air access only permitted if considered and approved as part of zoning scheme and there is no possibility of faunal disturbance.	***Visitor Management:*** Management action will focus mostly on maintenance of facilities & providing high quality experiences. Use infrastructure solutions such as railings, hard surfacing and boardwalks to manage undesirable visitor impacts. Accept substantial impact on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay. Frequent landscape, footpath and road maintenance must be scheduled for high impact areas. Visible impacts to adjacent Zones should be mitigated. ***Conservation Management:*** Provide access and generate maximum revenue. Management should aim to mitigate the biodiversity impacts of the high number of visitors only in sensitive areas (if any) identified by Special Management Overlay. These are highly transformed habitats with lower management requirements. Natural fire exclusion areas. Prevent or rehabilitate visible trampling or any other visitor impact. 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. ***Consumptive Use:*** Sustainable use unlikely to be compatible.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development - Management	Location of infrastructure and facilities for Reserve Administration & especially conservation management facilities Not compatible with tourism and tourism access.	Areas with extensive degraded or transformed footprints. Natural or semi-natural habitats only where benefits at reserve scale outweigh local impacts. Areas able to accommodate high disturbance, with no identified sensitive biodiversity. Areas providing easy access to reserve and infrastructure. Areas very close to zones requiring highest management intervention, especially Low/High Intensity Zones. Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment. Areas where new infrastructure can be located with low visibility from the surrounding landscape. Areas not visible from Primitive or Wilderness Zones. Areas with available potable water, and not sensitive to disposal of treated wastewater.	n/a	Any reserve management infrastructure including offices, sheds, garages, stores, etc. Roads required to access these should be surfaced to reduce long-term maintenance costs and environmental impact. *NOTE* *Reserve administrative offices may also be located within visitor reception facilities in Development - Low/High Intensity Zones*	none	***Visitor Management:*** n/a ***Conservation Management:*** Frequent footpath and road maintenance must be scheduled for high impact routes. Accept some impact on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay. Visible impacts to adjacent Zones should be mitigated. Management should aim to contain all activities within the smallest possible footprint. Largely transformed habitats with lower management requirements. Usually fire exclusion areas. Prevent or restore trampling or any other management impact. 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. ***Consumptive Use:*** Sustainable use unlikely to be possible in small zone.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
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 by the public without permission from landowner.	Should have no negative impacts on the surrounding conservation area.

Protection Zones

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Species / Habitat / Cultural Protection	***Users:*** This zone's primary purpose is conservation and research. Limited tourism use only if compatible with conservation objective. ***Conservation:*** Protection of species or habitats of special conservation concern. Restrict access to prevent disturbance and/or damage.	Larger areas where uncontrolled public access is undesirable due to presence of regionally critically rare and endangered fauna, flora, habitat. Typical example would be a seabird breeding colony, particularly for threatened species.	Research. Nature observation under strictly controlled conditions only if specifically noted.	Usually none, but footpaths and tracks to allow management access may be permitted. Where visitor access is permitted, strict access control infrastructure is required to delimit access routes, and if necessary screen visitors. I.e. hides, boardwalks, screened routes, and paths with railings may be appropriate.	Public / Tourism access normally not allowed. May be permitted under very tightly controlled conditions, to be determined per site.	***Visitor Management:*** Prevent visitor access or restrict numbers of visitors and allow for no-use rest periods if required. Infrastructure layout, design and construction must be designed and maintained to highest environmental standards. ***Conservation Management:*** Feature specific – as required. Prevent any negative impacts on identified feature/s. Consider removal and/or rehabilitation of non-essential infrastructure. ***Consumptive Use:*** Not compatible.

Special Management Overlays

Special management overlays provide an indication of areas requiring special management intervention within the above zones. Overlays would typically only be applied where zoning does allow visitor or management access, but special measures are required, particularly to ensure protection of important and sensitive features or sites. Overlays should include specific indication of permitted activities, access, facilities/infrastructure and management guidelines that differ from the rest of that zone. Overlay requirements can be flexible, adapted to the requirements of the feature/s they protect.

Overlay	Overlay Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Cultural	Protection of localised identified important Cultural Feature.	Can overlap any 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 of localised identified important Biodiversity Feature	Can overlap any zone. Permanent, temporary or temporal zone to manage important and sensitive species and/or habitats. Typically only applied where visitor impacts are expected.	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 of sensitive view sheds and particularly for Wilderness Zone view sheds.	Can overlap any zone. Sensitive view sheds and particularly for areas within Wilderness Zone view sheds.	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 plant.	Can overlap any zone except Wilderness and Protection zones. Areas with identified natural resources formally assessed as not sensitive to harvesting and where an approved sustainable harvesting plan is in place.	Harvesting of identified resources.	None	Specific access dependent on feature in question.	Feature specific – as required.

Research is usually permissible in all zones, except Species/Habitat protection or Cultural Protection where it may be restricted. Research that requires 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.

Key Drivers of the Penguin (Bird) Island Nature Reserve's zonation:

Penguin (Bird) Island Nature Reserve is a small nature reserve that has historically provided roosting and breeding habitat for a number of bird species, specifically Cape Gannets (Figure 3.9). Certain ecological as well as anthropological events in the past have had a negative impact on this system. The current zonation scheme serves to meet the objectives of the island of seabird conservation balanced with low density tourism facilities. The zoning scheme also aims to mitigate for any future adverse impacts and compensate for past landuse practices. The zonation of the Penguin (Bird) Island Nature Reserve is shown in Figure 5.3.

Penguin (Bird) Island Nature Reserve: Development Low Intensity

Development – Low intensity zone on the island is tightly mapped to existing infrastructure and provides for CapeNature management activities and all tourism activities. The zone includes the servitude that runs across the island to the light house, the bird hide, environmental education centre and management office/curio shop complex. The area in the centre of the island that connects all these visitor facilities is also zone as low density development, as the level of disturbance from humans is not conducive for bird breeding or roosting area. However, no further development is anticipated or can be accommodated in this zone. Though visitors in peak season can exceed recommended numbers for this zone, on average the numbers of visitors are suited to this zoning. The impact of visitors during peak season and special events should be closely monitored for adverse impacts, specifically disturbance of breeding sea and shorebirds.

Penguin (Bird) Island Nature Reserve: Species/Habitat Protection

The remainder and majority of Penguin (Bird) Island is zoned as Species/Habitat Protection Zone. This reflects the importance of this island as a critical habitat for breeding seabirds, specifically the Cape gannet. For this reason this zone reflects the requirements to limit access and human disturbance to meet the islands objectives. Strict adherence to reserve regulations and signage will assist that the two zones on the island do not conflict.

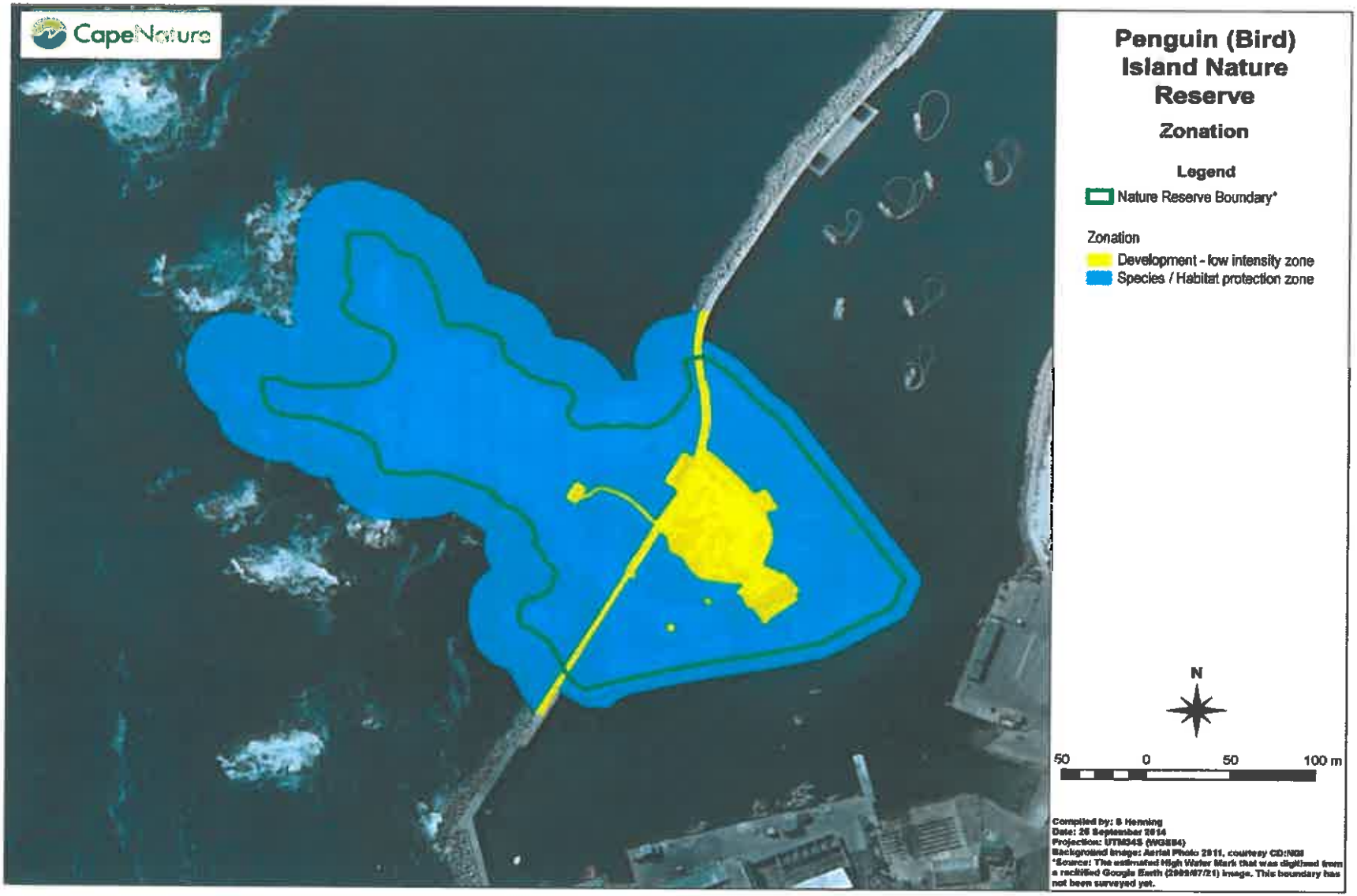

Figure 5.3 Zonation map of Penguin (Bird) Island Nature Reserve

5.3 ACCESS TO PENGUIN (BIRD) ISLAND NATURE RESERVE

The general public need to be provided with access to all protected areas. Access points must be easily accessible to relevant user groups, but controlled by protected area staff. Public access to Penguin (Bird) Island Nature Reserve is limited to the entrance gate on the harbour side of the breakwater wall (Table 5.3). Access is monitored by gate guards stationed at the entrance.

Table 5.3: Public access points to Penguin (Bird) Island Nature Reserve

No.	Locality	Name	Type of Access	Activity
1	Harbour side break-water wall	Reserve Entrance	Gated, manned	Entrance via causeway onto island

5.4 CONCEPT DEVELOPMENT PLAN

A signification portion of CapeNature's infrastructure development is driven by the organisation's Marketing and Eco-Tourism Department. CapeNature's tourism vision is:

"To establish a differentiated and leading brand of products in outdoor nature-based tourism across the Western Cape for all to enjoy"

This vision will be pursued to provide opportunities to the public and interact in the Cape Floristic Kingdom (World Heritage Site) in an environmentally responsible and sustainable manner specifically to:

- optimise income generation for biodiversity conservation;
- optimise shared growth and economic benefits, to contribute to provincial tourism strategies and transform the tourism operations within CapeNature; and
- strengthen existing and innovate new products with special attention to the provision of broader access for all people of the Western Cape.

An upgrade of management and tourism facilities at Penguin (Bird) Island Nature Reserve is scheduled for completion in March 2015. The upgrade of facilities are intended to increase the apparent value proposition for visitors to the island while creating secondary revenue streams as well as greatly increasing the effectiveness of Environmental Education efforts. Upgrades to infrastructure and the addition of several attractions add to the pre-established unique selling propositions of Penguin (Bird) Island as an eco-tourism destination. Attractions and infrastructure are positioned such that disturbance to the gannet colony is kept at an absolute minimum and providing a circular route in and out of the reserve.

Penguin (Bird) Island Nature Reserve has received funding from the Provincial Department of Economic Development and Tourism (DEDT) to upgrade and extend tourism infrastructure and Environmental Education attractions. Proposed upgrades were based on an analysis of prevailing visitors to the reserve compared to the value offered.

Figure 5.4: Aerial view of tourism development at Penguin (Bird) Island Nature Reserve

1) Current bird hide, providing observation of the gannet colony and housing interpretive media for Environmental Education;
2) New Exhibition Building, (Figure 5.4) the conversion of the previous 'Poop Deck', now houses several skeletal exhibits of relevant marine and bird life as well as interpretive media for Environmental Education;
3) New interactive displays including a life-sized Southern Right Whale replica; oversized Cormorant nest replica and marine oriented puzzles and play area;
4) New Visitor's Centre (Figure 5.5) including:
    a. New Curio Shop with branded apparel, souvenirs and memorabilia for sale;
    b. New touch pools providing interaction with typical shore and marine life;
    c. Aquaria with typical local marine life on display;
    d. New Reserve Office and storage area;
    e. New Holding Facility for the temporary housing of injured sea birds. The Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) has provided consultative input into the design, method and legislative requirements for the construction of the Penguin Holding Facility as well as the public display of sea birds.
    f. Interpretive and directional signage informs thoroughfare on pre-existing paths.

Figure 5.5: Old poop deck (left) was replaced with the exhibition building (right)

5.4.1 The Penguin Holding Facility

The Penguin Holding Facility at Penguin (Bird) Island Nature Reserve has been designed and built to assist in the fulfilment of the organisation's goals of income generation through eco-tourism products and environmental education. The housing and display of African Penguins is intended to highlight the continued threats to the survival of this species.

CapeNature's objective however is the re-establishment of a resident wild African Penguin population on the island as per the BMP-s.

Activities required in relation to the management of this facility are addressed in the Strategic Implementation Framework, Section 16.14.4 (3) of this document.

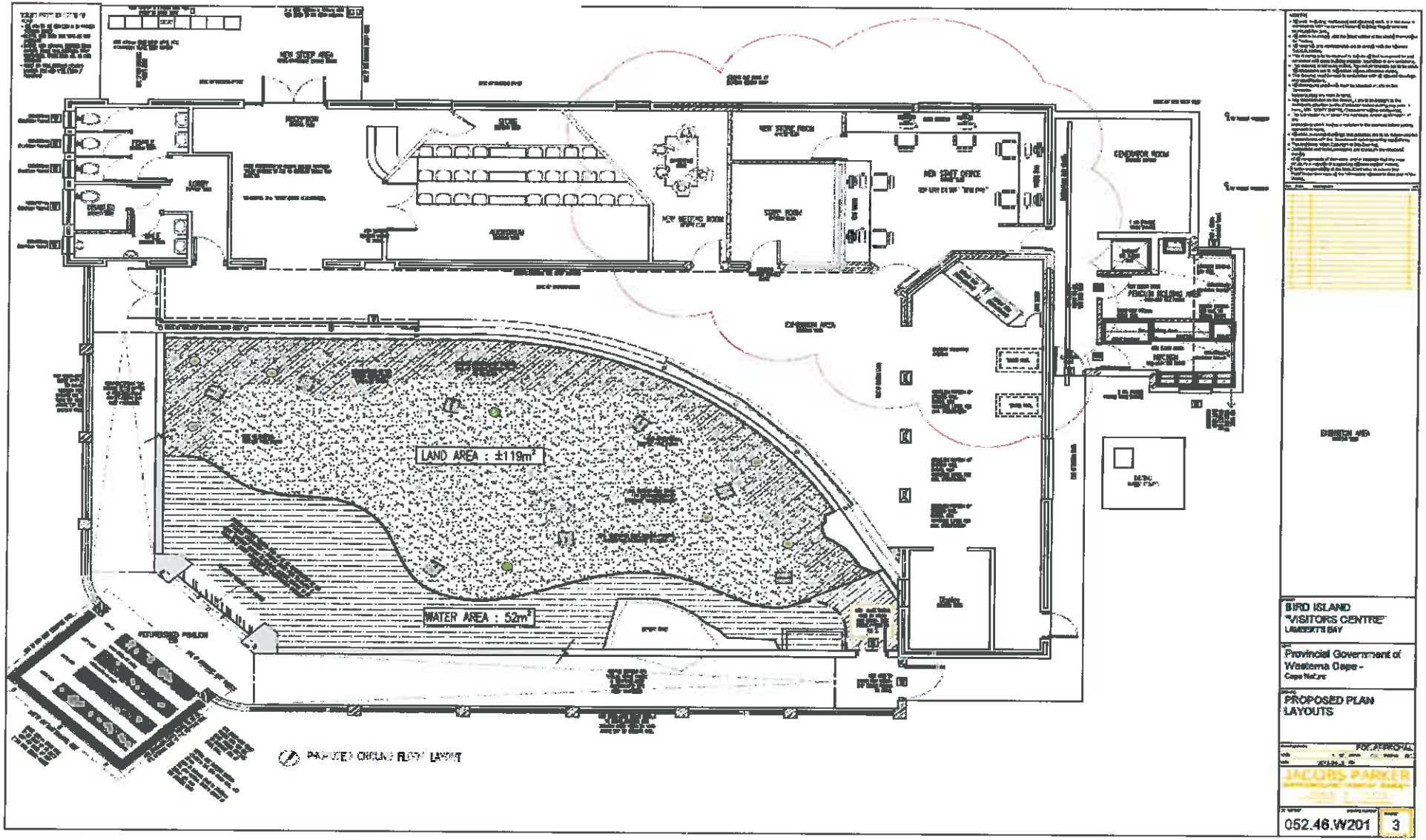

Figure 5.6: Current upgrades to the visitor centre

6. STRATEGIC IMPLEMENTATION FRAMEWORK

The Strategic Implementation Framework (SIF) guides the implementation of the management plan over five years in order to ensure that it achieves its management objectives. The SIF translates the information described in Sections 3, 4 and 5 above into management activities and targets, which will be used to inform annual plans of operation as well as the resources required to implement them. The management targets will form the basis for monitoring of performance in implementing the plan and are thus measurable.

The SIF is discussed under the following sections. The guiding principles of these sections are discussed in the Co-ordinated Policy Framework.

6.1 Legal Status and Reserve Expansion

6.2 Regional Integrated Planning and Cooperative Governance

6.3 Ecosystem and Biodiversity Management

6.4 Wildlife Management

6.5 Invasive and Non-invasive Alien Species Management

6.6 Cultural and Heritage Resources

6.7 Law Enforcement and Compliance

6.8 Infrastructure Management

6.9 Disaster Management

6.10 Socio-Economic Framework

6.11 Awareness, Youth Development and Volunteers

6.12 Management Effectiveness

6.13 Finance and Administration Management

6.14.1 Human Resources Management

6.14.2 Occupational Health and Safety Management

6.14.3 Risk Management

6.14.4 Visitor Management

6.14.5 Tourism Development Framework

	6.1 LEGAL STATUS AND RESERVE EXPANSION				
Objective 2 **Objective 4**	• **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Penguin (Bird) Island Nature Reserve has secure permanent legal conservation status in terms of NEM: PAA.	• Confirm that the protected area is listed in the National Register as required by the Act. • Investigate the option of proclaiming the reserve under NEM:PAA.	Law Admin Manager, Regional Manager, Conservation Manager, Regional Ecologist.	Penguin (Bird) Island Nature Reserve is legally secure.	Year 1-2	NEM: PAA; Deeds office; Government gazette. Western Cape Protected Area Expansion Strategy (WCPAES).
2. Penguin (Bird) Island Nature Reserve boundary is known and appropriately demarcated and secure.	• Survey the high water mark for inclusion in proclamations. • Inform all relevant stakeholders of boundary demarcation and associated zonation. • Investigate and action any disputes or conflicts regarding tenure or use rights on the reserve.	Regional Manager, Conservation Manager, Community Conservation Manager, Surveyor General		Year 1-5	CN Boundary verification process.
3. Penguin (Bird) Island Nature Reserve's design (size and shape) is adequate to achieve the conservation objectives in the Management Plan.	• Investigate the establishment of an ecological buffer zone of 500m around the eastern side of the Island in consultation with key stakeholders. • A larger initiative to look at securing the Cape gannet's off-shore food source should be investigated.	Programme Manager: Marine Protected Area (MPA), Islands & Estuaries, Conservation Manager. Oceans and Coasts		Year 1-5	

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 73 605

	6.2 REGIONAL INTEGRATED PLANNING AND COOPERATIVE GOVERNANCE				
Objective 1 **Objective 2** **Objective 3** **Objective 4**	• **To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet.** • **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
4. Penguin (Bird) Island Nature Reserve is integrated into land-use planning outside of the nature reserve.	• Inform and integrate the management objectives for the Penguin (Bird) Island Nature Reserve into the SDF's and IDP's of the West Coast District Municipality and the local Cederberg Local Municipality. • Establish and maintain an inter-governmental task team with DEA: Oceans & Coasts. • Inform and integrate the management objectives for Penguin (Bird) Island Nature Reserve into provincial conservation plan and the SANBI marine conservation plans. • Draft and implement CapeNature MOU with SANCCOB. • Draft and implement CapeNature MOU with Two Oceans Aquarium. • Represent Penguin (Bird) Island Nature Reserve on the Regional Coastal Committee.	Programme Manager: MPA, Islands & Estuaries, Regional Manager, Scientist: Ornithologist, Conservation Manager, Regional Ecologist, Ecological Co-ordinator.	The protected area is integrated into land-use planning outside of the protected area	Year 1 - Ongoing	Intergovernmental Relations Framework Act, (Act No. 13 of 2005).
5. Establish a functioning Advisory committee for the Penguin (Bird) Island Nature Reserve.	• House the secretariat of the PAAC meetings as per Terms of Reference (TOR).	Community Conservation Manager, Conservation Manager.	Advisory committee for Penguin (Bird) Island Nature Reserve has been established, is	Year 1 - Ongoing	Ref Section 10.1.3; Regulations for the proper administration of nature reserves (2012).

			functioning and effective.		
6. Set strategic objectives for Penguin (Bird) Island Nature Reserve.	• Conducted in 2013 • Regional Manager to present findings to Executive.	RMC, Scientific Services, Marketing and Eco-tourism	Objectives defined and reviewed by the PAAC.	Year 1	PAMP

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 94 422

	6.3 ECOSYSTEM AND BIODIVERSITY MANAGEMENT				
Objective 1 **Objective 2** **Objective 3** **Objective 4**	• **To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet.** • **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Compile an Ecological Plan of Operation and Ecological Matrix for Penguin (Bird) Island Nature Reserve.	• Develop and implement an approved Ecological Matrix for Penguin (Bird) Island Nature Reserve. • Compile an Ecological Plan of Operations to support the Ecological Matrix. • Collate all relevant monitoring and research protocols and data sheets to inform the Ecological Plan of Operations.	Conservation Manager, Ecological Co-ordinator.	Penguin (Bird) Island Nature Reserve will annually indicate an upward trend in Management Effectiveness Tracking Tool South Africa (METT-SA) score. 100% of actions identified in the integrated auditing system will be implemented.	Year 1 - Ongoing	Ecological Plan of Operations, Ecological Matrix
2. A biodiversity resource inventory for the Penguin (Bird) Island Nature Reserve is in place (SOB).	• Prioritisation of projects for inclusion on the Ecological Matrix. • Compile and implement the Ecological Matrix. • Collect specimens (where relevant) and submit to Scientific Services. • Conduct intertidal species diversity assessment. • Record all entanglements and stranding's of cetaceans, whales and seals (excluding Cape fur seals) and document relevant morphometric measurements.	Conservation Manager. Ecological Co-ordinator. Regional Ecologist. Scientific Services		Year 1 - Ongoing	Baseline data collection and monitoring manual (2010). Ecological Plan of Operations.
3. A monitoring programme for the Penguin (Bird) Island Nature Reserve is being implemented.	• Review monitoring protocols. • Identify monitoring needs of the reserve in consultation with Scientific Services and Oceans and Coasts. • Establish indicators for monitoring.	Conservation Manager, Nature Conservator Ecological Co-ordinator, Field Ranger, Scientific Services		Year 1 - Ongoing	Baseline data collection and monitoring manual (2010)

	6.3 ECOSYSTEM AND BIODIVERSITY MANAGEMENT				
Objective 1 **Objective 2** **Objective 3** **Objective 4**	• **To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet.** • **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
	• Implement monitoring activities as per the Ecological Matrix. • Analyse data, re-assess and implement adaptive management strategies. • Collection of climatic data on Penguin (Bird) Island Nature Reserve.	Oceans and Coasts			
4. A research programme for the Penguin (Bird) Island Nature Reserve is being implemented.	• Identify research needs for the reserve. • Develop and implement an applied research programme for the reserve in consultation with Scientific Services and relevant tertiary and research institutions. • Evaluate and comment on research permit applications. • Maintain a Research Register for Penguin (Bird) Island Nature Reserve • Results are used to adapt management of the nature reserve where relevant. • Assist with access and data collection and supervision.	Conservation Manager. Ecological Co-Ordinator. Regional Ecologist. Scientific Services		Year 1 - Ongoing	Baseline data collection and monitoring manual (2010). Ecological Plan of Operations. Ecological Matrix
5. Conservation of Threatened and Endemic Fauna	• Implement actions as identified in the Ecological Matrix. These include: • erection of cormorant breeding platforms • control of kelp gull predation of eggs • control of seal predation of fledglings • erection of screening material to minimise	Conservation Manager, Ecological Co-Ordinator, Regional Ecologist, Scientific Services.		Year 1 - Ongoing	Ecological Matrix, Ecological Plan of Operations,

	6.3 ECOSYSTEM AND BIODIVERSITY MANAGEMENT				
Objective 1 **Objective 2** **Objective 3** **Objective 4**	• **To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet.** • **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
	human disturbance • Expansion of the bird colony further east. • Engage with factories in terms of roosting and nesting sites on roofs.				
6. Manage consumptive utilisation of biological resources.	• Establish database indicating all utilised marine species and the extent of their use within the reserve.	Conservation Manager, Ecological Co-ordinator.		Year 1-Ongoing	CapeNature Policy on consumptive utilisation (2007).

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 1 368 027

	6.4 WILDLIFE MANAGEMENT				
Objective 1 **Objective 2** **Objective 4**	• **To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet.** • **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Manage damage causing/ nuisance fauna.	• Actively discourage seals from expanding the basking area. • Record seal predation. • Record kelp gull predation. • Finalise necessary MOU with Oceans and Coasts to devolve responsibility of DCA control on the island to CapeNature (gulls and seals). • Compile Damage Causing Animal Management Protocol for Seals. • Compile Damage Causing Animal Management Protocol for water mongoose. • Compile Damage Causing Animal Management Protocol for Kelp gulls. • Provide DEA: Oceans and Coasts with data on losses and culls. • Motivate for approval and support from the Wild Animal Advisory Committee (WAAC). • Motivate for adaptive management permitting by DEA: Oceans & Coasts.	Conservation Manager, Conservation Services Officer Programme Manager: MPA, Islands & Estuaries. Nature Conservator	Seals have not expanded on their basking area. Number of DCW incidents recorded.	Year 1 - Ongoing	CapeNature Wild Animal Advisory Committee (WAAC), Permits: DEA: Oceans & Coasts,

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 304 081

	6.5 INVASIVE AND NON-INVASIVE ALIEN SPECIES MANAGEMENT				
Objective 1 **Objective 2** **Objective 4**	• **To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet.** • **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
6.5.1 INVASIVE ALIEN FLORA					
1. Eradicate alien and invasive species within Penguin (Bird) Island Nature Reserve on an on-going basis.	• Identify and map all invasive flora within Penguin (Bird) Island Nature Reserve. • Eradicate alien plant species on the island.	Conservation Manager, Ecological Co-Ordinator, Regional Ecologist.	100% of identified areas cleared annually versus planned.	Year 1 - Ongoing	Management Unit Clearing Plan (MUCP), Integrated Catchment Management (ICM) procedures, Working for Water (WfW) Operating Procedures, Ecological Plan of Operation
2. Monitoring of alien vegetation on Penguin (Bird) Island Nature Reserve informs adaptive management strategies.	• Clearing method effectiveness and impact. • Implement record keeping procedures. • Evaluate records and adapt clearing strategies as needed.	Conservation Manager, Ecological Co-Ordinator, Regional Ecologist.		Year 1 - Ongoing	MUCP, ICM procedures, WfW Operating Procedures, Ecological Plan of Operation
3. Prevent the introduction of alien and invasive species from the mainland.	• Ensure all visitors to Penguin (Bird) Island Nature Reserve are aware of invasive species impact. • Identify ways in which alien and invasive species might be introduced and put measures in place to prevent infestation from occurring.	Conservation Manager, Ecological Co-Ordinator, Regional Ecologist.		Year 1 - Ongoing	MUCP, ICM procedures, WfW Operating Procedures, Ecological plan of operation
6.5.2 INVASIVE ALIEN FAUNA					
1. Prevent the introduction of alien and invasive species	• No domestic animals, livestock or feral cats will be permitted in the reserve and will be removed. • Visitors and staff not permitted to bring in any domestic animals.	Conservation Manager, Ecological Co-Ordinator, Regional Ecologist	Early detection and rapid response implemented	Year 1 - Ongoing	CN Policy on domestic animals on nature reserves, Baseline Monitoring Manual 2010.

	• Actively discourage the colonisation of *Mus musculus* • Implement monitoring with the aid of camera traps		for *Mus musculus*		

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 168 027

	6.6 CULTURAL HERITAGE RESOURCE MANAGEMENT				
Objective 2 **Objective 3** **Objective 4** **Objective 5**	• **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.** • **To provide environmental education opportunities on marine and island ecosystems, with emphasis on the cultural and historical significance of offshore islands**				
Key Deliverable	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. To protect cultural heritage resources.	• Compile a cultural heritage resource inventory for Penguin (Bird) Island Nature Reserve. • Maintain database with up to date information. • Erect adequate and appropriate signage at strategic sites. • Formalise MoU's with partners for the maintenance of historical infrastructure at Penguin (Bird) Island Nature Reserve. • Erect barriers at relevant sites. • Control asses to strategic sites.	Conservation Manager, Tourism Manager, Communication Manager.	Heritage assets and values being managed consistent to objectives	Year 1 - 2	Cultural Heritage Resource Management Plan, Specialists reports.
2. Cultural Heritage resources are managed to meet the protected area objectives.	• Compile a Cultural Heritage Resource. Management Plan for Penguin (Bird) Island Nature Reserve and determine management priorities.	Conservation Manager, Tourism Manager.		Year 1 - 2	Cultural Heritage Resource Management Plan
3. Monitor cultural heritage resources.	• Implement the Cultural Heritage Resource Management Plan.	Conservation Manager, Ecological Co-Ordinator		Year 1 - 5	Baseline & Monitoring Manual 2010
4. Management interventions for cultural heritage resources.	• Actions to minimise impact. • Actions in case of impact.	Conservation Manager.		Year 1 - 5	Specialists reports
5. Incorporate cultural heritage activities into environmental	• Include cultural heritage activities in environmental education activities	Conservation Manager. Community Conservation Nature Conservator		Year 1 - 5	Environmental Education Reserve Plan

education					

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 368 027

	6.7 LAW ENFORCEMENT AND COMPLIANCE				
Objective 1 **Objective 2** **Objective 3** **Objective 4**	• **To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet** • **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Law enforcement for Penguin (Bird) Island Nature Reserve is effective.	• All staff must have a working knowledge of all legislation applicable to their function and mandate. • Penguin (Bird) Island Nature Reserve staff is adequately capacitated to enforce legislation within the organisation's mandate and does so effectively. • Staff must be formally designated to enforce the relevant legislation. • Appropriate staff has been designated as environmental management inspectors. • Staff has the necessary equipment to enable them to do law enforcement effectively. • The nature reserve receives adequate law enforcement support from other sections of the organisation. • Specific relevant training has been identified and staff have received relevant training. • Local policing forum meetings are attended in priority areas in order to build partnerships with local law enforcement.	Conservation Manager, Conservation Services Manager, Community Conservation Manager, Regional Manager, Programme Manager: Biodiversity Crime Unit (BCU)	Number of peace officers trained and appointed. Number of Environmental Management Inspectors (EMIs) trained and appointed. Number of sea fisheries officers trained and appointed.	Year 1-5	Criminal Procedure Act 51 of 1977; Bill of Rights; Constitution Conservation Services Management Plan; Human Resource Policies, MOU with DEA: Oceans & Coast; Biodiversity Crime Unit Management Plan.
2. Protection systems are in place and operating effectively.	• Set up and implement combined compliance operations (CapeNature Biodiversity Crime Unit, Department of Agriculture Forestry and Fisheries (DAFF). • Control legitimate access by enforcing regulations, policies and standard operating procedures.	Regional Manager, Conservation Manager, Programme Manager: MPA, Islands & Estuaries, Programme Manager: BCU, Conservation Services		Year 1-5	Conservation Services Management Plan; Human Resource Policies, MOU with DEA: Oceans & Coast; Procurement Policies;

	• Develop standard operating procedures to control activities within the nature reserve for relevant aspects of management. • Implement all standard operating procedures for controlling activities. • Engage with the fishing community to promote the reserve, to build relationships and to identify priority areas. • Host/hold awareness raising activities with the local community in order to raise awareness concerning reserve and biodiversity conservation. • Identify and prioritise areas in the nature reserve in terms of conservation value or type of utilisation. • Regular routine patrols are performed in all identified priority areas. • Ensure all compliance documentation is properly completed and retained as Means of Verification.	Manager, Community Conservation Manager			Biodiversity Crime Unit Management Plan.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 173 605

	6.8 INFRASTRUCTURE MANAGEMENT				
Objective 2 **Objective 3** **Objective 4**	• **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Ensure maintenance of infrastructure and equipment.	• Map all infrastructure and compile infrastructure register and maintenance schedule. • The infrastructure necessary to manage the nature reserve effectively is in place, User Asset Management Plan (U-AMP). • Assess if staff facilities are adequate to perform critical management activities. • Ensure that there is adequate operational equipment as required for operational management purposes. • Maintenance of Infrastructure as scheduled in registers to ensure upkeep and prevent degradation in accordance with standard operating procedures. • Equipment is maintained in good working condition. • Liaise with Public Works where required. • Immediately affect all minor emergency repairs. • Ensure footpaths are properly laid out • Ensure adequate signage for demarcated footpaths.	Conservation Manager, Geographical Information System (GIS) technician, Department Public Works, Regional Manager.	Implement infrastructure register.	Year 1 - Ongoing	Infrastructure register, Standard Operating Procedures, ICM document, Department Public Works maintenance schedule.
2. Align all infrastructure to the conservation development framework and zonation.	• Assess infrastructure development appropriateness to the CDF. • Compile a re-alignment plan. • Implement the re-alignment plan.	Conservation Manager, Conservation Planner, Regional Manager, Tourism Manager, Regional Ecologist, Ecological Co-Ordinator.	Approved re-alignment plan.	Year 1 - Ongoing	CDF, EIA Regulations.
3. Buildings are effectively	• Implement maintenance schedule.	Conservation Manager, Department of Public Works,	Infrastructure maintenance	Year 1 - Ongoing	Infrastructure register, Department Public

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
maintained.	• Provide Department of Public Works with works list to reflect maintenance requirements. • Maintenance or new infrastructure is appropriately planned (Environmental Management Plan (EMP), approved by the Quarterly Ecological Meeting (QEM) and if required the Appropriate Environmental Impact Assessment (EIA) completed.	Tourism Manager.	schedule.		Works maintenance schedule.
4. Environmental Management: Waste Disposal	• Maintenance of storage bins as scheduled in registers to ensure upkeep and prevent pollution.	Conservation Manager, Tourism Manager.	Infrastructure maintenance schedule.	Year 1 - Ongoing	Infrastructure register.
5. Environmental Management: Water	• Maintenance of water reticulation as scheduled in registers to ensure upkeep and prevent degradation. • Schedule regular inspections. • Ensure environmentally sound options are being implemented by Department of Public Works by introducing water saving technologies in old and new infrastructure (Green Building principals).	Conservation Manager, Tourism Manager.	Infrastructure maintenance schedule.	Year 1 - Ongoing	Infrastructure register.
6. Environmental Management: Sewage	• Install effective environmentally friendly sewage facilities in collaboration with Department of Public Works.	Department of Public Works	Infrastructure maintenance schedule.	Year 1 - Ongoing	Infrastructure register.
7. Environmental Management: Energy	• Ensure environmentally sound options are being implemented by Department of Public Works by introducing energy saving and renewable technologies in old and new infrastructure (Green Building principals).	Department of Public Works	Infrastructure maintenance schedule.	Year 1 - Ongoing	Infrastructure register.
8. Signage is appropriate and effective to support management.	• Conduct a signage audit. • Compile a signage register with maintenance plan. • Entrance gate • Direction to buildings • Replace dated interpretation signage	Conservation Manager, Tourism Manager	Audit report and completed register.	Year 1 - Ongoing	Infrastructure register.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 147 211

	6.9 DISASTER MANAGEMENT				
Objective 1 **Objective 2** **Objective 3** **Objective 4**	• **To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet.** • **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Disaster prevention and preparedness	• Conduct a risk assessment and identify areas of potential concern. • Compile and implement disaster management plan for Penguin (Bird) Island Nature Reserve in accordance with relevant legislation. • Engage with disaster management units from municipalities. • Conduct an annual audit of disaster management plans and mitigation measure readiness. • Annual review and exercise of contingency and evacuation plans. • Train staff and Non-Governmental Organisations to ensure capacity to manage and mitigate the effects of disasters, .e.g., oil spill mop ups • Procure equipment for disaster response and mitigation. • Participate and assist district municipality disaster management structure. • Activate evacuation and contingency plans.	Conservation Manager, RMC Directorate: Marketing and Eco-tourism Chief Risk Officer, HR Manager OHS Manager	Approved Contingency Plans	Year 1 - Ongoing	H&S Policy, Provincial Disaster Plan.
2. Disaster response.	• All disasters are responded to in a timely, effective and appropriate manner with minimum damage to biodiversity. • Implement an incident management system including roles and responsibilities of all functions and an effective communication strategy, to	Conservation Manager, RMC Chief Risk Officer, OHS Manager		Year 1 – Ongoing	H&S Policy, Provincial Disaster Plan.

	ensure that all agencies work in a coordinated and effective manner during disaster response. • Implement standard operating procedures and other response planning tools. • Establish a disaster recovery strategy • Investigate protocol to leverage additional funding for extended disaster management operations. • Investigate protocols to recoup operational costs from transgressor	Conservation Manager, Chief Risk Officer		Year 1 - ongoing	Provincial Disaster Plan.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 173 605

	6.10 SOCIO-ECONOMIC FRAMEWORK				
Objective 2 **Objective 3** **Objective 4** **Objective 5**	• **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.** • **To provide environmental education opportunities on marine and island ecosystems, with emphasis on the cultural and historical significance of offshore islands.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Create access to the conservation economy through the implementation and management of appropriate initiatives and projects.	• Create jobs through a range of EPWP projects.	Conservation Manager, Community Conservation Manager, Regional Manager, Tourism Manager,	Number of EPWP job opportunities (n). Number of EPWP full time equivalents (n). Number of people directly benefitting from Sustainable Livelihood Programmes (n) Number of person days employment created (n).	Year 1 - Ongoing	ICM Procedures, Public Finance Management Act (PFMA)
2. Penguin (Bird) Island Nature Reserve provides community development opportunities through various capacity building interventions, linked to job creation opportunities.	• Assist with training and capacity building initiatives for EPWP staff.	Conservation Manager, Community Conservation Manager		Year 1 - Ongoing	People and Parks Action Plan, CapeNature Communications Policy, The Development of Educational Resources (Corporate Strategic Plan), Youth Development & Environmental Education Programme Strategic Plan.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 368 027

	6.11 AWARENESS, YOUTH DEVELOPMENT AND VOLUNTEERS				
Objective 2 **Objective 3** **Objective 4** **Objective 5**	• **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.** • **To provide environmental education opportunities on marine and island ecosystems, with emphasis on the cultural and historical significance of offshore islands.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Ensure awareness raising initiatives elevate awareness around conservation issues in Penguin (Bird) Island Nature Reserve.	• Disseminate information and material for Environmental Awareness calendar days. • Collaborate with partners to arrange events on Environmental Awareness events and scheduled school activities. • Liaise with Communication Department to facilitate the production of media releases. • Present talks, presentations when requested. • Assist with the development and implementation of an awareness plan linked to the objectives of Penguin (Bird) Island Nature Reserve.	Conservation Manager, Community Conservation Manager, Conservation Services Manager.	Number of learners provided with environmental education opportunities (n).	Year1 - Ongoing	People and Parks Action Plan, CapeNature Communications Policy, The Development of Educational Resources (Corporate Strategic Plan), Youth Development & Environmental Education Programme Strategic Plan.
2. To provide environmental education opportunities on marine and island ecosystems, with emphasis on the cultural and historical significance of offshore islands	• Provide access for Formal and Informal EE programmes as per pre-arranged agreements. • Assist with formal and Informal EE programmes conducted in Penguin (Bird) Island Nature Reserve. • Assist with the development and implementation of an environmental education plan linked to the objectives of Penguin (Bird) Island Nature Reserve. • Develop EE material that will specifically focus on off shore island history and Marine week	Conservation Manager, Community Conservation Manager, Conservation Services Manager.		Year1 - Ongoing	People and Parks Action Plan, CapeNature Communications Policy, The Development of Educational Resources (Corporate Strategic Plan), Youth Development & Environmental Education Programme Strategic Plan.
3. Source Volunteers	• Investigate opportunities to engage with volunteers in a range of projects.	Conservation Manager, Community Conservation	Number of volunteer	Year1 - Ongoing	Volunteer Policy

actively assist with operational activities		Manager, Conservation Services Manager.	hours worked (n).		

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 147 211

	6.12 MANAGEMENT EFFECTIVENESS
Objective 2 **Objective 3** **Objective 4**	• **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing
1. Implement and maintain the METT-SA	• Conduct annual METT-SA assessments. • Monitor and improve METT-SA Score through the development of action plans and implementation thereof. • Report to DEA as per requirement for national evaluation of METT-SA scores.	Conservation Manager, Regional Ecologist, Protected Areas Manager.	Penguin (Bird) Island Nature Reserve will annually indicate an upward trend in METT-SA score.	Year1 - Ongoing	Standard Operation Procedures.
2. Auditing systems inform management.	• Conduct CapeNature integrated auditing system. • Compile actions lists to address audit issues. • Track action list for progress. • Apply adaptive management strategies.	Programme Manager: ICM Protected Areas Manager, Regional Ecologist, Regional Manager.		Year1 - Ongoing	Integrated Audit
3. A detailed work plan (APO) identifying specific targets for achieving management objectives	• Assess and prioritise actions from audit results into APO. • Compile APO in terms of actions identified in the Management Plan.	Conservation Manager, Regional Manager,		Year1 - Ongoing	APO guideline document.
4. Progress reports are compiled.	• Compile quarterly BMS progress reports. • Progress reports as required for EPWP.	Conservation Manager		Year1 - Ongoing	BMS, EPWP reporting system.
5. Implement and review the Management Plan for Penguin (Bird) Island Nature Reserve.	• Assess all PAMP audit results and ensure adaptive management strategies are implemented. • Annual assessment on progress of PAMP actions. • Compile annual report on the status of implementation of the PAMP and submit to the Member of Executive Council (MEC)	Reserve Management Committee		Year1 - Ongoing	PAMP document, Standard Operating Procedures.

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing
	• Complete review of PAMP.				

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 73,605

	6.13 FINANCE AND ADMINISTRATION MANAGEMENT				
Objective 2	• **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. To ensure financial accountability in terms of the PFMA and the Treasury Regulations.	• Participate in an annual internal audit of the nature reserve financial records. • External audit report with findings and recommendations communicated. • Provide relevant financial information to reserve management. • An operational budget is allocated to fund the critical management needs of the nature reserve. • Manage cash flow • Implement Supply Chain Management • Provide input to relevant SCM reports. • Financial management practice enables efficient and effective protected area management. • Monthly management reports submitted to reserve management. • Acknowledgement of report by Conservation Manager. • Variance report signed and returned. • Reserve Management provide input to monthly cash flow forecast. • Signed and approved budget provided by 1 April.	Finance and Admin Manager, Finance Manager, Finance and Admin Officer, Conservation Manager	Percentage increase shown on revenue as a result of additional funding sourced. Annual increase in visitor numbers.	Ongoing	Budgeting process; APO. SAP system; Supply Chain Management Act. Statements of Generally Recognised Accounting Practices .
2. Identify opportunities that are robust to create a diverse income base.	• Identify sources of potential income. • Maintain new and existing partnerships with external funders / stakeholders.	Conservation Manager, Executive Director: Business Development, Foundation Manager		Annually	National Treasury Regulations with regard to Donations, Sponsorships.
3. Fixed Asset	• To manage the assets of the reserve in accordance	Finance and Admin		Bi-annually	Standard Operating

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
Management	with the relevant legislation. • To ensure that all reserve assets are bar coded. • To ensure that all reserve assets are verified bi-annually. • To provide input into infrastructure asset management plan annually. • Fixed Asset Register is approved by the Conservation Manager. • Verification Report is approved by the Conservation Manager. • Disposal of assets in line with policies. • GIAMA requirement is met annually. • Trip authorisation forms in place. • To manage CapeNature and Government Motor Transport assets in accordance with policy.	Manager, Finance and Admin Officer, Conservation Manager		/ monthly	Procedures (SOPs) and policies. Statement of GRAP, UAMP guidelines.
4. Capacity building among staff.	• Provide relevant financial and Administrative training to reserve staff.	Conservation Manager, Finance and Admin Manager		Annually	SOPs and policies PFMA

Budget Allocation	Development	
	Operation (5Year Forecast)	R 73 605

	6.14.1 HUMAN RESOURCE MANAGEMENT				
Objective 2	◦ **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation policies and procedures.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Ensure an adequately resourced staff complement on the reserve.	• Ensure current posts are filled and appointment of additional staff (subject to funding). • Ensure resourced (tools and skills) staff in line with approved budget to manage the nature reserve effectively (subject to funding). • Prioritise all critical posts for filling and develop a phased implementation plan in line with approved personnel budget. • Ensure on-going assessment of workloads (Employment relationship is in line with employment contract commitments. • Implement an Employment Well-being Programme	Conservation Manager, Regional Manager, Executive Director: Conservation Management. Executive Directors: Conservation Management and Human Resource Manager (HRM)	Human resource capacity is adequate to manage the protected area effectively subject to funding	Ongoing	Recruitment and Selection Policy; Standard Operating Procedures for Recruitment and Selection SA Constitution Labour Relations Act Basic Conditions of Employment Act Employment Equity Act Occupational Health & Safety Act Overtime Policy
2. Integrate and align organisational and employee performance.	• Implement effective Performance Management System in place. • Ensure compliance with Code of Conduct.	Conservation Manager, Regional Manager, Executive Directors: Conservation Management, HRM, Chief Executive Officer	Performance agreements and appraisals completed and signed for all employees. .	Annually	Performance Management Handbook Annual Plan of Operations Rewards Foundation Policy Disciplinary Code and Procedures (Managing poor performance)
3. Skilled employees on the reserve	• All staff are skilled to perform according to job specification in the roles they occupy in line with mandatory legislative requirements. • Develop personal development plan for all staff on the reserve. • Roll out of personal development plan for all staff on the reserve. • Reflect capacity development interventions which	Conservation manager, Regional Manager, HR and Employment Equity and Training Committees	Develop personal development plan for all staff on the reserve. Mentorship	Annually	Individual Personal Development Plans Mentorship strategy and toolbox Skills Development Act Training Policy Bursary Policy Internship Policy

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
	are supported by mentorship and coaching agreements.		and coaching agreements.		

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 1 840 135

	6.14.2 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT				
Objective 2	• **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. To implement policies, procedures and systems to ensure compliance to the Occupational Health and Safety Act. (OS4909H Act).	• Implement Occupational Health and Safety System. • Conduct monthly Health and Safety inspections. • Conduct monthly Health and Safety meetings.	Regional Manager. Conservation Manager. Occupational Health and Safety Manager.	No disabling injuries occur.	Year 1-5	OHS Act, Internal Health and Safety System
2. To inform the workers, contractors, volunteers, students and the public of these dangers.	• Attend Accredited OHS Training: Hazard Identification and Risk Assessment (HIRA) • Attend Accredited OHS Training to renew certificates (OHS Reps & First Aid Officers). • Attend in-house OHS Training Workshops. • Conduct monthly Toolbox Talks. •	Protected Areas Manager, Conservation Manager, OHS Reps, All Operators, First Aid Officers; OHS Officer, OHS Manager		Year 1 ongoing	OHS Training Needs Analysis (conducted annually and aligned with available legislative requirements and available resources)
3. Hazard Identification, Risk Assessment and Risk Management and Risk Control are implemented	• Conduct regular HIRA processes to determine key risks with highest impact potential. • Recommend remedial action plans to address key risks. • Follow-up to ensure effective implementation.	Regional Manager, Conservation Manager, OHS Manager		Year 1 ongoing	HIRA Report, Safe Operating Procedure
4. Monitor and review to ensure adaptive management strategies are	• Assist in conducting of internal Audit Process to determine effectiveness and level of compliance of implementation of OHS Management Control System.	Conservation Manager, OHSA Officer, OHSA Manager		Year 1	Worksite Audit Report

applied to improve health and safety					

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 368 027

	6.14.3 RISK MANAGEMENT				
Objective 2	• To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Ensure effective and integrated risk management wit hin a framework of sound corporate governance.	• Documenting of business processes. • On site risk identification and analysis. • On site identification of controls/ mitigations. • Monitoring of risks.	Regional Manager. Conservation Manager. OHS Manager, Chief Risk Officer.	Risks in the Risk Register mitigated in a cost effective manner and to an acceptable level.	Ongoing	PFMA Section 38. Risk Management Policy and Strategy.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 147 211

	6.14.4 VISITOR MANAGEMENT AND SERVICES				
Objective 2 **Objective 3** **Objective 4**	• **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. To plan for and manage visitor facilities.	• Monitor and manage visitor numbers and their environmental impact. • Plan for and develop visitor facilities within CDF and local area plans. • Monitor visitor numbers. • Survey visitor opinions. • Ensure tourism facilities are accessible for disabled persons. (where possible)	Tourism Manager. Conservation Manager. Marketing & Eco-tourism	Annual increase in visitor numbers. Annual increase in tourism income.	Ongoing	Conservation Development Framework. Strategic Development Plan.
2. To strive to ensure visitor safety.	• Establish collaborative relationships with policing authorities. • Implement appropriate gate control to ensure safety and compliance. • Liaise with local authorities and stakeholders on security issues.	Tourism Manager. Conservation Manager.		Ongoing	Strategic Development Plan.
3. To promote and manage access to the Reserve.	• Provide access to all visitors. • Set management guidelines for different use zones. • Implement the Wild Card system and provide discounted rates to specific user groups. • Monitor pay access points and control access where required. • Identify areas requiring special management strategies and protection from visitor use. • Facilitate access for disadvantaged groups on request. • Manage MoU with service providers for the issuing of CapeNature access permits.	Tourism Manager. Conservation Manager. Marketing Manager		Ongoing	Strategic Development Plan. PMFA.

Budget Allocation	**Development**	R 2 104 768
	Operation (5 Year Forecast)	R 1 104 081

	6.14.5 TOURISM DEVELOPMENT FRAMEWORK				
Objective 1 **Objective 2** **Objective 3** **Objective 4**	• **To ensure biodiversity conservation management through monitoring and research, with emphasis on the Cape gannet.** • **To achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.** • **To promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast region.** • **To establish and maintain partnerships, which support the conservation of Penguin (Bird) Island Nature Reserve.**				
Action plans	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. To provide nature and cultural tourism and recreational opportunities within the Penguin (Bird) Island Nature Reserve without affecting the ecological processes negatively.	• Prioritise different types of tourism development within Penguin (Bird) Island Nature Reserve according to the CDF. • Implement Strategic Development Plan. • Conduct infrastructure and visitor monitoring to inform mitigation where necessary.	Tourism Manager. Conservation Manager. Community Conservation Manager.	Concession of selected tourism opportunities Standards are set in specified and approved schedules (including hospitality standards based on those by the South African Grading Council). Development priorities in place and implemented in the correct Zones within the Reserve	Ongoing	Conservation Development Framework. Strategic Development Plan.
2. Promote Community-Based Tourism and SMME initiatives in and around the Penguin (Bird) Island Nature Reserve.	• Investigate possibilities for private / community sector involvement in the planning, design, financing and / or running of community based tourist facilities.	Tourism Manager. Conservation Manager. Community Conservation Manager.	Successful operation (stable tourist flow and financial success) of Small Medium and Macro Enterprises	Year 1-5	Conservation Development Framework. Strategic Development Plan.

			SMMEs		
3. Effective management of the Penguin Holding Facility	• Write a management plan for captive keeping facility according to internal CapeNature guidelines and submit to DEA. • Draft and implement an MOU with SANCCOB and Two Oceans aquarium related to the management of Seabirds and the Facility. • Apply for all regulatory permits required for the facility. • Develop and implement a monitoring and evaluation system for the all financial, visitor numbers and management aspects of Penguin Holding Facility. • Establish a steering committee for the management of the Penguin Holding Facility which includes relevant internal and external stakeholders.	Regional Manager Conservation Manager Tourism Manager Regional Ecologist Ornithologist Ecological co-ordinator		Year 1-5	CapeNature Guidelines for Management Plans of Captive Breeding Facilities.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 368 027

PART 2

ELANDS BAY STATE FOREST

PROTECTED AREA MANAGEMENT PLAN

2015-2020

2. THE STRATEGIC MANAGEMENT FRAMEWORK OF ELANDS BAY STATE FOREST

The strategic management framework is aimed at providing the basis for the protection, development and operation of the protected area over a five year period. It consists of the vision, purpose, values and objectives of Elands Bay State Forest reserve and summarises its opportunities, challenges, and threats.

A planning session, facilitated by the Regional Ecologist and guided by the Conservation Manager, defined the vision and purpose of the protected area. This umbrella statement indicates the management intent of the Elands Bay State Forest which in turn defines the management objectives. The management objectives were evaluated using the *Procedure for Defining Conservation Management Objectives and Goals* (Coombes & Mentis 1992) and categorised into objectives, action plans and tasks. The management objectives were prioritised through a pairwise comparison process and the results were used to populate the SIF (see Section 6). Actions plans were associated with objectives, and tasks (activities) were identified within each action plan.

2.1 THE VISION OF ELANDS BAY STATE FOREST

The vision describes the overall long-term goal for the operation, protection and development of Elands Bay State Forest:

To utilise the Elands Bay State Forest's strategic position to contribute towards biodiversity conservation within the greater Sandveld.

2.2 THE PURPOSE OF ELANDS BAY STATE FOREST

The purpose is the foundation on which all future actions are based and is in line with the overall management philosophy of the organisation.

According to Section 17 of NEM:PAA, the purpose of declaring an area as a protected area are: to protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected areas;

a) to preserve the ecological integrity of those areas;
b) to conserve biodiversity in those areas;
c) to protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;
d) to protect South Africa's threatened or rare species;
e) to protect an area which is vulnerable or ecologically sensitive;
f) to assist in ensuring the sustained supply of environmental goods and services;
g) to provide for the sustainable use of natural and biological resources;
h) to create or augment destinations for nature-based tourism;
j) to manage the interrelationship between natural environmental biodiversity, human settlement and economic development;

k) generally, to contribute to human, social, cultural, spiritual and economic development; or

l) to rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.

The Elands Bay State Forest was declared for all purposes listed in the Act and its specific purpose is:

To serve as a coastal link within the Sandveld Core Corridor, as part of the Greater Cederberg Biodiversity Corridor.

2.3 THE VALUES OF ELANDS BAY STATE FOREST

Values are those characteristics that deem the protected area unique in terms of its ecological, cultural and social aspects. The values of Elands Bay State Forest include:

Natural values	Unique west coast dune habitat.
Ecosystem service values	Active dune system with all its associated processes
Social values	Elands Bay town receives some of its water from the dune system, with three production boreholes located in the Graauwe Fuynen well field and three production boreholes located in the Waaihoek well field
Eco-tourism values	Un-tapped resource with good potential for its close proximity to Verlorenvlei birding area.

2.4 THE OBJECTIVES OF ELANDS BAY STATE FOREST

The objectives were derived from the vision and purpose and represent Key Performance Areas (KPA) in which achievement must be obtained in order to support the management intention. Objectives, which are not measurable or testable, are then prioritised through the development of action plans and translated into strategic outcomes which are set out in the SIF.

The prioritised objectives for Elands Bay State Forest are:

Objective 1: To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor.

Objective 2: To conserve a unique West Coast dune habitat.

2.5 SUMMARY OF MANAGEMENT STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS OF ELANDS BAY STATE FOREST

A SWOT analysis is a strategic planning method used to evaluate the relevant strengths, weaknesses, opportunities, and threats. It involves specifying the objectives and identifying the internal and external factors that are favourable and adverse to achieving that objective. The analysis identifies the Elands Bay State Forest following strengths, weaknesses, opportunities and threats:

Table 2.1: Management strengths, weaknesses, opportunities and threats Elands Bay State Forest

Strengths	Objective 1	Objective 2
The strategic position of the reserve to promote directly and indirectly to landscape conservation	✓	
Availability of infrastructure on the reserve	✓	
Reserve boundaries are known	✓	✓
The strategic position of the reserve to promote directly and indirectly to landscape conservation	✓	
Availability of infrastructure on the reserve	✓	
Weaknesses		
Lack of infrastructure maintenance	✓	
Lack of permanent staff located in the reserve	✓	✓
Questionable biodiversity value		✓
Lack of alien plant control		✓
Lack of operational budget	✓	✓
Opportunities		
Alien plant clearing job creation opportunity		✓
Proximity to Verlorenvlei and position to contribute to stewardship conservation	✓	
Protected area expansion opportunities towards the west and north	✓	✓
Unique tourism locality and opportunity currently unexploited	✓	
Sustainable natural resource collection opportunity	✓	✓
Unique dune habitat		✓
Threats		
Increased alien plant infestation	✓	✓
Uncontrolled access to the reserve leading to problems such as vandalism, uncontrolled grazing and wood collection		✓
Prospecting and mining applications for high mineral sands	✓	✓

3. DESCRIPTION AND CONTEXT OF ELANDS BAY STATE FOREST

3.1 LOCATION AND EXTENT OF ELANDS BAY STATE FOREST

Elands Bay State Forest is located on the west coast of South Africa, approximately 180 km north of Cape Town. The reserve covers an area of 617 ha. Elands Bay State Forest is situated between latitudes 34º 06' S and 32º 44' S and longitudes 32º 09' E and 32º 29'. The reserve lies approximately 3 km east of the town of Elands Bay and can be accessed via the R27 that runs along the west coast from Cape Town. Notable conservation areas situated in the proximity of Elands Bay State Forest are Penguin (Bird) Island Nature Reserve to the north; Rocherpan Nature Reserve to the south and Verlorenvlei situated in Elands Bay (Figure 3.1). The proclamation of Verlorenvlei as a provincial nature reserve is in process. The three land parcels comprising the Elands Bay State Forest is listed in Table 3.1.

Table 3.1: Land parcels constituting the Elands Bay State Forest

Reserve component	Farm name and number	Title deed number	Conservation status
Elands Bay State Forest	Portion 6 of the farm Graauwe Duynen No. 231, Clanwilliam	T1415/1964	State Forest
Elands Bay State Forest	Portion 1 of the farm Bonteheuvel No.23, Clanwilliam	T28897/1965	State Forest
Elands Bay State Forest	Portion 1 of the farm Bonteheuvel No.28, Clanwilliam	T16004/1973	State Forest

3.2 HISTORY OF ELANDS BAY STATE FOREST

In the early 18th century, farms in the Verlorenvlei area were handed over to settlers on loan for grazing of the cattle. In return the Dutch East India Company required 10 percent of the farm's annual grain production. The farm, Klaarfontein was one of the first loan farms handed over in 1717.

Elands Bay town started drawing more people in the early 20th century and resulted in a school and church being built. Expansion of the town was imminent once the crayfish industry was established in 1946.

Elands Bay State Forest was managed by Forestry and subsequently was brought over to Cape Nature Conservation. The area is currently managed by CapeNature, though management input into the area is minimal. The area was expropriated some years ago by Forestry as there was a fear for sand movement on the dunes associated with wind. Alien plant species such as, *Acacia cyclops* which dominates large portions of this property, *Acacia saligna* and *Eucaluptus* sp, were probably introduced as part of the reclamation work. Much of the reserve is made up by large sections of white mobile coastal dunes.

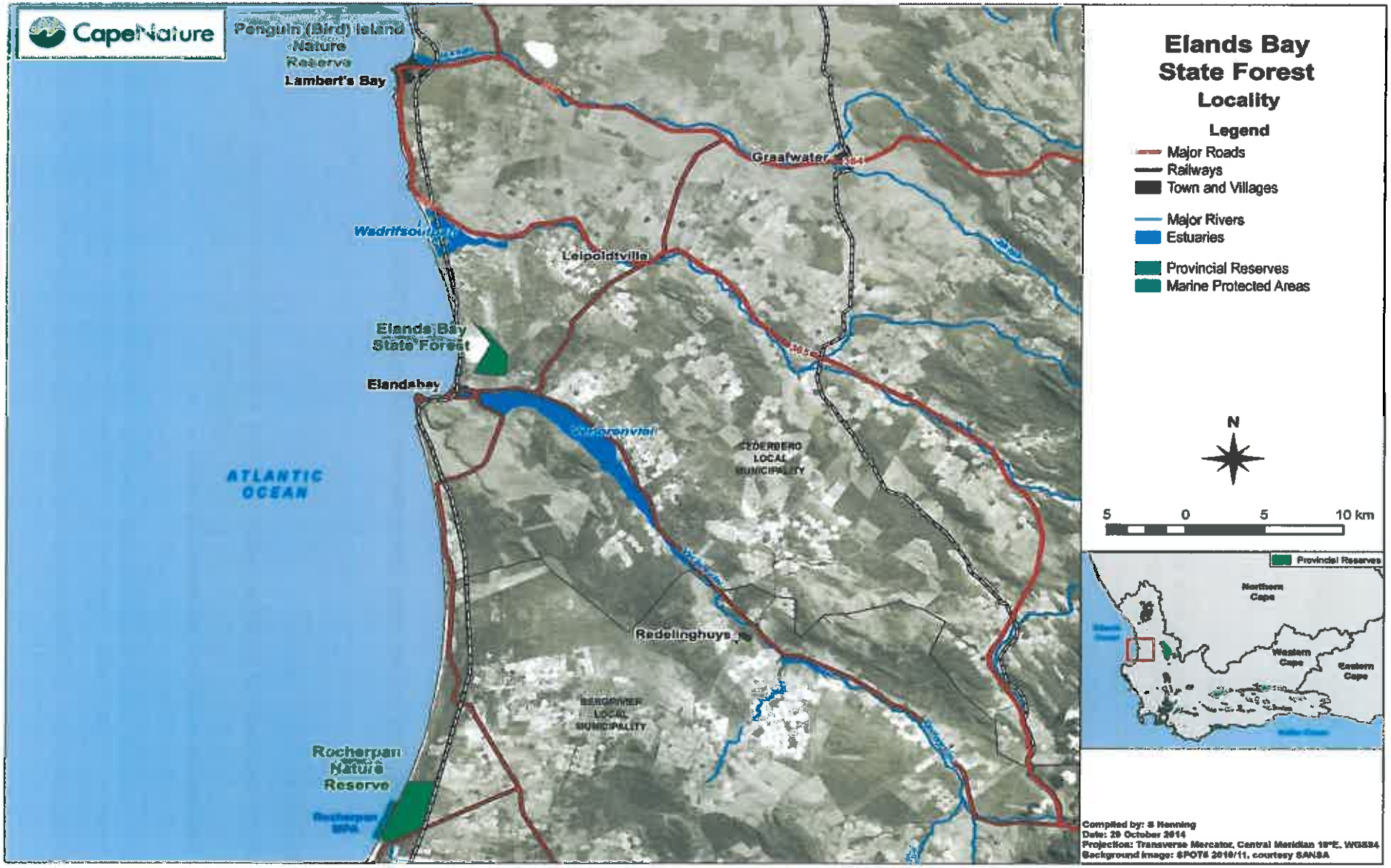

Figure 3.1: Location and extent of Elands Bay State Forest

3.3 ECOLOGICAL CONTEXT OF ELANDS BAY STATE FOREST

This section reflects the ecological conditions of Elands Bay State Forest

3.3.1 Climate and weather

No official temperature and rainfall data is available for Elands Bay State Forest and data was obtained from the Nortier research farm situated 35 km north of the reserve. The area experiences warm dry summers with relatively cool, wet winters. The mean annual rainfall is 133 mm, with June to August being the wettest consecutive three months period. Mist is common, and may occur throughout the year, but predominantly during the winter. The warmest monthly temperatures occur from January until March with February on average the hottest month and June on average the coldest. The prevailing wind direction in winter is the north-westerly, whilst in summer it is the southerly and south-easterly winds.

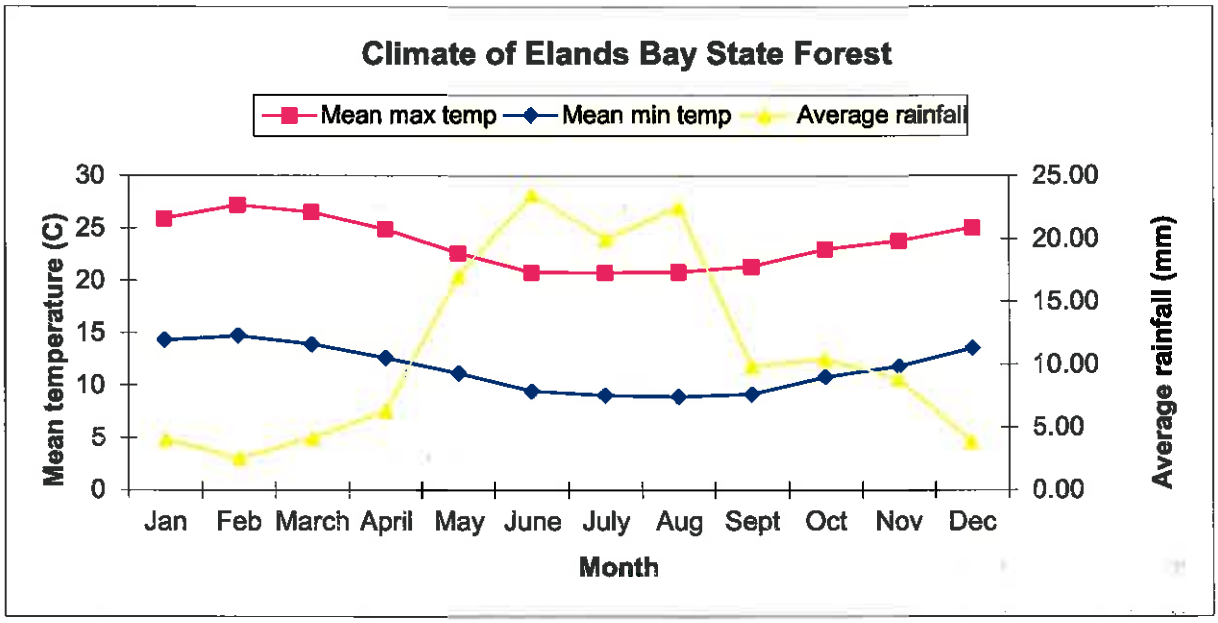

Figure 3.2 Climate of Elands Bay State Forest (Nortier: 1998 - 2014)

3.3.2 Topography

Much of the reserve is made up of white mobile sand that was blown in from the coast. The more established dunes on the reserve forms a rolling topography (Figure 3.3). The highest elevation on the reserve is 120 meters above sea level.

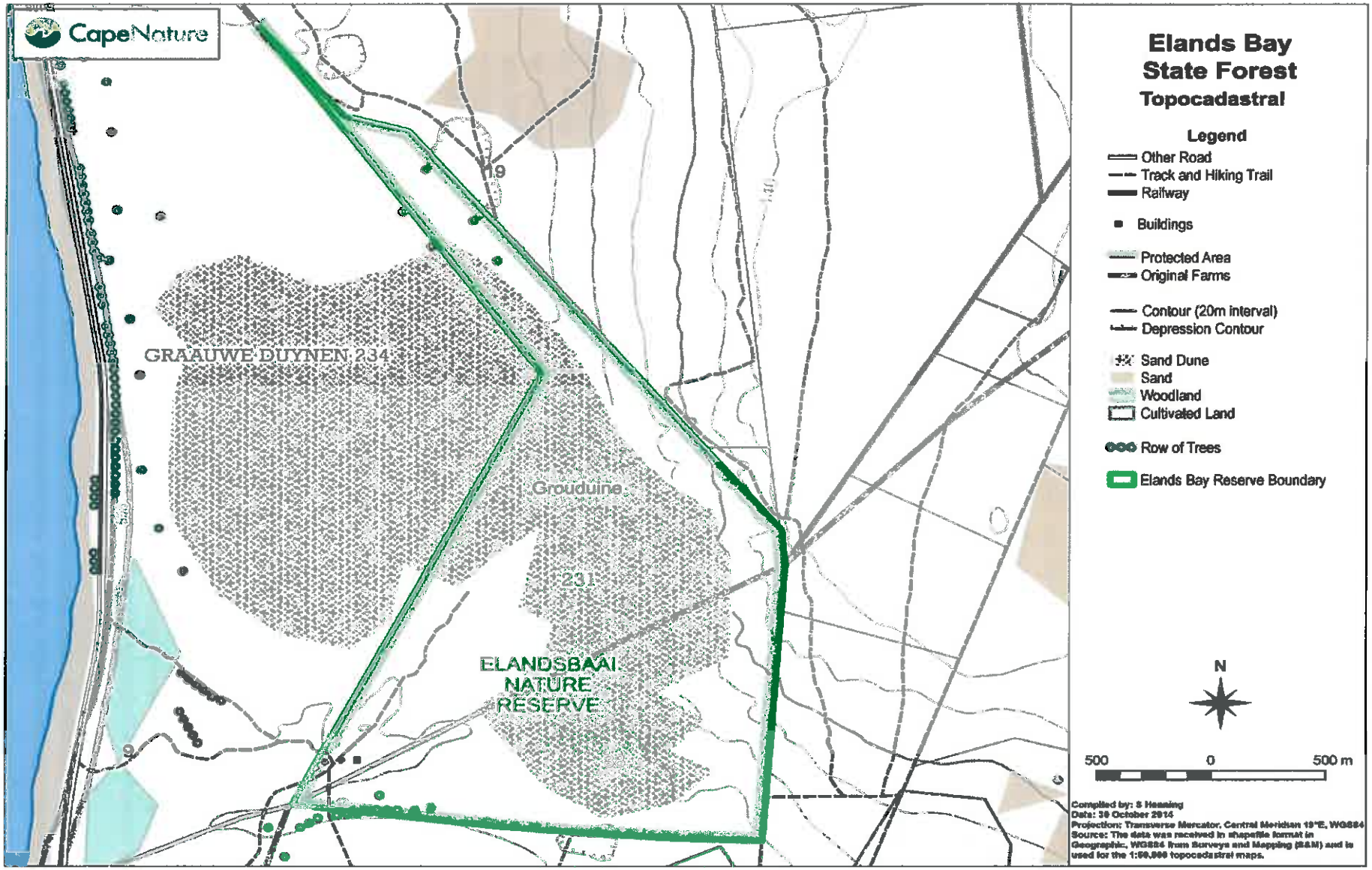

Figure 3.3: Topography of Elands Bay State Forest

3.3.3 Geology and soils

According to the Council for Geoscience (CGS) (undated), the Elands Bay State Forest is underlain by Cambrian aged mudstone and minor sandstone of the the Populiersbos Formation (Klipheuwel Group) which outcrops south of Verlorenvlei (Figure 3.4). The Ordivician aged Piekenierskloof, Graafwater and Peninsula Formations of the Table Mountain Group overly the Populierbos Formation. Of these three Table Mountain Group formations, the Piekenierskloof, consisting of sandstone (pebbly in places) and conglomerate, is most significant as it is the lowest lying of the three and therefore the most exposed in this area.

The Elands Bay State Forest is overlain by the Tertiary and Quarternary deposits of the Varswater and Witzand Formations respectively. Loamy and sandy loam soil is also found on the reserve. The Varswater Formation is comprised of quartzose sand, pelletal phosphorite, gravel, sandy silt, grey-black carbonaceous kaolinitic clay and peat although it is likely that at Elands Bay, the organic and clay components are absent. The generally unconsolidated, calcareous dune sand of the Witzand Formation is characteristic of the reserve.

The Witzand Formation forms part of the Sandveld Group aquifer (GEOSS 2010), a largely intergranular aquifer with typical borehole yields of > 5 l/s. This unconfined aquifer has a thickness of between 9 and 30 m and yields good quality water at Elands Bay with electrical conductivity measured at between 54 and 115 mS/m (GEOSS 2010).

3.3.4 Geohydrology

There are three production boreholes within Elands Bay State Forest (Figure 3.5) in the Graauwe Duynen well field, which abstract water from the unconsolidated Witzand Formation. The well field (production and monitoring boreholes) supplies the town of Elands Bay and is administered by The Department: Water & Sanitation (as custodian of water resources). The Department also monitor the well field in collaboration with the Cederberg Municipality. In the past, the production boreholes from Graauwe Duynen well field alone were not sufficient to meet demand and the water quality was not acceptable (GEOSS 2010). However, in 2007, with the establishment of the Waaihoek Welifield to the South East of the reserve, the water quality and quantity of the combined well fields have improved the water supply to the town of Elands Bay (GEOSS, 2010).

On the basis of a pump test (GEOSS 2010), pumping recommendations for the Graauwe Duynen wellfield were proposed (Table 3.2). The safe yields for the three boreholes are given as 427 kl/day. Based on recommendations, Graauwe Duynen well field supplies 34 percent of the town's water supply with Waaihoek well field supplying the remaining 66 percent. The forecast water production requirement for the town of Elands Bay together with the safe yield recommendations indicates that in 2033, Elands Bay will only be using 38% of the available sustainable groundwater supply.

Water quality indicators in the form of electrical conductivity (EC) for each of these boreholes are also given in Table 3.2. The water quality at R1 and R2 fall into the category of "good water quality" and is suitable for drinking (GEOSS 2010). The water quality at R3 is

categorised as "marginal water quality" which may be conditionally acceptable for consumption.

Table 3.2: Pump details, pumping recommendation and water quality for the three boreholes in the Graauwe Duynen wellfield.

Borehole	Yield (l/s)	Duration per day (h)	Yield (Kl/day)	Yield (Kl/month)	Pump depth	EC (mS/m)
R1	1.09	12	47.088	1412	24.7	79.5
R2	0.61	12	26.352	790	25.5	54.1
R3	8.2	12	354.24	10627	38.54	115.6

Despite the predicted sustainability of the groundwater supply for the existing population and industries, any new development will put a major strain on available resources. The monitoring and management of the well field remains crucial since the area experiences very low rainfall and is located close to the sea. As abstraction takes place from shallow intergranular aquifers near the surface, these abstraction points is also at risk of contamination due to pollution from inadequate sanitation facilities in the area (Umvoto 2011). An additional risk identified for this area is mining. The underlying geology of the area is conducive to the occurrence of heavy minerals and other economicly viable mining comodities. A prospecting application for the minerals rutile; ilmenite and zircon was lodged in 2012 on an area immediately adjacent to Elands bay State Forest and would potentially impact directly on the Protected Area. The continued monitoring of all boreholes in the area is thus critical to inform any future development planning. It is recommended that monthly water levels and water quality readings should be taken by the Department Water & Sanitation and/or Cederberg Municipality from monitoring boreholes. This information should be made available to CapeNature.

3.3.5 Aquatic systems

There are no freshwater ecosystems on Elands Bay State Forest. The town of Elands Bay however gets its water from a groundwater borehole on the reserve. The two main houses are also supplied with potable groundwater. The geohydrology of the reserve is extensively discussed in section 3.3.4 above.

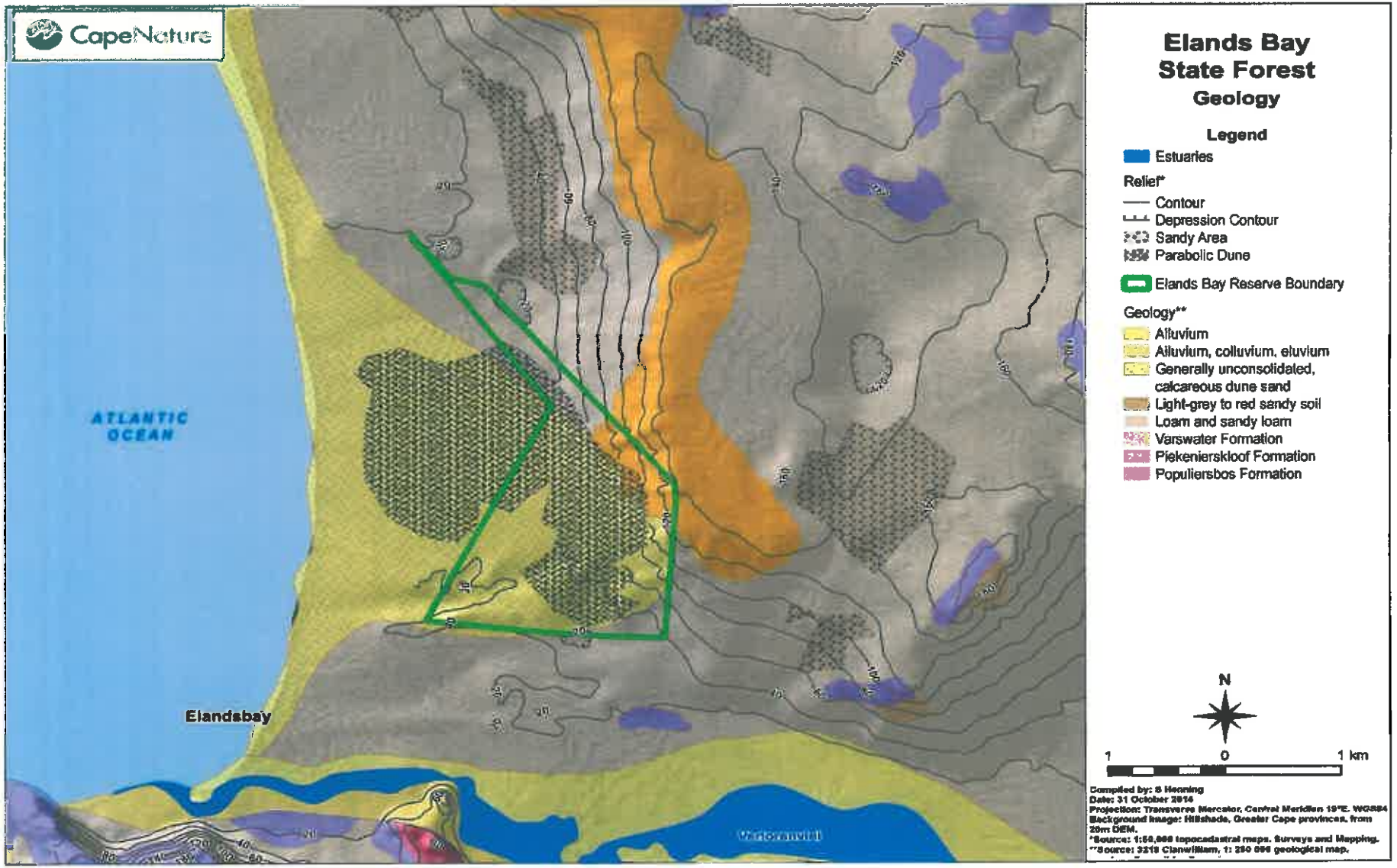

Figure 3.4: Geology of Elands Bay State Forest

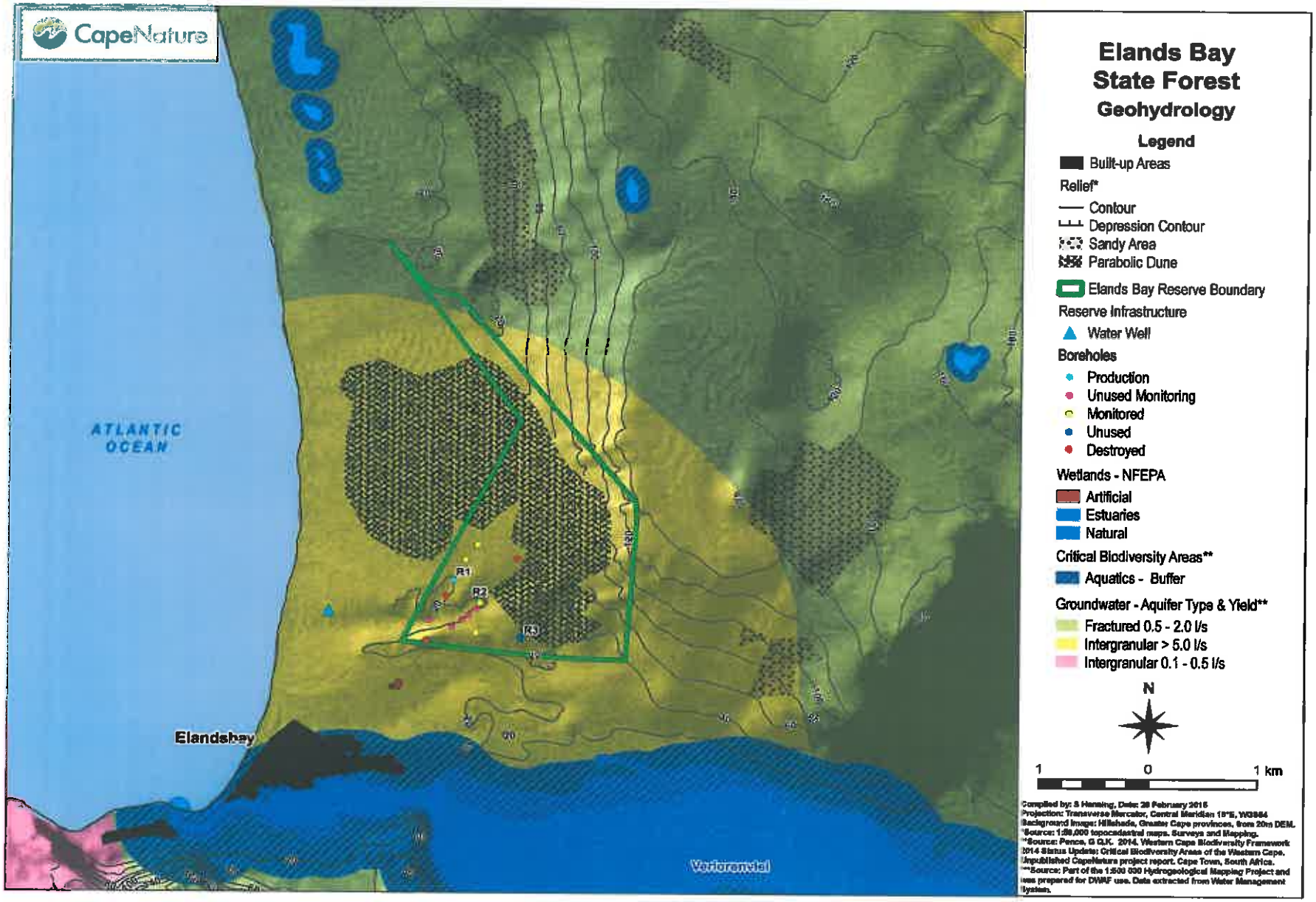

Figure3.5: Geohydrology of Elands Bay State Forest

3.3.6 Vegetation

The reserve falls within the Lamberts Bay Strandveld vegetation type and is least threatened (Figure 3.7). Consolidated, old, slightly undulating sand dune fields (Figure 3.6) supports mixed dense shrublands of evergreen sclerophyllous and fleshy, drought deciduous leaved shrubs. The dense understorey is made up of unpalatable succulent shrubs. In degraded areas, perennial herbs and annuals are dominant (Mucina & Rutherford 2006).

Rare species recorded in the area include *Ferraria foliosa, F. desepunctulata, Cerycium venoum* and *Cullumia floccosa*.

Figure 3.6: Vegetated dune fields of Elands Bay (Photo: L Saul)

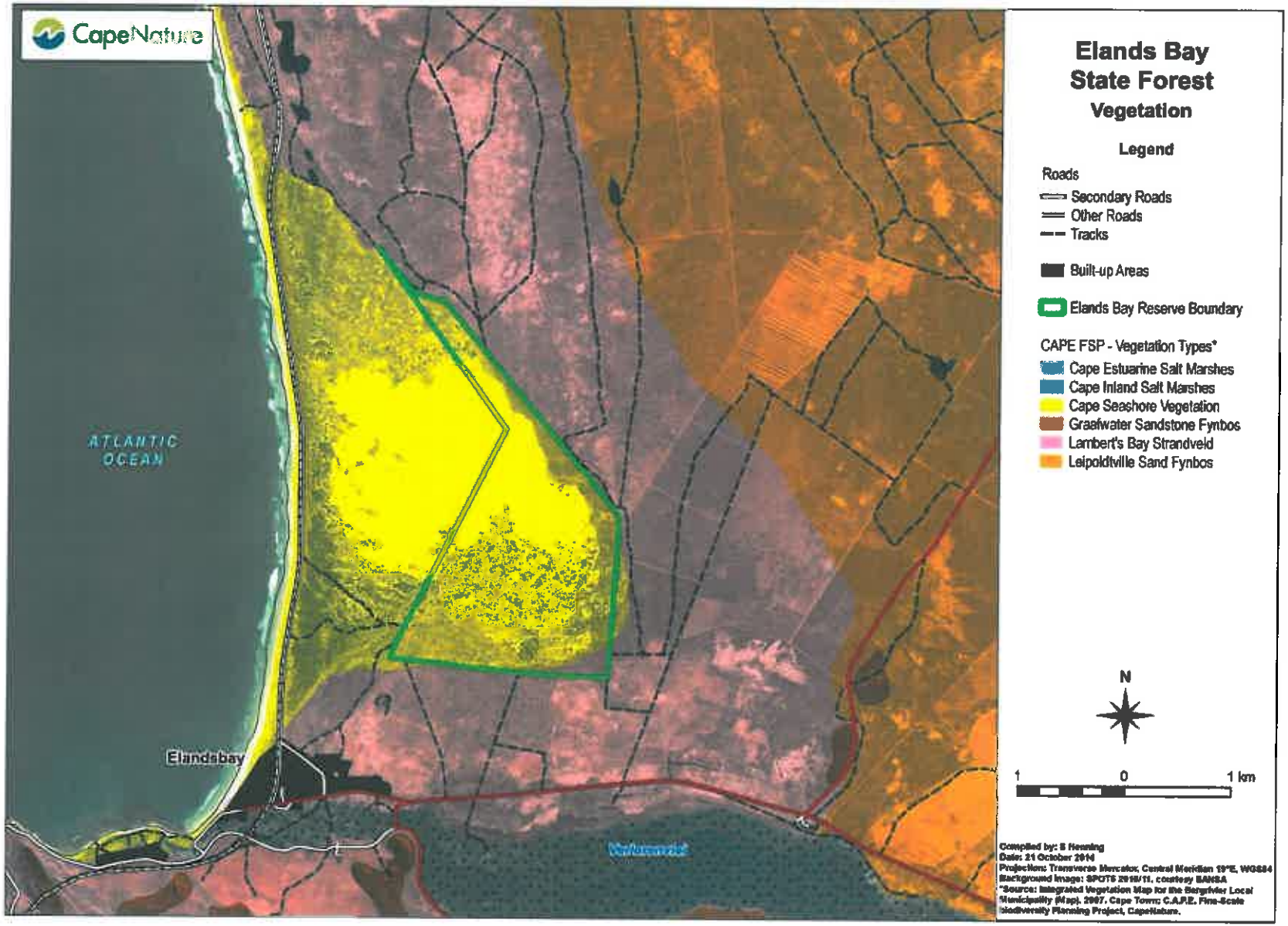

Figure 3.7: Vegetation of Elands Bay State Forest (Mucina & Rutherford 2006)

3.3.7 Fire regime

Elands Bay State Forest is mainly comprised of Lamberts Bay Strandveld vegetation. Although the area has a dense shrubland cover, fire frequency is low as the succulent nature of Strandveld impedes the spread of fire, except under exceptional conditions (Mucina & Rutherford 2006). Although no active fire management occurs at the reserve, the threat posed by the scattered stands of *Acacia cyclops* occupying parts of the dune fields should be considered.

3.3.8 Invasive species

3.3.8.1 Invasive flora

The area was "reclaimed" by Forestry as there was a fear for sand movement on the dunes associated with wind. Alien plant species planted for reclamation purposes included but were not limited to *Acacia cyclops, A. saligna* and *Eucaluptus spp.* These species have naturalised and occur predominantly on the southern parts of the dune fields (Figure 3.8). In terms of the Working for Water density classification, the overall invasive alien infestation can be considered as scattered, i.e, between 5.01 and 25 %. The aims of the reclamation work were to:

1. Maintain parts of the natural moving dune fields as a viable ecosystem
2. Maintain the existing stabilised areas and to prevent the expansion of the dune fields
3. Replacement of stabilised areas invasive vegetation with indigenous vegetation.

Based on the current status of the area, it is evident that aim 1 is being maintained (without active management intervention. Aim 2 cannot be assessed due to a lack of historical data available of where planting took place. Lastly aim 3 has not been realised since no active management interventions have been implemented.

Low densities of established populations of prickly pear (*Opuntia ficus-indica)* and the American aloe (*Agave americana)* are found around the homesteads. These have been presumably planted by the then employees living on the reserve.

3.3.8.2 Invasive fauna

The western boundary of the Elands Bay State Forest, situated on the dune fields, is not fenced. This has resulted in unauthorised access of the surrounding subsistence farmers' goats onto the land. Feral goats have been observed in and around the buildings of the reserve (occurrence of planted grass). Herds of goats are frequently observed on the main road through Elands Bay and have been responsible for a number of road accidents. The matter is currently being addressed with the Cederberg municipality through the Verlorenvlei Estuary Management Forum. It should be noted that the rehabilitation of the dune fields will not be viable if access issues are not resolved. Anecdotal evidence alludes to illegal hunting of small mammals with pack dogs on the reserve. This practice has not been confirmed and will require further investigation.

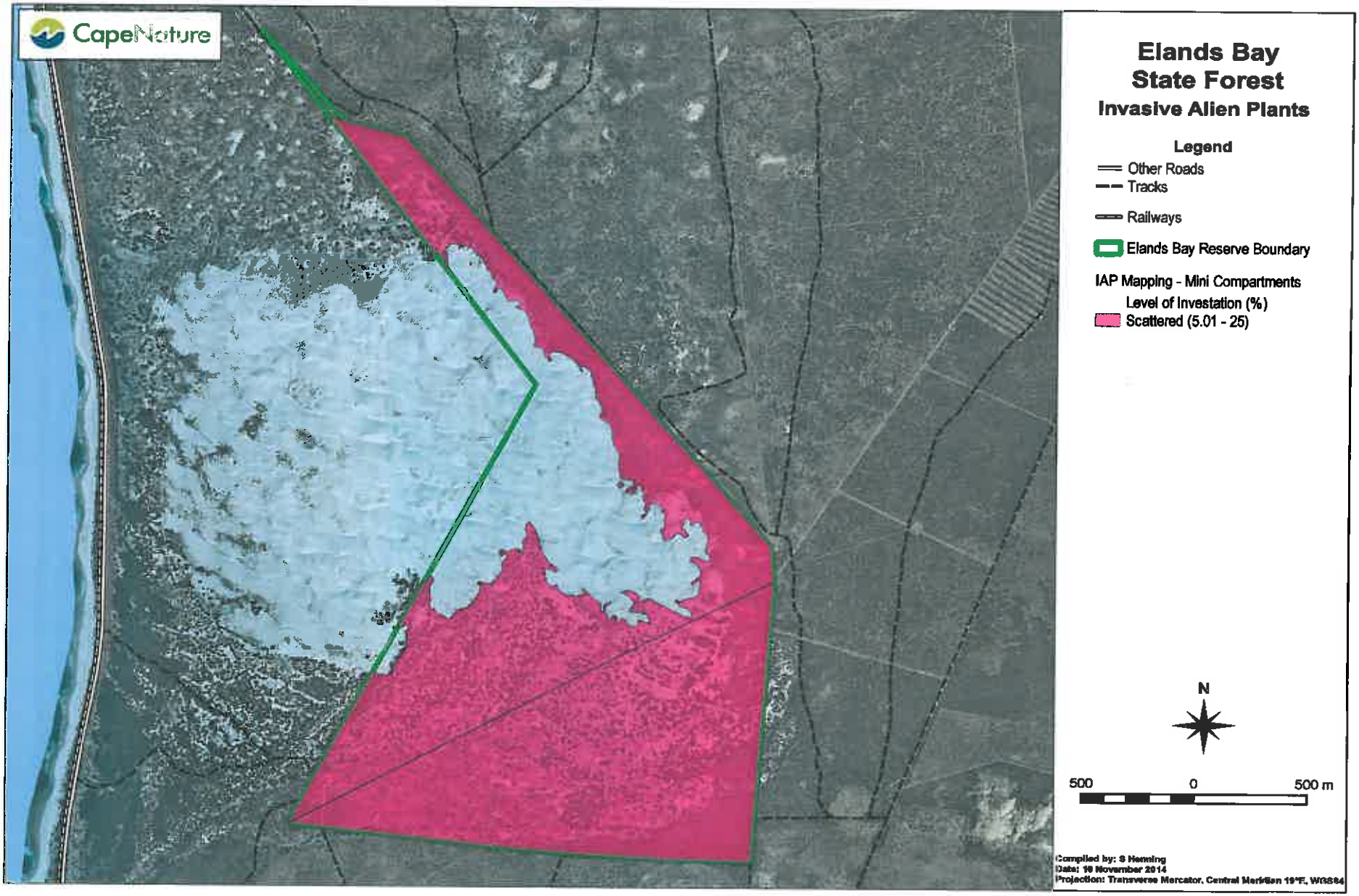

Figure 3.8: Invasive alien plant densities and management compartments of Elands Bay State Forest

3.3.9 Mammalian fauna

CapeNature's mammal chapter in the SOB Report, 2012, contains recommendations regarding the priority species for the organisation for the next 5 years. It is informed by the SARDB (and not the IUCN status which are international assessments whereas the SARDB is considered a regional assessment and more appropriate for our prioritisation). A total of 91 species potentially occur within the Elands Bay State Forest. Below is a summary of the status of the relevant species:

- 55 species are listed indigenous terrestrial mammals (18 from specimen records and two from observation records contained in the CapeNature State of Biodiversity Database). 35 additional species are listed from references relating to the distribution of these species hence potentially occurring in Elands Bay State Forest.
- 12 species are listed indigenous terrestrial mammal species which are considered Extinct in the wild in the Elands Bay State Forest area. These are typically larger species for which reference indicate that the reserve complex is within their historical distribution range.
- One species is listed as an alien invasive species: the house mouse from Eurasia which is listed as one of the top 100 worst invasive species by the IUCN.
- Seven bat species of which one has specimen records – one from the Elands Bay State Forest and another from outside the reserve (from the African Chiropteran Report)

3.3.9.1 Critically Endangered

Van Zyl's golden mole (*Cryptochloris zyli*) is endemic to the Western Cape Province, WCP, and is only known from one locality along the West Coast, in the vicinity of Lamberts Bay and Compagnies Drift. It is considered to be threatened by habitat loss through poor land management, overgrazing, crop cultivation, poor irrigation techniques and mining. Very little is known about the golden moles in general due to their fossorial nature, spending almost their entire life underground. This particular golden mole has very few voucher specimens.

3.3.9.2 Endangered

The White-tailed mouse (*Mystromys albicaudatus*) has a widespread but patchy distribution throughout South Africa and Lesotho from the Western Cape to KwaZulu-Natal and north to Gauteng. It inhabits areas with sandy soils and good ground cover but habitat is being severely fragmented and is decreasing in size due to agriculture and other development. Avery *et al.* (2005) only recorded them from three of 64 barn owl pellets deposition sites. The only known population from a protected area is found on the Blaauberg Nature Reserve.

3.3.9.3 Vulnerable

Grant's golden mole (*Eremitalpa granti*) is distributed along the western coast of South Africa and Namibia. In South Africa occurs from Langebaan in the Western Cape to the Orange River mouth in the Northern Cape. It lives in sand dune habitats, particularly the

foredunes adjacent to the coast, and is primarily threatened by diamond mining as well as disturbance to dune habitats by kelp harvesting as well as the removal of their prey base which is supported by kelp (Friedmann & Daly 2004).

3.3.9.4 Near Threatened

Species SARDB listed as Near Threatened for the WCP include 18 of the total of 172 species occurring in the province. Two of the 18 species, namely the Honey badger (*Mellivora capensis*) and the Brown hyaena (*Parahyaena brunnea*) are of conservation concern in that they are indicative of ecosystem functions outside of formally protected areas. Both species were widely distributed throughout the WCP. Honey badger numbers are considered low and subject to unknown changes in population size. It is recommended that population distribution and size be monitored, also that data on genetic variation be collected to aid taxonomic resolution. Brown hyaenas suffer from continued persecution resulting in artificially low numbers and very limited distribution, requiring monitoring and increased public awareness. Most recent records come from escapees

3.3.9.5 Data Deficient

Of the 33 WCP mammal species which are SARDB listed as Data Deficient, the African striped weasel (*Poecilogale albinucha*) is of particular conservation concern primarily due to its documented range extension, warranting the collection of further distribution data to determine trends in the extent of its range. This particularly in light of the decline recorded in the eastern portion of its range.

3.3.10 Avifauna

Seventy-seven species of birds (Table 3.2), which include common species such as Bokmakierie *(Telophorus zeylonus)* and Cardinal woodpecker (*Dendropicos fuscescens)* (Figure 3.9) have been recorded for this area (BIRP, 2011). Only two of these, the Lanner (*Falco biarmicus)* and Peregrine Falcon (*F. peregrinus)* are currently listed under the South African Red Data List. Both species are rarely seen and could be described as vagrants to the property. The rest of the species are typical of that found in the various types of Strandveld vegetation found along the West Coast of the province. Due to the expansive dune fields and alien vegetation infestation the numbers of birds are relatively low and in terms of bird conservation the property will not be considered an Important Bird Area (IBA).

Figure 3.9: A Bokmakierie *(Telophorus zeylonus)* **and Cardinal woodpecker** (*Dendropicos fuscescens)* **(Photos: K Shaw and A Fortuin)**

Table 3.3 Avifaunal species that occur on Elands Bay State Forest

English Name	Scientific Name	Global IUCN Category (IUCN 2012)	Regional IUCN Category (Barnes 2000)
Lanner Falcon	*Falco biarmicus*	Least Concern	Vulnerable
Southern Black Korhaan	*Afrotis afra*	Vulnerable	Vulnerable
Acacia Pied Barbet	*Tricholaema leucomelas*	NULL	NULL
African Black Swift	*Apus barbatus*	NULL	NULL
African Hoopoe	*Upupa africana*	NULL	NULL
African Sacred Ibis	*Threskiornis aethiopicus*	NULL	NULL
African Stonechat	*Saxicola torquatus*	NULL	NULL
Barn Swallow	*Hirundo rustica*	NULL	NULL
Bar-throated Apalis	*Apalis thoracica*	NULL	NULL
Black-headed Heron	*Ardea melanocephala*	NULL	NULL
Black-shouldered Kite	*Elanus caeruleus*	NULL	NULL
Bokmakierie	*Telophorus zeylonus*	NULL	NULL
Brown-throated Martin	*Riparia paludicola*	NULL	NULL
Cape Bulbul	*Pycnonotus capensis*	NULL	NULL
Cape Canary	*Serinus canicollis*	NULL	NULL
Cape Penduline-Tit	*Anthoscopus minutus*	NULL	NULL
Cape Robin-Chat	*Cossypha caffra*	NULL	NULL
Cape Siskin	*Crithagra totta*	NULL	NULL
Cape Sparrow	*Passer melanurus*	NULL	NULL
Cape Spurfowl	*Pternistis capensis*	NULL	NULL
Cape Turtle-Dove	*Streptopelia capicola*	NULL	NULL
Cape Wagtail	*Motacilla capensis*	NULL	NULL
Cape Weaver	*Ploceus capensis*	NULL	NULL

English Name	Scientific Name	Global IUCN Category (IUCN 2012)	Regional IUCN Category (Barnes 2000)
Cardinal woodpecker	*Dendropicos fuscescens*	NULL	NULL
Cattle Egret	*Bubulcus ibis*	NULL	NULL
Chestnut-vented Tit-Babbler	*Parisoma subcaeruleum*	NULL	NULL
Common Fiscal	*Lanius collaris*	NULL	NULL
Common Starling	*Sturnus vulgaris*	NULL	NULL
Common Waxbill	*Estrilda astrild*	NULL	NULL
European Bee-eater	*Merops apiaster*	NULL	NULL
Fairy Flycatcher	*Stenostira scita*	NULL	NULL
Familiar Chat	*Cercomela familiaris*	NULL	NULL
Fiery-necked Nightjar	*Caprimulgus pectoralis*	NULL	NULL
Fiscal Flycatcher	*Sigelus silens*	NULL	NULL
Greater Honeyguide	*Indicator indicator*	NULL	NULL
Greater Striped Swallow	*Hirundo cucullata*	NULL	NULL
Grey Tit	*Parus afer*	NULL	NULL
Grey-winged Francolin	*Scleroptila africanus*	NULL	NULL
Hadeda Ibis	*Bostrychia hagedash*	NULL	NULL
Helmeted Guineafowl	*Numida meleagris*	NULL	NULL
House Sparrow	*Passer domesticus*	NULL	NULL
Jackal Buzzard	*Buteo rufofuscus*	NULL	NULL
Karoo Lark	*Calendulauda albescens*	NULL	NULL
Karoo Prinia	*Prinia maculosa*	NULL	NULL
Karoo Scrub-Robin	*Cercotrichas coryphoeus*	NULL	NULL
Kelp Gull	*Larus dominicanus*	NULL	NULL
Large-billed Lark	*Galerida magnirostris*	NULL	NULL
Laughing Dove	*Streptopelia senegalensis*	NULL	NULL

English Name	Scientific Name	Global IUCN Category (IUCN 2012)	Regional IUCN Category (Barnes 2000)
Little Swift	*Apus affinis*	NULL	NULL
Long-billed Crombec	*Sylvietta rufescens*	NULL	NULL
Malachite Sunbird	*Nectarinia famosa*	NULL	NULL
Namaqua Dove	*Oena capensis*	NULL	NULL
Neddicky	*Cisticola fulvicapilla*	NULL	NULL
Peregrine Falcon	*Falco peregrinus*	NULL	NULL
Pied Crow	*Corvus albus*	NULL	NULL
Pied Starling	*Spreo bicolor*	NULL	NULL
Pin-tailed Whydah	*Vidua macroura*	NULL	NULL
Red-capped Lark	*Calandrella cinerea*	NULL	NULL
Red-eyed Dove	*Streptopelia semitorquata*	NULL	NULL
Red-faced Mousebird	*Urocolius indicus*	NULL	NULL
Red-winged Starling	*Onychognathus morio*	NULL	NULL
Rock Martin	*Hirundo fuligula*	NULL	NULL
Southern Double-collared Sunbird	*Cinnyris chalybeus*	NULL	NULL
Southern Masked-Weaver	*Ploceus velatus*	NULL	NULL
Speckled Pigeon	*Columba guinea*	NULL	NULL
Spotted Eagle-Owl	*Bubo africanus*	NULL	NULL
Spotted Thick-knee	*Burhinus capensis*	NULL	NULL
Steppe Buzzard	*Buteo vulpinus*	NULL	NULL
Streaky-headed Seedeater	*Crithagra gularis*	NULL	NULL
Wattled Starling	*Creatophora cinerea*	NULL	NULL
White-backed Mousebird	*Colius colius*	NULL	NULL
White-necked Raven	*Corvus albicollis*	NULL	NULL
White-rumped Swift	*Apus caffer*	NULL	NULL

English Name	Scientific Name	Global IUCN Category (IUCN 2012)	Regional IUCN Category (Barnes 2000)
White-throated Canary	*Crithagra albogularis*		
White-throated Swallow	*Hirundo albigularis*		
Yellow Canary	*Crithagra flaviventris*		
Yellow-billed Kite	*Milvus aegyptius*		
Zitting Cisticola	*Cisticola juncidis*		

3.3.11 Reptiles

Three reptile species, which include the coastal legless (*Microacontias litoralis*) and Striped leaf-toed gecko (*Goggia lineata*) (Figure 3.10) have been recorded in Elands Bay State Forest (Table 3.3). None of the recorded species are listed as Threatened or require any specific management action. Although not recorded for the reserve, common snake species of the area include Cape cobra (*Naja nivea*), Boomslang (*Dispholidus typus*) and Puff adder (*Bitis arietans*)

Figure 3.10: Coastal legless skink (*Microacontias litoralis*) and Striped leaf-toed gecko (*Goggia lineata*) Photos: A Turner

Table 3.4: Reptilian species recorded on Elands Bay State Forest

English Name	Species	IUCN Category (IUCN 2012)	Regional IUCN Category
Striped leaf-toed gecko	*Goggia lineata*	Null	Null
Striped legless skink	*Microacontias lineatus grayi*	Null	Null
Coastal legless skink	*Microacontias litoralis*	Null	Null

3.3.12 Amphibians

No amphibian species have been recorded from Elands Bay State Forest.

3.3.13 Invertebrates

No invertebrate species have been recorded from Elands Bay State Forest.

3.4 CULTURAL HERITAGE CONTEXT OF ELANDS BAY STATE FOREST

The area around Elands Bay State Forest is rich in archaeological sites, indicating the existence of man in the area for the past 100 000 years. They were considered to be mainly hunter-gatherers and herders. Areas of interest are:

- Baboon Point: Elands Bay Cave.
- Diepkloof / Witklip / Grootdrif Complex with its caves and rock art
- Shell midden sites north and south of Verlorenvlei
- Steenbokfontein Cave with its rock art.

Baboon Point has been declared a provincial heritage site by Heritage Western Cape. The area includes a number of well-preserved archaeological and historical sites which in particular depicts an established relationship between man and the ocean. It is also the only site on the continent where rock paintings can be found in close proximity to the coast.

Baboon Point is also home to a number of World War II radar station buildings. These were subsequently used to house migrant labourers working in the local fishing industry.

3.5 SOCIO-ECONOMIC CONTEXT

The Cederberg municipal area is sparsely populated with a population density of about 5.35/km^2 and a household density of 1.41/km^2. Afrikaans is the home language of 85% of the inhabitants. Elands Bay is considered an isolated settlement that functions as a holiday town and frequented by surfers. Its main economic base, fishing, has shown a downward trend since the turn of the 21st century. Agriculture and in particular potato farming, contributes to its economy. Graafwater is located halfway between Clanwilliam and Lamberts Bay. The railway junction situated in the town was the initial catalyst for the town's establishment. Most inhabitants are seasonal workers on the surrounding agricultural farms. Lamberts Bay existence is owing to the fishing industry and harbour. The processing factories for fishmeal, lobster packaging and potato chips make substantial contributions to the local economy. The town's tourism sector is mainly driven by the annual spring flower blooms along the West Coast and the Cape gannets on Penguin (Bird) Island Nature Reserve (Cederberg Municipality 2014).

According CLM 2014/15 IDP review (2014), the agriculture and fish sector shed nearly 6200 jobs from 2000 to 2010. This has contributed significantly to the nearly 37 % of inhabitants within the municipal area being unemployed. Unemployment is mainly concentrated amongst the youth (15 to 34 years) as the youth accounts for 64 % of the unemployed in 2011. The age group 25 to 34 years is particularly vulnerable at 30 % of the total unemployed. The report also indicated that there was an increase in the number of households headed by females and a decrease in the percentage of households living in formal dwellings. Elands Bay reportedly displays very high levels of social needs.

EPWP projects are currently running in the towns of Elands Bay and Lamberts Bay. These are aimed at poverty alleviation within the local communities. CapeNature is running separate

projects at Penguin (Bird) Island and Rocherpan Nature Reserves. The FTEs employed assist the respective reserves with tourism, ecological and environmental education activities. Due to minimal management input into the Elands Bay State Forest, no formal agreements or work with communities are conducted on the reserve or surrounding area. There is however grazing of goats on the reserve and management are looking into an agreement/MOU with the owners to formalise this activity on the reserve and thereby limit the impact of grazing. Furthermore, harvesting of *Acacia cyclops* and replacing it with indigenous vegetation projects are currently being considered and could result in work opportunities for individuals from the Elands Bay community.

3.6 OPERATIONAL MANAGEMENT WITHIN ELANDS BAY STATE FOREST

3.6.1 Infrastructure

3.6.1.1 Roads/Jeep Tracks

Roads and jeep tracks within the Elands Bay State Forest consist mostly of loose sand (Figure 3.11). A small compacted sandy section can be found around the building complex. Jeep tracks are exclusively used for management purposes and by the municipality for borehole abstraction and inspection work. Most of these roads are only accessible by 4x4 vehicles. The dune fields were historically used for short off-road excursions but these operations ceased in the early 2000's.

3.6.1.2 Buildings

Maintenance and repairs of buildings are prioritised and included on the schedule of the Department of Transport and Public Works. Minor maintenance and repairs to buildings are identified and attended to by management. There are two staff accommodation houses on Elands Bay State Forest of which one is rented out to staff of Elands Bay SAPS (Figure 3.11). The other is used as staff inspection quarters. Table 3.5 lists the infrastructure found on the reserve.

3.6.1.3 Fences

Elands Bay State Forest's internal fences have all been removed. The western section along the dunes remains largely unfenced and occasionally results in illegal access of subsistence farmers and their goats.

3.6.1.4 Environmental Management

No waste disposal sites are available within the Elands Bay State Forest. All waste from Elands Bay State Forest is removed off the reserve and disposed of at the municipal refuse site in Elands Bay.

3.6.1.5 Signage

There is no signage in and around Elands Bay State Forest. Signage will be erected once the reserve is actively managed.

Table 3.5: Infrastructure located on Elands Bay State Forest

Reserve Name	Feature Name	Location	Feature Type
Elands Bay State Forest	Staff House 1	South-west of dune field, main entrance	Staff housing
Elands Bay State Forest	Staff House 2	South-west of dune field, main entrance	Staff housing (SAPS)
Elands Bay State Forest	Garage	South-west of dune field, main entrance	Garage
Elands Bay State Forest	Store	South-west of dune field, main entrance	Store
Elands Bay State Forest	Pump house1	North of management complex	Borehole
Elands Bay State Forest	Pump house 2	North east of management complex	Borehole
Elands Bay State Forest	Pump house 3	East of management complex	Borehole

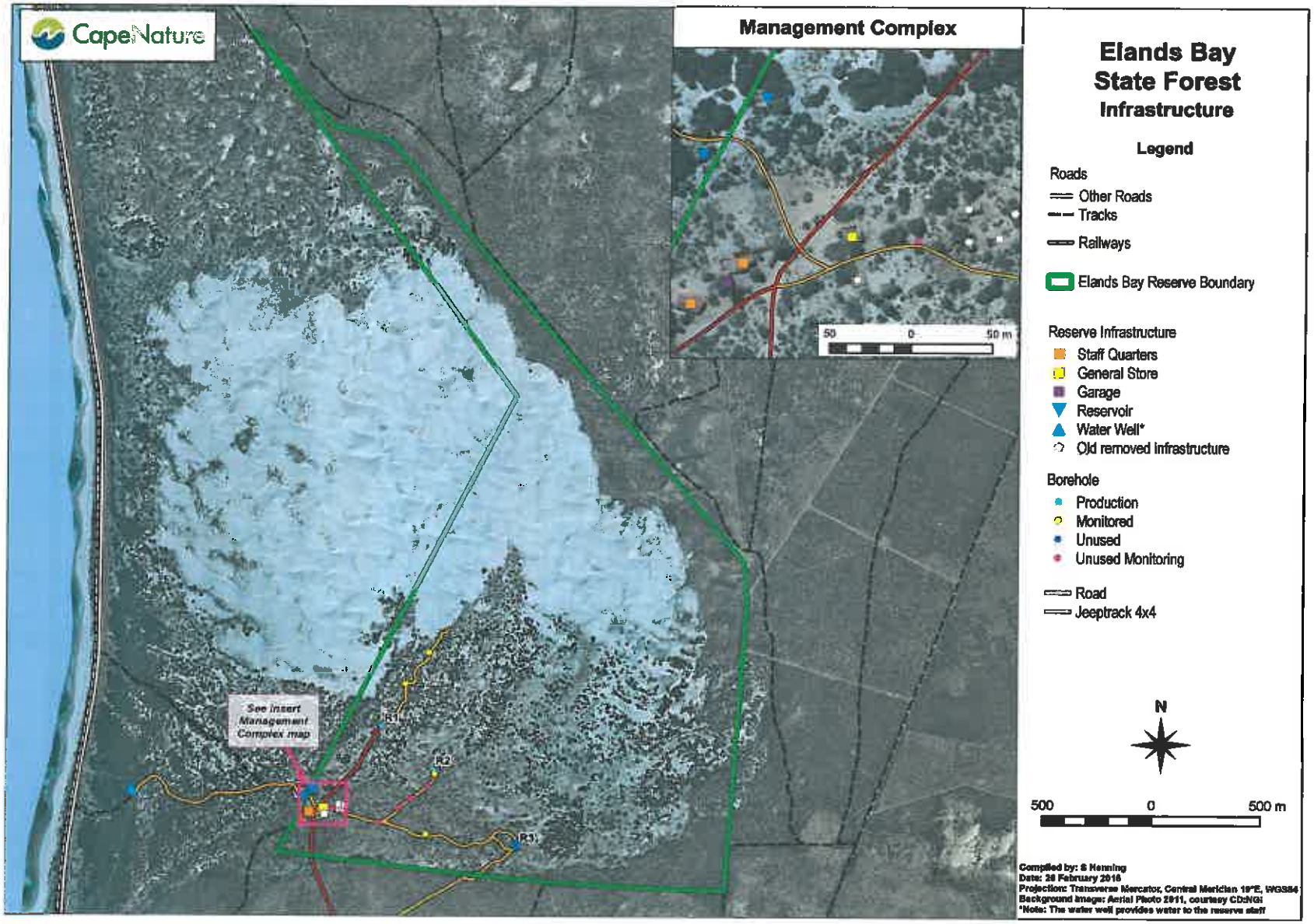

Figure 3.11: Infrastructure map of Elands Bay State Forest

4 THE PLANNING CONTEXT OF ELANDS BAY STATE FOREST

4.1 REGIONAL AND PROVINCIAL PLANNING OF ELANDS BAY STATE FOREST

Elands Bay State Forest falls within the boundaries of the WCDM. The district is made up of five municipalities which are Matzikama (North), Cederberg in the centre and Bergrivier, Saldanha Bay and Swartland Municipalities in the South. It is specifically located within the boundaries of the Cederberg Local Municipality.

The economic activities of the surrounding area, Elands Bay Town, are mainly centred around the fishing community, but cattle and potato farming also contribute to the economy of the area.

The IDP and SDF for the WCDM run on a five year cycle, the current cycle is 2013 - 2018. The IDP is a basic strategic plan for the development in the WCDM. The WCDM-SDF is the spatial expression of the WCDM-IDP. Consequently, the SDF is a policy document to be used by organs of state as a guideline in decision-making. WCDM-SDF identified six objectives of which four speaks directly to the operations of CapeNature within the WCDM.

- Objective 2 – Facilitate job creation;
- Objective 4 – Conserve and strengthen a sense of place for all;
- Objective 5 – Ensure wise use of existing resources;
- Objective 6 – Conserve biodiversity resources.

The main components of this SDF pertaining to Elands Bay State Forest are:

- the conservation of the heritage of the area;
- the conservation of the biodiversity resources of the area;
- the development of tourism opportunities;
- and the creation of jobs.

4.2 EXPANSION OF THE ELANDS BAY STATE FOREST

The expansion of protected areas in South Africa is informed by the NPAES. This strategy provides a broad national framework for protected area expansion in South Africa by identifying large areas which should be targeted for formal declaration and introduces a suite of mechanisms which could aid in achieving this.

In response to the NPAES which calls on provinces to develop implementation plans in support of the NPAES and in support of provincial conservation efforts and priorities, CapeNature has produced a Protected Area Expansion Strategy and Implementation Plan (Purnell *et al.* 2010) This CapeNature strategy addresses the formal proclamation of priority natural terrestrial habitats in the Western Cape Province as protected areas to secure biodiversity and ecosystem services for future generations. Although aligned to the

concepts and goals of the NPAES, this strategy is informed by immediately available resources and therefore highlights some different spatial priorities.

Areas of conservation concern in close proximity of Elands Bay State Forest are listed in Table 4.1. These sites all fall within the Greater Cederberg Biodiversity Corridor (GCBC) planning domain. Due to the limited human resource capacity allocated to the Penguin (Bird) Island Nature Reserve Complex, servicing of stewardship sites will remain the function of the GCBC. Further expansion of the West Coast conservation footprint will be guided by CapeNature's 2015-2020 PAES. Potential sites will be identified through systematic conservation planning and include sites that contain Critical Biodiversity Areas (Fig 4.1).

Although declared as a Ramsar site and as an Important Bird and Biodiversity Area, Verlorenvlei currently has no protection status. BirdLife South Africa is currently underway with an extension project (funded by World Wide Fund for Nature South Africa (WWF-SA) Nedbank Green Trust) to gain support under landowner to establish a Protected Environment. It will furthermore assist CapeNature to facilitate the transfer of the Department of Public Works land over to conservation for the establishment of a Provincial Nature Reserve. CapeNature as the proposed management authority will be able to use Elands Bay State Forest's infrastructure as base from which to manage this new reserve.

Table 4.1: Areas of conservation concern around Elands Bay State Forest

SITE NAME	HECTARES	PROTECTION STATUS
Aan de Klipheuvel	684.44	Contract Nature Reserves
Redelingshuis	62.78	Contract Nature Reserves
Twee Kuilen	878.86	Contract Nature Reserves
Vensterklip	553.03	Contract Nature Reserves
Vleikraal	1471.29	Contract Nature Reserves
Bo-Kruisfontein	610.24	Biodiversity Agreements
Klaarfontein	330.67	Biodiversity Agreements
Ratelrug	670.33	Biodiversity Agreements
Vredelust	226.51	Biodiversity Agreements
Rust Roes	891.77	Biodiversity Agreements
Verlorenvlei (282/0)	71.714	RAMSAR Site
Verlorenvlei (0/3)	1487.878	RAMSAR Site

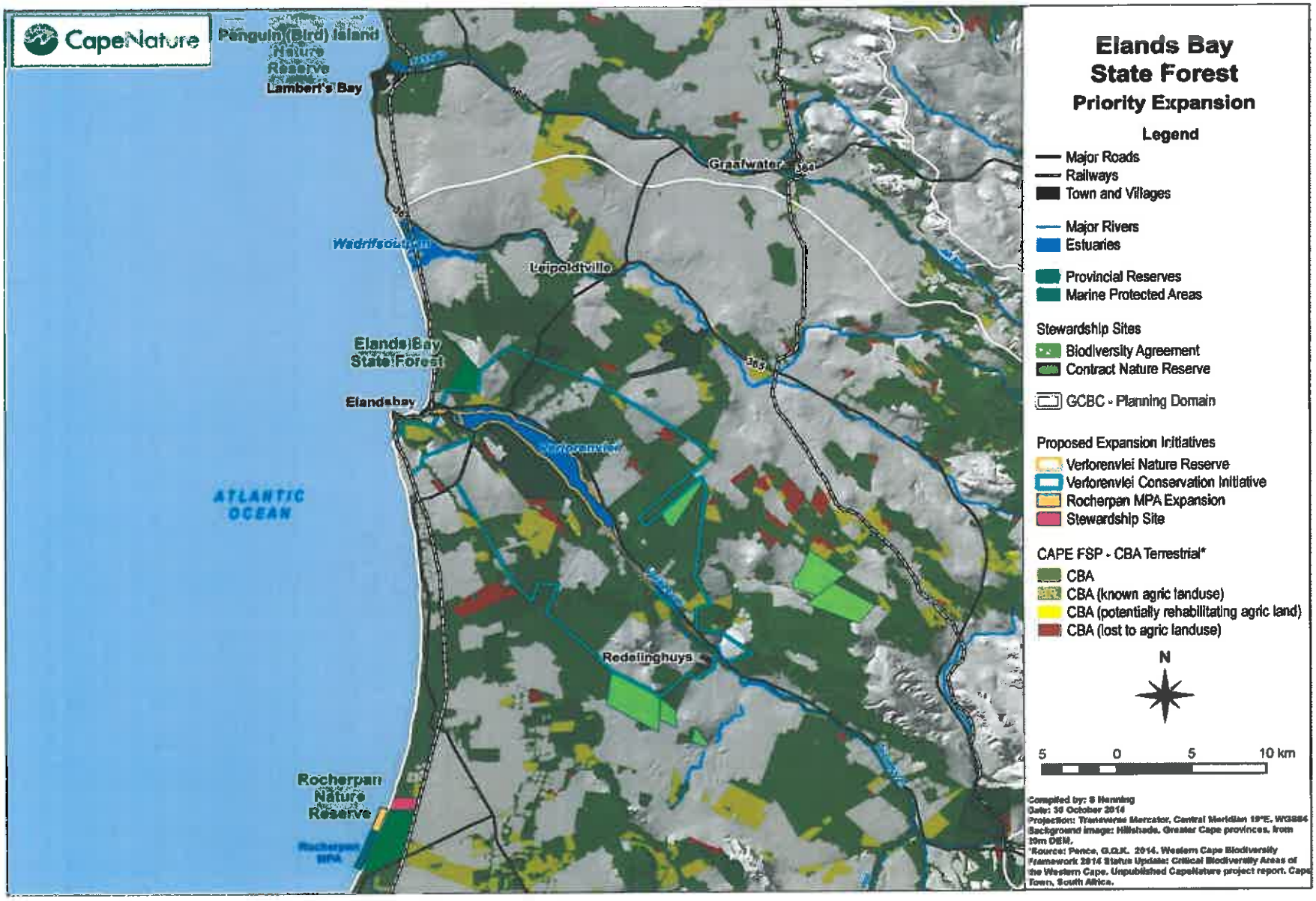

Figure 4.1: Expansion Map of Elands Bay State Forest

5. CONSERVATION DEVELOPMENT FRAMEWORK OF ELANDS BAY STATE FOREST

5.1 SENSITIVITY ANALYSIS

Sensitivity mapping of reserve biodiversity, heritage and physical environment forms is the main informant of spatial planning and decision-making in protected areas. It is intended to:

- inform all planned and ad-hoc infrastructure development e.g. location of management and tourism buildings and precincts, roads, trails, firebreaks;
- inform whole-reserve planning and formalisation of use and access as a Reserve Zonation Scheme; and
- support conservation management decisions and prioritisation.

The sensitivity maps allow for direct comparison of sites both within and between reserves to support CapeNature's planning at local and regional scales. The process highlights:

- sites with the highest regional conservation value;
- areas where human access or disturbance will have a negative impact on biodiversity or heritage, and specific environmental protection is required;
- areas where physical disturbance or infrastructure development will cause higher
- environmental impacts, and/or higher construction and on-going maintenance costs; as well as
- areas where there is significant environmental risk to infrastructure.

The method ensures that the location, nature and required mitigation for access, activities, and infrastructure development within protected areas can be guided by the best possible landscape-level biodiversity informants.

The process accommodates both expert-derived information and more objective scientific data and the decisions are defensible and based on a transparent process.

Biodiversity, heritage and physical features are rated on a standard scale of 1 to 5, where 1 represents no or minimal sensitivity and 5 indicates maximum sensitivity (Figure 5.1). Additional features such as visual sensitivity, fire risk and transport costs can also be included. Higher scores represent areas that should be avoided for conventional access and infrastructure, or where specific mitigation would be required in order to address identified environmental sensitivity. A score of 5 typically represents areas where mitigation for conventional access or infrastructure development would be extensive, costly or impractical enough to be avoided at all costs, or features so sensitive that they represent a 'no go' area. For biodiversity features highest scores represent high priority sites where conservation management cannot be compromised.

Sensitivity maps cannot replace all site-scale investigation, but they are ideal for rapidly reviewing known environmental risks, and guiding whole-reserve planning to minimise overall negative environmental impact. The developed area in the south of Elands Bay State Forest is moderately developed and is not considered a sensitive area (Figure 5.2).The remaining area is undeveloped consists of the expansive dune fields. Although rehabilitated with IAPs the area is still considered to be sensitive and vulnerable to unregulated practices. This results in the high sensitivity score for this area (Figure 5.2).

Figure 5.1 CapeNature Method for Sensitivity Scoring and Synthesis (Kirkwood in prep.)

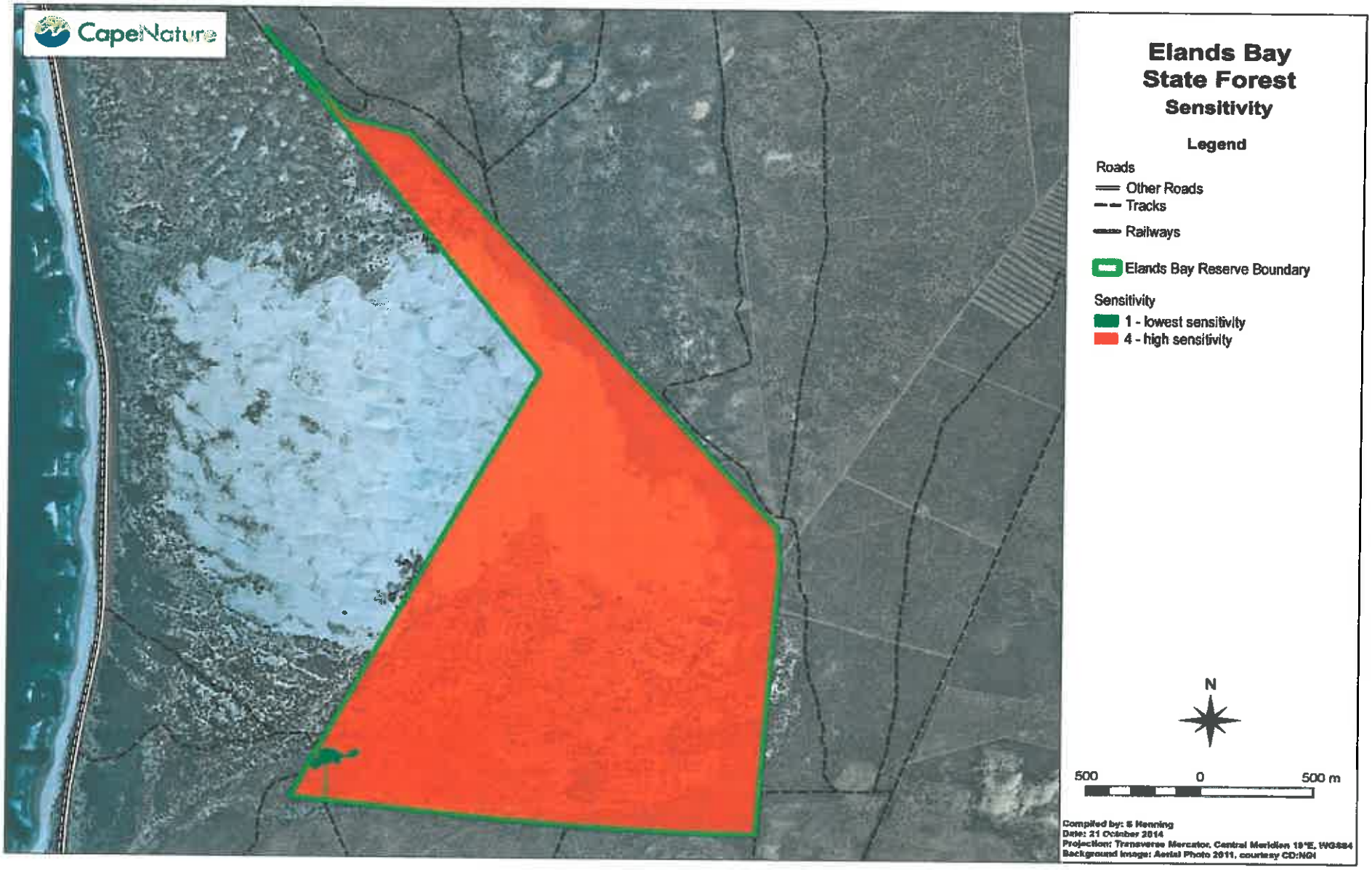

Figure 5.2: Sensitivity map of Elands Bay State Forest

5.2 ZONATION OF ELANDS BAY STATE FOREST

Protected area zonation provides a standard framework of formal guidelines for conservation, access and use for particular areas. Zonation goes beyond natural resource protection and must also provide for:

- appropriate visitor experience;
- access and access control;
- environmental education; and
- commercial activities.

Ideally, zonation development should be done at the same time as infrastructure development planning. Good planning must aim to reduce cumulative environmental impacts and the long-term operating costs of all activities. Zonation and infrastructure development planning must be guided by:

- existing infrastructure and use;
- potential future infrastructure and access requirements; and
- careful evaluation of overall impact, construction costs and operating costs vs. likely benefits; for alternatives for every component.

Zonation requires input from all appropriate internal CapeNature stakeholders, and is a key component of the management plan which is to be evaluated during the Stakeholder Participation Process.

CapeNature's zonation categories (See Table 5.1) were developed by an internal workshop process completed in September 2010. Existing protected area zoning schemes worldwide were examined to develop a simple and powerful scheme that provides for the required range of visitor experience, access and conservation management. Particular effort was made to maintain consistency with the best developed South African zonation schemes, in particular those of SANParks and EKZNW. CapeNature's zonation categories have fewer tourism-access categories, but provide more detailed and explicit guidelines with regard to zone objectives and characteristics. Furthermore, CapeNature's zonation includes new zones specifically required in the context of highly sensitive biodiversity sites and zoning of privately owned Contract Nature Reserves.

Table 5.1: Guide to CapeNature Zones on Elands Bay State Forest. (Highlighted categories are applicable to the nature reserve)

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Wilderness / Wilderness (declared)	***Users:*** To provide an experience of solitude in pristine landscapes with minimal evidence of human presence or use. ***Conservation:*** To limit visitor numbers and use to minimise impact. Minimal management intervention for visitor or biodiversity management. Include sensitive or threatened habitats & species in this low use zone when contiguous sites meet the criteria for wilderness.	Completely wild and rugged landscapes (or being restored to this). Areas where users have little chance of encountering any other human presence or group. Sight or sound of human activities outside zone barely discernible and at far distance; Preferably no human impact or infrastructure inside the zone other than trails. Natural burning regimes, with no active fire management and road/firebreak infrastructure. Areas with minimal invasive Alien Plant infestations, where IAP control can be done without vehicle access. Area must meet the definition and requirements of the National Environmental Management: Protected Areas Act 57 of 2003. If formally declared in terms of the act, zone = "Wilderness (declared)"; if not = "Wilderness".	"Leave-no-trace" activities: Overnight hiking, without any sleeping facilities, formal campsites, or with only basic, un-serviced shelters. "Carry in, Carry out" principle for all food and waste. Guided or unguided nature observation. --- No fires	No infrastructure of any type if possible. No roads or vehicle tracks. No structures except small existing buildings of cultural, historic or aesthetic value. These can be used as un-serviced sleeping shelters for hikers & provided with composting toilets. Narrow permanent walking trails. No signage except small, unobtrusive markers for closed routes, or at trail junctions. **NB** – in the mountainous, slow-growing fynbos of the Western Cape, the traditional wilderness concept of access without defined trails is unsafe and rapidly results in undesirable user-created trails and erosion.	Unguided visitor access only on foot. Visitors have freedom to use various trails. Use of donkeys, horses or other animals with an official guide only on designated historical routes and trails, or existing roads, and only where this will not cause trampling, erosion or any degradation. Limits on visitor numbers and/or control of routes and access so that zone objectives are met. Use of non-motorised canoe or flotation device on rivers can be acceptable where entry is by foot or by river from outside the zone. --- No fires No vehicle access No access without zone permit	***Visitor Management:*** Manage to conserve natural and cultural resources, ecological processes and wilderness integrity. Leave no trace ethic. Restrict numbers of visitors and allow for no-use rest periods if required. Limited management interventions. Management measures may be carried out in extreme conditions, but tread lightly principles must apply. Since visitor use cannot be intensively managed, re-route trails away from any areas with sensitive local habitats or plant and animal species. Trail layout, design and construction must reduce maintenance requirements. ***Conservation Management:*** Habitats with minimal management requirements, typically natural burning zones. Prevent or restore visible trampling or any other impact. Rehabilitate non-essential roads to natural vegetation. Re-zone essential roads out of Wilderness Zoning. ***Consumptive Use:*** Not compatible

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Primitive	***Users:*** To provide an experience of solitude in natural landscapes with little nearby evidence of human presence. Can provide access to and buffer Wilderness Zones. ***Conservation:*** To limit visitor use, numbers and infrastructure to minimise impact in sensitive environments. To reduce need for management of users and visitor impacts. Allows for minimal or more intensive biodiversity management intervention. *Include extensive areas of sensitive or threatened habitats & species in this low use zone when sites do not meet the criteria for wilderness.*	Intrinsically wild appearance & character. Areas where users will seldom encounter other human groups or presence. Any visible human impact or infrastructure inside the zone is unobtrusive. Human activities outside zone may be audible or visible in places. Areas remote from management centres, or otherwise difficult or expensive to access for management. Areas that might not meet the criteria for Wilderness but can serve as undeveloped visual buffers for Wilderness. Areas that may have natural burning regimes, with no active fire management and road/firebreak infrastructure OR areas that require active fire management to stay within thresholds of concern.	Guided or unguided nature observation Primarily intended for hiking or walking access. Only allows for 4x4 routes or vehicle access if specifically considered and noted. Only allows for non-hiking accommodation node if specifically considered and noted.	Deviation from natural state to be minimised. Infrastructure should not be visible from Wilderness Zones. May provide isolated, small, unobtrusive accommodation facilities for up to 16 guests on restricted footprints, particularly for overnight hiking trails. May have defined or beaconed hiking routes, management access roads, tracks and firebreaks. All roads, tracks or trails to be located and constructed to reduce maintenance, visibility and erosion. Where un-surfaced tracks will result in erosion, use concrete strip or interlocking pavers to stabilise. Re-route unstable or erosion-prone road sections if this will lower long-term visual and environmental impact. New roads for visitor access only justified if also required for management access. Avoid wide surfaced roads or roads and tracks wider than required for a single vehicle.	Visitor access only by permit. Control of visitor numbers, frequency and group sizes to meet zone objectives. Only users of facilities/activities will access to this zone. Defined or non-defined hiking and day trail routes. On foot always. Bicycle, 2x4 or 4x4 vehicle, or horseback on designated routes only. No access without zone permit	***Visitor Management:*** Manage to conserve natural and cultural resources, ecological processes and wild appearance & character. Restrict numbers of visitors and allow for no-use rest periods if required. All facilities will be small, very basic, self-catering and distributed to avoid contact between users. There should be limited if any interaction between groups. Since visitor use usually cannot be intensively managed, re-route trails away from any areas with sensitive local habitats or plant and animal species. Trail layout, design and construction must reduce maintenance requirements. Visible & audible human impacts from adjacent zones should be mitigated. ***Conservation Management:*** Habitats with lower or higher management requirements. May be natural burning zones. Usually remote areas so roads and trails should be planned and constructed assuming infrequent maintenance. Prevent or restore visible trampling or any other visitor impact. Rehabilitate non-useful roads to natural vegetation. ***Consumptive Use:*** Sustainable use can be appropriate under controlled circumstances subject to a formal assessment and application in accordance with CapeNature policies.

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

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development – Low Intensity	***Users:*** To provide access to adjacent natural landscapes with no expectation of solitude. To provide primarily self-catering accommodation or camping. Can provide for Environmental Education accommodation and access into surrounding landscapes. ***Conservation:*** To locate the zone and infrastructure to minimise impact on sensitive environments. To actively manage users and visitor impacts on adjacent sensitive areas. *Provide additional protection to sensitive or threatened habitats, species or other features by Special Management Overlays*	Areas with existing degraded or transformed footprints. Natural or semi-natural habitats only where essential to minimise impacts over whole reserve. Areas able to accommodate high numbers of visitors regularly, with no identified sensitive or regionally rare biodiversity. Areas able to accommodate roads, trails and accommodation infrastructure without risk of erosion or degradation. Areas easily accessible from reserve management centre. Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment. Areas where new infrastructure can be located with low visibility from the surrounding landscape. Areas not visible from Primitive or Wilderness Zones. Areas with available potable water, and not sensitive to disposal of treated wastewater via soak away.	Picnicking. Walking or bicycle access into adjacent areas. Self-catering accommodation and camping. Meeting, workshops or mini-conference activities for no more than the number of people that can be accommodated overnight in the zone. Can provide for Environmental Education accommodation and access into surrounding landscapes, but this must be carefully planned not to conflict with visitor use.	Reception offices. Self-catering accommodation and camping for up to 100 guests in total at any time[1] 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. If possible roads should be narrow with separate incoming and outgoing routes; otherwise double vehicle width roads are strongly advisable for safety and usability. Roads in this zone should be surfaced to reduce management cost and environmental impacts. Development and infrastructure may take up a significant proportion of the zone, but planning should ensure that area still provides relatively natural outdoor experience.	Motorised self-drive 2x4 sedan car access. Tour bus access. Parking areas. This zone should be used to provide parking and walk-in access for day visitors to adjacent Nature Access zone if possible.	***Visitor Management:*** Use infrastructure solutions such as railings, hard surfacing and boardwalks to manage undesirable visitor impacts. Accept negative impacts on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay. Frequent footpath and road maintenance must be scheduled for high impact routes. Visible impacts to adjacent Zones should be considered and mitigated. ***Conservation Management:*** Provide access and generate revenue. Management should aim to mitigate the impacts of the high number of visitors. Largely transformed habitats with lower management requirements. Usually fire exclusion areas. Prevent or rehabilitate visible trampling or any other visitor impact. 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. ***Consumptive Use:*** Sustainable use may be appropriate subject to a formal assessment and application in accordance with CapeNature policies.

[1] Although 100 guests seem high this is in line with CapeNature sites that would fall within this zone definition, e.g. configured as 10 x 4-sleeper self-catering units and 15 campsites.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development – High Intensity	***Users:*** To provide access to adjacent natural landscapes with no expectation of solitude. To provide low and/or higher density accommodation. May provide some conveniences such as restaurants and shops. ***Conservation:*** To locate the zone and infrastructure to minimise impact on sensitive environments. To actively manage users and visitor impacts on adjacent sensitive areas. *Provide additional protection to sensitive or threatened habitats, species or other features by Special Management Overlays*	Areas with extensive degraded or transformed footprints. Natural or semi-natural habitats only where benefits outweigh impacts. Areas able to accommodate very high numbers of visitors regularly, with no identified sensitive biodiversity. Areas able to accommodate roads, trails and accommodation infrastructure without risk. Areas easily accessible from reserve management centre. Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment. Areas where new infrastructure can be located with low visibility from the surrounding landscape. Areas not visible from Primitive or Wilderness Zones. Areas with available potable water, and not sensitive to disposal of larger amounts of treated wastewater.	Restaurants and small shops. Picnicking. Walking or bicycle access into adjacent areas. Accommodation in small hotels, lodges and higher density self-catering accommodation and/or camping. Meetings, workshop or mini-conference activities for no more than the number of people that can be accommodated overnight in the zone.	High density tourism development nodes`. Modern amenities including restaurants & shops. Self-catering accommodation and camping for over 100 guests in total at any time. Lodges or small hotels. Roads in this zone must be surfaced to reduce management cost and environmental impacts. Development and infrastructure may take up a significant proportion of the zone, but planning should ensure that area still provides relatively natural outdoor experience.	Tour bus access. Motorised self-drive sedan car access. Parking areas. Air access only permitted if considered and approved as part of zoning scheme and there is no possibility of faunal disturbance.	***Visitor Management:*** Management action will focus mostly on maintenance of facilities & providing high quality experiences. Use infrastructure solutions such as railings, hard surfacing and boardwalks to manage undesirable visitor impacts. Accept substantial impact on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay. Frequent landscape, footpath and road maintenance must be scheduled for high impact areas. Visible impacts to adjacent Zones should be mitigated. ***Conservation Management:*** Provide access and generate maximum revenue. Management should aim to mitigate the biodiversity impacts of the high number of visitors only in sensitive areas (if any) identified by Special Management Overlay. These are highly transformed habitats with lower management requirements. Natural fire exclusion areas. Prevent or rehabilitate visible trampling or any other visitor impact. 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. ***Consumptive Use:*** Sustainable use unlikely to be compatible.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development - Management	Location of infrastructure and facilities for Reserve Administration & especially conservation management facilities Not compatible with tourism and tourism access.	Areas with extensive degraded or transformed footprints. Natural or semi-natural habitats only where benefits at reserve scale outweigh local impacts. Areas able to accommodate high disturbance, with no identified sensitive biodiversity. Areas providing easy access to reserve and infrastructure. Areas very close to zones requiring highest management intervention, especially Low/High Intensity Zones. Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment. Areas where new infrastructure can be located with low visibility from the surrounding landscape. Areas not visible from Primitive or Wilderness Zones. Areas with available potable water, and not sensitive to disposal of treated wastewater.	n/a	Any reserve management infrastructure including offices, sheds, garages, stores, etc Roads required to access these should be surfaced to reduce long-term maintenance costs and environmental impact. *NOTE* *Reserve administrative offices may also be located within visitor reception facilities in Development - Low/High Intensity Zones*	none	***Visitor Management:*** n/a ***Conservation Management:*** Frequent footpath and road maintenance must be scheduled for high impact routes. Accept some impact on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay. Visible impacts to adjacent Zones should be mitigated. Management should aim to contain all activities within the smallest possible footprint. Largely transformed habitats with lower management requirements. Usually fire exclusion areas. Prevent or restore trampling or any other management impact. 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. ***Consumptive Use:*** Sustainable use unlikely to be possible in small zone.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
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 by the public without permission from landowner.	Should have no negative impacts on the surrounding conservation area.

Protection Zones

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Species / Habitat / Cultural Protection	***Users:*** This zone's primary purpose is conservation and research. Limited tourism use only if compatible with conservation objective. ***Conservation:*** Protection of species or habitats of special conservation concern. Restrict access to prevent disturbance and/or damage.	Larger areas where uncontrolled public access is undesirable due to presence of regionally critically rare and endangered fauna, flora, habitat. Typical example would be a seabird breeding colony, particularly for threatened species.	Research. Nature observation under strictly controlled conditions only if specifically noted.	Usually none, but footpaths and tracks to allow management access may be permitted. Where visitor access is permitted, strict access control infrastructure is required to delimit access routes, and if necessary screen visitors. I.e. hides, boardwalks, screened routes, and paths with railings may be appropriate.	Public / Tourism access normally not allowed. May be permitted under very tightly controlled conditions, to be determined per site.	***Visitor Management:*** Prevent visitor access or restrict numbers of visitors and allow for no-use rest periods if required. Infrastructure layout, design and construction must be designed and maintained to highest environmental standards. ***Conservation Management:*** Feature specific – as required. Prevent any negative impacts on identified feature/s. Consider removal and/or rehabilitation of non-essential infrastructure. ***Consumptive Use:*** Not compatible.

Special Management Overlays

Special management overlays provide an indication of areas requiring special management intervention within the above zones. Overlays would typically only be applied where zoning does allow visitor or management access, but special measures are required, particularly to ensure protection of important and sensitive features or sites. Overlays should include specific indication of permitted activities, access, facilities/infrastructure and management guidelines that differ from the rest of that zone. Overlay requirements can be flexible, adapted to the requirements of the feature/s they protect.

Overlay	Overlay Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Cultural	Protection of localised identified important Cultural Feature.	Can overlap any 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 of localised identified important Biodiversity Feature	Can overlap any zone. Permanent, temporary or temporal zone to manage important and sensitive species and/or habitats. Typically only applied where visitor impacts are expected.	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 of sensitive view sheds and particularly for Wilderness Zone view sheds.	Can overlap any zone. Sensitive view sheds and particularly for areas within Wilderness Zone view sheds.	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 plant.	Can overlap any zone except Wilderness and Protection zones. Areas with identified natural resources formally assessed as not sensitive to harvesting and where an approved sustainable harvesting plan is in place.	Harvesting of identified resources.	None	Specific access dependent on feature in question.	Feature specific – as required.

Research is usually permissible in all zones, except Species/Habitat protection or Cultural Protection where it may be restricted. Research that requires 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.

Key Drivers of the Elands Bay State Forest's zonation:

Elands Bay State Forest is characterised by rolling dune fields, with parts stabilised by the introduction of species such as *Acacia cyclops, A. saligna* and *Eucalyptus spp*. Although historic use of the dune fields (4x4 excursion by the public) have been documented, the reserve is exclusively used by management and the municipality. The current development footprint is relatively small (Figure 5.3) and no plans are in place to expand on it. The primitive zone consists mainly of the dune field and access to it is limited to operational activities, i.e, data collection and fence inspections.

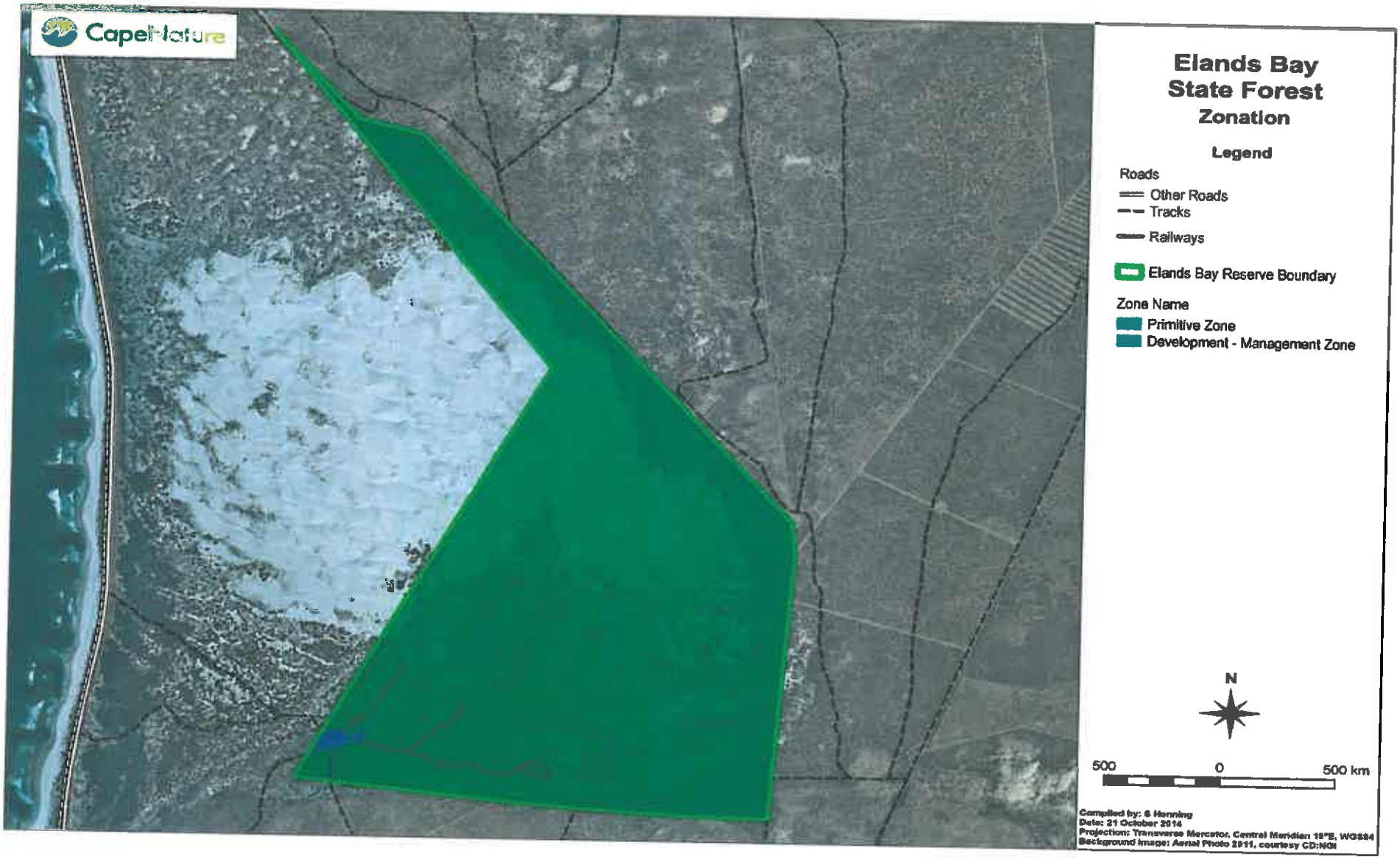

Figure 5.3 Zonation map of Elands Bay State Forest

5.3 ACCESS TO ELANDS BAY STATE FOREST

The general public need to be provided with access to all protected areas. Access points must be easily accessible to relevant user groups, but controlled by protected area staff. Access points on Elands Bay State Forest for the public are listed in Table 5.2. Access and specific facilities are spatially mapped in Figure 5.4.

Table 5.2: Public access points to Elands Bay State Forest

No.	Locality	Name	Type of Access	Activity
1	North of R366	Main Gate	Gated, Unmanned	Leads to staff quarters and dune fields

Elands Bay State Forest is a partner to a servitude agreement with the adjacent landowner from where the reserve's water is sourced as well as with the municipality utilising the reserve to gain access to the municipal boreholes.

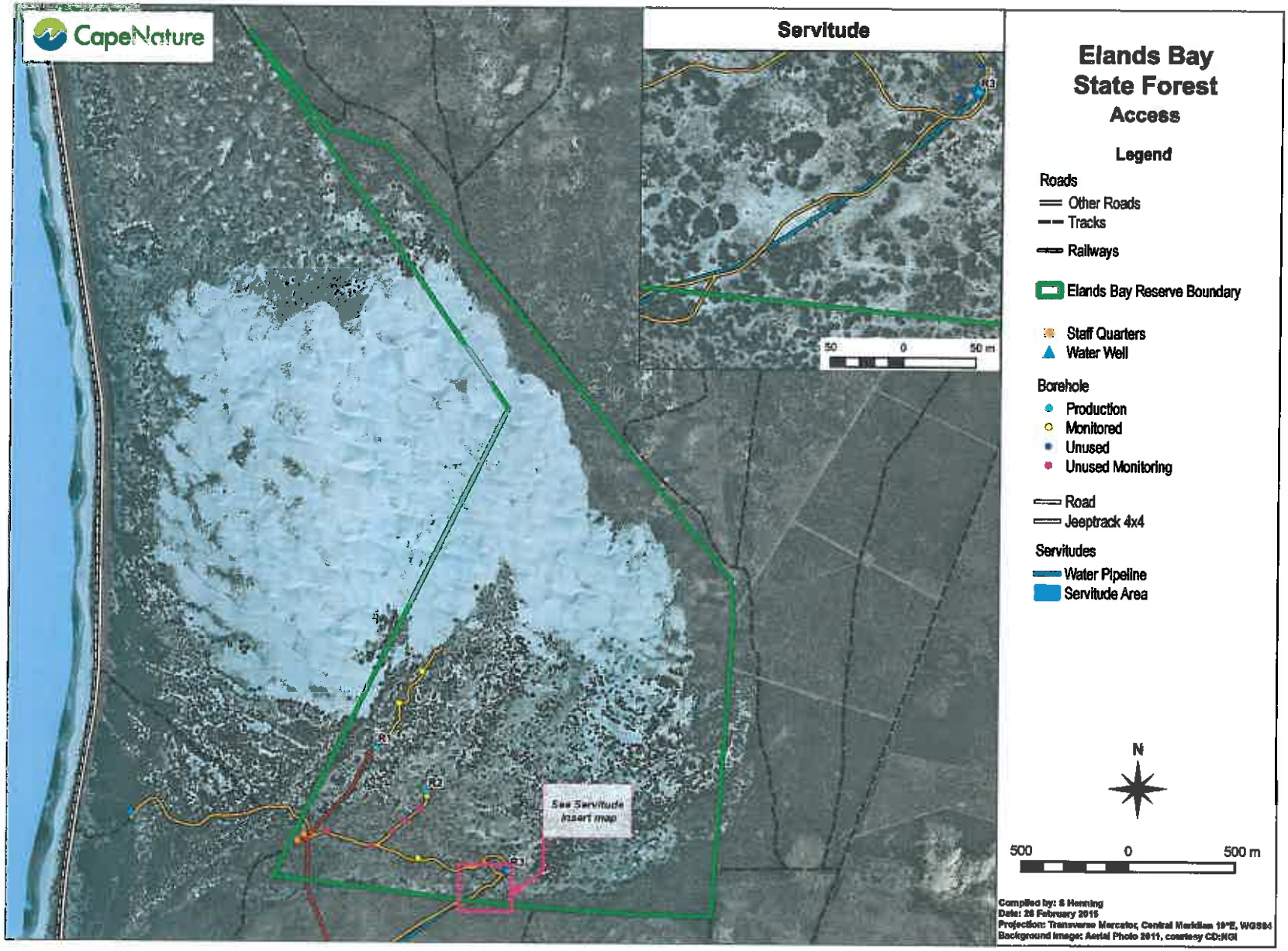

Figure 5.4: **Access on Elands Bay State Forest**

5.4 CONCEPT DEVELOPMENT PLAN

A signification portion of CapeNature's infrastructure development is driven by the organisation's Marketing and Eco-Tourism Department. CapeNature's tourism vision is:

"To establish a differentiated and leading brand of products in outdoor nature-based tourism across the Western Cape for all to enjoy"

This vision will be pursued to provide opportunities to the public and interact in the Cape Floristic Kingdom (World Heritage Site) in an environmentally responsible and sustainable manner specifically to:

- optimise income generation for biodiversity conservation;
- optimise shared growth and economic benefits, to contribute to provincial tourism strategies and transform the tourism operations within CapeNature; and
- strengthen existing and innovate new product with special attention to the provision of broader access for all people of the Western Cape.

Elands Bay State Forest is currently not earmarked for infrastructure development. Future considerations will however take into account the proclamation of Verlorenvlei Provincial Nature Reserve and the potential increase in tourism numbers to the area. It should be noted though that the current infrastructure is completely out dated and will have to be demolished and rebuilt to ensure an enriched visitor experience.

6. STRATEGIC IMPLEMENTATION FRAMEWORK

The SIF guides the implementation of the management plan over five years in order to ensure that it achieves its management objectives. The SIF translates the information described in Sections 3, 4 and 5 above into management activities and targets, which will be used to inform annual plans of operation as well as the resources required to implement them. The management targets will form the basis for monitoring of performance in implementing the plan and are thus measurable.

The SIF is discussed under the following sections; the guiding principles of these sections are discussed in the Co-ordinated Policy Framework.

6.1 Legal Status and Reserve Expansion

6.2 Regional Integrated Planning and Cooperative governance

6.3 Ecosystem and Biodiversity Management

6.4 Wildlife Management

6.5 Fire Management

6.6 Invasive and Non-Invasive Alien Species Management

6.7 Cultural and Heritage Resources

6.8 Law Enforcement and Compliance

6.9 Infrastructure Management

6.10 Disaster Management

6.11 Socio-Economic Framework

6.12 Awareness, Youth Development and Volunteers

6.13 Management Effectiveness

6.14.1 Finance and Administration Management

6.14.2 Human Resources Management

6.14.3 Occupational Health and Safety Management

6.14.4 Risk Management

	6.1 LEGAL STATUS AND RESERVE EXPANSION				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Elands Bay State Forest has secure permanent legal conservation status in terms of NEM: PAA.	• Formalise legal status of State Forest. • Proclaim as a provincial nature reserve under NEMA:PAA	Executive Director Operations. DEA. Department of Environmental Affairs and Development Planning (DEADP). Law Admin Manager.	The Elands Bay State Forest is legally secure.	Year 1-5	NEM: PAA; Deeds office; Government gazette. WCPAES
2. Elands Bay State Forest boundary is known and appropriately demarcated and secure.	• Survey boundaries for inclusion in proclamations.	Conservation Manager. Law Admin Manager. Surveyor General.		Year 1-5	CN Boundary verification process.
3. Elands Bay State Forest design (size and shape) are adequate to achieve the conservation objectives in the Management Plan.	• Identify potential stewardship agreements with the surrounding landowners in line with WCPAES. • Ensure local strategy for Elands Bay Nature Reserve expansion is included in WCPAES. • Maintain stewardship agreements with neighbouring landowners.	Conservation Manager. Programme Manager: Stewardship. Conservation Services Manager.	Hectares added to the conservation estate .	Year 1 - Ongoing	WCPAES Stewardship programme
4. A buffer zone for the Elands Bay State Forest has been established.	• Maintain partnership with the GCBC stewardships sites, • Assist with the proclamation of the Verlorenvlei Provincial Nature Reserve. •	Conservation Manager. Community Conservation Manager. Conservation Services Manager.		Year 1 - Ongoing	WCPAES; Stewardship programme

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 20 918

	6.2 REGIONAL INTEGRATED PLANNING AND COOPERATIVE GOVERNANCE				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Elands Bay State Forest is integrated into land-use planning outside of the nature reserve.	• Identify projects to include in SDF's and IDP's. • Integrate with the SDF's and IDP's of the West Coast District Municipality and Cederberg Local Municipalities. • Link up with the Incident Command Structures of the WCDM. • Attend the Municipal Coastal Committee and Verlorenvlei Estuary Management Forums	Regional Manager. Community Conservation Manager. Conservation Services Manager. Conservation Manager.	The protected area is integrated into land-use planning outside of the protected area.	Year 1 and 5	Intergovernmental Relations Framework Act, (Act No. 13 of 2005).
2. Water-use planning outside Elands Bay State Forest takes into account the objectives of the reserve.	• Attend relevant water user's association meetings regarding groundwater abstraction. • Obtain latest municipal abstraction reports on reserve. Integrate into future PAMPs	Conservation Manager.		Year 1 - Ongoing	National Water (Act No. 36 of 1998)
3. Establish a functioning Advisory committee for Elands Bay State Forest	• Perform chairperson and secretariat function of the Penguin (Bird) Island Nature Reserve and Elands Bay State Forest PAAC	Regional Manager. Community Conservation Manager. Conservation Services Manager. Conservation Manager.	A combined Advisory committee for the Penguin Bird Island and Elands Bay State Forest has been established and is functioning.	Year 1 - Ongoing	Ref Section 10.1.3; Regulations for the proper administration of nature reserves (2012).
4. Set strategic objectives	• Attend meeting and present results at QEM	RMC, Scientific Services,	Objectives	Year 1	PAMP

for Elands Bay State Forest.	and PAAC. • Regional Manager to present findings to Executive.	Business Development	defined and reviewed by the PAAC.		

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 20 918

	6.3 ECOSYSTEM AND BIODIVERSITY MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Compile an Ecological Plan of Operation and Ecological Matrix for Elands Bay State Forest and Ecological Matrix.	• Compile an Ecological Plan of Operations to support the Ecological Matrix. • Collate all relevant monitoring and research protocols and data sheets to inform the Ecological Plan of Operations. • Develop and maintain an approved Ecological Matrix for Elands Bay State Forest	Conservation Manager. Ecological Co-Ordinator. Regional Ecologist.	Elands Bay State Forest will annually indicate an upward trend in the METT-SA score. 100% of actions identified in the integrated auditing system will be implemented.	Year 1 - Ongoing	Ecological Plan of Operations, Ecological Matrix
2. A biodiversity resource inventory for Elands Bay State Forest is in place.	• Gather baseline data for a number of taxa for the reserve • Prioritisation of projects for inclusion on the Ecological Matrix. • Implement the Ecological Matrix. • Collect voucher specimens and DNA samples (where relevant) for all fauna and flora in the Elands Bay State Forest and submit to Scientific Services. Maintain and develop herbaria for all plant species, especially species of conservation concern. • Analyse data, re-assess and implement adaptive management strategies.	Conservation Manager. Ecological Co-Ordinator. Regional Ecologist. Scientific Services		Year 1 - Ongoing	Baseline data collection and monitoring manual (2010). Ecological Plan of Operations.

	6.3 ECOSYSTEM AND BIODIVERSITY MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
3. A monitoring programme for Elands Bay State Forest is being implemented.	• Review monitoring protocols. • Identify monitoring needs of Elands Bay State Forest in consultation with Scientific Services. • Establish indicators for monitoring. • Implement monitoring activities as per the Ecological Matrix. • Report on monitoring activities as per the Ecological Matrix. • Analyse data, re-assess and implement adaptive management strategies. • Implement relevant national monitoring initiatives as per Ecological Matrix. • Evaluate whether the weather station at Rocherpan would provide better data for future use.	Conservation Manager. Ecological Co-Ordinator. Regional Ecologist.		Year 1 - Ongoing	Baseline data collection and monitoring manual (2010). Ecological Plan of Operations.
4. A research programme for Elands Bay State Forest is being implemented.	• Identify research needs for the reserve. • Develop and implement an applied research programme for the reserve in consultation with Scientific Services. • Results of research projects are fed back to the management of the reserve. • Results are used to adapt management of the nature reserve where relevant. • Provide support to researchers as per Ecological Matrix and research permit conditions.	Conservation Manager. Ecological Co-Ordinator. Regional Ecologist. Scientific Services.		Year 1 - Ongoing	Baseline data collection and monitoring manual (2010). Ecological Plan of Operations. Ecological Matrix
5. Elands Bay State Forest contributes to the maintenance of ecosystem services.	• Design and implement appropriate fire (Refer to Table 7.5) and alien invasive management (Refer to Table 7.6) programmes. • Conduct a trail, jeep track and roads assessment as per ICM standards.	Conservation Manager. Ecological Co-Ordinator. Regional Ecologist.		Year 1 - Ongoing	ICM Standard Operating Procedures. Fire Management Policy.

	6.3 ECOSYSTEM AND BIODIVERSITY MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
	• Compile maintenance schedule. • Implement trail, jeep track and roads maintenance schedule. • Close and rehabilitate inappropriate trails, jeep tracks and roads in accordance with assessment report. • Implement monitoring as per the Ecological Matrix.	Catchment Manager. Programme Manager: Fire. Programme Manager: AVM.			
6. Prevent and mitigate soil erosion on the Elands Bay State Forest.	• Conduct a soil erosion assessment as per ICM standards. • Compile an erosion maintenance plan. • Implement erosion maintenance plan. • Review site recovery. • Implement erosion monitoring as per the Ecological Matrix.	Conservation Manager. Ecological Co-Ordinator. Regional Ecologist. Catchment Manager.		Year 1 - Ongoing	ICM Standard Operating Procedures, Ecological Plan of Operations
7. Mitigate the impacts of groundwater abstraction on the reserve.	• Monitor groundwater abstraction on Elands Bay State Forest as per the Ecological Matrix. • Obtain abstraction report from local municipality	Conservation Manager.		Year 1 - Ongoing	Ecological Plan of Operations
8. Conservation of Threatened and Endemic Flora.	• Survey the reserve for any relevant species. • Implement actions as identified in the Ecological Matrix.	Conservation Manager, Community Conservation Manager, Communications Manager, Scientist: Botanist, Ecological Co-Ordinator.		Year 1 - Ongoing	Baseline & Monitoring Manual 2010, Critical Biodiversity Assessments.
9. Conservation of Threatened and	• Survey the reserve for any relevant species • Implement actions as identified in the Ecological	Conservation Manager,		Year 1 - Ongoing	Baseline & Monitoring Manual 2010, Ecological

	6.3 ECOSYSTEM AND BIODIVERSITY MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
Endemic Fauna	Matrix.	Ecological Co-Ordinator, Regional Ecologist, Senior Manager Scientific Services.			Plan of Operations, Critical Biodiversity Assessments,
10. Manage consumptive utilisation of biological resources.	• Established database indicating all utilised species and the extent of their use within the reserve. • Evaluate all resource use applications in terms of the CapeNature Policy on consumptive utilisation. • Develop MOU for subsistence farmers • Monitor access to the reserve	Conservation Manager, Conservation Services Manager, Ecological Co-Ordinator.		Year 1 - Ongoing	CapeNature Policy on consumptive utilisation (2007).

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 81 836

	6.4 WILDLIFE MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Reintroduction of historically occurring wildlife species in Elands Bay State Forest	• Investigate the viability of reintroducing species. If viable the following steps will be followed: • Identify suitable species and habitat availability to be considered for re-introduction. • Draw up a Game management plan for re-introduced species. • Acquire approval from the Wild Animal Advisory Committee for planned re-introductions.	Conservation Manager, Conservation Services Manager, Programme Manager: Wildlife, Scientist: Ecological Co-Ordinator, Regional Ecologist.	A game management plan completed	Year 1-5	BMPs, GTUP.
2. Manage escaped game from neighbouring properties (historical occurrences, extra-limital and alien species).	• Asses impact of these Fauna and make decision regarding the management thereof. • Implement existing policies in dealing with historical occurring, extra limital and alien fauna.	Conservation Manager, Conservation Services Manager, Scientist: Mammalogist Ecological Co-Ordinator, Regional Ecologist.	Successful management of escaped game.	Year 1 - Ongoing	GTUP.
3. Manage Damage Causing Animals	• Attend to farmers accessing the reserve for illegal grazing occurring near the reserve buildings • Attend to dilapidated fences • Ensure that neighbours experiencing DCA problems are put in contact with CapeNature's Conservation Service department. • Arrange for awareness raising events	Conservation Manager, Conservation Services Manager, Programme Manager: Wildlife, Scientist: Ecological Co-Ordinator, Regional Ecologist.	DCA incidents reported in the area	Year 1 - Ongoing	GTUP.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 20 918

	6.5 FIRE MANAGEMENT				
Objective 2	◦ **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
4. Reduce / avoid the spread of fires across the Reserves borders and minimize accidental/deliberate fires within the reserve.	◦ Do risk assessments. ◦ Update and implement Fire Protection and Reaction Plans according to risk assessments. ◦ Construct priority firebreaks according to schedule. ◦ Assess appropriateness of current firebreak network and re-align where appropriate. ◦ Negotiate firebreak agreement with neighbours where relevant. ◦ Implement fuel reduction around infrastructure to minimise risk. ◦ Conduct and comply pre-fire and post-fire season audits.	Conservation Manager, Catchment Manager, Regional Manager.	Reserve has a minimum pre-fire season audit score of 90% by Year 5. The distribution and range of veld age is within the limits of acceptable change (TBD).	Year 1 - Ongoing	Fire Management Policy and Guidelines; Fire break register; ICM APO
5. To allow for natural fire processes to occur without negatively impacting on safety and infrastructure.	◦ Manage Elands Bay State Forest as a natural fire zone. ◦ Implement fire control in accordance with the fire management policy. ◦ Fire Reports completed. ◦ Mapping of all fires and capture on GIS. ◦ De-briefing sessions held after each fire and records kept.	Conservation Manager, Catchment Manager, Regional Manager, GIS technician.		Year 1 - Ongoing	Fire Management Policy and Guidelines. FPA
6. Establish and maintain partnerships to improve fire management on Elands	◦ Attend FPA meetings. ◦ Attend PAAC and Verlorenvlei Estuary Management Forum	Conservation Manager, Catchment		Year 1 - Ongoing	Fire Management Policy and Guidelines; FPA operational rules and guidelines.

Bay State Forest.	to assist with building good neighbour relations	Manager.			
7. Determine and implement thresholds of potential concern for fire management on the Elands Bay State Forest.	◦ Set and monitor Threshold of Potential Concerns (TPCs).	Conservation Manager, Catchment Manager, Ecological Co-Ordinator, Regional Ecologists, Scientist: Botanist.		Year 1 - Ongoing	Fire Management Policy and Guidelines; Baseline data collection and Monitoring Manual; Ecological Matrix.
8. Wildfires as a result of human negligence are reduced.	• Create a fire awareness programme for tourists, local communities and staff.	Conservation Manager, Community Conservation Manager, Tourism Manager.		Year 1 - Ongoing	Fire Management Policy and Guidelines; Fire wise Implementation Guidelines

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 8 367

	6.6 INVASIVE AND NON-INVASIVE ALIEN SPECIES MANAGEMEMNT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing**
6.6.1 Invasive Alien Flora					
1. Eradicate alien and invasive species within the Elands Bay State Forest on an on-going basis.	• Identify and map all alien and invasive flora within Elands Bay State Forest or threatening the Reserve. • Assess clearing strategy to ensure that priority areas are identified. Additionally which areas will be rehabilitated and re-vegetated with indigenous vegetation • Integrated Catchment Management informs both fire and alien vegetation management. • Attend regional ICM Meetings. • Compile and approve a MUCP for Elands Bay State Forest • Implement MUCP in accordance with Working for Water and ICM standards.	Conservation Manager, Catchment Manager, Ecological Co-Ordinator, Regional Ecologist.	100% of hectares IAP's cleared annually versus planned. % total area cleared where IAP's have been controlled to a maintenance phase by Year 5 (TBD).	Year 1 - Ongoing	MUCP, ICM procedures, WfW Operating Procedures.
2. Monitoring of alien clearing operations on Elands Bay State Forest to inform adaptive management strategies.	• Implement record keeping procedures. • Evaluate records and adapt clearing strategies as needed.	Conservation Manager, Catchment Manager, Ecological Co-Ordinator, Regional Ecologist.		Year 1 - Ongoing	MUCP, ICM procedures, WfW Operating Procedures.
3. Implement biological control as a method of IAP management.	• Determine the distribution of biological control agents on *Acacia cyclops*.	Conservation Manager, Catchment Manager, Ecological Co-Ordinator, Regional Ecologist.		Year 1 - Ongoing	WfW and Dept Agriculture Landcare Guidelines
4. Prevent the introduction of alien and invasive species from neighbouring	• Ensure surrounding landowners are aware of relevant Conservation of Agricultural Resources Act (CARA) legislation. • Identify ways in which alien and invasive	Conservation Manager, Catchment Manager, Ecological Co-Ordinator, Regional Ecologist.		Year 1 - Ongoing	WfWr and Dept Agriculture Landcare Guidelines

	6.6 INVASIVE AND NON-INVASIVE ALIEN SPECIES MANAGEMEMNT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing**
landowners.	species might be introduced to the reserve and put measures in place to prevent infestation from occurring.				
6.6.2 Invasive Alien Fauna					
1. Prevent the introduction of alien and invasive species.	• Implement pets on the reserve policy. • No domestic livestock will be permitted in the reserve. • Tourists not permitted to bring any domestic animals into the reserve. • Investigate MoU's with neighbouring communities where domestic livestock is a potential risk.	Conservation Manager, Catchment Manager, Ecological Co-Ordinator, Regional Ecologist.	No of incidents of alien fauna recorded	Year 1 - Ongoing	CN Policy on domestic animals on nature reserves CN Policy on fish utilisation.
2. Control alien and invasive species within Elands Bay State Forest on an on-going basis.	• Identify alien fauna occurring on the reserve. • Monitor populations of alien fauna on the reserve. ◦ Active control vagrant pets and livestock through acceptable methods. ◦ Measure success of control methods utilised. ◦ Involve external stakeholders such as the SPCA, Stock Theft Unit and the municipality.	Conservation Manager, Catchment Manager, Ecological Co-Ordinator, Regional Ecologist.	Number of controlled incidents	Year 1 - Ongoing	CN Policy on domestic animals on nature reserves, Baseline Monitoring Manual 2010.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 20 918

	6.7 CULTURAL HERITAGE RESOURCE MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverable	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. To protect cultural heritage resources.	• Compile a cultural heritage resource inventory for Elands Bay State Forest. • Maintain database with up to date information. • Erect adequate and appropriate signage at strategic sites. • Erect barriers at relevant sites. • Control asses to strategic sites.	Conservation Manager, Tourism Manager, Communication Manager.	Heritage assets and values being managed consistent to objectives	Year 1 - Ongoing	Cultural Heritage Resource Management Plan, Specialists reports.
2. Cultural Heritage resources are managed to meet the protected area objectives.	• Compile and implement a Cultural Heritage Resource Management Plan for Elands Bay State Forest and determine management priorities.	Conservation Manager, Tourism Manager.		Year 1 - Ongoing	Cultural Heritage Resource Management Plan
3. Monitor cultural heritage resources.	• Implement recording and monitoring according to the Ecological Matrix.	Conservation Manager, Ecological Co-Ordinator		Year 1 - Ongoing	Baseline & Monitoring Manual 2010
4. Management interventions for the protection of cultural heritage resources.	• Implement recommendations as per specialist reports for the cleaning of identified heritage sites.	Conservation Manager.		Year 1 - Ongoing	Specialists reports

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 10 918

	6.8 LAW ENFORCEMENT AND COMPLIANCE				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** ◦ **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing**
1. Law enforcement for Elands Bay State Forest is effective.	• All staff must have a working knowledge of all legislation applicable to their function and mandate. • Elands Bay State Forest staff is adequately capacitated to enforce legislation within the organisation's mandate and does so effectively. • Staff must be formally designated to enforce the relevant legislation. • Appropriate staff has been designated as environmental management inspectors. • Staff has the necessary equipment to enable them to do law enforcement effectively. • The nature reserve receives adequate law enforcement support from other sections of the organisation. • Specific relevant training has been identified and staff has received relevant training. • Local policing forum meetings are attended in priority areas in order to build partnerships with local law enforcement.	Conservation Manager, Conservation Services Manager, Community Conservation Manager, Regional Manager, Programme Manager: BCU	Number of peace officers trained and appointed. Number of EMI's trained and appointed. Biodiversity Crime Unit (BCU)	Year 1-5	Criminal Procedure Act 51 of 1977; Bill of Rights; Constitution
2. Protection systems are in place and operating effectively.	• The following management mechanisms to control both illegal and legitimate access and use: ◦ Control legitimate access ◦ Develop standard operating procedures to control activities within the nature reserve for	Conservation Manager, Conservation Services Manager, Community Conservation Manager, Regional Manager, Programme Manager:		Year 1 - Ongoing	BCU registers, Personal Development Plans, Criminal Procedure Act.

	6.8 LAW ENFORCEMENT AND COMPLIANCE				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing**
	relevant aspects of management. • Implement all standard operating procedures for controlling activities. • Adjacent communities are engaged in order to promote the reserve, to build relationships and to identify priority areas. • Awareness raising activities are held with adjacent communities in order to raise awareness concerning reserve and biodiversity conservation. • Areas in the nature reserve have been identified and prioritised in terms of conservation value or type of utilisation, for routine law enforcement patrols. • Regular routine patrols are performed in all identified priority areas.	BCU			

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 30 918

	6.9 INFRASTRUCTURE MANAGEMENT				
Objective 1 **Objective 2**	◦ **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing**
1. Align all infrastructure to the conservation development framework and zonation.	◦ Assess infrastructure development appropriateness to the CDF. • Compile a re-alignment plan. • Implement the re-alignment plan.	Conservation Manager, Conservation Planner, Regional Manager, Tourism Manager, Regional Ecologist, Ecological Co-Ordinator.	Approved re-alignment plan.	Year 1 - Ongoing	CDF, EIA Regulations.
2. Roads/Jeep Tracks and Trails are managed to minimise impact on the environment.	◦ Conduct annual assessment of roads, Jeep tracks and trails in Elands Bay State Forest. • Implement maintenance schedule as part of the ICM APO. ◦ Re -align road network and align with the CDF where required. • Rehabilitate where necessary. • Monitor cost effectiveness of infrastructure maintenance.	Conservation Manager, Catchment Manager, Ecological Co-Ordinator, Community Conservation Manager	ICM schedule Implemented	Year 1 - Ongoing	ICM Procedures.
3. Buildings are effectively maintained.	• Implement maintenance schedule. • Provide Department of Public Works with works list to reflect maintenance requirements. • Maintenance or new infrastructure is appropriately planned (EMP), approved by the QEM and if required the Appropriate EIA completed.	Conservation Manager, Department of Public Works, Tourism Manager.	Infrastructure maintenance schedule.	Year 1 - Ongoing	Infrastructure register, Department Public Works maintenance schedule.
4. Maintain fences according to legislative requirements.	◦ Secure funds to replace current fences • Communicate 50/50 principles with neighbours ◦ Conduct ongoing fence monitoring	Conservation Manager	Infrastructure maintenance schedule.	Year 1 - Ongoing	Infrastructure register.

	6.9 INFRASTRUCTURE MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing**
	and assessment. • Implement fence maintenance schedule.				
5. Environmental Management: Waste Disposal	• Maintenance of storage bins as scheduled in registers to ensure upkeep and prevent pollution. • Obtain services of neighbouring CapeNature Full Time Equivalent, FTE, staff to clear reserve of old building rubble, etc.	Conservation Manager, Tourism Manager.	Infrastructure maintenance schedule.	Year 1 - Ongoing	Rocherpan / Penguin Bird Island APO
6. Environmental Management: Water	• Maintenance of water reticulation as scheduled in registers to ensure upkeep and prevent degradation. • Schedule regular inspections. • Ensure environmentally sound options are being implemented by Department of Public Works by introducing water saving technologies in old and new infrastructure (Green Building principals).	Conservation Manager, Tourism Manager.	Infrastructure maintenance schedule.	Year 1 - Ongoing	Infrastructure register.
7. Environmental Management: Sewage	• Install effective environmentally friendly sewage facilities in collaboration with Department of Public Works. • Investigate the installation of waterless toilets as currently being installed in other CapeNature products	Department of Public Works	Infrastructure maintenance schedule.	Year 1 - Ongoing	Infrastructure register.

	6.9 INFRASTRUCTURE MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing**
8. Environmental Management: Energy	• Ensure environmentally sound options are being implemented by Department of Public Works by introducing energy saving and renewable technologies in old and new infrastructure (Green Building principals).	Department of Public Works	Infrastructure maintenance schedule.	Year 1 - Ongoing	Infrastructure register.
9. Environmental Management: Herbicide, gas and Fuel Stores	• Maintain fuel and herbicide registers. • Store hazardous materials according to regulations. • Ensure current store has appropriate ventilation and bun walls installed	Conservation Managers	Integrated audit system.	Year 1 - Ongoing	Infrastructure register.
10. Signage is appropriate and effective to support management.	• Conduct a signage audit. • Compile a signage register with maintenance plan. • Focus on entrance sign at main Elands Bay road and at entrance gate at houses. • Once fenced signage on the dunes where subsistence farmers with goats enter should be erected	Conservation Managers, Tourism Manager	Audit report and completed register.	Year 1 - Ongoing	Infrastructure register.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 10 918

	6.10 DISASTER MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Disaster prevention and preparedness	• Conduct a risk assessment and identify areas of potential concern. • Compile and implement disaster management plan for Elands Bay State Forest in accordance with relevant legislation. • Engage with disaster management units from municipalities. • Conduct an annual audit of disaster management plans and mitigation measure readiness. • Annual review and exercise of contingency and evacuation plans.	Conservation Manager, Chief Risk Officer, Catchment Manager	Approved Contingency Plans	Year 1 - Ongoing	Fire Management Policy, H&S Policy, Provincial Disaster Plan.
2. Disaster response.	• Train staff and NGOs to ensure capacity to manage and mitigate the effects of disasters. • Procure equipment for disaster response and mitigation. • Participate and assist district municipality disaster management structure. • Activate evacuation and contingency plans.	Conservation Manager, Chief Risk Officer, Catchment Manager		Year 1 - Ongoing	Fire Management Policy, H&S Policy, Provincial Disaster Plan.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 4 184

	6.11 SOCIO-ECONOMIC FRAMEWORK				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing**
1. Create access to the conservation economy through the implementation and management of appropriate initiatives and projects.	◦ Create short-term job creation opportunities for locals through a range of projects. • Investigate wood harvesting and rehabilitation projects	Conservation Manager, Community Conservation Manager, Regional Manager, Tourism Manager, Catchment Manager	Number of EPWP job opportunities (n). Number of EPWP full time equivalents (n). Number of people directly benefitting from Sustainable Livelihood Programmes (n) Number of person days employment created (n).	Year 1 - Ongoing	ICM Procedures, PFMA
2. Elands Bay State Forest provides community development opportunities through various capacity building interventions, linked to job creation opportunities.	• Assist with training and capacity building initiatives in the communities.	Conservation Manager, Community Conservation Manager		Year 1 - Ongoing	People and Parks Action Plan, CapeNature Communications Policy, The Development of Educational Resources (Corporate Strategic Plan), Youth Development & Environmental Education Programme Strategic Plan.
3. Manage consumptive utilisation of biological resources.	• Establish a database indicating all utilised species and the extent of their use within Elands Bay State Forest ◦ Evaluate all resource use applications in terms of the	Conservation Manager, Ecological Co-Ordinator, Regional Ecologist, Conservation Services Manager.		Year 1 - Ongoing	CapeNature Policy on consumptive utilisation (2007).

	CapeNature Policy on consumptive utilisation. • Manage any potential NRM projects				

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 20 918

	6.12 AWARENESS, YOUTH DEVELOPMENT AND VOLUNTEERS				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing**
1. Ensure awareness raising initiatives elevate awareness around conservation issues in Elands Bay State Forest	• Disseminate information and material for Environmental Awareness calendar days, e.g, International Beach Clean-up Day. • Collaborate with partners to arrange events on Environmental Awareness events and scheduled school activities. • Liaise with Communication Department to facilitate the production of media releases. • Present talks, presentations when requested. • Assist with the development and implementation of an awareness plan linked to the objectives Elands Bay State Forest. • Liaise with relevant Programmes and Communication Department for assistance to implement awareness raising events. • Assist with planning and implementation of awareness raising events. • Implement Firewise awareness program in conjunction with Community Conservation	Conservation Manager, Community Conservation Manager, Conservation Services Manager.	Number of learners provided with Environmental education opportunities (n).	Year 1 - Ongoing	People and Parks Action Plan, CapeNature Communications Policy, The Development of Educational Resources (Corporate Strategic Plan), Youth Development & Environmental Education Programme Strategic Plan.
2. Environmental education	• Provide access for Formal and	Conservation Manager,		Year 1 -	People and Parks

is provided to promote an understanding of biodiversity and the use of the natural environment as a vehicle for learning and development.	Informal EE programmes as per pre-arranged agreements. • Assist with formal and Informal EE programmes conducted in and around the Elands Bay State Forest • Assist with the development and implementation of an environmental education plan linked to the objectives of Elands Bay State Forest	Community Conservation Manager, Conservation Services Manager.		Ongoing	Action Plan, CapeNature Communications Policy, The Development of Educational Resources (Corporate Strategic Plan), Youth Development & Environmental Education Programme Strategic Plan.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 20 918

	6.13 MANAGEMENT EFFECTIVENESS				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Implement and maintain the METT-SA	• Conduct annual METT-SA assessments. • Monitor and improve METT-SA Score through the development of action plans and implementation thereof. • Report to DEA as per requirement for national evaluation of METT-SA scores.	Programme Manager: Quality Management, Conservation Manager, Regional Ecologist, Regional Manager.	The Elands Bay State Forest will annually indicate an upward trend in METT-SA score.	Year 1 - Ongoing	Standard Operation Procedures.
2. Auditing systems inform management.	• Conduct CapeNature integrated auditing system. • Compile actions lists to address audit issues. • Track action list for progress. • Apply adaptive management strategies.	Programme Manager: Quality Management, Conservation Manager, Regional Ecologist, Protected Area Manager.		Year 1 - Ongoing	Integrated Audit
3. A APO identifying specific targets for achieving management objectives is approved by CapeNature.	• Assess and prioritise actions from audit results into APO. • Compile APO in terms of actions identified in the Management Plan.	Conservation Manager, Regional Manager,		Year 1 - Ongoing	APO guideline document.
4. Progress reports are compiled.	• Compile monthly BMS progress reports. • Compile monthly MIS progress report for funded EPWP projects	Conservation Manager		Year 1 - Ongoing	BMS, EPWP reporting system.
5. Implement and review the Management Plan for Elands Bay State Forest	• Assess all PAMP audit results and ensure adaptive management strategies are implemented. • Annual assessment on progress of PAMP actions. • Compile annual report on the status of implementation of the PAMP and submit to the MEC.	Programme Manager: Quality Management, Reserve Management Committee		Year 1 - Ongoing Year 1 - Ongoing	PAMP document, Standard Operating Procedures.

	• Complete review of PAMP.			Year 1 - Ongoing Year 5	

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 32 755

	6.14.1 FINANCE AND ADMINISTRATION MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. To ensure financial accountability in terms of the PFMA and the Treasury Regulations.	• Participate in an annual internal audit of the nature reserve financial records. • External audit report with findings and recommendations communicated. • Provide relevant financial information to reserve management. • An operational budget is allocated to fund the critical management needs of the nature reserve. • Manage cash flow • Implement Supply Chain Management • Provide input to relevant SCM reports. • Financial management practice enables efficient and effective protected area management. • Monthly management reports submitted to reserve management. • Acknowledgement of report by Conservation Manager. • Variance report signed and returned. • Reserve Management provide input to monthly cash flow forecast. • Signed and approved budget provided by 1 April.	Finance and Admin Manager, Finance Manager, Finance and Admin Officer, Conservation Manager	Percentage increase shown on revenue as a result of additional funding sourced. Annual increase in visitor numbers.	Year 1 - Ongoing	Budgeting process; APO. SAP system; Supply Chain Management Act. Statements of GRAP.
2. Identify opportunities that are robust to create a diverse income base.	• Identify sources of potential income. • Maintain new and existing partnerships with external funders / stakeholders.	Conservation Manager, Executive Director: Business Development, Foundation Manager		Annually	National Treasury Regulations with regard to Donations, Sponsorships.

	6.14.1 FINANCE AND ADMINISTRATION MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat.**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
3. Fixed Asset Management	• To manage the assets of the reserve in accordance with the relevant legislation. • To ensure that all reserve assets are bar coded. • To ensure that all reserve assets are verified bi-annually. • To provide input into infrastructure asset management plan annually. • Fixed Asset Register is approved by the Conservation Manager. • Verification Report is approved by the Conservation Manager. • Disposal of assets in line with policies. • GIAMA requirement is met annually. • Trip authorisation forms in place. • To manage CapeNature and Government Motor Transport assets in accordance with policy.	Finance and Admin Manager, Finance and Admin Officer, Conservation Manager		Bi-anually / monthly	SOP's and policies. Statement of GRAP, UAMP guidelines.
4. Capacity building among staff.	• Provide relevant financial and Administrative training to reserve staff.	Conservation Manager, Finance and Admin Manager		Annually	SOP's and policies PFMA

Budget Allocation	**Development**	
	Operation (5Year Forecast)	R 41 836

	6.14.2 HUMAN RESOURCE MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Ensure an adequately resourced staff complement on the reserve.	• Ensure current posts are filled and appointment of additional staff (subject to funding). • Ensure resourced (tools and skills) staff in line with approved budget to manage the nature reserve effectively (subject to funding). • Prioritise all critical posts for filling and develop a phased implementation plan in line with approved personnel budget. • Ensure on-going assessment of workloads (volumetric analysis) through interventions in consultation with the Organisational Development Unit of the Department of the Premier. • Employment relationship is in line with employment contract commitments. • Implement an Employment Well-being Programme	Conservation Manager, Regional Manager, Executive Director: Conservation Management. Executive Directors: Operations and HRM	Human resource capacity is adequate to manage the protected area effectively subject to funding	Year 1 - Ongoing	Recruitment and Selection Policy; Standard Operating Procedures for Recruitment and Selection SA Constitution Labour Relations Act Basic Conditions of Employment Act Employment Equity Act Occupational Health & Safety Act Overtime Policy Equate System for Job Evaluation Leave Policy
2. Integrate and align organisational and employee performance.	• Implement effective Performance Management System in place. • Ensure compliance with Code of Conduct.	Conservation Manager, Regional Manager, Executive Directors: Operations, HRM, Chief Executive Officer	Performance agreements completed and signed for all employees. Performance	Annually	Performance Management Handbook Annual Plan of Operations Rewards Foundation Policy Disciplinary Code and

	6.14.2 HUMAN RESOURCE MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
			appraisals completed for all employees.		Procedures (Managing poor performance) Code of Conduct
3. Skilled employees on the reserve	• All staff is skilled to perform according to job specification in the roles they occupy in line with mandatory legislative requirements. • Develop personal development plan for all staff on the reserve. • Roll out of personal development plan for all staff on the reserve. • Reflect capacity development interventions which are supported by mentorship and coaching agreements. • Conduct annual Skills audit.	Conservation manager, Regional Manager, HR and Employment Equity and Training Committees	Develop personal development plan for all staff on the reserve. Mentorship and coaching agreements. Implement Skills Plan according to priorities and budget availability	Annually	Individual PDPs Mentorship strategy and toolbox Skills Development Act Training Policy Bursary Policy Internship Policy

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 29 285

	6.14.3 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** ◦ **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. To implement policies, procedures and systems to ensure compliance to the Occupational Health and Safety Act. (OS4909H Act).	• Implement Occupational Health and Safety System. • Conduct monthly Health and Safety inspections. • Conduct monthly Health and Safety meetings.	Regional Manager. Conservation Manager. OHSA Manager.	No disabling injuries occur.	Year 1-5	OHS Act, Internal Health and Safety System
2. To inform the workers, contractors, volunteers, students and the public of these dangers, how exposure could be prevented, and how to work safely.	◦ Attend Accredited OHS Training: (HIRA) • Attend Accredited OHS Training to renew certificates (OHS Reps & First Aid Officers). ◦ Attend in-house OHS Training Workshops. • Conduct monthly Toolbox Talks.	Regional Manager, Conservation Manager, OHSA Reps, Equipment Operators First Aid Officers; Designated OHSA risk specific appointments, OHSA Officer, OHSA Manager		Year 1 ongoing	OHS Training Needs Analysis (conducted annually and aligned with available legislative requirements and available resources)
3. Hazard Identification, Risk Assessment and Risk Management and Risk Control are implemented on Elands Bay State Forest	• Conduct regular HIRA processes to determine key risks with highest impact potential. • Recommend remedial action plans to address key risks. • Follow-up to ensure effective implementation.	Regional Manager, Conservation Manager, OHSA Manager		Year 1 ongoing	HIRA Report, Safe Operating Procedure
4. Monitor and review to ensure adaptive management strategies are applied to improve health and safety on Elands Bay State Forest.	• Assist in conducting of internal Audit Process to determine effectiveness and level of compliance of implementation of OHS Management Control System.	Conservation Manager, OHSA Officer, OHSA Manager		Year 1-ongoing	Worksite Audit Report

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 20 918

	6.14.4 RISK MANAGEMENT				
Objective 1 **Objective 2**	• **To position the property to help contribute to the strategic objectives of the Greater Cederberg Biodiversity Corridor** • **To conserve a unique West Coast dune habitat**				
Key Deliverables	**Management/Monitoring Activities**	**Responsibility**	**Indicators**	**Timeframe**	**Reference to Existing Procedures**
1. Ensure effective and integrated risk management within a framework of sound corporate governance.	• Documenting of business processes. • On site risk identification and analysis. • On site identification of controls/ mitigations. • Monitoring of risks.	Regional Manager. Conservation Manager. OHSA Manager, Chief Risk Officer.	Risks in the Risk Register mitigated in a cost effective manner and to an acceptable level.	Year 1 - Ongoing	PFMA Section 38. Risk Management Policy and Strategy.

Budget Allocation	**Development**	
	Operation (5 Year Forecast)	R 20 918

7. REFERENCES

BIRDS IN RESERVES PROJECT. 2011. Birds in Reserves Project Animal Demography Unit. Department of Zoology, University of Cape Town.

BLAMEY L, SHANNON LJ, BOLTON JJ, CRAWFORD RJM, DUFOIS F, EVERS-KING H, GRIFFITHS CL, HUTCHINGS L, JARRE A, ROUAULT M, WATERMEYER KE, WINKER H. 2015. Ecosystem change in the southern Benguela and the underlying processes. *Journal of Marine Systems* 144

BRANCH G.M., GRIFFITHS C.L., BRANCH M.L., BECKLEY L.E. 2010. Two Oceans. A guide to the marine life of southern Africa. Revised Edition Struik Nature. Cape Town

CEDERBERG MUNICIPALITY, 2014. 2014/15 IDP Review, Cederberg Municipality

COCKCROFT, A.C., VAN ZYL, D., HUTCHINGS, L., 2008. Large-scale changes in the spatial distribution of South African West Coast rock lobsters: an overview. Afr. J. Mar. Sci. 30, 149–159.

COOMBES, P.J. & MENTIS, M.T. 1992. A Procedure for Defining Conservation Management Objectives and Goals. TPA. Nature and Environmental Conservation, Pretoria.

COUNCIL FOR GEOSCIENCE, undated. "1: 250 000 3218 Clanwilliam geology". Shapefile

COWAN, G.I. & MPONGOMA, N. 2010. Guidelines for the development of a management plan for a protected area in terms of the National Environmental Management: Protected Areas Act, 2003. Department of Environment Affairs (pp. 17). Pretoria, unpublished.

CRAWFORD, R.J.M., DYER, B.M., CORDES, I. WILLIAMS, A.J. 1999. Seasonal Pattern of breeding, population trend and conservation status of bank cormorants *Phalacrocorax neglectus* off south western Africa. Biological Conservation 87, 49-58.

CRAWFORD RJM, DAVID JHM, SHANNON LJ, KEMPER J, KLAGES NTW, ROUX J-P, UNDERHILL LG, WARD VL, WILLIAMS AJ, WOLFAARDT AC. 2001. African penguins as predators and prey – coping (or not) with change. South African Journal of Marine Science 23: 435–447.

CRAWFORD, R.J.M., DUNDEE, B.L., DYER, B.M., KLAGES, N.T.W., MEŸER, M.A., UPFOLD, L., 2007a. Trends in numbers of Cape Gannets (*Morus capensis*), 1956/57–2005/ 06, with a consideration of the influence of food and other factors. ICES J. Mar. Sci. 64, 169–177.

CRAWFORD, R.J.M., DYER, B.M., KEMPER, J., SIMMONS, R.E., UPFOLD L. 2007b. Trends in numbers of Cape Cormorants (*Phalacrocorax capensis*) over a 50-year period, 1956–57 to 2006–07. *Emu* 107: 1–9.

CRAWFORD RJM, TREE AJ, WHITTINGTON PA, VISAGIE J, UPFOLD L, ROXBURG KJ, MARTIN AP, DYER BM. 2008a. Recent distributional changes of seabirds in South Africa: is climate having an impact? African Journal of Marine Science 30: 189–193.

CRAWFORD, R.J.M., COCKROFT, A.C., DYER, B.M., UPFOLD, L., 2008b. Divergent trends in Bank Cormorants Phalacrocorax neglectus breeding in South Africa's Western Cape consistent with a distributional shift of rock lobsters Jasus lalandii. Afr. J. Mar. Sci. 30, 161–166.

CRAWFORD, R.J.M. 2009. A recent increase of swift terns *Thalasseus bergii* off South Africa – the possible influence of an altered abundance and distribution of prey. *Progress in Oceanography* 83: 398–403.

CRAWFORD, R.J.M., ALTWEGG, R., BARHAM, B.J., BARHAM, P.J., DURANT, J.M., DYER, B.M., GELDENHUYS, D., MAKHADO, A.B., PICHEGRU, L., RYAN, P.G., UNDERHILL, L.G., UPFOLD, L., VISAGIE, J., WALLER, L.J., WHITTINGTON, P.A., 2011. Collapse of South Africa's penguins in the 21st century: a consideration of food availability. Afr. J. Mar. Sci. 33, 139–156.

CRAWFORD RJM, DYER BM, GELDENHUYS D, MAKHADO AB, RANDALL RM LG, UPFOLD L, VISAGIE J, WALLER LJ,. 2012. Trends in numbers of Crowned Cormorants in South Africa, with information on diet. African Journal of Marine Science. 34:3. 411-424

CRAWFORD RJM, RANDALL RM, WHITTINGTON PA, WALLER LJ, DYER BM, ALLAN DG, FOX C, MARTIN AP, UPFOLD L, VISAGIE J, BACHOO S, BOWKER M, DOWNS CT, FOX R, HUISAMEN J, MAKHADO AB, OOSTHUIZEN WH, RYAN PG, TAYLOR RH, TURPIE JK. 2013. South Africa's coastal-breeding white-breasted cormorants: population trends, breeding season and movements, and diet. *African Journal of Marine Science* 35: 473–490.

CRAWFORD RJM, MAKHADO AB, WALLER LJ, WHITTINGTON PA. 2014. Winners and losers – responses to recent environmental change by South African seabirds that compete with purse-seine fisheries for food. *Ostrich* 85: 111–117.

DEPARTMENT OF ENVIRONMENTAL AFFAIRS, 2013. African Penguin Biodiversity Management Plan. Government Notice No. 36966. Government Printer, Pretoria. 72pp.

FAIRWEATHER TP, VAN DER LINGEN CD, BOOTH AJ, DRAPEAU L, VAN DER WESTHUIZEN JJ. 2006. Indicators of sustainable fishing for South African sardine *Sardinops sagax* and anchovy *Engraulis encrasicolus*. African Journal of Marine Science 28: 661–680.

FROST PGH, SIEGFRIED WR, COOPER J (1976) Conservation of the jackass penguin (*Spheniscus demersus* (L.)). Biological Conservation 9: 79–99.

FRIEDMAN, Y. & DALY, B. (Eds) 2004. Red Data Book of the Mammals of South Africa: A Conservation Assessment. CBSG Southern Africa, Conservation Breeding Specialist Group (SSC/IUCN), Endangered Wildlife Trust. South Africa

GEOSS, 2010. Borehole Testing and Groundwater Management – Elands Bay, Western Cape. GEOSS Report No: G2010/01-02. PREPARED FOR: Cederberg Municipality

HOCKEY, P.A.R, DEAN, W.J.R AND RYAN, P.G. (eds). 2005. Roberts – Birds of Southern Africa, 7th edition. The trustees of the John Voelcker Bird Book Fund, Cape Town.

HOFMEYER, G. and GALES, N. (IUCN SSC Pinniped Specialist Group) 2008. *Arctocephalus pusillus*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 19 September 2014.

IUCN 2011. IUCN red list of threatened species. Version 2011.2. IUCN species survival commission. IUCN, Gland, Switzerland and Cambridge. <www.iucnredlist.org>.

JARVIS MJF, CRAM DLC. 1971. Bird Island, Lamberts Bay, South Africa: An attempt at Conservation. Biological Conservation 3: 269-272.

KEMPER J, UNDERHILL LG, CRAWFORD RJM, KIRKMAN S (2007) Revision of the conservation status of seabirds and seals breeding in the Benguela Ecosystem. In: Kirkman SP (ed), Final report of BCLME (Benguela Current Large Marine Ecosystem) project on Top Predators as Biological Indicators of Ecosystem Change in the BCLME. Cape Town: Avian Demography Unit. pp 325–342.

KIRKMAN, S.P., OOSTHUIZEN, W.H., MEYER, M.A., KOTZE, P.G.H., ROUX, J-P, UNDERHILL, L.G. 2007. Making sense out of censuses and dealing with missing data: trends in pup counts of Cape fur seals between 1972–2004. *African Journal of Marine Science* 29: 161–176.

KOTZE, D. 2015. DEA: Ocean and Coasts. Personal Communication.

MAKHADO AB (2009) Investigation of the impact of fur seals on the conservation status of seabirds at islands off South Africa and at the Prince Edward Islands. PhD thesis, University of Cape Town, South Africa.

MAKHADO AB, CRAWFORD RJM, UNDERHILL LG. 2006. Impact of predation by Cape fur seals *Arctocephalus pusillus pusillus* on Cape gannets *Morus capensis* at Malgas Island, Western Cape, South Africa. African Journal of Marine Science 28: 681–687.

MAKHADO AB, MEŸER MA, CRAWFORD RJM, UNDERHILL LG, WILKIE C. 2009. The efficacy of culling seals seen preying on seabirds as a means of reducing seabird mortality. African Journal of Ecology 47: 335–340

MAKHADO, A.B., DYER, B.M., FOX, R., GELDNEHUYS, D., PICHEGRU, L., RANDALL, R.M., SHERLEY, R.B., UPFOLD, L., VISAGIE, J., WALLER, L.J., WHITTINGTON, P.A. AND CRAWFORD, R.J.M. 2012. Estimates of numbers of twelve seabird species breeding in South Africa updated to include 2012. Internal report, Oceans and Coasts, Department of Environmental Affairs.

MUCINA, L. & RUTHERFORD, M.C. (Eds.) 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria. National Protected Area Expansion Strategy of South Africa 2010: Priorities for expanding the protected area network for ecological sustainability and climate change adaption. 2010. Government of South Africa, Pretoria.

OOSTHUIZEN, W.H., and DAVID, J.H.M. 1988. Non-breeding colonies of the South African (Cape) fur seal *Arctocephalus pusillus pusillus* in southern Africa. Investigational Report Sea Fisheries Research Institute, South Africa 132: 1-17.

PERCY FITZPATRICK INSTITUTE OF AFRICAN ORNITHOLOGY. 1974. Fish oil kills sea birds. African Wildlife 28(4): 24-15.

PICHEGRU, L., RYAN, P., VAN DER LINGEN, C. D., COETZEE, J., ROPERT-COUDERT, Y. & GRE´MILLET, D. 2007. Foraging behaviour and energetics of Cape gannets *Morus capensis* feeding on live prey and fishery discards in the Benguela upwelling system. Mar. Ecol. Prog. Ser. 350, 127–136.

PURNELL, K., KIRKWOOD, D & MAREE, K. 2010. CapeNature Protected Area and Expansion Strategy and Implementation Plan, 2010 – 2015.

RAND, R.W. 1963. The biology of guano-producing seabirds. Department of Commerce and Industries. Investigational Report No. 43. Issued by the Division of Sea Fisheries. Cape Town

SHANNON LJ, CRAWFORD RJM (1999) Management of the African Penguin *Spheniscus demersus* - insights from modelling. Marine Ornithology 27: 119–128.

SPATIAL DEVELOPMENT FRAMEWORK FOR THE WEST COAST DISTRICT MUNICIPALITY. 2007. West Coast District Municipality, unpublished.

SEAKAMELA, M., PHEME, M., KOTZE, P.G.H. AND MAKHADO, A.B., In prep. Fish in the diet of Cape fur seals: scat analysis at Lambert's Bay and Mossel Bay.

SKINNER, J.H. AND SMITHERS, R.H.N. 1990. The mammals of the southern African sub-region. 2nd edition. Pretoria: University of Pretoria.

UNDERHILL, L.G. AND BROOKS, M. 2014. Preliminary summary of changes in bird distributions between the first and second Southern African Bird Atlas Projects (SABAP1 and SABAP2). Ornithological Observations, Vol 5:258-293.

UNDERHILL LG, CRAWFORD RJM, WOLFAARDT AC, WHITTINGTON PA, DYER BM, LESHORO TM, RUTHENBERG M, UPFOLD L, VISAGIE J (2006) Regionally coherent trends in colonies of African penguins Spheniscus demersus in Western Cape, South Africa, 1987-2005. African Journal of Marine Science 28: 697–704

UMVOTO, 2011. Reconciliation Strategy for Elandsbaai. West Coast District Municipality

VAN DER LINGEN, C.D., COETZEE, J.C., HUTCHINGS, L., 2002. Temporal shifts in the spatial distribution of anchovy spawners and their eggs in the Southern Benguela: implications for recruitment. GLOBEC Rep. 16, 46–48.

VAN DER LINGEN, C.D., COETZEE, J.C., DEMARCQ, H., DRAPEAU, L., FAIRWEATHER, T.P., HUTCHINGS, L., 2005. An eastward shift in the distribution of southern Benguela sardine. GLOBEC Newsl. 11 (2), 17–22.

WALLER, L.J. 2013. CapeNature PAMP Internal Scientific and Technical Review Guidelines. Western Cape Nature Conservation Board.

WALLER LJ, CHESSELET Y, CRAWFORD RJM, DYER BM, MAKHADO AB, MEŸER MA, NEL P, OOSTHUIZEN WH, SEAKAMELA SM, UPFOLD L, VISAGIE J, WHEELER MJ. 2014. A worsening environment off South Africa's north-west coast for marine top predators. FISHERIES/2014/MAR/SWG–PEL/ICTT/3: 10 pp.

WCDM, 2013. West Coast District Municipality Integrated Coastal Management Programme: Draft Report.

WHITTINGTON, P.A., CRAWFORD, R.J.M., MARTIN, A.P., RANDALL, R.M., BROWN, M., MAKHADO, A.B., DYER, B.M., UPFOLD, L., HARRISON, K.H.B., HUISAMEN, J., WALLER, L. AND WITTEVEEN, M. In draft. Recent Trends of the Kelp Gull *Larus dominicanus* in South Africa.

WOLFAARDT, A.C. AND WILLIAMS, A.J. 2006. Sealed Off: Predation threatens seabirds and tourism. Africa Birds and Birding Vol 11 no. 2. p60-67

WOLFAARDT AC, WILLIAMS AJ, UNDERHILL LG, CRAWFORD RJM, WHITTINGTON PA (2009) Review of the rescue, rehabilitation and restoration of oiled seabirds in South Africa, especially African penguins *Spheniscus demersus* and Cape gannets *Morus capensis*, 1983–2005. African Journal of Marine Science 31: 31–5

DEFINITION OF TERMS

Alien species	Species or genotypes, which are not indigenous to the Nature Reserve and the surrounding area including hybrids and genetically altered organisms.
Biodiversity	The variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and also includes diversity within species, between species, and of ecosystems (as per the National Environmental Management: Biodiversity Act, 2004 [Act No. 10 of 2004]).
Bioprospecting	In relation to indigenous biological resources, means any research on, or development or application of, indigenous biological resources for commercial or industrial exploitation, and includes – the systematic search, collection or gathering of such resources or making extractions from such resources for purposes of such research, development or application (as per the National Environmental Management: Biodiversity Act, 2004 [Act No. 10 of 2004])
Board	The Western Cape Nature Conservation Board as defined by the Western Cape Nature Conservation Management Act, 1997 (Act No.9 of 1997).
Buffer zone	An area surrounding a protected area that has restrictions placed on its use or where collaborative projects and programmes are undertaken to afford additional protection to the nature reserve.
Co-management	The term 'Co-management' must be understood within the context of Section 42 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).
Cultural heritage	As defined in Article 1 of the World Heritage Convention (United Nations Educational, Scientific and Cultural Organisation (UNESCO)) 1972 , 'cultural heritage' is considered as "monuments, architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of (...) value from the point of view of history, art or science, groups of buildings, groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of significance from the point of view of history, art or science, sites, works of man or the combined works of nature and man, and areas including archaeological sites which are of (...) value from the historical, aesthetic, ethnological or anthropological point of view." For the purpose of this IMP, living heritage features such as mountains, pools, rivers, boulders, etc. as well as palaeontological features are included under this definition.
Ecotourism	The travel to natural areas to learn about the way of life and cultural history of people, the natural history of the environment, while taking care not to change the environment and contributing to the economic welfare of the local people (adapted from a definition of ecotourism by Hecto Ceballos Lascurain).
Ecological integrity	The sum of the biological, physical and chemical components of an ecosystem and its products, functions and attributes (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
Ecosystem	A dynamic complex of animal, plant and micro-organism communities and their non-living environment interacting as a functional unit (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
Ecosystem	As defined in Section 1 of the National Environmental Management: Protected

services	Areas Act, 2003 (Act No. 57 of 2003) as "environmental goods and services" meaning: a. Benefits obtained from ecosystems such as food, fuel and fibre and genetic resources. b. Benefits from the regulation of ecosystem processes such as climate regulation, disease and flood control and detoxification. c. Cultural non-material benefits obtained from ecosystems such as benefits of a spiritual, recreational, aesthetic, inspirational, educational, community and symbolic nature;" For the purposes of this IMP, sustainable water production is also specifically included under this definition.
Environmental degradation	The deterioration of the environment through depletion of resources such as air, water and soil; the destruction of ecosystems and the loss of species or undesirable reduction of species population numbers from a specific area from an environmental health perspective
CapeNature	Nature Conservation Service as established in terms of the Western Cape Nature Conservation Management Act No. 9 of 1997.
Indigenous species	In relation to a specific protected area, means a species that occurs, or has historically occurred, naturally in a free state of nature within that specific protected area, but excludes a species introduced in that protected area as a result of human activity (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
Invasive species	Means any species whose establishment and spread outside of its natural distribution range – a. Threaten ecosystems, habitats or other species or have a demonstrable potential to threaten ecosystems, habitats or other species. b. May result in economic and environmental harm or harm to human health. (As per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
Joint management	The agreed co-ordination of management and/or management actions by landowners and/or mandated managers on their individual or combined properties in order to achieve common management objectives.
Local community	Any community of people living or having rights or interests in a distinct geographical area (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
Management	In relation to a protected area, includes control, protection, conservation, maintenance and rehabilitation of the protected area with due regard to the use and extraction of biological resources, community-based practices and benefit sharing activities in the area in a manner consistent with the Biodiversity Act (as per the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).
Management authority	In relation to a protected area, means the organ of state or other institution or person in which the authority to manage the protected area is vested (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
Monitoring	The collection and analysis of repeated observations or measurements to evaluate change in status, distribution or integrity in order to track the impacts of directed

	management implemented to achieve a stated management objective.
Nature conservation	The conservation of naturally occurring ecological systems, the sustainable utilisation of indigenous plants and animals therein, and the promotion and maintenance of biological diversity (as per the Western Cape Nature Conservation Management Act, 1997 [Act No.9 of 1997]).
Neighbouring community	The communities and people permanently living in the local municipal area/s bordering onto the Nature Reserve.
Natural heritage	As defined in Article 2 of the World Heritage Convention (UNESCO) 1972 'natural heritage' is as: "natural features consisting of physical and biological formations or groups of such formations, which are of value from the aesthetic or scientific point of view, geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of value from the point of view of science or conservation, natural sites or precisely delineated natural areas of ?value from the point of view of science, conservation or natural beauty." For the purposes of this IMP, this would include the required ecological integrity of the protected area for the production of ecosystem services.
Partnerships	A co-operative and / or collaborative arrangement between the Nature Reserve management / and a third party that supports the achievement of the Game Reserve management objectives.
Protected areas	• Means any area declared or proclaimed as such in terms of section 3 or listed in the Second Schedule to the Western Cape Nature Conservation Management Act, 1997 (Act No. 9 of 1997); or • Means any of the protected areas referred to in section 9 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).
Protected area management committee	Is the management body that deals with the day-to-day management of the protected area and is chaired by the OIC.
Ramsar Convention	Means: "The Convention on Wetlands of International Importance, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty, which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources." (There are presently 158 Contracting Parties to the Convention, the Convention has broadened its scope to cover all aspects of wetland conservation and wise use, recognising wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities.)
Stakeholders/ interested parties	These are interested individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public. According to the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), "stakeholder" means a person, an organ of state or a community contemplated in section 82 (1) (a), or an indigenous community contemplated in section 82(1) (b).
Surveillance	The collection and analysis of single or repeated measurements to establish status or distribution or integrity at a point in time in the absence of a specific management context or objective.
Sustainable	In relation to the use of a biological resource, means the use of such resource in a way and at a rate that would not lead to its long-term decline; would not disrupt the

	ecological integrity of the ecosystem in which it occurs; and would ensure its continued use to meet the needs and aspirations of present and future generations of people (as per National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
The Island	In relation to this document refers to Penguin (Bird) Island Nature Reserve
Wilderness area	Means an area designated in terms of section 22 or 26 for the purpose of retaining an intrinsically wild appearance and character, or capable of being restored to such and which is undeveloped and roadless, without permanent improvements or human habitation (as defined by the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
World heritage site	Means a World Heritage Site as defined in the World Heritage Convention Act, No. 49 of 1999 under Chapter 1, section 1 subsection (xxiv).