

De Mond Nature Reserve Complex

Western Cape
South Africa



Protected Area Management Plan 2014-2019

Edited by Tierck Hoekstra and Lauren Waller.

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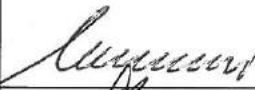



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EXECUTIVE SUMMARY

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 Areas Act* (Cowan and Mpongoma 2010). All CapeNature management plans must be read in conjunction with CapeNature's Co-ordinated Policy Framework (CPF) (Cleaver-Christie *et al.* 2013).

This management plan is comprised of 7 sections.

Section 1 outlines the background, structure and authorisation processes of the management plan.

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.

The management plan indicates where reserve management intends to focus its efforts in the next five years (2014-2019). 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.

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 management plan is drafted by the Reserve Management Committee, and then goes through an internal scientific and technical review. It is then sent for an independent external review before being recommended for stakeholder participation. The management plan is then reviewed by the CapeNature Executive

and recommended by the CEO to the CapeNature Conservation Committee. Once approved by the Conservation Committee, it is referred to the Western Cape Nature Conservation Board (WCNCB) for approval before being submitted by the Chairman of the WCNCB to the Department of Environmental Affairs and Development Planning (DEA&DP) for ministerial approval. The Western Cape Minister of Local Government, Environmental Affairs and Development Planning then sends the management plan out for public participation and only thereafter and based on the inputs received, can the plan be gazetted. The protected area management plan is reviewed annually to track progress on the strategic implementation framework (SIF) discussed in section 6 and the document will be updated and reviewed every five years.

Section 2 outlines the strategic management framework, which 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 De Mond Nature Reserve Complex (DMNRC) and summarises its opportunities, challenges, weaknesses and threats.

The vision describes the overall long-term goal for the operation, protection and development of DMNRC, and reads as follows: To conserve DMNRC as a system of sustainable living landscapes and seascapes in the Overberg that is representative of the region's biodiversity and provides ecosystem services through integrated and adaptive management, for the benefit of all.

The purpose is the foundation on which all future actions are based and is in line with the overall management philosophy of the organisation. For the DMNRC this is defined as follows: Conserve and maintain important coastal wetland and terrestrial habitat for bird conservation, estuarine ecosystem services, archaeological and geological features and provide opportunities and benefits for sustainable nature based tourism and access.

Values for the DMNRC are characteristics that deem the reserve complex unique in terms of its ecological, cultural and social aspects. The values of DMNRC are characterised according to natural, ecosystem services, social, cultural and historic and eco-tourism values. Natural values included the fact that the reserve is a Ramsar site; contains numerous breeding shorebirds, including endangered Damara and Caspian tern; contains limestone and coastal lowland fynbos; dense milkwood thickets; and the most southerly freshwater lake in Africa. Ecosystem service values include the provision of a fish nursery in the Heuningnes Estuary, existence of expanses of undeveloped coastline and the location of salt marshes and wetlands. Social values include aesthetic values provided through long expansive coastline. A number of archaeological features such as shipwrecks, shell middens and the "visvyfers" all contribute to the cultural and historic value of the DMNRC. The Agulhas area is a popular tourist destination and the Waenuiskrans Cave is used on many eco-tourism promotional materials.

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 intentions. 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 are 1) to conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats; 2) to provide job and benefit sharing opportunities for communities and access where appropriate; 3) to instil conservation awareness through effective communication, partnerships, stakeholder engagement and environmental education; 4) to protect the archaeological and cultural heritage on the reserve complex; 6) to provide sustainable visitor access and provide overnight accommodation for a limited number of guests within the existing tourism footprint.

Once these objectives were identified, a SWOT analysis was completed. 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 DMNRC following strengths, weaknesses, opportunities and threats.

Strengths that were identified for the DMNRC include the Ramsar status, upgrading of tourism facilities, the presence of the Heuningnes Estuary Advisory Forum, the Heuningnes Riparian Association, the existence of long term monitoring programs on the reserve, presence of archaeological features and the high visitor occupancy rate. Weaknesses identified include lack of funding for the management of the estuary and river as an ecological unit, limited capacity and skills for compliance enforcement, insufficient operational budget, inability to effectively manage public access at Waenhuiskrans Nature Reserve and no formal Protected Area Advisory Committee. Opportunities identified include the expansion of existing partnerships, tourism development, existing working relationships with other government departments such as DEA, DAFF and SANParks as well as others, scientific contributions and collaborations. Threats identified include poaching in and around the reserve, illegal driving in the coastal zone, damage to middens as a result of vehicles driving on Public Minor Road 97, habitat destruction through off road vehicles and fires, invasive alien organisms, potential for gas and oil exploration and mining, artificial manipulation of the mouth, ploughing of soil within wetlands and eutrophication of the estuary. These opportunities, threats, strengths and weaknesses are then addressed in the reserve objectives, and activities identified to deal with them in the SIF.

Section 3 provides a description of the DMNRC and its ecological and operational context. The DMNRC consists of three sections, the De Mond Nature Reserve (State Forest Nature Reserve), Waenhuiskrans (demarcated State Forest) and Soetendalsvlei Reserve (un-demarcated state land). The De Mond Nature Reserve includes the Heuningnes Estuary and is situated between Arniston in the north-east and Struisbaai in the south-west. The Heuningnes Estuary is also the southern-most estuary in Africa. Waenhuiskrans Nature Reserve is approximately 21km north east of De Mond Nature Reserve via the R316 and adjacent to the town of Arniston. The

Soetendalsvlei Reserve is west of De Mond Nature Reserve and lies in the middle of the Soetendalsvlei, but is adjacent to the Agulhas National Park and basically enlarges and enhances the park.

A brief history of the reserve is subsequently provided. This section covers the proposed origin of the names of the different DMNRC components. Background is also provided as to the formation of the drift sands to the north and south of the mouth of the Heuningnes Estuary, as well as the origins of the decision to pack and stabilise these drift sands. The history of the land proclamations and managing authorities are also provided.

The ecological context of the DMNRC covers a number of aspects; including climate and weather, topography and the geology of the soils within the DMNRC. A description of the aquatic systems is also provided. According to the National Freshwater Ecosystems Priority Areas (NFEPA) project maps, several Freshwater Ecosystem Priority Area (FEPA) rivers and wetlands/estuary systems are included in the sub-quaternary catchment surrounding the De Mond Nature Reserve. These include the fish sanctuaries associated with the Nuwejaars River, the FEPA sub-quaternary catchments of the Kars and Heuningnes Rivers and the estuary at De Mond Nature Reserve as well as the wetland systems forming part of the Kars River catchment. Soetendalsvlei is one of the largest freshwater lakes in South Africa (approximately 7.5 km long and 3 km wide).

This section also deals with the mouth management of the Heuningnes River. In the past, the river has been managed for the purpose of protecting the estuary, including keeping the Heuningnes mouth artificially open to prevent flooding upstream. Management intervention to date has maintained this practice, including breaching at or before flood heights of approximately 1.5 m above mean sea level (MSL). It is no longer clear that this practice is desirable and a clear management framework for managing the natural closing and artificial breaching of the mouth is urgently required. An acceptable mouth management plan needs to be compiled and submitted to the Department of Environment Affairs for authorisation in terms of the EIA regulations as the manipulating of sand dunes along the coast is a listed activity. The river mouth management will thus be further debated, based on sound science with sensitivity to the local economy and livelihood issues. In addition, the estuarine portion of the Heuningnes River is considered to be in poor ecological condition and the DMNRC management team are active in the Heuningnes Estuary Advisory forum which attempts to address these issues.

From a vegetation perspective, the DMNRC includes habitats associated with both the fynbos biome and the coastal vegetation of South Africa. The De Hoop Limestone Fynbos, and to a lesser extent the Overberg Dune Strandveld habitats of this reserve complex include a number of locally endemic plants, most confined to the coastal area between Hermanus and the Breede River Mouth. None of the terrestrial habitats within the reserve complex are regionally threatened.

In terms of invasive alien plants within the DMNRC, the De Mond and Waenhuiskrans Reserves total alien infestation amounts to less than 1% overall. There are only individual seedlings of *Acacia cyclops*, *Pennisetum clandestinum*, *Lavatera arborea*, *Leptospermum laevigatum* and *Ammophila arenaria* occurring on the reserve.

Since government management of the DMNRC, only one known fire has occurred on the De Mond Nature Reserve in 1983 and approximately 400 ha were burnt. The veld in the reserve is more than 30 years old and is currently in a state of senescence. Coastal fynbos especially Strandveld has no obvious fire management indicator species as is the case with mountain fynbos. This renders the determination of an appropriate fire regime difficult. There is a large dense stand of rooikrans on the eastern boundary which is a potential fire hotspot and source of dispersal of rooikrans seeds into the reserve.

To date 25 mammal species have been documented within the DMNRC, through either specimen or observation records. There are no resident mammal species requiring specific habitat management, and there are no plans for active re-introduction of mammals into the DMNRC. Historically however, a larger number of species are considered to have occurred in this area and the management plan provides an appendix containing a list of species that includes those that have been recorded on the reserve complex as stated above, as well as additional species where the DMNRC falls within their historical distribution range. The conservation threat status of these species is also provided. Non-indigenous fauna species do occur, such as feral dogs, cats and fallow deer in areas adjacent to the reserve, thus posing a threat to the reserve fauna populations.

A variety of bird habitats are to be found within the DMNRC. The birds found on the reserve are typical of those found along the coastline and estuaries of the Western Cape and Strandveld vegetation types. One hundred and sixty-five species of birds have been recorded for the reserve complex. The most important threatened species for the reserve is the Damara tern, *Sterna balaenarum* and the De Mond area supports 11 to 13 breeding pairs which represent 8 to 17 % of the South African Damara tern population, the third largest breeding colony in South Africa. The presence of this species on the reserve in relatively high numbers was the main reason why the site was declared a Ramsar site. Two other threatened species of importance for the reserve are the African Black Oystercatcher, *Haematopus moquini*, and black harrier, *Circus maurus* both of which breed on the reserve. Breeding numbers of these two species within the reserve complex are insignificant in terms of the South African breeding populations. However, as both species breed on a regular basis within the reserve complex, they are protected and act as a source of individuals which can colonise areas outside of protected areas. Soetendalsvlei supports the largest numbers of water bird on the Agulhas Plain. It supports very high numbers of African Purple Swamphen and is a very important habitat in this regard. It also supports large numbers of Moorhens and Rednobbed Coots and provides good habitat for rallids. Species occurring here include Red-chested Flufftail, African Rail, Black Crake, Purple Heron, Little Bittern and Ethiopian Snipe. The Heuningnes Estuary is listed as a wetland of international importance in

terms of the Ramsar Convention on Wetlands of International Importance during 1998 (Ramsar site no 342).

Soetendalsvlei is of regional importance for fish conservation because of its very large size and regular connection to the Heuningnes River. This allows several species of estuarine migrants to inhabit it and reach adulthood in the ecologically stable and healthy waters. The Heuningnes Estuary contains migratory marine, estuarine and freshwater marine species. It is likely that the Heuningnes Estuary has become increasingly important for marine migrant fish species and estuarine fish species, because of its unpolluted waters and artificial continuous connection to the sea.

From a resource utilisation point of view, at Waenhuiskrans, it is likely that there is significant recreational angling pressure on the reserve because it is open to this angling sector and of its proximity to the town. The reserve thus provides no current protection to key fish species found in its coastal waters. Although not in the De Mond Nature Reserve, there are upper reaches of several tributaries of the Heuningnes River, that are vital for the conservation of the so called "Heuningnes redfin", *Pseudobarbus burchelli*, which is listed as Critically Endangered and is endemic to the system. The Kars River near Bredasdorp holds significant numbers of this redfin as well as Cape kurper, *Sandelia capensis* and Cape galaxias, *Galaxias zebratus* in its upper reaches and has been listed as a nationally important Critical Biodiversity Area for fish in the NFEPA atlas.

Fifteen reptile species, nine amphibian species and sixteen aquatic invertebrates have been recorded in the reserve. None of these species are listed as threatened species, and the reserve continues to update these lists with on-going observations and collections.

Within a cultural and archaeological context, there are shipwrecks that are located within the coastal area of De Mond and Waenhuiskrans Nature Reserves. Middens are also located near Struispunt in the Waenhuiskrans Nature Reserve. The Waenhuiskrans cave is the best-known cave within the area and internationally recognized for its cultural historical value. This cave is one of the focal points of the Waenhuiskrans/Arniston town as the name Waenhuiskrans refers to this natural feature.

In terms of infrastructure in the DMNRC, all internal fences have been removed. Boundary fences shared with properties where game has been re-introduced are intact and are being maintained by the relevant landowners. The DMNRC, excluding Soetendalsvlei, remains largely fenced, with only a section towards the high water mark not fenced. The entrance road to and into the development area on De Mond Nature Reserve is a short gravel road. The entrance road to Waenhuiskrans is partly gravelled for approximately 300 m including the public parking area at Roman beach. All other tracks on the reserve complex are unpaved and mostly on sandy substrate. They are only accessible with 4 X 4 vehicles and mainly used for management purposes with the exception of the public road (track) in Waenhuiskrans. The Sterna trail in the western sector of the De Mond Nature Reserve provides access to the dunes, beach and western banks of the Heuningnes

Estuary. Visitors also walk on the jeep tracks around the estuary to get to the beach and fishing areas along the estuary. At Waenhuiskrans a network of informal trails exist adjacent to the coast to gain access to the coastal areas, beach and the Waenhuiskrans cave.

The facilities at the De Mond Nature Reserve are clustered and include a gate office, management office, guest cottage, manager's house, store, picnic sites and public toilets as well as a store room, workshop, inspection quarters for official use and a fuel storage facility. New infrastructure development is planned to accommodate more overnight visitors in comfortable and eco-friendly cottages.

Section 4 sets out the regional and local planning context of the protected area. The Integrated Development Framework (IDP) of the Cape Agulhas Municipality runs over a five year cycle and is currently a 3rd Generation plan (2012 - 2016). It is a strategic plan guiding development in the Cape Agulhas Municipal Area and is also informed by the Overberg District Municipality IDP for 2012-2016. The ODM-SDF is the spatial expression of the ODM-IDP. Consequently, the SDF is a policy document of the ODM to be used by organs of state as a guideline in decision-making towards land-use.

A draft Overberg SDF (August 2012) was published on 23 November 2012 for public participation. The vision of the draft SDF is as follows: *'To optimize the rich and balanced mix of the Overberg's agriculture, tourism, heritage and conservation resources within in their scenic setting which is contained by the Riviersonderend and Langeberg mountains in the north, descends across the rolling hills of the Rûens and the varied ecology of the Agulhas plain and culminates in the rocky headlands and long sandy beaches of the coast. All the areas proposed in the reserve's expansion strategy are identified in the draft SDF as either Buffer zone 1 – private nature reserves and conservancies or Buffer zone 1 – Critical Biodiversity Areas (CBA's) for protection. The reserves themselves are indicated as core areas – formally protected areas. This indicates that the strategy proposed in the reserve expansion strategy included in this plan is in line with the draft regional planning strategy.*

The expansion of protected areas in South Africa is informed by the National Protected Area Expansion Strategy (NPAES) and CapeNature's Protected Area Expansion Strategy and Implementation Plan has been developed in support of the NPAES. 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 also informed by immediately available resources and therefore highlights some different spatial priorities. CapeNature's primary tool to expand the terrestrial conservation estate and buffer zones around its reserves is by the promotion of stewardship options on private land. Possible stewardship options with willing landowners adjacent to the reserve complex should be investigated in order to promote more formal conservation management to link ecological processes. The priority areas are those between De Mond and Waenhuiskrans Nature Reserves. The possibility of having

the marine area adjacent to the De Mond and Waenhuiskrans properties proclaimed as marine protected areas should be investigated following due process.

Section 5 outlines the conservation development framework and the concept development plan for the protected area. Sensitivity mapping of reserve biodiversity, heritage and physical environment forms 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 while also supporting conservation management decisions and prioritisation. The DMNRC, comprising De Mond, Soetendalsvlei and Waenhuiskrans Natures Reserves, is a coastal and estuarine reserve system. Terrestrial habitats are all least threatened, and well-conserved and therefore, with the exception of sensitive bird breeding localities, not exceptionally sensitive in terms of biodiversity. The estuary system of the Heuningnes River is however identified as a highest sensitivity special habitat, resulting in high overall biodiversity sensitivity for this and associated habitats. The DMNRC includes a high proportion of physically sensitive environments. There are extensive mobile or semi-stabilised coastal sand habitats and large areas potentially prone to either direct inundation or wave action by seawater.

Decisions taken on the management of the Heuningnes River mouth have a direct influence on the inundation/flooding risk for the De Mond Nature Reserve and large areas of the Agulhas Plain, and therefore the validity of the hydrological sensitivity portion of this sensitivity analysis which incorporates flood/inundation risk.

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. Some of the key drivers of the DMNRC's zonation are that both De Mond and Waenhuiskrans Nature Reserves are extremely popular, with high day visitor use, requiring nature based access. Relatively small reserve sizes mean that nature access zones form a significant portion of both reserves and will require more stringent management of visitors and mitigation of impacts in order to prevent on-going and worsening degradation of heavily used areas and areas beyond the existing heavily accessed portions of these reserves are zoned as primitive zones, with access not freely permitted with a day visitor permit. These areas provide opportunities for solitude, limit visitor impacts overall, and correspond to identified habitats to provide refuges from disturbance for sensitive species, especially fauna of conservation concern. Formalisation of the existing administrative and tourism complex at the De Mond Nature Reserve as a Development – Low Intensity Zone (for tourism infrastructure and use) and Development – Management Zone (for management and administrative infrastructure and use) is appropriate despite the high physical sensitivity of that area. The entire Soetendalsvlei Nature Reserve is zoned as Species / Habitat Protection Zone

CapeNature's envisaged small scale development at De Mond Nature Reserve comprises expanded tourism infrastructure, along with a revised and upgraded

Management Infrastructure layout. Planning is based on high tourism potential of the site, and the need to upgrade management infrastructure and provide more, and improved management access. Historical use of the single tourism unit at De Mond has consistently been amongst CapeNature's most popular destinations, and projections provided by an independent financial study of tourism feasibility supported the viability of the proposed development. A Heydorn (pers. comm. 15 August 2013) in his capacity as external reviewer of the DMNRC PAMP also supported the necessity for this and does not believe that properly managed tourism will impact negatively on the conservation objectives for the area.

Section 6 outlines the strategic implementation framework of the protected area and 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 contains the following sections: legal status and reserve expansion; regional integrated planning and cooperative governance; ecosystem and biodiversity management; wildlife management; fire management; invasive and non-invasive alien species management; cultural and heritage resources; law enforcement and compliance; infrastructure management; disaster management; socio-economic framework; management effectiveness; finance and administration management; human resources management; occupational health and safety management; risk management; visitor management, ending with the tourism development framework.

Finally, section 7 contains the references and glossary relevant to the text.

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ABBREVIATIONS

APO	Annual Plan of Operations
APP	Annual Performance Plan
BMP	Biodiversity Management Plan
BMP-s	Biodiversity Management Plan for Species
BMS	Biodiversity Monitoring System
CAP	Conservation Action Plan
CAPE	Cape Action for People and the Environment
CBA	Critical Biodiversity Area
CBO	Community Based Organisations
CDF	Conservation Development Framework
CEO	Chief Executive Officer
CFR	Cape Floristic Region
CITES	Convention on International Trade in Endangered Species in Wild Fauna and Flora
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DEA: O&C	Department of Environmental Affairs: Oceans and Coast
DWA	National Department of Water Affairs
EIA	Environmental Impact Assessment
EKZNW	Ezemvelo KZN Wildlife
EMP	Environmental Management Plans/ Programme
FPA	Fire Protection Association in terms of the National Veld and Forest

	Fire Act (No.1 of 1998)
GIS	Geographical Information System
HIRA	Hazard Identification and Risk Assessment
ICM	Integrated Catchment Management
IDP	Integrated Development Plan
IUCN	International Union for Conservation of Nature and Natural Resources
MASL	Metres Above Sea Level
METT-SA	Management Effectiveness Tracking Tool for South Africa
MPA	Marine Protected Area
NEM: BA	National Environmental Management: Biodiversity Act
NEM: PAA	National Environmental Management: Protected Areas Act
NEMA	National Environmental Management Act
NFEPA	National Freshwater Ecosystem Priority Areas
NGO	Non-governmental Organisation
NR	Nature Reserve
PA	Protected Area
PAAC	Protected Area Advisory Committee
PAMP	Protected Area Management Plan
PFMA	Public Finance Management Act
SANBI	South Africa National Biodiversity Institute
SANParks	South African National Parks
SDF	Spatial Development Framework
SOB	State of Biodiversity
SOBR	State of Biodiversity Report
SOP	Standard Operating Procedures
ToR	Terms of Reference
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WCNCB	Western Cape Nature Conservation Board

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 and Mpongoma 2010). All CapeNature management plans must be read in conjunction with CapeNature's Co-ordinated Policy Framework (CPF) (Cleaver-Christie *et al.* 2013).

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.

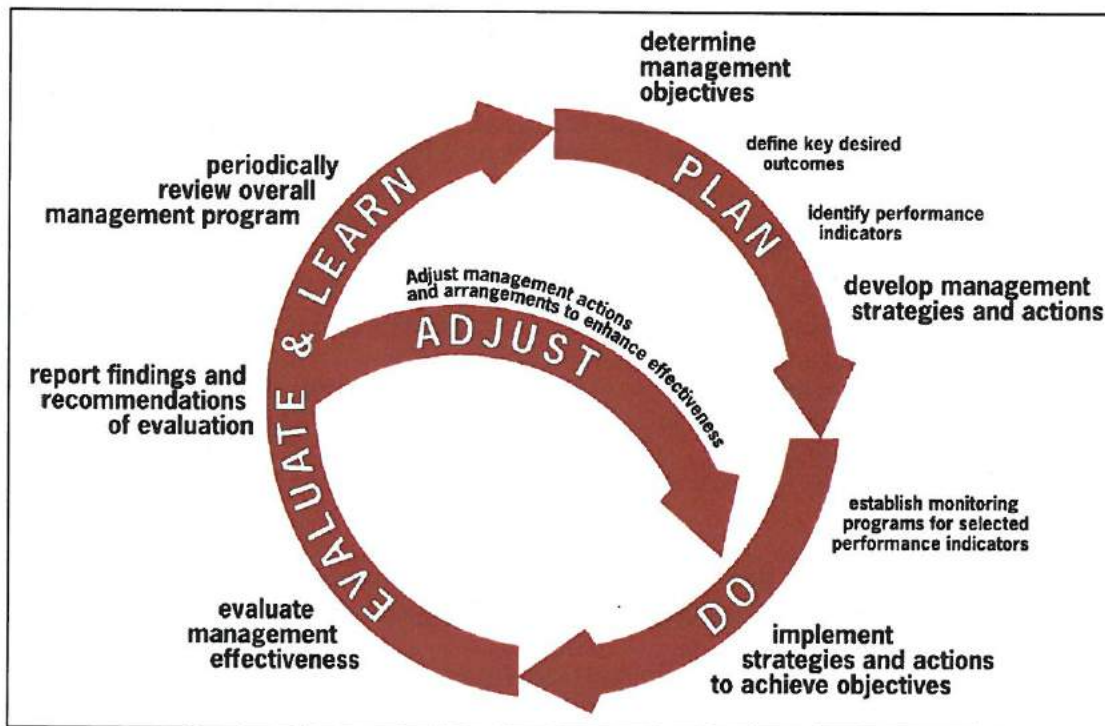


Figure 1.1: Adaptive management cycle (CSIRO 2012)

The management plan indicates where reserve management intends to focus its efforts in the next five years (2013-2018). 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 Glossary

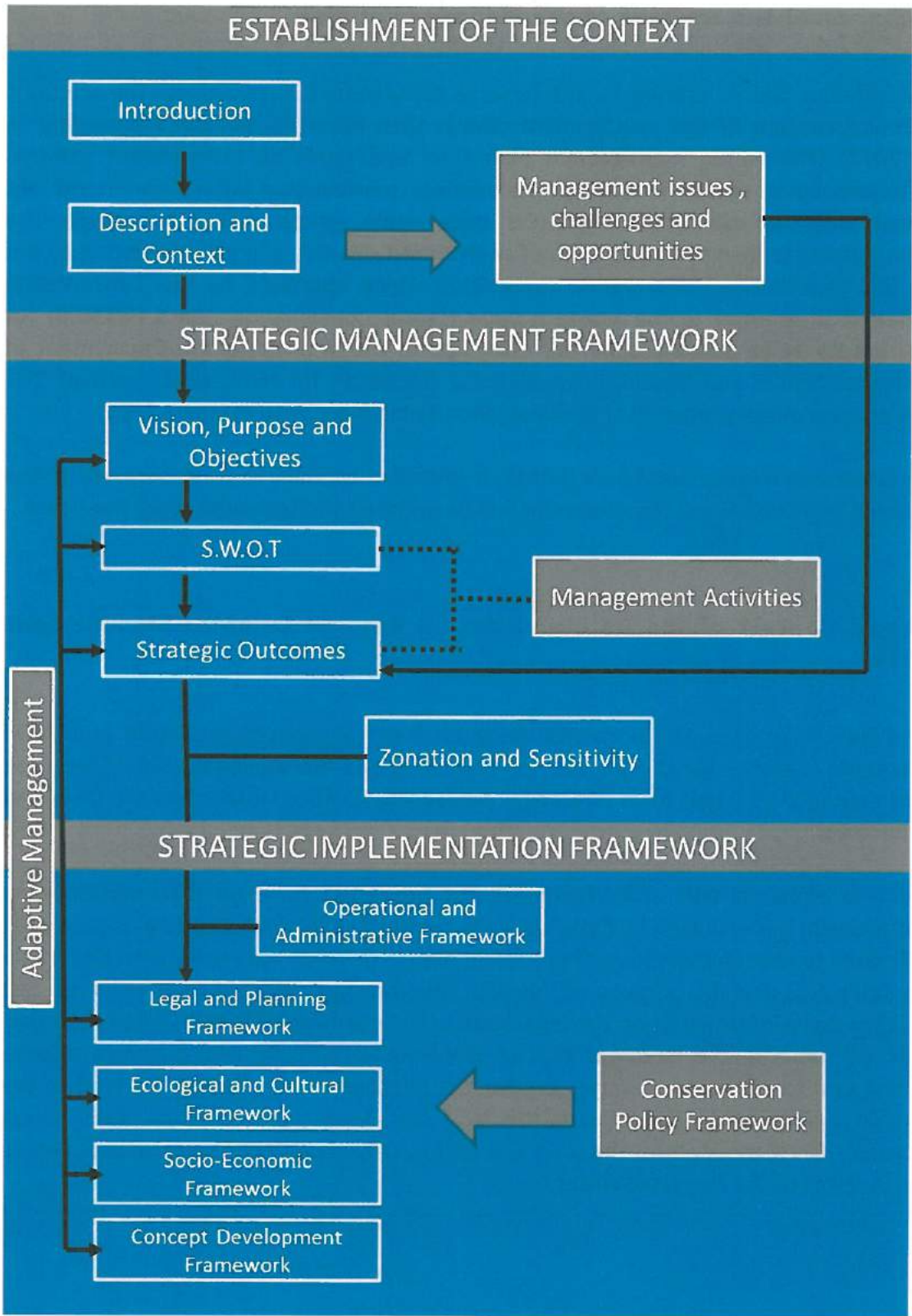


Figure 1.2: Structure of the management plan

1.3 Approval and revision of the management plan

The management plan is drafted by the Reserve Management Committee. 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 CEO to the CapeNature Conservation Committee. Once approved by the Conservation Committee, it is referred to the Western Cape Nature Conservation Board (WCNCB) for approval before being submitted by the Chairman of the WCNCB 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 (PAMP) is reviewed annually to track progress on the SIF discussed in section 6 and the document will be updated and reviewed every five years.

1.4 Legal Context of the De Mond Nature Reserve Complex Management Plan.

De Mond Nature Reserve, Soetendalsvlei State Land and Waenhuiskrans State Land have been clustered together for the purpose of compiling one management plan. The three areas are managed as a unit from one single management office situated on the De Mond Nature Reserve.

Although the Soetendalsvlei and Waenhuiskrans properties have no legal conservation status at present, it is managed by CapeNature in terms of its general mandate as protected areas. Actions to require the status of provincial nature reserves are implemented and also listed in Table 6.1. For the purpose of this plan the areas are referred to as reserves. See Table 3.1 for more information on the legal status. For clarification it should be noted that the previous status of the land was that of State Forest with De Mond Nature reserve proclaimed as a forest nature reserve, but for the purpose of transferring the land to the Western Cape Provincial Government, the land has been released from State Forest demarcation. Once transferred, the land will be formally proclaimed as provincial nature reserves in terms of the Protected Areas Act.

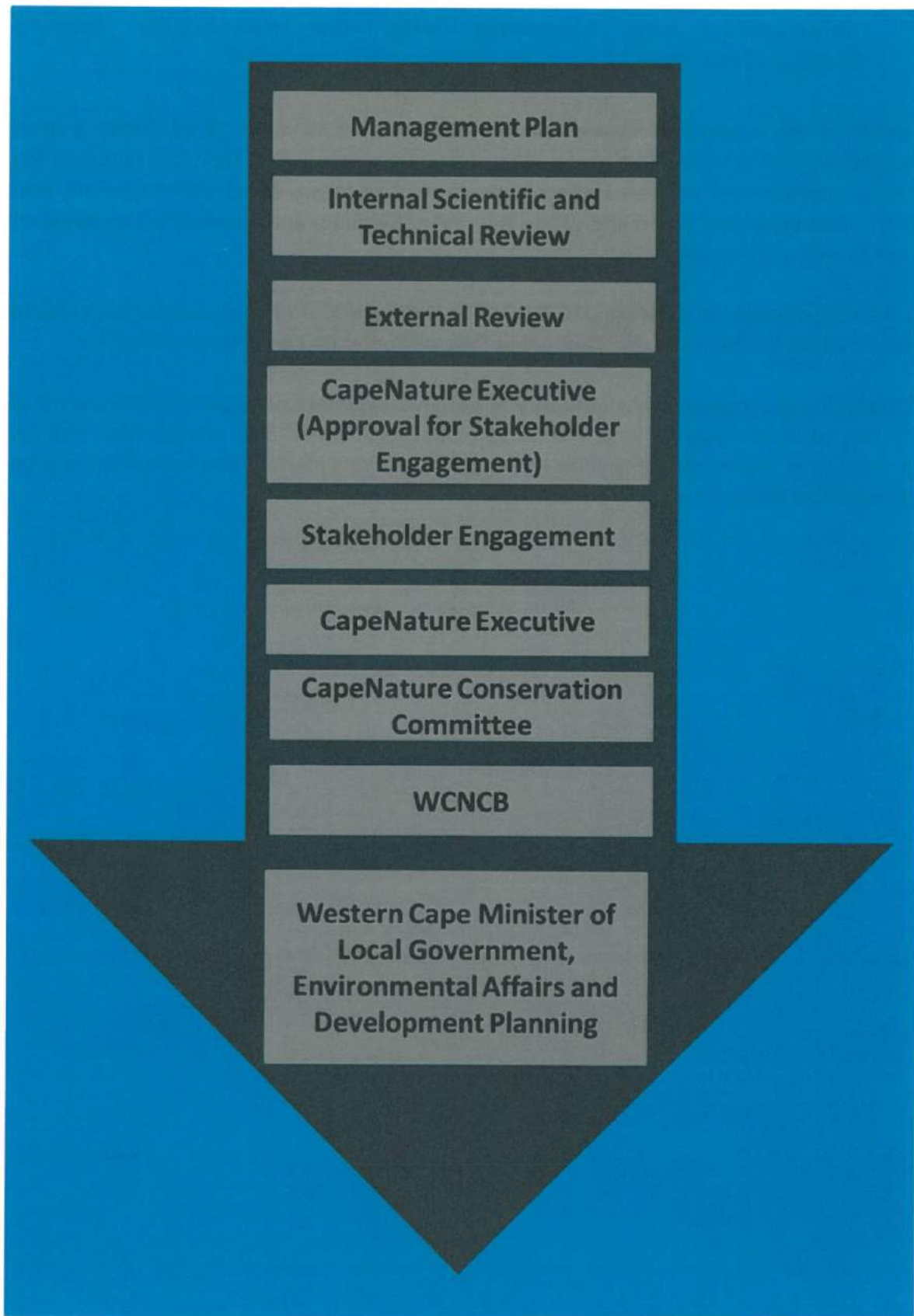


Figure 1.3: Approval and review of the management plan

1.5 Relationship and alignment with the Heuningnes Estuary Management Plan

In terms of the Integrated Coastal Management Act, 2008 (Act 24 of 2008) a draft management plan for the Heuningnes estuary has been compiled. This plan however has not been approved yet and referred to as the draft Heuningnes Estuary Management Plan (HEMP). This draft plan covers the whole Heuningnes estuary and immediate surrounds on private as well as state land.

The planning domains of both the DMNRC PAMP and the draft HEMP do overlap with regard to the extent of the Heuningnes estuary that falls inside the De Mond Nature Reserve.

CapeNature is the implementing authority of both management plans and must ensure that these two plans are aligned with and complement each other. The prioritization process with regards to implementing specific management actions identified in both plans will be made available to the PAAC/Estuary Management Forum.

2) THE STRATEGIC MANAGEMENT FRAMEWORK OF DE MOND NATURE RESERVE COMPLEX

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 De Mond Nature Reserve Complex (DMNRC) 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 DMNRC which in turn defines the management objectives. The management objectives were evaluated using the *Procedure for Defining Conservation Management Objectives and Goals* (Coombes and 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 De Mond Nature Reserve Complex

The vision describes the overall long-term goal for the operation, protection and development of DMNRC, and reads as follows:

To conserve DMNRC as a system of sustainable living landscapes and seascapes in the Overberg that is representative of the region's biodiversity and provides ecosystem services through integrated/adaptive management, for the benefit of all.

2.2 The purpose of De Mond Nature Reserve Complex

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 S17 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;
- 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;

All of which are relevant for the DMNRC. The purpose of the DMNRC is defined as follows: Conserve and maintain important coastal wetland and terrestrial habitat for bird conservation, estuarine ecosystem services, archaeological and geological features and provide opportunities and benefits for sustainable nature-based tourism and access, bearing in mind the interest of agriculture in the region.

Historically, the De Mond State Forest (now Nature Reserve) was established to stabilise drift sands on both sides of the Heuningnes Estuary mouth in order to ensure that the mouth stays open to the sea. The intent was to limit sand build-up in the mouth, ensuring the mouth would stay open. This was done after pressure from the farming community and based on their fears that the water from the catchment area will dam up. The concern was that vast areas (approximately 24 000 ha) of low-lying farm land could flood, should the mouth be closed for an extended period (e.g. several months). Roads would also be flooded and therefore it would have a negative effect on effective commercial farming and access to towns like Struisbaai and Arniston. See also section 3.2 (History).

2.3 The values of De Mond Nature Reserve Complex

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

Natural values	The reserve was declared an internationally important Ramsar site on 2 October 1986. It contains numerous breeding shorebird species, including the endangered Damara tern (<i>Sterna balaenarum</i>) and Caspian tern (<i>Hydroprogne caspia</i>) and the near threatened African Black Oystercatcher (<i>Haematopus moquini</i>). Limestone and coastal lowland fynbos, also known as Strandveld, is the dominant vegetation type in the Reserve, identified by C.A.P.E as a threatened habitat (Euston-Brown 2003). Dense milkwood (<i>Sideroxylon inerme</i>) thicket occurs behind secondary dunes and on banks of the riparian zone. Soetendalsvlei is approximately 8 km along its north/south axis and 3 km wide at the middle and is the most southerly lake in Africa (Bickerton 1984). Soetendalsvlei is also the second largest lacustrine wetland in South Africa (ABI Undated).
Ecosystem service values	The Heuningnes Estuary is an important fish nursery and also hosts a number of sensitive habitats. Turpie and Clark (2007) state the nursery value as 1-5 million rands per annum. It also has salt marshes which are coastal wetlands that need protection as it provides feeding grounds and habitat for small fish. The reserve contains natural, undeveloped coastline, which facilitates a natural sand movement corridor. The estuary is also important in terms of groundwater management of the entire Heuningnes floodplain and its agricultural potential.
Social values	The DMNRC has a unique aesthetic value with breath-taking features, where the Waenhuiskrans Cave is used on many advertising boards for the area in general. Both Waenhuiskrans Reserve and the De Mond NR are regularly visited by the general public for recreational purposes and fishing. Bird watching is a growing recreational activity where the Heuningnes estuary is highly sought after as a hot spot for this activity. The Heuningnes estuary also serves as a fish nursery and therefore supports the general fish industry and recreational activity in the area.

	Turpie and Clark (2007) state the subsistence value as <0.05 million rands per annum and the nursery value as 1-5 million rands per annum.
Cultural and historic values	A number of archaeological features, such as the shipwrecks, including De Meermin and De Maggie "The Mackay" as well as an elephant skeleton recovered from shifting sand dunes. Archeological shell middens at Waenhuiskrans Nature Reserve including the "visvyfers".
Eco-tourism values	Popular tourism destination in the Agulhas area, Agulhas promoted as being the southernmost tip of Africa. Birding is a growing activity amongst the general public and the De Mond Nature Reserve as part of an important birding site, provide excellent opportunities to support this activity. Turpie and Clark (2007) give the recreational value as 0,5-1 million rands per annum and the scenic/existence value as medium.

In terms of rand value, the nursery value outweighs the recreational, subsistence and possibly scenic value of the estuary so it is one of the primary functions. The ecological status of the estuary should be improved to ensure the continuity of the estuary as an important nursery area.

2.4 The objectives of De Mond Nature Reserve Complex

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 intentions. 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 are:

1. To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within DMNRC and its promoted expansion to include additional priority habitats.
2. To provide job and benefit sharing opportunities for communities and access where appropriate.
3. To instil conservation awareness through effective communication, partnerships, stakeholder engagement and environmental education.
4. To protect the archaeological and cultural heritage on the reserve complex.
5. To provide sustainable visitor access and provide overnight accommodation for a limited number of guests within the existing tourism footprint.

2.5 Summary of management issues, challenges, opportunities and threats of De Mond Nature Reserve Complex

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 DMNRC following strengths, weaknesses, opportunities and threats (Table 2.1).

Table 2.1: Management strengths, weaknesses, opportunities and threats of the De Mond Nature Reserve Complex

Strengths	Obj 1	Obj 2	Obj 3	Obj 4	Obj 5
Proclaimed Ramsar site that improves the De Mond Nature Reserve's protective status.	✓				
A dedicated staff component.	✓		✓	✓	✓
A partnership with Working for the Coast and Working for Wetlands Projects assists in providing labour and materials towards implementing conservation objectives.	✓	✓			
With regards to the De Mond NR and the Heuningnes estuary, the Heuningnes Riparian Owners Association and the Heuningnes Estuary Advisory Forum has provided a platform for adjacent landowner and stakeholder input into reserve management especially from the farming community of the floodplain which has very direct interests.	✓		✓		
The existence of long term monitoring programs on the reserve.	✓		✓		
The presence of archeological features such as shell middens on the DMNRC as well as "visvyvers" and shipwrecks adjacent to the reserves.	✓			✓	
The presence of the Waenuiskrans cave that is a geological feature of interest and a popular tourist attraction.	✓				✓
The reserve is a member of the Bredasdorp Vlakte Fire Protection Association.	✓		✓		
The visitor accommodation at De Mond NR has a high occupancy rate (85%) throughout the year.					✓
Weaknesses					
There is a lack of funding to manage the whole estuary and the river as an ecological unit.	✓				
There is limited capacity and skills for compliance enforcement.	✓			✓	
There is insufficient operational budget.	✓			✓	
There are inadequate resources in terms of	✓				

vehicles and water monitoring equipment.					
The inability of the management authority to manage and control the public access at Waenhuiskrans Nature Reserve.	✓			✓	✓
There is no formal Protected Area Advisory Committee especially with regards to Waenhuiskrans to include all communities in negotiations with regards to the management of the Reserves.			✓		
Opportunities					
The expansion of the existing Working for the Coast & Working for Wetlands partnerships.	✓				
Tourism development at De Mond NR to maximise benefit from a well-established tourism destination.					✓
Existing working relationships with DEA, DAFF, SANParks, Overberg District Council, Provincial Coastal Committee and Local SAPD.	✓		✓		
Possible partnerships to improve management effectiveness and capacity.	✓	✓	✓	✓	✓
Scientific contributions and collaborations (universities, research institutions and other government and or parastatal organisations e.g. Dept of Water Affairs and BOCMA).	✓				
Upgrading of DMNRC's tourism infrastructure can enhance visitor use and experience.	✓				✓
Threats					
The reserves are relatively small which is not sufficient for pattern and process to effectively take place.	✓				
There is poaching of natural resources around and in the reserves.	✓				
Illegal driving in the coastal zone (Off-road Vehicle Regulations) impacts negatively on the shell middens and breeding birds.	✓			✓	
Public Minor Road 97 running through Waenhuiskrans Nature Reserve results in very sensitive archaeological treasures (shell middens) being destroyed.	✓			✓	
The negative impact on natural resources by illegal activities.	✓			✓	✓

The seasonality of visitor use may result in the over utilisation of natural resources during peak periods and puts pressure on limited visitor facilities.	✓			✓	
Habitat destruction through (for example) off road vehicles, trampling by foot and possible over-exploitation of fish and bait resources.	✓				
Fragmentation of reserves, since De Mond and Waenhuiskrans Reserves are not a continuous entity.	✓				
Buffer areas are vulnerable to land use changes.	✓				
High potential for hazardous spills, e.g. oil spills.	✓				
Invasion of alien invasive organisms.	✓				
Anthropogenic climate change (rising sea level, increase in frequency and intensity of storms, shift in seasonal frequency).	✓				
Lack of public awareness with regards to conservation of marine and terrestrial ecosystems.			✓		
Entanglements in fishing line of seabirds and other marine animals.	✓				
Potential gas and oil exploration and mining.	✓				
Potential disease outbreaks (among birds).	✓				
Artificial manipulation of the Heuningnes River mouth versus possible flooding of the private farms.	✓				
Over-abstraction of water in the Nuwejaars Catchment decreases the flow into the Heuningnes Estuary.	✓				
Ploughing of virgin soil or within wetlands, and other injudicious farming practices, including trampling of riverbanks by cattle and other livestock may result in siltation of the Heuningnes Estuary.	✓				
General eutrophication caused by indiscriminant farming activities such as allowing dairy slurry entering the water systems in the catchment of the Heuningnes River and Estuary.	✓				

3) DESCRIPTION AND CONTEXT OF DE MOND NATURE RESERVE COMPLEX

3.1 Location and extent of De Mond Nature Reserve Complex

The DMNRC consists of three sections, shown in Table 3.1 and Figure 3.4 and all three sections fall within the quarter degree grid squares 3420 CA and CC Bredasdorp.

1) The De Mond Nature Reserve (Forest Nature Reserve). See Figure 3.1.

This reserve includes the Heuningnes Estuary and is situated between Arniston in the north-east and Struisbaai in the south-west. The Heuningnes Estuary is also the southernmost estuary in Africa. The reserve is accessible by a 23 km tar and gravel road from Bredasdorp. The turn-off onto the gravel road leading to the De Mond Nature Reserve is approximately 15 km from Bredasdorp.



Figure 3.1: De Mond Nature Reserve development area (Photo. J. Hoekstra)

2) The Waenhuiskrans Reserve (Undemarcated State Land). See Figure 3.2.

This reserve is approximately 11 km north-east of De Mond Nature Reserve via the R316 and adjacent to the town of Arniston. It can be accessed from the road to Roman Beach on the southern boundary of the town.



Figure 3.2: Waenhuiskrans Nature Reserve (Photo T. Hoekstra)

3) Soetendalsvlei Reserve (Unregistered State Land) See Figure 3.3.

This property is west of De Mond Nature Reserve and can be reached via the Zoetendalsvlei farm off the R319 between Bredasdorp and Struisbaai. This property lies in the middle of the Soetendalsvlei, but is adjacent to the Agulhas National Park and basically enlarges and enhances the park.



Figure 3.3: Soetendalsvlei Reserve (Photo. L. Brown)

De Mond Nature Reserve increased from 350.9 ha to 966.3263 ha during 1977 with the expropriation of properties adjacent (east and west) to the Reserve, namely, 335.8 ha of portion 9 of the farm Soetendalsvlei, and 279.55 ha of a portion of the property Bushy Park.

The various land parcels of the DMNRC are shown in Table 3.1.

Table 3.1: Components of the land parcels constituting the De Mond Nature Reserve Complex

Reserve	Farm No	Farm Name	Admin District	Title Deed	Government Notice	Ha_GIS	Notes/Status
De Mond	272/1	Klipfontein	Bredasdorp	T9904/1939	937/1941	151.6340	State Land proclaimed as a Forest Nature Reserve in terms of the Forest Act No 122 of 1984, Proclamation 2136/1986
De Mond	269/3	Bushy Park	Bredasdorp	T2289/1940	937/1941	145.4994	State Land proclaimed as a Forest Nature Reserve in terms of the Forest Act No 122 of 1984, Proclamation 2136/1986
De Mond	269/4	Bushy Park	Bredasdorp	T15864/1961	2753/1979	3.4991	State Land proclaimed as a Forest Nature Reserve in terms of the Forest Act No 122 of 1984, Proclamation 2136/1986
De Mond	269/5	Bushy Park	Bredasdorp	T2565/1981	2136/1986 (17 Oct 1986)	279.5546	State Land proclaimed as a Forest Nature Reserve in terms of the Forest Act No 122 of 1984, Proclamation 2136/1986
De Mond	280/9	Zoetendals Vlei	Bredasdorp	T16579/79	2186/1978	335.8196	State Land proclaimed as a Forest Nature Reserve in terms of the Forest Act No 122 of 1984, Proclamation 2136/1986
TOTAL						915.5494	
Waenhuiskrans	264/11	Dollas Downs	Bredasdorp	T9434/1972	2579/1977	37.6529	Undemarcated State Land
Waenhuiskrans	264/10	Dollas Downs	Bredasdorp	T9434/1972	2579/1977	30.3398	Undemarcated State Land
Waenhuiskrans	Erf 171 rem	Arniston	Arniston	T12540/1964	2753/1979	186.3323	Undemarcated State Land
TOTAL						254.325	
Soetendalsvlei	276/0	Zoetendals Vlei	Bredasdorp	Not registered		335.8196	Undemarcated and unregistered State Land
TOTAL						335.8196	

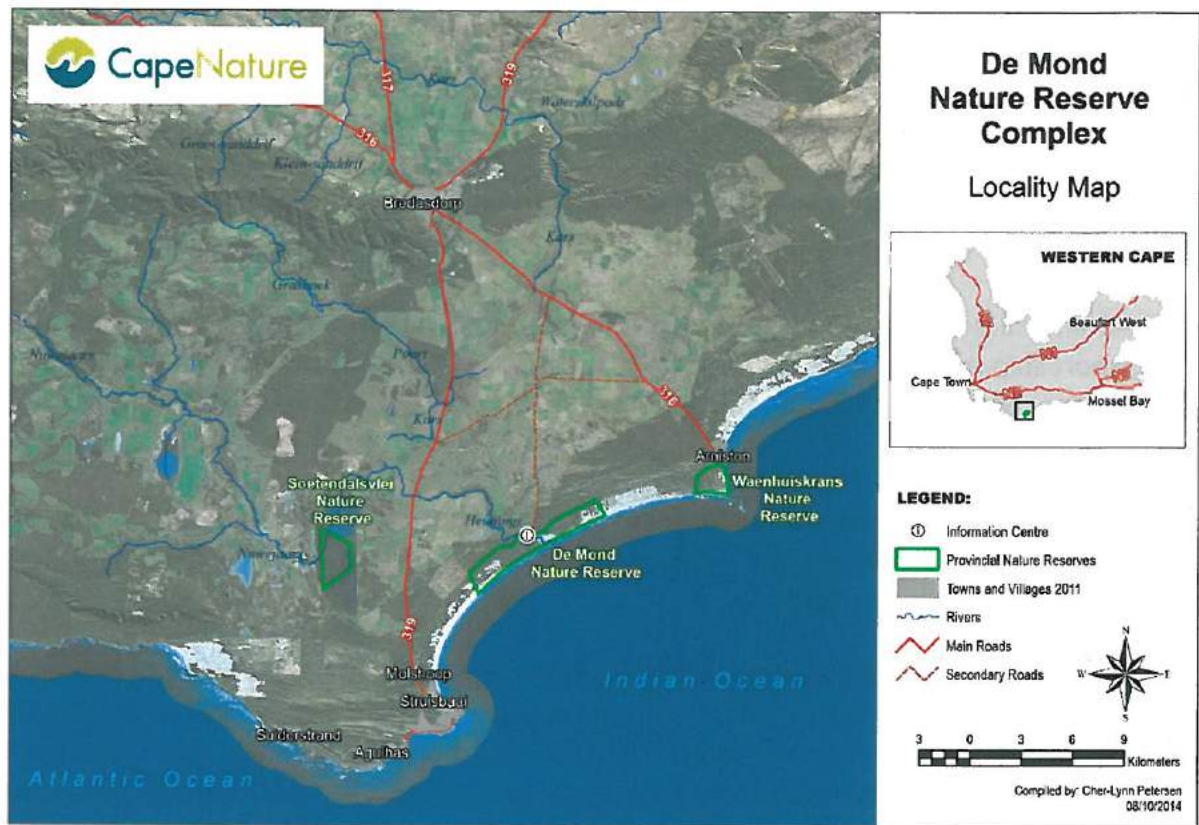


Figure 3.4: Location and extent of the De Mond Nature Reserve Complex

3.2 History of De Mond Nature Reserve Complex

The following history is taken from Bickerton (1984):

There appears to be some uncertainty regarding the origin of the name Heuningnes. According to Mr G. D. Kilpin, owner of De Mond farm, the name Heuningnes originates from the presence of a beehive in a cave on the bank of the estuary. Alternatively the name Heuningnes was derived from the large numbers of wild bees and beehives which were found on the ridge Heuningrug which is situated just to the north of Soetendalsvlei.

Arniston, which lies to the north-east of the mouth of the Heuningnes, was named after a transport ship that was wrecked there in May 1815. It is also known as Waenhuiskrans after the enormous cavern eroded in the limestone cliffs approximately 2 km south of the present town.

Soetendalsvlei, the vlei which drains into the Heuningnes River, and the farm Zoetendalsvallei situated around it, were named after the Zoetendal which was wrecked on the adjacent coastline in 1673.

How or why the drift sands to the north and south of the mouth of the Heuningnes formed, is not clear. Old Admiralty charts compiled during the years 1860, 1867 and 1869 show minor sand drifts along the Bredasdorp coast. During more recent times, many farms on the Riversdale section of the coast were excessively subdivided into smallholdings. It therefore seems probable that intensive cultivation, grazing and burning on the sandy soil, together with trampling by stock *en route* to the infrequent water springs situated near the sea, led to denudation of the scanty vegetation with resultant sand drifts. It appears that destabilisation of the dunes at De Mond could have resulted from similar activities, in particular, grazing and trampling by stock; however this speculative statement should be investigated further when research on sand movement is done.

In 1937 Major P. van der Byl and Mr M. van Breda (landowners in the district) approached the Minister of Agriculture and Forestry in connection with the drift sand problem at De Mond. Following this, the Secretary for Agriculture and Forestry wrote to the Department of Lands requesting the expropriation of the land adjacent to the mouth of the Heuningnes. Mention was made of the threat posed by the drift sand to the river mouth and the fact that if the river mouth were to become blocked, approximately 24 000 ha of agricultural land would be flooded. During 1937 and 1938, assurance was given by the Minister to the landowners that the Department would not plant rooikrans (*Acacia cyclops*) as part of the proposed dune reclamation programme.

In 1939, the Department of Agriculture and Forestry began buying up land around the Heuningnes Estuary with a view to stabilising the drift sands. Dune reclamation work at De Mond was started by the Department of Forestry in 1942 when a large sand dune moved across the Heuningnes near its mouth. Mostly indigenous vegetation was used at De Mond and Waenhuiskrans contrary to the practise at other similar so-called drift sand areas where exotic acacia species were used. The mouth of the Heuningnes was kept open by the Department of Forestry until 1973 when it closed. The mouth remained closed for a long time, the bar being breached only by high spring tides. In 1976, good rains fell and the mouth was opened by a bulldozer and the tidal regime was reinstated. This action was

strongly supported by the local riparian landowners, who were persistent with their demands that the practice continued, for fear of potential flooding of properties upstream.

During 1977, 335 hectares of the farm Zoetendalsvlei west of the station and 279 hectares of the property Bushy Park east of the station, were expropriated for the purpose of dune stabilization. The station area was then increased to 960 hectares. During 1986, De Mond was proclaimed as a Nature Reserve (Government Gazette, 1986). Early in 1991, De Mond became a satellite station to De Hoop Nature Reserve, of Cape Nature Conservation. The dune stabilisation programme was then terminated, as it was against conservation policy to interfere with natural processes with the exception of the ongoing stabilisation of the dunes at the mouth of the river at De Mond and the re-mobilisation of certain dunes (by removing vegetation) behind the beach at Waenhuiskrans. The building up and stabilization of the dunes on both sides of the estuary mouth is seen as a method to keep the mouth open, however the practice was stopped in 2012 pending more scientific input towards the mouth management. See action tables (Tables 6.1 to 6.15).

A section of the wetland Soetendalsvlei, approximately 15 km upstream of De Mond, is also State property, and it is felt that it plays an important role in estuarine processes. The estuary cannot be managed in isolation, therefore Soetendalsvlei and all activities downstream should be managed as a unit. This property was acquired by the State for the purpose of landing Catalina airplanes during World War II. An Air force Base was situated on a nearby farm (P Albertyn, pers.comm. 6 February 2014).

Between 1974 and 1975, a suspension bridge was installed across the Heuningnes River, approximately 1.5 km from the mouth. This bridge was dismantled at Uilenkraals River near Gansbaai, and transported to De Mond. A causeway was constructed in 1944, approximately 200 m downstream of the bridge, so that vehicles could traverse the river during dune stabilization programmes. The causeway was removed in 1985.

3.3 Ecological context of De Mond Nature Reserve Complex

This section reflects the ecological conditions of the DMNRC. The Heuningnes catchment is approximately 1938 km² and is situated in the extremely low lying Bredasdorp coastal plain (Bickerton 1984). This complex wetland system and the wetlands of interest run from 5 km upstream of the Nuwejaarsrivier–Soetendalsvlei confluence to the mouth of the Heuningnes River (Avierinos and Hellstrom 2010). The vlei acts as a reservoir, and when it overflows, the run-off spills over into the Heuningnes River, which feeds the estuary. The Heuningnes estuary drains the flat, low coastal plain of the Zoetendals Vallei area. The Heuningnes estuary is classified as a temporary open closed estuary where the mouth of the estuary remains closed for extended periods of time. In the past, the mobile dune system would naturally close off the estuary mouth from the ocean which would result in extensive flooding in the floodplain which is a natural process. This flooding can have far-reaching consequences and as such the estuary mouth has, in the past, been artificially kept open and breached to maintain the agricultural integrity of the area. The low lying agricultural hinterland was classified as a wetland before agricultural cultivation (Bickerton 1984).

3.3.1 Climate and weather

This region has a Mediterranean climate, with hot dry summers and cold wet winters (Kraaij *et al.* 2004). Maximum temperatures are experienced in January (mean max = 28°C) and minimum temperatures usually occur in July and August (mean daily min = 8°C) (Figure 3.5). Rainfall occurs mainly in winter between April and late August. Rainfall has been measured on the reserve from 1979 (33 years). This data contributes to the South African Weather Service Database. The highest rainfall of 704 mm and lowest rainfall of 280.8 mm were recorded in 2005 and 1982 respectively. Winds are mainly from the southwest and southeast in summer (Lubke *et al.* 2001) and westerly and north-westerly in winter (Kraaij *et al.* 2004). Fog occurs about 20 days per annum (Bickerton 1984).

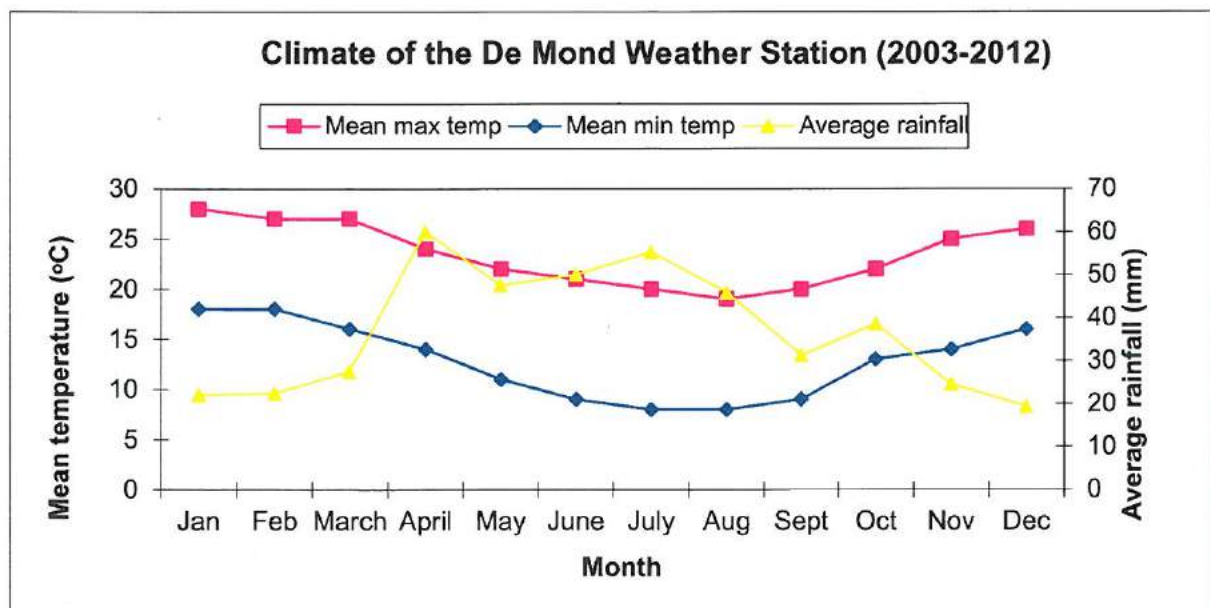


Figure 3.5: Climate of the De Mond Nature Reserve. The mean maximum temperature is 28°C (January) and mean minimum temperature is 8 °C (July)

and August). The average highest monthly rainfall is 60mm in April and the lowest is 19mm in December.

3.3.2 Topography

The DMNRC consist of three components. The De Mond Nature Reserve itself stretches from the high water mark to 26 m above sea level, which is the highest point (Figure 3.6). The Heuningnes River cuts through the hard dunes, creating an undulating landscape. The Waenhuiskrans Nature Reserve stretches from the high water mark to 56 m above sea level. It consists of hard and mobile dunes. Soetendalsvlei is a water body at 4 m above sea level (<http://earth.google.com>) surrounded by a relatively flat landscape.

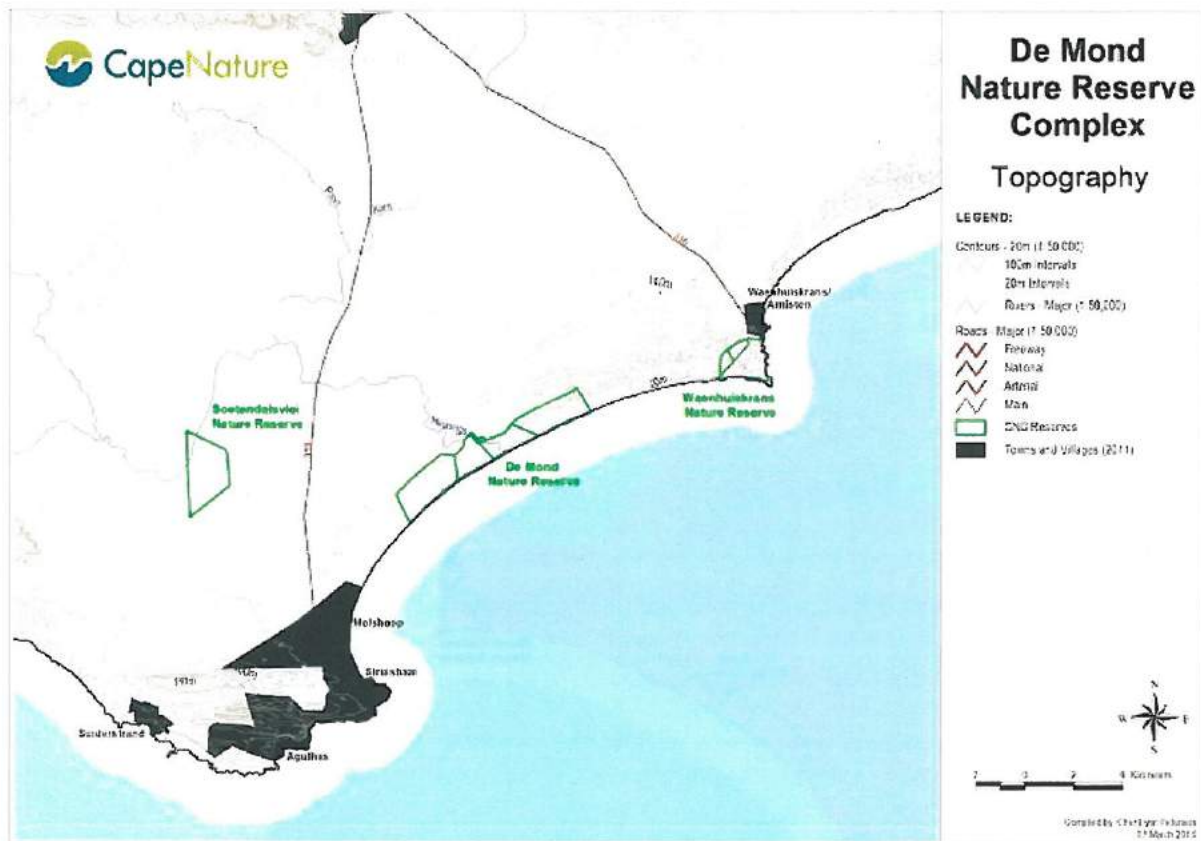


Figure 3.6: Topography of the De Mond Nature Reserve Complex

3.3.3 Geology and soils

The geology of the DMNRC consists of predominantly limestone. See Figure 3.7.

The geomorphological development of the DMNRC, according to Bickerton (1984), took place during Tertiary and recent periods, i.e. during the past 70 million years and is the result of the following major processes:

- Inundation of the Bredasdorp Coastal Plain by the ocean leading to calcification of dune sands;
- Retreat of the ocean during the Miocene (i.e. 26 to 7 million years ago), and deposition of inshore deposits on the wave-cut platform;

- Beach sand blown onto the seaward margin of this platform known as the Bredasdorp Beds;
- Calcification of these younger sediments (the present “hard dunes”) as a result of further inundations caused by rises in sea level;
- Beach sand being blown onto these terraces in the form of the present-day soft dunes;
- Erosion caused by retreating sea levels exposing the underlying quartzitic and shale formations which can be seen in the present-day inter- and sub tidal areas.

De Mond Nature Reserve soils consist almost entirely of loose, unconsolidated marine shell derived sands, stabilised by dune and salt marsh vegetation in places, with some partly calcified substrates, calcrete lenses and calcrete deposits derived from these sands occurring on the inland boundary of the reserve. See e.g. limestone habitats in reserve vegetation map, Figure 3.9, as well as Figures 3.10 and 3.11 indicating duneveld, beach and mobile sand. The sand and sand-derived deposits overlie the relatively shallow shale and siltstone rocks of the Bokkeveld formation which typically forms an aquiclude, or water-impermeable layer. (Malan and Viljoen 1994; Soltau and Conrad 2011).

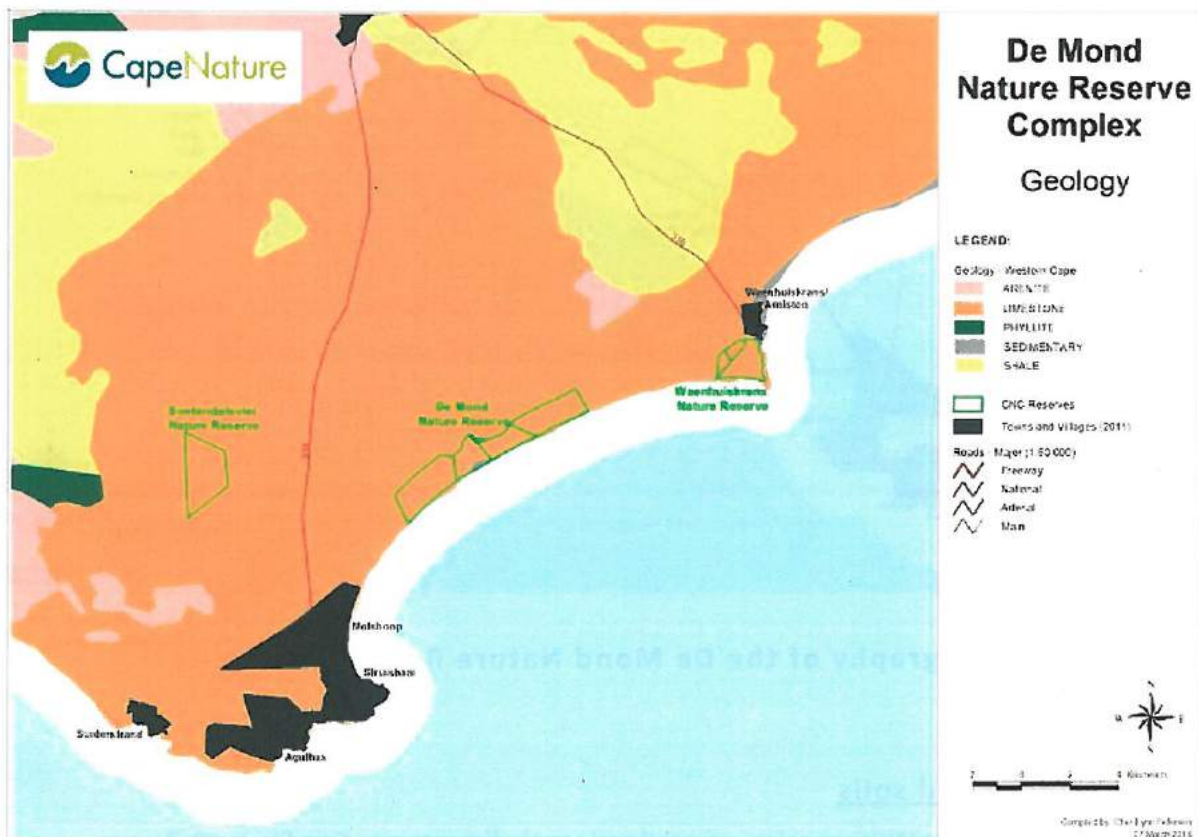


Figure 3.7: Geology of the De Mond Nature Reserve Complex

3.3.4 Aquatic systems

See Figure 3.8.

3.3.4.1 Groundwater

Due to the proximity to the sea and relatively low rainfall of around 350 mm p.a., the soil water aquifer overlying the Bokkeveld shales is likely to be highly saline at and below sea level, with freshwater perched as a shallow lens at a depth of not more than 10 – 15 m even at the highest locations in the reserve, with a great deal of local variability depending on soil depths and local conditions (Soltau and Conrad 2011)

Water for domestic use is only extracted at De Mond Nature Reserve from one borehole. This water however is too saline for drinking purposes and a shallower borehole needs to be established that should be able to produce more potable and less saline water. (Soltau and Conrad 2011). Rainwater is also harvested for drinking purposes.

3.3.4.2 Rivers

Catchment

The reserve falls within the Overberg catchment, which forms part of the Breede Water Management Area (WMA). The rivers running into the De Mond Nature Reserve drain the Soetmuis and Bredasdorp mountains.

According to the National Freshwater Ecosystems Priority Areas (NFEPA) project maps, several Freshwater Ecosystem Priority Area (FEPA) rivers and wetlands/estuary systems are included in the sub-quaternary catchment surrounding the De Mond Nature Reserve (Nel *et al.* 2011a, b). These include the fish sanctuaries associated with the Nuwejaars River, the FEPA sub-quaternary catchments of the Kars and Heuningnes Rivers and the estuary at De Mond Nature Reserve as well as the wetland systems forming part of the Kars River catchment (Nel *et al.* 2011b).

Heuningnes Estuary

The Heuningnes Estuary has two major tributaries. These are the Kars River and Nuwejaars River (the latter flows into Soetendalsvlei, the overflow from which has a confluence with the Kars River) (Figure 3.8). The length of the river from the mouth of the Heuningnes to the confluence of the Kars River and overflow channel from Soetendalsvlei is 15 km (1:50 000 Sheet 3420 CA and CC Bredasdorp). The Heuningnes River, downstream of the confluence with the Nuwejaars and Kars Rivers and upstream of the estuary at De Mond, was found to be in a good condition (B class) by the River Health Programme (River Health programme 2011).

Kars River

The Kars River rises via many tributaries in the north-facing slopes of the Bredasdorp mountains, the undulating area to the north of these mountains and also the north-west of the Bredasdorp mountains (1:250 000 Topographical Sheet 3319 Worcester). The length of the Kars River from its westernmost source, near the farm Fairfield, to its confluence with the Soetendals River overflow channel is 75 km as measured on the 1:250 000 Topographical Sheets 3319 Worcester and 3420 Riversdale. According to the present state of the river, determined through the River Health Project (RHP) the Kars River is found to be in a fair condition (C class), with a desired state of good (B class) for the upper reaches.

Of the many tributaries of the Kars River, six are named on the 1:250 000 Topographical Sheet 3319 Worcester. These are the Tweerivier, Leeurivier, Klein Soutrivier, Klipdriftivier, Groot Sanddrift and the Grashoekrivier. Downstream of the farm Nachtwacht, where the Kars River flows under Bredasdorp/Arniston road bridge, the land is very flat and gradients

are almost indiscernible. As a result, the course of the Kars River vlei is not well-defined and run-off is via the Kars River vlei through which the water flows, passing under the Bredasdorp/Struisbaai road. Downstream of this road crossing, the main channel becomes more distinct and a small stream (the Poortrivier) flows into the Kars (1:50 000 Sheet 3420 CA and CC Bredasdorp).

Nuwejaars River

The Nuwejaars River rises via many tributaries in the south-facing slopes of the Bredasdorp mountains, the Koue mountains to the west, the hills to the south of Elim and the north-facing slopes of the Soetanyberg (1: 250 000 Topographical Sheet 3319 Worcester). The length of the Nuwejaars River from its westernmost source through Soetendalsvlei to the confluence of the vlei's overflow channel with the Kars River is 55 km as measured on the 1:250 000 Topographical Sheet 3319 Worcester. The upper reaches of the Nuwejaars River was found to be in a good condition (B class), with the lower reaches deteriorating to a fair condition (C class) due to land use practices (River Health Programme 2011). The desired state, i.e. B class, for the Nuwejaars system is strongly linked to the system providing sanctuary to several threatened indigenous fish species (FEPA fish sanctuary; Nel *et al.* 2011a).

Of the many tributaries of the Nuwejaarsrivier, five are named on the 1:250 000 Topographical Sheet 3319 Worcester. These are the Kouerivier, Wolwegatskloofrivier, Jan Swartskraalrivier, Boskloofrivier and Uintjieskuilrivier. In the lower reaches of the Nuwejaars River the topography is very flat and low-lying and several pans and vleis drain into the river. The pans named on the 1:50 000 Sheet 3419 DB and DD Elim are Waskraalsvlei, Voëlvlei and Soutpan. Further downstream the Nuwejaars River flows into Soetendalsvlei, the most southerly lake in Africa, which is approximately 8 km long along its north/south axis and 3 km wide at the middle.

3.3.4.3 Other freshwater aquatic systems (wetlands, springs, pans)

Soetendalsvlei:

Soetendalsvlei is one of the largest freshwater lakes in South Africa (approximately 7.5 km long and 3 km wide). This lake supports the largest numbers of water bird on the Agulhas Plain. The lake is seasonally slightly saline (2 - 5 g/kg) and has a maximum depth of 3 m. It supports very high numbers of African Purple Swamphen (approximately 400 pairs) and is a very important habitat in this regard. It also supports large numbers of Moorhens and Red-knobbed Coots and provides good habitat for rallids. Species occurring here include Red-chested Flufftail, African Rail, Black Crake, Purple Heron, Little Bittern and Ethiopian Snipe (Toens 2001)

Soetendalsvlei and De Mond Nature Reserve and its associated wetlands and Fynbos vegetation, constitute a unique interlinked, environmentally sensitive area (Toens 1996).

The property owned by the State and managed by CapeNature as part of this management plan constitutes only a section of the vlei and is approximately 415 ha in size. The total surface area of the vlei is approximately 1 590 ha and therefore the State Land is only 26 % of the total surface area of the vlei. A section of the vlei and the properties on the western and southern perimeters of the vlei is presently part of the Agulhas National Park, but the largest part is still in private ownership.

The Soetendalsvlei forms part of the bigger Nuwejaars wetland system that is mostly upstream of the vlei. See paragraph 3.7.1 (Rivers).

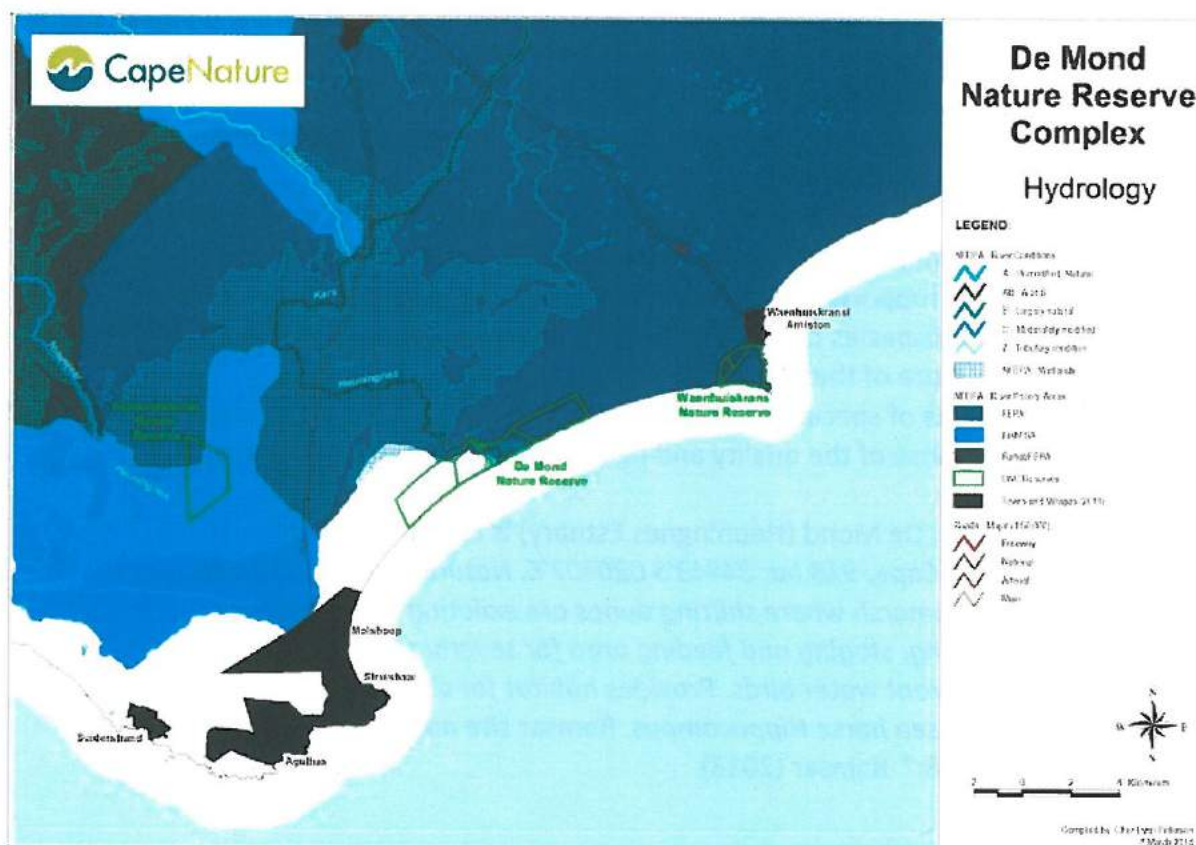


Figure 3.8: Hydrology of the De Mond Nature Reserve Complex

3.3.5 Estuaries

A comprehensive description of the estuary and catchment is provided by Avierinos and Hellström (2010). It states that the estuary has been recorded as being tidal as far up as 12 km upstream of the mouth, although the majority of the tidal influence is within the first 2 km. The causeway that was built in the early 1940's (See section 3.3 (History)) to provide access across the river impeded the estuary, affecting the tidal influence. Since its removal, the tidal influence is noticeable further upstream.

Avierinos and Hellström (2010) provide a comprehensive situation assessment compiled for CapeNature to inform the Environmental Management Plan (EMP) for the estuary in terms of the Integrated Coastal Management Act. The draft EMP that has been compiled is not yet approved by the Estuary Advisory Forum or any authority. The Situation Assessment however should be read together with this plan in order to gain more background information.

3.3.5.1 Ramsar Status:

The Heuningnes Estuary is listed as a wetland of international importance in terms of the Ramsar Convention on Wetlands of International Importance during 1998 (Ramsar site no. 342).

When the Heuningnes Estuary was nominated and given status, it was under the following criteria (Avierinos and Hellström, 2010):

- The wetland is a particularly good representative example of a natural or near natural wetland, common to more than one biogeographical region;
- The wetland supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant or animal, or an appreciable number of individuals of any one or more of these species;
- The wetland is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna.

According to Ramsar, De Mond (Heuningnes Estuary) is listed as follows:

"02/10/86; Western Cape; 918 ha; 34°43'S 020°07'E. Nature Reserve. Estuary, dune system and saltmarsh where shifting dunes are isolating the estuary. Important as wintering, staging and feeding area for several species of breeding birds and locally migrant water birds. Provides habitat for various reptiles, notable crustaceans and the sea horse Hippocampus. Ramsar site no. 342. Most recent RIS information: 1998." Ramsar (2013).

3.3.5.2 Mouth management

The mouth of the Heuningnes River has been managed in the past for the purpose of keeping it open to the sea. See history section 3.2 and sensitivity section 5.1.1. If the estuary mouth stays closed for a long time, the back water can flood huge agricultural areas to the detriment of the farming practices and consequently to the local economy. In order to keep the mouth open, rows of branches were placed both sides of the mouth and parallel to the beach with the result that windblown sand accumulated against it. As the sand builds up, more branches were then stacked on top of it until a high dune was formed. The result was that less sand accumulated in the mouth and therefore stayed open for longer periods.

This practise, however, needs to be debated again by experts in the field of estuary management to decide on what the best practice is for both the health of the estuary and the farming practices upstream. An acceptable mouth management plan has to be compiled and submitted to the Department of Environmental Affairs for authorisation in terms of the EIA regulations as the manipulating of sand dunes along the coast is a listed activity.

3.3.6 Vegetation & habitat description

See Figures 3.9 – 3.11 (pages 50 – 52) for the vegetation habitats of De Mond, Waenhuiskrans and Soetendalsvlei.

The DMNRC includes habitats associated with both the fynbos biome and the coastal vegetation of South Africa (Mucina and Rutherford 2006). The Cape Floral Region, including the fynbos biome, is renowned as the richest non-tropical flora globally. Further, the global uniqueness of fynbos habitats has been recently recognised as the Core Cape Sub-region (Manning and Goldblatt 2013). The De Hoop Limestone Fynbos (Heydenrych 1994), and to a lesser extent the Overberg Dune Strandveld habitats of the reserve complex are typical of this species richness, and include a number of locally endemic plants, most confined to the coastal area between Hermanus and the Breede River Mouth.

Kirkwood (2010) mapped the vegetation of the DMNRC at a 1:5 000 scale or better, over accurately geo-referenced fine-scale 2007 aerial photography, after in-field surveys, thereby updating, refining, and re-aligning boundaries of units mapped by Euston-Brown (2003). Mucina and Rutherford's (2006) vegetation descriptions provided an accurate and easily recognised framework for the habitat delineation within the reserve complex (see Table 3.2), although the actual mapping is too coarse to be useful at reserve scale. Further sub-habitats were also differentiated and mapped to assist with management and identification of sensitive areas.

None of the terrestrial habitats within the reserve complex are regionally threatened (see Table 3.3, Ecosystem Status as per Jonas *et al.* 2012). All habitats represented are estimated to have between 86.2 % and 97.8 % of their original extent intact. While these figures substantially underestimate true levels of habitat loss and degradation, particularly as a result of severe invasive alien plant infestations (D. Kirkwood pers. obs.), these terrestrial habitats are still amongst the most intact Cape lowland habitats, and are also all well represented in formal protected areas, with close to or more than the conservation threshold (i.e. biodiversity target) conserved within formally protected areas.

The estuarine portion of the Heuningnes River is however considered to be in poor ecological condition and therefore does not contribute to the protection level for that ecosystem type (Driver *et al.* 2011), despite the 59 ha protected within the DMNRC. As this is one of only six South African estuaries that have been designated as a wetland of international significance under the Convention on Wetlands of International Importance (Ramsar Convention), and one of only 20 South African Ramsar wetlands, this should be highlighted as a priority habitat.

Table 3.2: South African Vegetation units represented within the De Mond Nature Reserve Complex. Unit definitions follow Mucina and Rutherford (2006), but with revised mapping at a 1:5 000 scale or better. Please note that percentages formally protected are dated from 2006 and are likely to have subsequently increased with expansion of the Agulhas National Park.

SA Vegetation equivalent	Conservation Threshold	Formally Protected (2006)	Remaining (of original extent)	Ecosystem Status	Hectares	%
Overberg Dune Strandveld (FS7)	36%	30%	94.8%	Least Threatened	881.5	52.5%
De Hoop Limestone Fynbos (FFI 2)	32%	26%	97.8%	Least Threatened	68.9	4.1%
Southern Coastal Forest (FOz 6)	40%	53.4%	94.3%	Least Threatened	3.7	0.2%
Cape Seashore Vegetation (AZd 3)	20%	44.5%	86.2%	Least Threatened	228.1	13.6%
Cape Inland Salt Pans (AZi9)	24	20	86.9	Least Threatened	414.6	24.7%
Cape Estuarine Salt Marshes (AZe2)	24%	22.8%	89.3%	Least Threatened	21.8	1.3%
n/a (Estuary)	-	-	-	Critically Endangered	59.1	3.5%
Total					1 677.5	

Table 3.3: Easily distinguished habitat subtypes were mapped within most SA Vegetation units, along with habitat condition at a 1:5 000 scale or better.

SA Vegetation equivalent	Habitat subtype	Hectares	Habitat Condition	Hectares
Overberg Dune Strandveld (FS7)	Duneveld	408.3	Natural	360.138
			Near Natural	41.279
			Degraded	6.884
	Stabilised Duneveld	310.9	Natural	309.919
			Degraded	0.973
	Strandveld	162.3	Natural	161.728
			Near Natural	0.464
Degraded			0.010	
No Natural Habitat			0.111	
De Hoop Limestone Fynbos (FFI 2)	Limestone Fynbos	68.9	Natural	68.875
Southern Coastal Forest (FOz 6)	Milkwood Thicket	3.7	Natural	2.169
			Near Natural	1.511
			No Natural Habitat	0.004
Cape Seashore Vegetation (AZd 3)	Rock & Rocky Platforms	26.5	Natural	21.047
			Near Natural	4.503
			Degraded	0.952
	Beach & Mobile Sands	201.6	Natural	198.011
			Degraded	3.347
No Natural Habitat			0.212	
Cape Inland Salt Pans (AZi9)	Cape Inland Salt Pans	414.6	Natural	414.562
Cape Estuarine Salt Marshes (AZe2)	Estuarine Salt Marsh	21.8	Natural	21.403
			Degraded	0.365
n/a	Estuary	59.1		59.060
Total				1 677.5

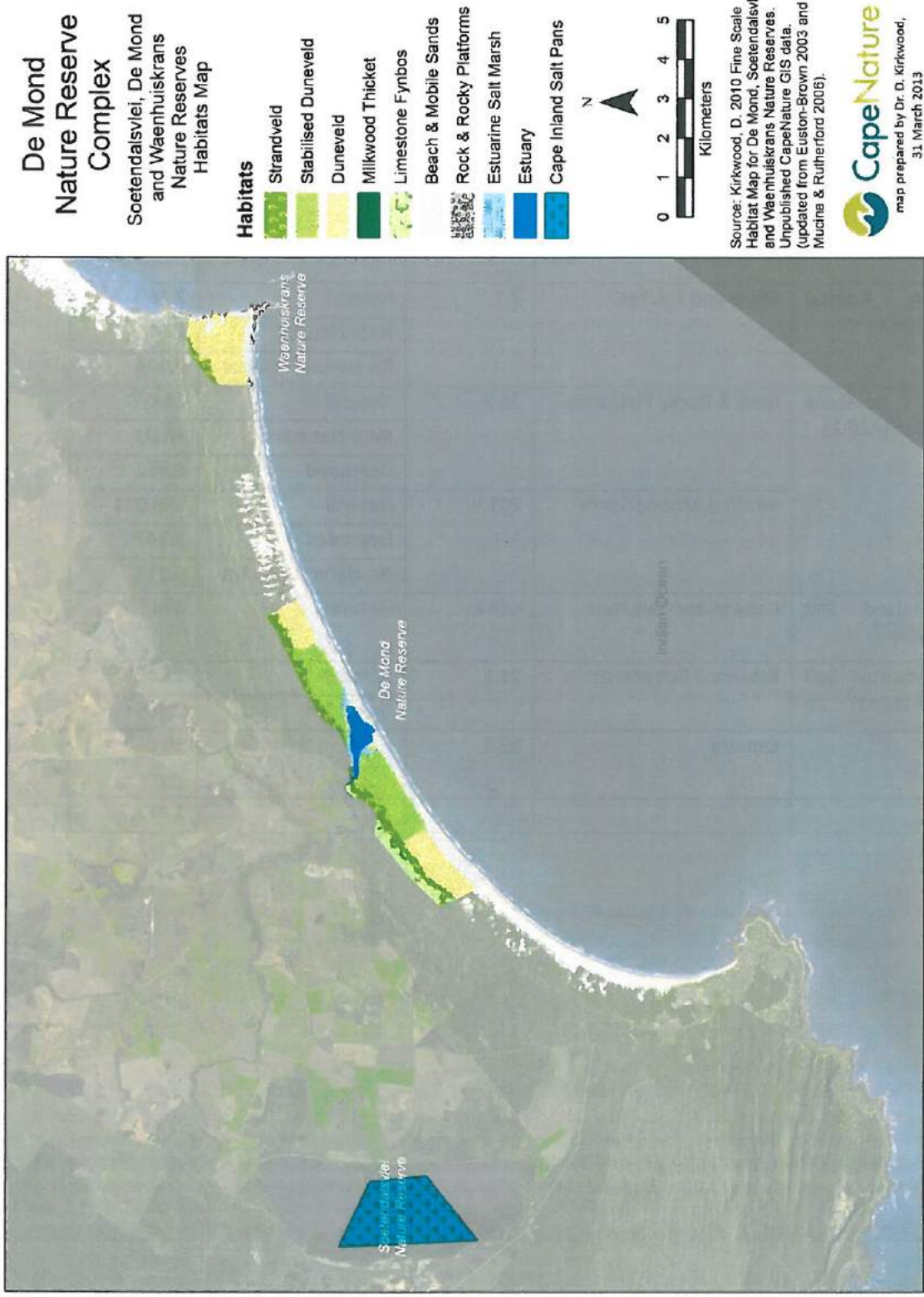


Figure 3.9: De Mond Nature Reserve Complex Habitat Map

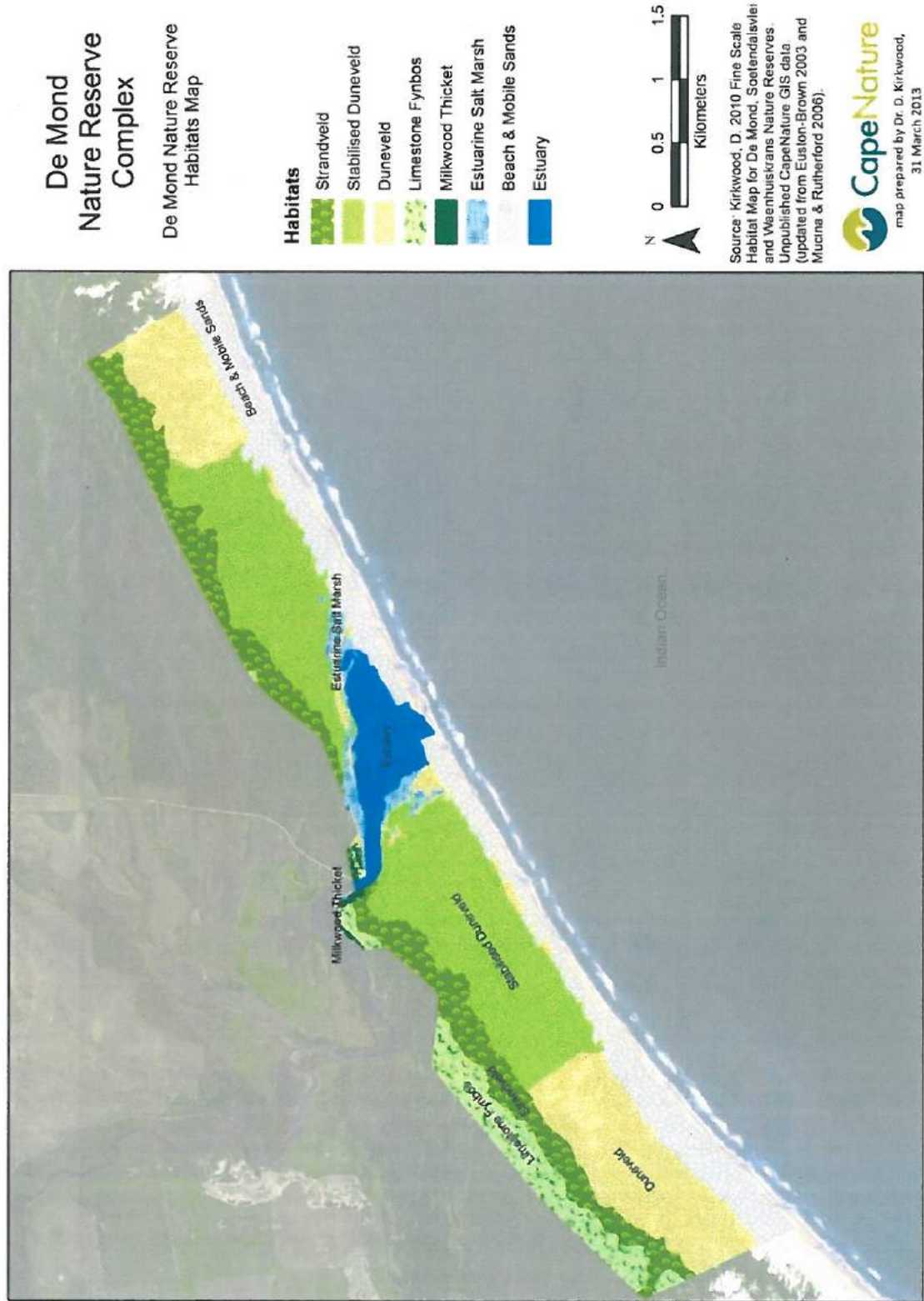
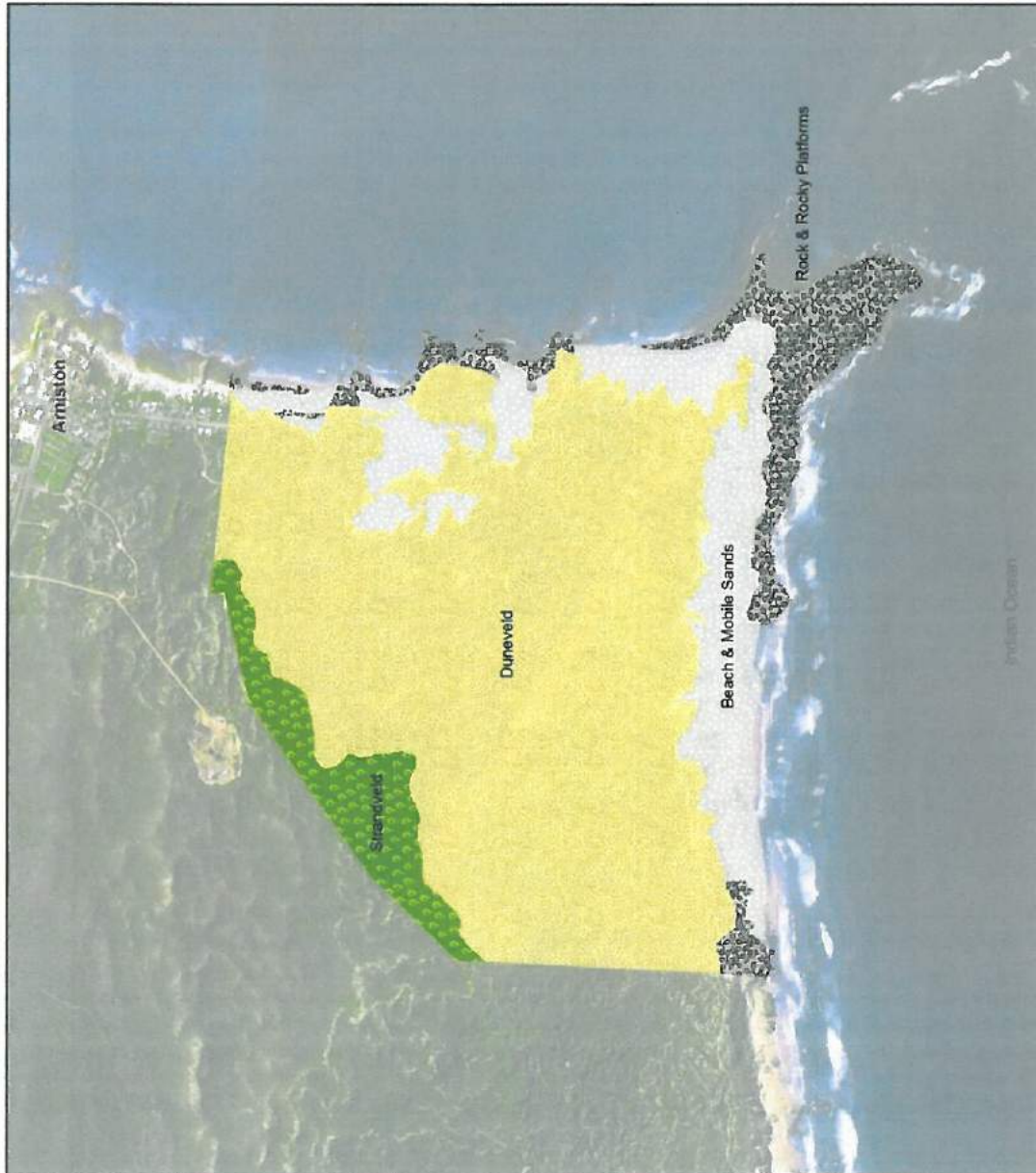


Figure 3.10: De Mond Nature Reserve Habitat Map

De Mond Nature Reserve Complex

Waenhuiskrans Nature Reserve Habitat Map



Habitats

-  Strandveld
-  Duneveld
-  Beach & Mobile Sands
-  Rock & Rocky Platforms
-  Cape Inland Salt Pans



Source: Kirkwood, D. 2010 Fine Scale Habitat Map for De Mond, Soetendalvlei and Waenhuiskrans Nature Reserves. Unpublished CapeNature GIS data (updated from Euston-Brown 2003 and Mucha & Rutherford 2006).



Figure 3.11: Waenhuiskrans Nature Reserve Habitat Map

3.3.6.1 Habitat Types

- SA Vegetation Type: Overberg Dune Strandveld (FS7):
 - *Strandveld* – typical Strandveld shrubland corresponding to the SA Vegetation description.
 - *Duneveld* – partly vegetated areas with extensive proportion of mobile sand.
 - *Stabilised Duneveld* – It is noteworthy that extensive areas of De Mond Nature Reserve now fully or partly stabilised by Overberg Dune Strandveld were almost entirely un-vegetated mobile dune fields as recently as the 1930's (Aerial imagery dated 1934, Tinley 1985). These units that are the result of historical active dune stabilisation with indigenous planting are mapped as Stabilised Duneveld, and have high cover of Strandveld vegetation with little mobile sand.
- SA Vegetation Type: De Hoop Limestone Fynbos (FFI 2) (no sub-habitats mapped).
- SA Vegetation Type: Southern Coastal Forest (FOz 6) (no sub-habitats mapped). Mature *Sideroxylon inerme* stands were not differentiated in the habitat map, but are mapped as a separate heritage feature in the De Mond Sensitivity Analysis.
- SA Vegetation Type: Cape Seashore Vegetation (AZd 3):
 - *Beach & Mobile Sands* – Typical azonal Cape Seashore Vegetation, but also including un-vegetated sands of beach and fore dunes.
 - *Rock & Rocky Platform* – vegetated and un-vegetated exposed rocky substrates close to the shore.
- SA Vegetation Type: Cape Estuarine Salt Marshes (AZe2). Flat low-growing (<30cm) vegetation, inundated only at highest tides, dominated by salt-tolerant chenopods, most noticeably extensive cover of *Salicornia* spp.
- SA Vegetation Type: Cape Inland Salt Pans (AZi9). Salt pan habitats of Soetendalsvlei, typically inundated.

3.3.6.2 Rare and Endangered Plants

Table 3.4 provides a list of red data species as provided in Euston-Brown (2003). However, the NBI is currently revising the red data plant list, and there are likely to be more rather than less red data plant species occurring on the reserves once the revision is available.

The number of red data species found was more prevalent in Strandveld and Limestone Fynbos. The grass, *Prionanthium pholiuroides*, is probably the most note-worthy red data species.

There are several species that appear to be relatively common, and it is not clear as to why they are on the red data list (e.g. *Agathosma collina*, *Satyrium carneum*). However, they may be useful indicators of rare habitats where other rare plants may reside. There are also several local endemics that were found that appeared to be un-common, but are currently not on the red data list. For one species only the subspecies or variety is listed (*Pentaschistis*

calpicola var. *hirsuta*), and at this stage it is not clear whether the populations found represent the subspecies or variety.

Table 3.4: Red Data plant species found on De Mond (DM) and Waenhuiskrans (WK) Nature Reserves

SPECIES	Distribution	Red Data Status	Observed Status
<i>Acmadenia heterophylla</i>	DM Limestone Fynbos	Rare (IUCN 1997)	Rare
<i>Agathosma collina</i>	DM Strandveld, WK Strandveld	Vulnerable (B1B2c) (Golding, 2002)	Common
<i>Agathosma geniculata</i>	DM limestone & strandveld,	Vulnerable (B1B2c) (Golding, 2002)	Un-common
<i>Agathosma serphyllacea</i>	DM limestone,	Low Risk - Least concern (Golding, 2002)	Common
<i>Diosma guthreii</i>	DM Limestone Fynbos & Strandveld, WK Strandveld	Data deficient (Golding, 2002)	Rare
<i>Erica radicans</i> subsp. <i>schlechteri</i>	DM Limestone Fynbos	None	Very rare
<i>Ficinia pygmaea</i>	DM Salt Marshes	Low Risk - Least concern (Golding, 2002)	Rare
<i>Helichrysum cochleariforme</i>	WK Strandveld	Low Risk - Least concern (Golding, 2002)	Common
<i>Juncus krausii</i>	DM Salt Marsh	Low Risk - Not threatened (Golding, 2002)	Un-common
<i>Limonium kraussianum</i>	DM Salt Marsh	Rare (IUCN 1997)	Rare
<i>Metalasia erectifolia</i>	DM Limestone Fynbos	Rare (IUCN 1997)	Very rare
<i>Passerina ericoides</i>	WK Primary Dunes & Duneveld	Low Risk - Not threatened (Golding, 2002)	Rare
<i>Pentaschistis calcicola</i> var. <i>hirsuta</i>	DM Strandveld	Rare (IUCN 1997)	Un-common
<i>Prionanthium pholiuroides</i>	DM Limestone Fynbos	Vulnerable (IUCN 1997)	Very rare
<i>Satyrium carneum</i>	DM & WK Duneveld & Strandveld	Low Risk - Not threatened (Golding, 2002)	Common
<i>Tetralia brachyphylla</i>	DM & WK Strandveld	Low Risk - Least concern (Golding, 2002)	Common
<i>Thamnochortus pluristachyus</i>	DM Limestone Fynbos	Vulnerable (IUCN 1997)	Very rare

3.3.7 Fire regime

3.3.7.1 Historical incidence

Anthropogenic changes to the natural fire regime of the area probably pre-date the arrival of colonial settlers. People have influenced the incidence of fire in fynbos for at least the last 150 000 years (Deacon 1986). Archaeological evidence suggests that Khoisan

hunter-gatherers probably used fire-stick farming to encourage natural fields of geophytes (Deacon 1992), or to attract herbivores to palatable fresh plant growth (Parkington 1977).

Early European settlers in the DMNRC may have burnt the vegetation in late winter or early spring to provide summer grazing. These unseasonable fires would have been detrimental to the fynbos (Kruger & Bigalke 1984).

Since government management of the DMNRC, only one known fire has occurred on the De Mond Nature Reserve in 1983 and approximately 400 ha were burnt. No fire reports could be found for this fire (see Figure 3.12). Braai fires in the reserves are illegal as they increase the fire risk.

3.3.7.2 Fire belts

Fire belts of 5 m width are created using a brush cutter on the northern, eastern and western perimeter. Internal jeep tracks are also used as firebreaks at De Mond Nature Reserve, making a total of 16.7 km of firebreaks (including fire belts and jeep tracks). No fire belts are necessary on the southern side of the De Mond Nature Reserve as the sea forms this boundary. Waenhuiskrans Nature Reserve has a fire belt of 5 m wide and 4.1 km long. There is also a management road/jeep track that serves as a fire belt. Fire belts are maintained on a biannual basis at the end of winter, but also assessed in terms of annual rainfall.

3.3.7.3 Prescribed burning

Prescribed burns will be done according to the CapeNature Fire policy. It is expected that the fire intervals will be longer at the coast than in mountain Fynbos. Intervals might be as long as 50 years. (Pers. Comms. Rupert Koopman, 4 October 2012). See also table 6.5 for actions.

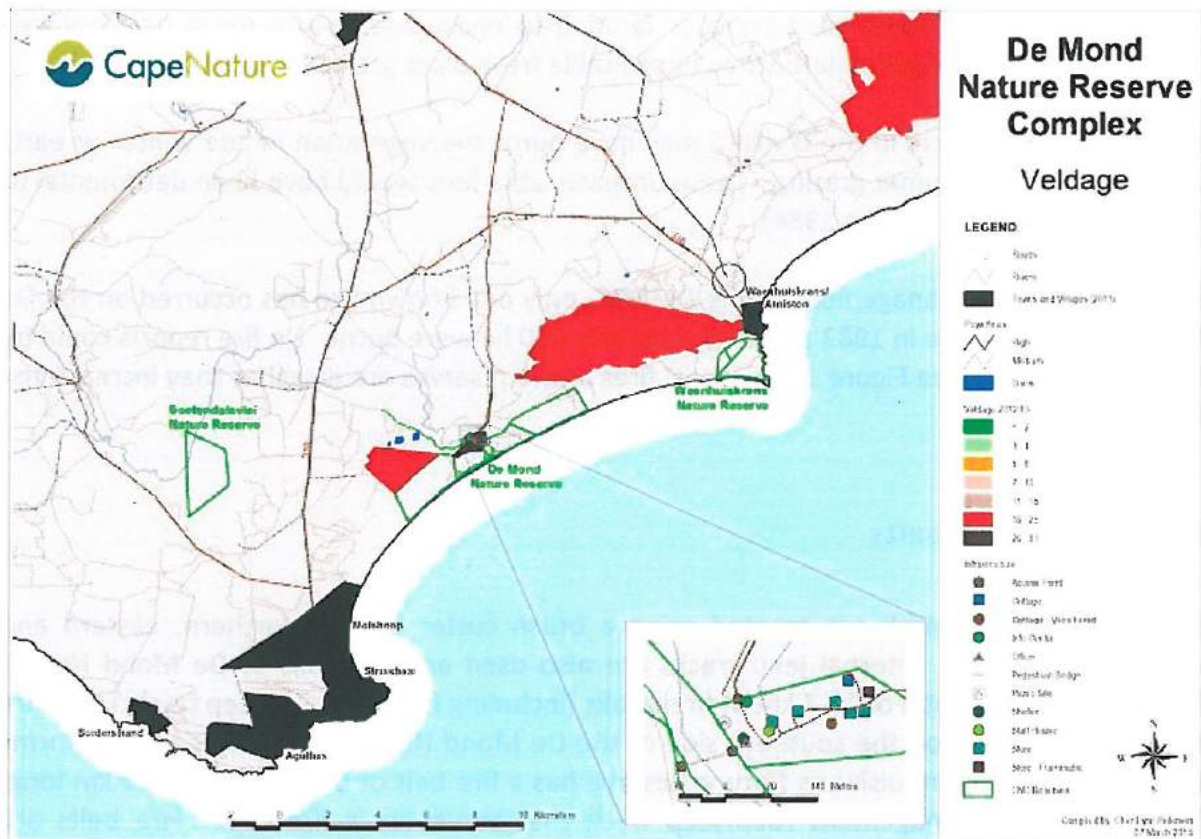


Figure 3.12: Veld Age map of the De Mond Nature Reserve Complex

3.3.8 Invasive species

Alien Invasive Flora

De Mond and Waenhuiskrans Reserves total alien plant infestation amounts to less than 1% overall. There are mostly individual seedlings of *Acacia cyclops*, *Pennisetum clandestinum*, *Lavatera arborea*, *Leptospermum laevigatum* and *Ammophila arenaria* occurring on the reserve.

The fact that mostly indigenous species were used in the past for dune reclamation, the presence of *Acacia* species is limited. However there is always a threat of seed spread from neighbouring properties if this is not controlled. There is a large pocket of dense rooikrans stands on the eastern boundary of De Mond Nature Reserve and this area needs to be monitored regularly for spread into the reserve. This area is also a potential fire hotspot. The Northern boundary of Waenhuiskrans Reserve is also prone to rooikrans infestation from the adjacent municipal property. Infestation from this source needs to be regularly checked and controlled.

Table 3.5 provides a list of the present distribution of alien vegetation species and the SIF tables in this plan list the control activities to be taken and maintained in order to prevent future invasion of alien plants.

Table 3.5: Distribution of Alien vegetation species occurring on De Mond and Waenhuiskrans Nature Reserves.

Scientific Name	Common Name	Current Distribution
<i>Acacia cyclops</i>	Red eye/Rooikrans	Throughout the reserve less than 1% density
<i>Pennisetum clandestinum</i>	Kikuyu grass	Around the offices/houses
<i>Leptospermum laevigatum</i>	Australian Myrtle	Has been removed
<i>Lavatera arborea</i>	Tree Mallow Mak Kiesieblaar	Rare in dunes, individual plants
<i>Ammophila arenaria</i>	Marram grass	Sand dunes

Alien Invasive Fauna

Non-indigenous fauna species do occur, such as feral dogs, cats and fallow deer in areas adjacent to the reserve, thus posing a threat to the reserve fauna populations. Aquatic species include black bass and carp.

3.3.9 Mammalian fauna

The DMNRC mammalian information was obtained from the State of Biodiversity (SOB) baseline database housed at CapeNature's Scientific Services (Birss and Palmer 2012).

To date 25 mammal species have been documented within the DMNRC, through either specimen or observation records (see Table 3.6). There are no resident mammal species requiring specific habitat management, and there are no plans for active re-introduction of mammals into the DMNRC. Historically, a larger number of species are considered to have occurred in this area. Appendix 1 contains a list of 81 species that includes those that have been recorded on the reserve complex as stated above, as well as additional species where the DMNRC falls within their historical distribution range. The conservation threat status of these species is also provided.

The Appendix is compiled according to the following:

- 41 listed indigenous terrestrial mammals (7 from specimen records and 15 from observation records contained in the CapeNature State of Biodiversity Database). 18 additional species are listed from references relating to the distribution of these species hence potentially occur on DMNRC and 1 species with a potential range expansion.
- 9 listed indigenous terrestrial mammal species which are considered Extinct in the Wild within the area of the DMNRC. These are species for which references indicate that area of the DMNRC is within their historical distribution range.
- 9 bat species of which 2 have specimen records – one from De Mond Nature Reserve and another from outside the reserve (from the African Chiropteran Report).

- 20 listed whales and dolphins of which 5 are coastal/inshore species. These are listed as they have value from a sighting and or beaching perspective.
- Two Cape Fur Seal records supported by an observation record.

Ad hoc SOB surveys will be sufficient to keep record of the occurrence of mammal species found within the DMNRC.

Table 3.6: Mammal species that have been recorded the De Mond Nature Reserve Complex

Scientific Name	Common name (as per Skinner & Chimimba, 2005)	Global IUCN Category (IUCN 2011)	Regional IUCN Category (Friedman and Daly 2004)
<i>Georchus capensis</i>	Cape molerat	Least Concern	Least Concern
<i>Bathyergus suillus</i>	Cape dune molerat	Least Concern	Least Concern
<i>Pelea capreolus</i>	Grey rhebok	Least Concern	Least Concern
<i>Raphicerus campestris</i>	Steenbok	Least Concern	Least Concern
<i>Raphicerus melanotis</i>	Cape grysbok	Least Concern	Least Concern
<i>Tragelaphus strepsiceros strepsiceros</i>	Kudu	Least Concern	Least Concern
<i>Sylvicapra grimmia grimmia</i>	Common duiker	Least Concern	Least Concern
<i>Vulpes chama</i>	Cape fox	Least Concern	Least Concern
<i>Papio ursinus ursinus</i>	Chacma baboon	Least Concern	Least Concern
<i>Caracal caracal</i>	Caracal	Least Concern	Least Concern
<i>Atilax paludinosus</i>	Marsh mongoose	Least Concern	Least Concern
<i>Galerella pulverulenta pulverulenta</i>	Cape grey mongoose	Least Concern	Least Concern
<i>Herpestes ichneumon</i>	Large grey mongoose	Least Concern	Least Concern
<i>Hystrix africaeaustralis</i>	Porcupine	Least Concern	Least Concern
<i>Lepus capensis</i>	Cape hare	Least Concern	Least Concern
<i>Otomys irroratus</i>	Vlei rat	Least Concern	Least Concern
<i>Rhodomys pumilio</i>	Striped mouse	Least Concern	Least Concern
<i>Tatera afra</i>	Cape gerbil	Least Concern	Least Concern
<i>Aonyx capensis</i>	African clawless otter	Least Concern	Least Concern
<i>Ictonyx striatus</i>	Striped polecat	Least Concern	Least Concern
<i>Mellivora capensis</i>	Honey badger	Least Concern	Near Threatened
<i>Arctocephalus pusillus pusillus</i>	Cape fur seal	Least Concern	Least Concern
<i>Mirounga leonine</i>	Southern elephant seal	Least Concern	Endangered (A2b)
<i>Rhinolophus clivosus</i>	Geoffroy's horseshoe bat	Least Concern	Near Threatened
<i>Suncus varilla</i>	Lesser dwarf shrew	Least Concern	Data Deficient

3.3.10 Avifauna

A variety of bird habitats are to be found within the DMNRC. The De Mond and Waenuiskrans properties have coastal sections while the majority of the inland portions are covered by Overberg Dune Strandveld vegetation type. Strandveld vegetation is characterised by a higher number of fruit bearing plants, thus attracting a suite of frugivore species. In addition to these habitat types, De Mond has an estuary while the entire Soetendalsvlei property is a freshwater wetland. The birds found on the reserve are typical of those found along the coastline and estuaries of the Western Cape and Strandveld

vegetation types. One hundred and sixty-five species of birds have been recorded for the reserve complex (Appendix 4). There are, however a number of species that are not regular visitors to these properties (e.g. red knot, *Calidris canutus*) and it is obvious that others (e.g. Cape gannet, *Morus capensis*) are observed out at sea from the coast and do not come onto the reserve.

Table 3.7 lists those species that are listed either on the IUCN (IUCN 2012) or the South African Red Data List (Barnes 2000). The most important threatened species for the reserve is the Damara tern, *Sterna balaenarum*. This despite been listed as “near Threatened on the South African Red Data List (Barnes 2000). Braby (2011) estimated that there are between 65 and 148 breeding pairs in South Africa and that the coastline in the De Mond area supports 11 to 13 breeding pairs. This is 8 to 17 % of the South African Damara tern population and it is the third largest breeding colony in South Africa (Braby 2011). The breeding habitat of this species is extremely dynamic and adult birds may choose a different area along the De Mond coastline to breed in a particular year. The presence of this species on the reserve in relatively high numbers was the main reason why the site was declared a Ramsar site in October 1986.

The Caspian tern, *Sterna caspia*, while not considered in the Ramsar application for De Mond Nature Reserve, does provide additional substantiation for the declaration of the Reserve as a Ramsar site. The estimated population size of Caspian tern for South Africa is 2 000 birds (Wetlands International 2006). During the period 2001 to 2004 the highest number of breeding pairs recorded was 37 during the 2003 breeding season (CapeNature unpubl. data). This represents 7.4 % of the South African breeding population (estimated at 500 breeding pairs, Wetlands International 2006) and the area is therefore important for the conservation of the South African population of the species.

The African grass-owl, *Tyto capensis* is currently listed as “vulnerable” in the South African Red Data Book (Barnes 2000). The Agulhas plain is at the most southern end of its distribution range and sightings of this species is generally low. During the 1st South African Bird Atlas Project, field data was collected between 1987 and 1992 (Harrison *et al.* 1997). No sightings of African grass-owl were recorded for this period (Mendelsohn 1997) from the Agulhas plain; the nearest sightings were from the lakes area around Sedgely. There is, however, a record of possible African grass-owl activity in 1989, but no confirmation with regards to the species was ever made (CapeNature unpubl. data). The 2nd South African Bird Atlas Project initiated in 2007, which is still in progress, has recorded the species in the area to the north of the reserve (SABAP 2012). The species has been sighted on the reserve and breeding has not only been recorded on the reserve (CapeNature unpubl. data) but also in the vicinity of the reserve (Van Oudshoorn pers. comms. 2011). It is almost certain that the crepuscular nature of this species together with possible low densities is the reason for the few records and reserve staff should make an effort to observe and record this species.

The three other threatened species of importance for the reserve are the African Black Oystercatcher, *Haematopus moquini*, the black harrier, *Circus maurus*, and the crowned cormorant, *Phalacrocorax coronatus*, all of which breed on the reserve. Breeding numbers of African Black Oystercatcher and black harrier within the reserve complex are insignificant in terms of the South African breeding populations. However, as both species breed on a regular basis within the reserve complex (CapeNature unpubl. data), they are protected and act as a source of individuals which can colonise areas outside of protected areas. There is a

breeding colony of crowned cormorants at Waenhuiskrans. Surveys carried out between 2008 and 2012 recorded a maximum of 33 breeding pairs (Crawford *et al.* 2012) representing a very small percentage (less than 1%) of the total population (Wetlands International 2006). The other threatened species listed in Appendix 6 are either occasional visitors to the reserve complex or occur in low or unknown numbers. The staff are encouraged to record and submit sightings of these species in order to determine the importance of the reserve complex in conserving these species.

Table 3.7: Avifaunal species of conservation concern that regularly occur on the De Mond Nature Reserve Complex

English Name	Scientific Name	Global IUCN Category (IUCN 2011)	Regional IUCN Category (Barnes 2000)
Caspian Tern	<i>Sterna caspia</i>	Near Threatened	Least concern
Damara Tern	<i>Sterna balaenarum</i>	Endangered	Near Threatened
African Black Oystercatcher	<i>Haematopus moquini</i>	Near Threatened	Near Threatened
African Grass-Owl	<i>Tyto capensis</i>	Least Concern	Vulnerable
Black Harrier	<i>Circus maurus</i>	Near Threatened	Vulnerable
Crowned Cormorant	<i>Phalacrocorax coronatus</i>	Near Threatened	Near Threatened

3.3.11 Reptiles

Fifteen reptile species have been recorded in DMNRC. None of these species are listed as threatened. The list is incomplete; surveys and continuous ad hoc observations should still contribute to full understanding of the reptile diversity in this reserve. A species list with English common names is included as Appendix 7.

3.3.12 Amphibians

Nine amphibian species are listed in the CapeNature SOB data base. None of these amphibians are listed as threatened species. A species list with the English common names is included in Appendix 8.

3.3.13 Fish

Appendix 4 is a list of all fish species recorded in the Heuningnes Estuary and tributaries. The species are classified into five major categories of estuarine-dependence as suggested by Whitfield (1994) (information provided by Dr S. Lamberth).

3.3.13.1 Soetendalsvlei

Soetendalsvlei is regionally of importance for fish conservation because of its very large size and regular connection to the Heuningnes River. This allows several species of estuarine migrants to inhabit it and reach adulthood in these waters. These include important species such as flathead mullet, *Mugil cephalus*, southern mullet, *Liza richarsoni*, freshwater mullet, *Myxus capensis*, and white steenbras, *Lithognathus lithognathus* (CSIR 1984). The only indigenous freshwater fish species recorded in the vlei is the Cape kurper, *Sandelia capensis*, a fynbos endemic which occurs from the Berg River to Port Elizabeth. Ongoing genetic and morphological work on this species, listed as data deficient, suggests that several species or subspecies may be present. This work, which analysed samples from many river systems

across the CFR, did not assess the Soetendalsvlei population (Dean Impson, pers. comm. 29 May 2013).

The vlei is unfortunately invaded by several alien fish species, unwisely introduced several decades ago for angling purposes (Appendix 2). This includes spotted bass (*Micropterus punctalatus*) and largemouth bass (*Micropterus salmoides*), of which 2000 were introduced in 1944 by the Cape Province's Department of Inland Fisheries (CSIR 1984). Carp, *Cyprinus carpio*, and bluegill sunfish, *Lepomis macrochirus*, are also common in the vlei, their date of introduction is not known. The bass and bluegill species are known to have serious predatory impacts on indigenous fishes, and are likely to negatively impact the population of Cape kurper. Carp is a serious ecological problem in many waters (when they are abundant) because of their bottom feeding habits which are then thought to elevate turbidity levels (de Moor and Bruton 1988).

Fortunately, fish surveys since the 1930's show that Soetendalsvlei remains an important nursery area to the marine migrant species listed in Appendix 2. These surveys show that mullet, in particular, grow to a large size in its waters with fish over 30 cm being common. Recent surveys in 2005 by CapeNature staff suggest that alien fish numbers, especially bass, may be decreasing in the vlei, which is welcome news. See Appendix 3; Comparison of two fish surveys undertaken by CapeNature personnel in 1968 and 2005 in Soetendalsvlei. The adult mullet and steenbras in the vlei return to the sea to spawn, emphasizing the need to keep the connection between the vlei and the Heuningnes open for as long as possible.

3.3.13.2 Heuningnes Estuary

A typical estuary will contain fishes belonging to three categories, namely a) marine migrants which breed at sea and typically use estuaries as nursery areas, b) estuarine species which spawn in estuaries and usually spend most of the lives in estuaries and c) freshwater species which may enter estuaries when salinities are low (Whitfield 1998). All three of these groups of fishes have been recorded in the Heuningnes Estuary during fish surveys that have taken place since 1943.

The open nature of the Heuningnes Estuary have allowed surf species such as bellman, *Umbrina capensis*, and galjoen, *Coracinus capensis*, to be caught inside its waters, which is very rare for estuaries in the region (CSIR 1984). The estuary holds very good numbers of commercially important species such as leervis, *Lichia amia*, kob, *Argyrosomus japonicus*, spotted grunter, *Pomadasys commersonni*, flathead and southern mullet, as well as several other estuarine dependent species e.g. estuarine round herring, *Gilchristella aëstuararia*, and long nose pipefish, *Sygnathus acus*. The value of the Heuningnes estuary as a nursery ground was highlighted by Turpie and Clark (2007). In their report, the nursery value of estuaries is the value that they contribute to marine fishery production as result of providing nursery areas for commercially or recreationally valuable species. The Heuningnes Estuary is considered to have a nursery value of 1-5 million rand/yr (Turpie and Clark 2007). The ecological status of the Heuningnes estuary should be improved to ensure it maintains its function as an important nursery area.

3.3.13.3 Waenhuiskrans Nature Reserve

This is a very small coastal reserve near Waenhuiskrans. It is likely that there is significant recreational angling pressure on the reserve because it is open to this angling sector and of its proximity to the town. The reserve thus provides no current protection to key fish species

found in its adjacent coastal waters such as galjoen, elf, *Pomatomus saltatrix*, kob, white musselcracker, *Sparadon durbanensis*, white steenbras and the many other species that are typical to the Overberg coastline.

3.3.13.4 Freshwater reaches of Heuningnes catchment

Although not in the De Mond Nature Reserve, there are upper reaches of several tributaries of the Heuningnes River, that are vital for the conservation of the so called “Heuningnes redfin”, *Pseudobarbus burchelli*, which is listed as Critically Endangered (Tweddle *et al.* 2009) and is endemic to the system. The Kars River near Bredasdorp contains good numbers of this redfin as well as Cape kurper, *Sandelia capensis*, and Cape galaxias, *Galaxias zebratus*, in its upper reaches and has been listed as a nationally important fish Critical Biodiversity Area in the NFEPA atlas. Unfortunately, the Heuningnes itself has been invaded by various alien fish species such as carp, *Cyprinus carpio*, spotted and largemouth bass and bluegill sunfish, *Lepomis macrochirus*, with the latter three species having a severe predatory effect on the indigenous fish species (Russel and Impson 2006). The redfin seems to have become extirpated from the Heuningnes River, with Cape kurper and Cape galaxias still common, especially in shallow areas with good aquatic vegetation cover. None of these species are found under typically estuarine conditions, such as that experienced within the De Mond Nature Reserve. None of the known fish species recorded for the DMNRC have been assessed for IUCN status.

3.3.14 Invertebrates

Sixteen aquatic invertebrate species have been recorded in the Heuningnes River Estuary in the De Mond Nature Reserve (Bickerton 1984). None of these invertebrates are listed as threatened species. A species list with English common names is included in Appendix 9.

3.4 Cultural Heritage context of De Mond Nature Reserve Complex

This reserve boasts a unique unspoilt conservation area. Highlights are the estuary, pristine coastal and limestone fynbos, milkwood thickets and salt marshes, good fishing and birding opportunities, coastal zone, with breath-taking views. These features result in the DMNRC having one of the highest aesthetic values in the Overberg Region. The Struisbaai Plaat (adjacent to the De Mond Nature Reserve) is the largest uninterrupted stretch of beach in the Southern Hemisphere (Scott 1995).

3.4.1 Archaeological sites and associated artefacts

3.4.1.1 Shipwrecks:

In 1799 the Dutch Hoeker, Meermin went to Madagascar to buy slaves for the Cape. There was a revolt by the slaves and the sailors cut the anchor cable and the ship ran ashore. The location where it ran ashore is at the river mouth. Two wrecks were already found but after identification was found not to be the Meermin (J. Boshoff 2012, Iziko SA Museum, pers. Comm.). Another vessel, the Maggie, was also grounded in 1872 approximately 2 km from the current mouth 34°43'10"S and 20°06'29"E. After heavy storms the Maggie reveals herself.

3.4.1.2 Archeological Middens

Archaeological material of importance is present near Struispunt in the Waenhuiskrans Nature Reserve. The Specialist Study on the Current Conservation Status of Archaeological Sites near Struispunt, Waenhuiskrans Nature Reserve by Henshilwood, Yates and Winter Heritage Resource Consultants (March 1999) provides a full description of the archaeological middens and artefacts found in the area. A number of stone features occur across the midden surfaces (Figure 3.13). These are clusters of mostly cobbles and some boulders. Some of the features, not having eroded and slumped, are distinct but most are dispersed to varying degrees. In a few instances, ashy and carbonised sediment is visible between and below the stones. Many flaked quartzite cobbles as well as quartz cores and flakes lie scattered on the surface. A small number of the un-flaked cobbles show use as hammer stones and grindstones. Ochre (pigment) is present but uncommon. Pottery fragments are also present but infrequent.

The study indicated that most of the artefacts are from the later stone age (300-3 000 years ago) and of medium to important significance. Of important significance are a small area of remains from the colonial period and a much larger volume of material dating to before colonisation. Sites with this combination of evidence are rare and therefore are important.

As much of the material has been illegally removed by visitors to the area and damaged by vehicles, the protection of the area needs much more attention. Access and visitor control is an important matter that is addressed elsewhere in this plan.



Figure 3.13: Archeological shell midden. Photo C. Lamberts

3.4.1.4 Fish traps (Visvyvers)

Many fish traps are found within the inter-tidal zone of the Waenhuiskrans Nature Reserve. The local community has over the years maintained these traps, which periodically yield poor catches of fish. These traps are a good provider of protein during the winter months, when bad weather dictates that boats cannot go out to sea. All of the Waenhuiskrans fish traps are older than 60 years and thus are protected in terms of the National Heritage Resources Act, 1999.

3.4.1.5 Navigational Beacon

The beacon, erected on 28 September 1871, was built due to the number of ships striking Saxon Reef just off Struis Point (Figure 3.14). This beacon used to have a large copper ball on top that reflected the rays of the sun to the ships at sea. It is of great historical importance as it is the only known one of its kind ever erected. During November 2003 Portnet installed a light on top of the existing beacon as a navigational tool for sea users.



Figure 3.14: Waenhuiskrans navigational beacon (Photo anon.)

3.4.1.6 Other Artefacts:

Elephant skeletons of an adult and calf were recovered from shifting sand dunes in the late 1980s (Elephant bones (large): $34^{\circ}43'48''S$ and $20^{\circ}05'18''E$ Elephant bones (small): $34^{\circ}43'49''S$ and $20^{\circ}05'23''E$). The skeletons are still stored at De Mond Nature Reserve and a few bones are displayed in front of the office. There are no known historical buildings on the reserve.

3.4.2 Additional Cultural and Heritage Assets

3.4.2.1 Waenhuiskrans Cave

The Waenhuiskrans cave is the best-known cave within the area and known world-wide (Figure 3.15). This cave is one of the focal points of the Waenhuiskrans/Arniston town as Waenhuiskrans is named after this natural phenomenon. At present the cave is turning into a polluted and graffiti covered eyesore, marring visitors' experience. Immediate control is needed to stop further degradation of this cave. At access control points, interpretation pamphlets should be handed to visitors to educate them about the importance of this cave.



Figure 3.15: Waenhuiskrans cave. Photo www.alltravels.com

3.5 Socio-economic context

The DMNRC falls in the Cape Agulhas Municipal Area. This is a category B municipality which forms part of the broader Overberg District Municipality as per the Municipal Demarcation Act. The largest town closest to the reserve is Bredasdorp which is also the municipal headquarters. Other towns surrounding the reserve are Waenhuiskrans and Struisbaai.

The population of the area is 33 038 and there are 10 162 households. The unemployment rate of the area stands at 13.80%. The main sectors contributing to the local economy are: agriculture, fishing and tourism (Collins 2012).

The population of the area is fairly equally distributed: 51.9% females and 48.1% males. The racial breakdown is: Black – 9.7 %, Coloured – 66.6 %, White – 23.6 % and Indian 0.1 % (Cape Agulhas Municipality 2012).

The literacy levels are standing at 76% as most of the population have some form of education, only 16.8% have a grade 12 or higher education. The majority of the population have a low skills level and therefore occupy jobs in low skills sectors (Cape Agulhas Municipality 2012). 59% of households earn less than R3200 per month.

KASSIESBAAI / ARNISTON / WAENHUISKRANS

Arniston is adjacent to the DMNRC and 24 km southeast of Bredasdorp. History has it that fishermen prior to 1820 occupied the bay and they have called it “Kassiesbaai”. The name of the village was derived from a British ship, the Arniston, which ran ashore in this bay in 1815. Arniston currently has 1673 inhabitants.

Kassiesbaai is a well-known fishing village and also a national monument.

The rationalisation of fishing quotas impacted heavily on this community. It resulted in unemployment, economic inactivity and subsequently led to a number of social challenges. One of the issues is poaching and there used to be a negative attitude within this community towards conservation. This negativity was addressed by establishing a liaison committee, which meets on a quarterly basis, where community representatives and different departments are represented.

3.5.1 People and Parks

The World Summit on Sustainable Development (2002) and the World's Parks Congress in 2003 resolved that local people should be at the forefront of biodiversity conservation as they depend on natural resources for their livelihoods. The People and Parks conferences (2004 and 2006) served to consolidate commitment to these international resolutions and were instrumental in sensitizing the stakeholders on the importance of creating an enabling environment for communities to actively participate and be fully involved in all aspects of biodiversity conservation and protected area management (CapeNature 2009).

3.5.2 Access

The National Environmental Management: Protected Areas Act (Act No. 57 of 2003) advocates access to and benefits from protected areas. The DMNRC provides opportunities for community members to access the reserve for spiritual purposes.

Waenhuiskrans NR also provides opportunities for women from the community to harvest sour figs in the reserve. This activity is solely based on keeping "history alive" (cooking of jam) and not for commercial purposes. This access is granted in line with CapeNature's Sustainable Utilization policy. See also paragraph 5.3 with regards to access.

3.5.3 Youth Development

The DMNRC provides opportunities for learners from schools in the Cape Agulhas Municipal area to have an outdoor learning experience. This experience provides an enabling environment for learning, personal growth and healing. The Environmental Education Programs are based on the National Curriculum Statement (NCS) and are updated regularly as there are changes to the curriculum.

The DMNRC works together with partners such as Agulhas National Park and Department of Agriculture - Landcare to provide a better understanding for learners about the importance of De Mond as a Protected Area. A strong relationship with schools provides access to staff to present information about the Protected Area to schools surrounding the DMNRC.

3.5.4 Volunteers

The DMNRC provides opportunities for the surrounding communities to engage in volunteer activities. These opportunities include doing work on the Reserve e.g. maintenance, assisting with ecological surveys, community surveys, etc. Ad hoc volunteers from overseas also show interest from time to time.

3.5.5 Awareness

The focus of the Awareness Programmes is to deal with the major environmental issues that have an effect on the DMNRC. In collaboration with other partners such as Agulhas National Park, DEA&DP – Coastal Management Unit, Cape Agulhas Municipality and Overberg District Municipality, CapeNature conducts awareness campaigns such as fire awareness, coastal clean ups, etc. Presentations and exhibitions highlight how natural resources in and outside the protected areas should be utilised in a sustainable manner.

3.6 Operational management within De Mond Nature Reserve Complex

3.6.1 Infrastructure

Refer also to Figures 3.16 and 3.17 and Table 3.8.

3.6.1.1 Roads/Jeep Tracks

The entrance road to and into the development area on De Mond Nature Reserve is a short gravel road of approximately 280 m serving the management area . Approximately 100 m of this road will be paved as some areas are flooded due to rain events and poor drainage.

The entrance road to Waenhuiskrans is partly gravelled for approximately 300 m including the public parking area at Roman beach. Although a further 1.1 km of this entrance road is a proclaimed public road, it is in a very bad state and due to erosion and drift sands on the road; it is only accessible with 4 X 4 vehicles. Although this road is a minor public road, no maintenance is carried out by the district municipality.

All other tracks on the reserve complex are unpaved and mostly on sandy substrate. They are only accessible with 4 X 4 vehicles and exclusively used for management purposes although illegal use of the management tracks in Waenhuiskrans Reserve does occur due to uncontrolled access. Due to the high risk of soil erosion the grading of jeep tracks within the DMNRC is not allowed. Regular maintenance is needed using hand labour to fill eroded areas and to open drainage lines.

3.6.1.2 Trails

The Sterna trail in the western sector of the De Mond Nature Reserve provides access to the dunes, beach and western banks of the Heuningnes Estuary. This trail is approximately 7 km in length and short sections adjacent to the estuary have boardwalks in order to protect sensitive vegetation. Visitors also walk on the jeep tracks around the estuary to get to the beach and fishing areas along the estuary. More sections adjacent to the estuary need to have boardwalks built in order to prevent trampling of the salt marsh.

At Waenhuiskrans a network of informal tracks exist adjacent to the coast to gain access to the coastal areas, beach and the Waenhuiskrans cave. The jeep tracks are also used by hikers and fishermen. Some of the informal tracks need to be closed and rehabilitated and only dedicated routes need to be used to give access to the scenic spots and fishing areas.

3.6.1.3 Buildings

Maintenance and repairs of buildings are prioritised and included on the schedule of Department of Public Works. Minor maintenance and repairs to buildings are identified and attended to by management.

The facilities at the De Mond Nature Reserve are clustered and include a gate office, management office, guest cottage, manager's house, store, picnic sites and public toilets as well as a store room, workshop, inspection quarters for official use and a fuel storage facility.

New infrastructure development is planned to accommodate more overnight visitors in comfortable and eco-friendly cottages. See section 5.4 for a description and lay-out plans.

Infrastructure at Waenhuiskrans includes an ablution facility at the Roman beach parking area however this building was built by the then Divisional Council and presently maintained by the Cape Agulhas Municipality. The parking area is an informal area with no permanent surface or demarcation apart from planted poles to prevent vehicles from going onto the beach and some concrete steps to provide easy access to the beach for pedestrians.

A water reservoir exists that supplies water to the town. A servitude in favour of the Cape Agulhas Municipality is registered for access to the site and maintenance.

A navigational beacon is situated on the southernmost point of the Waenhuiskrans Reserve. A number of memorial benches have been erected without permission from CapeNature and without environmental authorisation. A policy regarding the existing and any further such structures needs to be compiled and implemented.

3.6.1.4 Fences

In the DMNRC, all internal fences have been removed. Boundary fences shared with properties where game has been re-introduced are intact and are being maintained by the relevant landowners. The DMNRC remains largely fenced, with only a section towards the high water mark not fenced. This results in tourism, operational and ecological problems. The maintenance of the eastern boundary fence has been prioritised to prevent nuisance animals e.g. domestic stock from entering the reserve.

3.6.1.5 Environmental Management

No waste disposal sites are available within the DMNRC. All waste from the DMNRC is removed from the reserve and disposed of at the municipal refuse site in Bredasdorp. Potable water is abstracted from the borehole for use at the DMNRC. The water is categorised as class 3 and is not fit for human consumption. Proper filtration and treatment options should be investigated and implemented. In terms of water quality monthly water

samples should be taken to monitor *E. coli* and other coliform bacteria. These levels are currently very high and pose a risk to visitors and reserve staff.

3.6.1.6 Signage

Sign and interpretation boards are located at the various entry points to De Mond and Waenhuiskrans NR's to control access and to provide visitor information. Smaller signs are also placed at strategic points on the reserves to guide visitors and to provide regulatory information. Most signs are produced following CapeNature standards on signage, but include also standard Off Road Vehicle regulatory signage and interpretation boards supplied by the Dept. of Environmental Affairs.

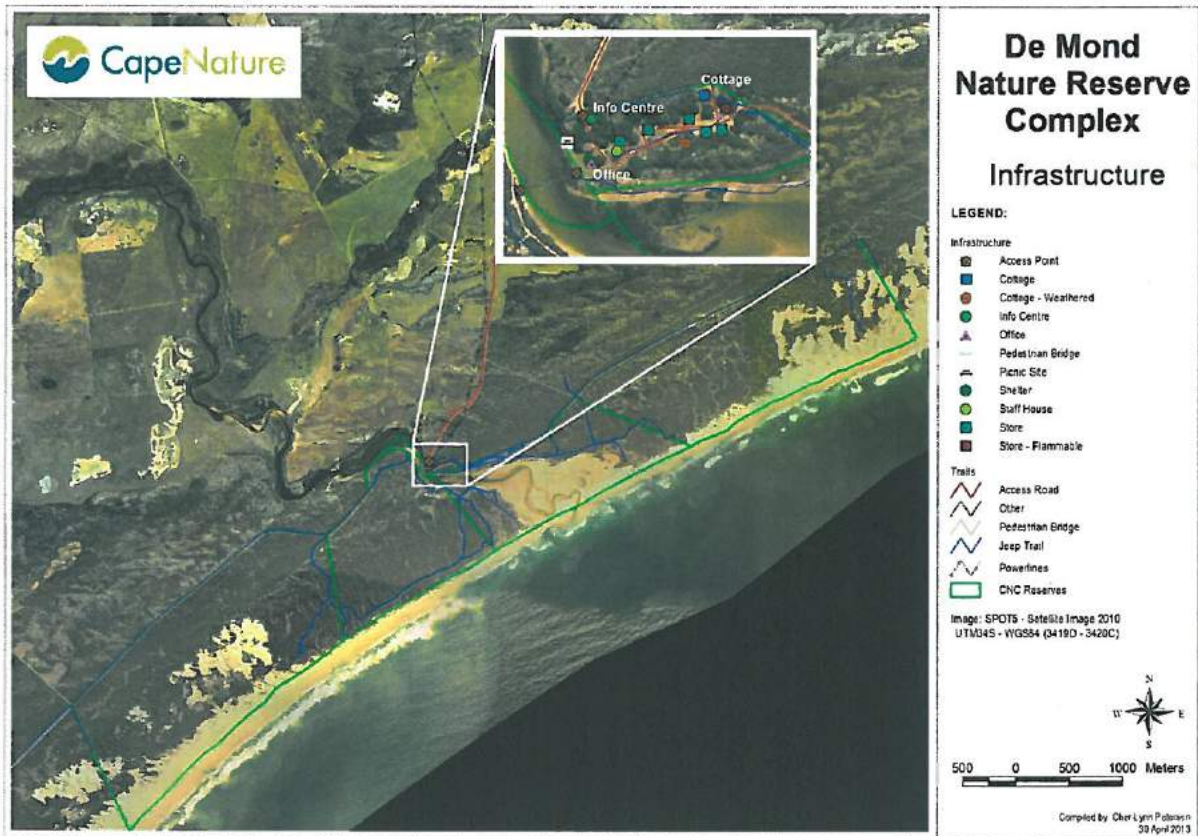


Figure 3.16: Infrastructure map of De Mond Nature Reserve

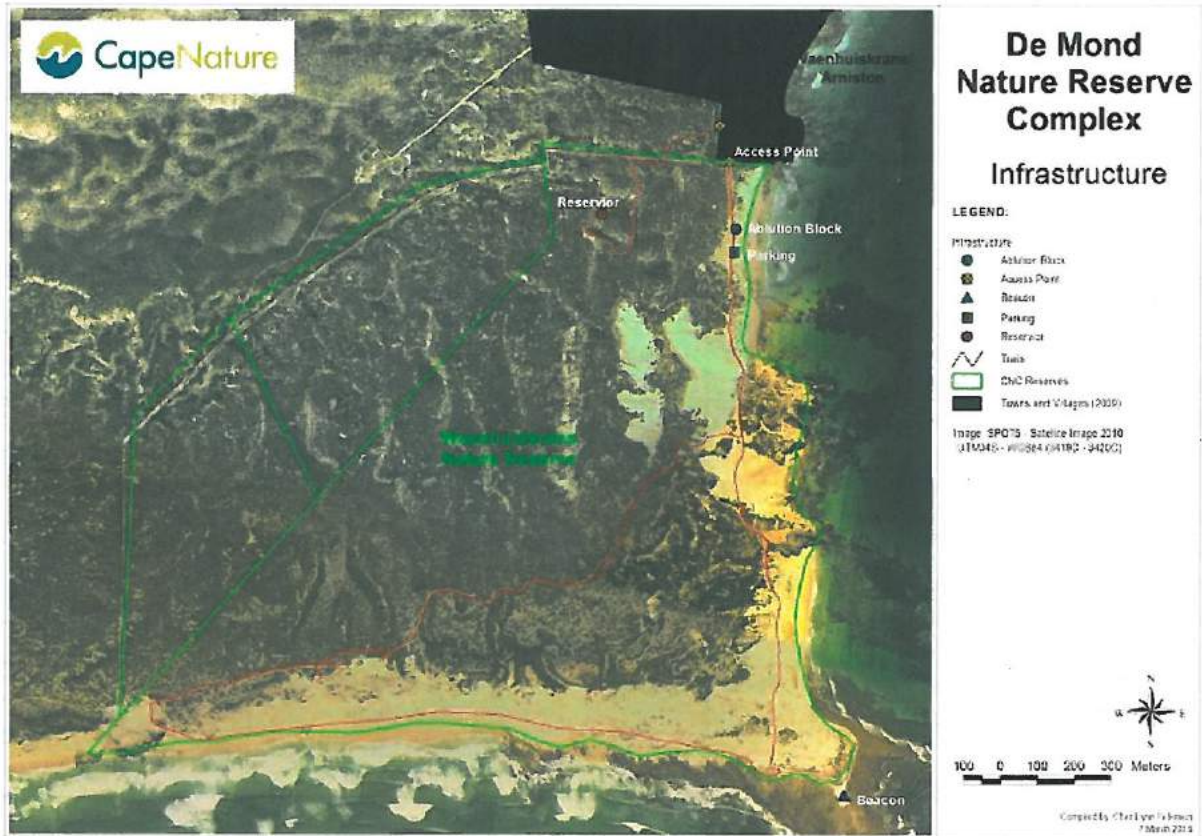


Figure 3.17: Infrastructure map of Waenhuiskrans Nature Reserve.

Table 3.8: Infrastructure located within the De Mond Nature Reserve

Reserve Name	Feature Name	Building material	Location	Feature Type
De Mond Nature Reserve Complex	Gate Office and Toilets	Stone& thatch	Access point	Office
De Mond Nature Reserve Complex	Manager's House	Brick	South 150 m from Access point	Staff Housing
De Mond Nature Reserve Complex	Manager's Office	Timber	South 150 m from Access point	Office
De Mond Nature Reserve Complex	Boat and Motor Store)	Timber	East (200m) from Access point	Store
De Mond Nature Reserve Complex	Small Store (Yellow)	Timber	East (300 m) from Access point	Store
De Mond Nature Reserve Complex	Wendy House Inspection quarters	Timber	East (300 m) from Access point	Staff Housing
De Mond Nature Reserve Complex	Wood Store(Timber)	Timber	East (350 m) from Access point	Store
De Mond Nature Reserve Complex	Workshop Store/Tools	Timber	East (400 m) from Access point	Store
De Mond Nature Reserve Complex	De Mond Guest Cottage	Timber	East (400 m) from Access point	Tourism
De Mond Nature Reserve Complex	Foot Bridge	Steel & wood	West (160 m) from Access point	Bridge
De Mond Nature Reserve Complex	De Mond Borehole		West 1.5 km from Access point	Borehole
De Mond Nature Reserve Complex	Flammable Petrol Store	Brick	East (400 m) from Access point	Store
De Mond Nature Reserve Complex	DM 14 main road		From Access point	Management Road
De Mond Nature Reserve Complex	DM 15 Reservoir and Tanks		West (300 m) from Access point	Water storage

4) THE PLANNING CONTEXT OF De Mond Nature Reserve Complex

4.1 Regional and Provincial Planning of De Mond Nature Reserve Complex

The DMNRC falls under the Cape Agulhas Municipality and forms part of the Overberg District Municipality. The Integrated Development Framework (IDP) of the Cape Agulhas Municipality runs over a five year cycle and is currently a 3rd Generation plan (2012 - 2016). It is a strategic plan guiding development in the Cape Agulhas Municipal Area and is also informed by the Overberg District Municipality DM IDP for 2012-2016.

The ODM-SDF is the spatial expression of the ODM-IDP. Consequently, the SDF is a policy document of the ODM to be used by organs of state as a guideline in decision-making towards land-use. ODM has a fully functional environmental management unit which strives to comply with all the environmental legislation and regulations.

A draft Overberg SDF (August 2012) was published on 23 November 2012 for public participation.

The vision of the draft SDF is as follows:

'To optimize the rich and balanced mix of the Overberg's agriculture, tourism, heritage and conservation resources within their scenic setting which is contained by the Riviersonderend and Langeberg mountains in the north, descends across the rolling hills of the Rûens and the varied ecology of the Agulhas plain and culminates in the rocky headlands and long sandy beaches of the coast.'

Some of the implications listed in the draft SDF are:

- The area's unique agricultural, environmental and urban qualities must be maintained;
- Private conservation areas must continue to be promoted with careful consideration of appropriate development rights to mobilise the necessary resources for veld rehabilitation and management;
- In particular renosterveld linkage corridors across the Rûens linking remnant patches not suitable for agriculture should be encouraged;
- These corridors can provide both a tourism opportunity as well as channels for faunal movement and seed transport.

The main components of the draft SDF pertaining to the ODM 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.

All the areas proposed in the reserve's expansion strategy are identified in the draft SDF as either Buffer zone 1 – private nature reserves and conservancies, or Buffer zone 1 – Critical Biodiversity Areas (CBA's) for protection.

The reserves themselves are indicated as core areas – formally protected areas.

This indicates that the strategy proposed in the reserve expansion strategy included in this plan is in line with the draft regional planning strategy.

4.2 Expansion of the De Mond Nature Reserve Complex

The expansion of protected areas in South Africa is informed by the National Protected Area Expansion Strategy (NPAES) (SANBI and DEAT 2008). 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.

Figure 4.1 provides an overview of the protected and unprotected natural areas around the DMNRC. The reserve complex comprises three separate protected areas of which only De Mond has formally protected area status and the Waenhuiskrans and Soetendalsvlei properties are state land managed by CapeNature and only referred to as reserves. Linking these three areas are large portions of natural veld most of which are critical biodiversity areas. The Soetendalsvlei reserve is adjacent to the Agulhas National Park (ANP) and also to the still to be proclaimed Nuwejaars wetland protected environment. The Andrews's field and Heuningnes River Private Nature Reserves are adjacent to the De Mond Nature Reserve. A large area of land, identified as critical biodiversity area, is situated between De Mond Nature Reserve and Waenhuiskrans Reserve. The De Mond Nature Reserve is split in two by the estuary of the Heuningnes River that originates partially from the Soetendalsvlei wetland including the Soetendalsvlei reserve. The Heuningnes River is also identified as a critical biodiversity area and it forms a valuable corridor between the two protected areas. The private farms adjacent to the Heuningnes River have already formed the Heuningnes Riparian Association with the conservation of the area as primary objective. Some of these farms also form part of the proposed Nuwejaars wetland Protected Environment that has already been submitted for proclamation and waiting ministerial approval.

As the Agulhas National Park forms the western and southern boundary of the Soetendalsvlei property, it adds considerably to the overall protected area and to the connectivity between the different protected areas and private conservation initiatives.

4.2.1 Buffer zones

Due to the formal and informal protected areas and initiatives as well as the large tracts of natural veld adjacent to the reserves, the DMNRC is fairly well buffered from outside negative influence; however some undesirable management practises upstream in the catchment areas need to be mitigated as these can have undesirable effects on the estuary. The management plan for the Heuningnes Estuary in terms of the Integrated Coastal

Management Act should identify and address these matters and therefore special attention should be given towards the revision of the draft plan in terms of these practises.

The Waenhuiskrans Nature Reserve is directly adjacent to the coastal town of Arniston and the entrance to the reserve is not controlled which negatively impacts the area. Uncontrolled visitors are having a trampling affect as they do not stick to well defined routes. This is applicable to both hikers on foot and off-road vehicles.

Poaching of abalone in the marine area adjacent to the reserve is a huge challenge as the control of it is not adequate and therefore some marine species are in danger of local extinction if poaching is not controlled.

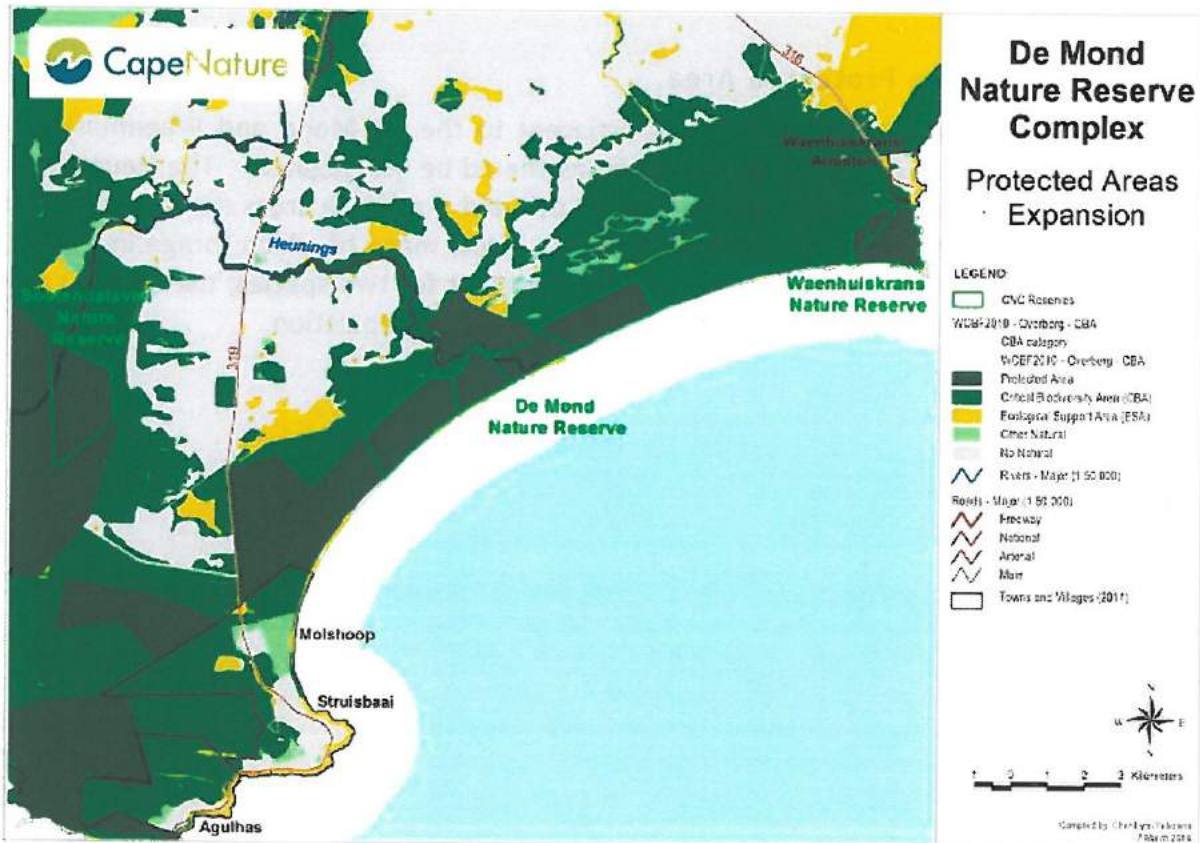


Figure 4.1: Priority Biodiversity Areas around the De Mond Nature Reserve Complex

4.2.2 Expansion opportunities

4.2.2.1 Stewardship

CapeNature’s primary tool to expand the terrestrial conservation estate and buffer zones around its reserves is by the promotion of stewardship options on private land. Possible stewardship options with willing landowners adjacent to the reserve complex should be investigated in order to promote more formal conservation management which link

ecological processes. The priority areas are those located between De Mond and Waenhuiskrans Nature Reserves.

4.2.2.2 Proclamation of sections of the Heuningnes River as a protected area.

A piece of land in the middle of the Heuningnes River adjacent and north of the De Mond property is unregistered state land. This land should be incorporated into the De Mond property in order to extend the formally protected area and to control the water body and estuary beach area.

The water body of the Heuningnes Estuary also needs to be formally proclaimed as a protected area to ensure the appropriate management and protection of this sensitive habitat.

4.2.2.3. Marine Protected Area.

The possibility of having the marine area adjacent to the De Mond and Waenhuiskrans properties proclaimed as marine protected areas should be investigated. The Heuningnes Estuary is an important nursery area for marine fish and the beach areas are important for breeding and roosting sites for threatened marine birds, many of which forage in the sea adjacent to the reserve. The area is especially important for two species, the Damara and Caspian tern supporting a substantial portion of the national population.

5) CONSERVATION DEVELOPMENT FRAMEWORK OF De Mond Nature Reserve Complex

5.1 Sensitivity analysis

Sensitivity mapping of reserve biodiversity, heritage and physical environment 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 (See 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.

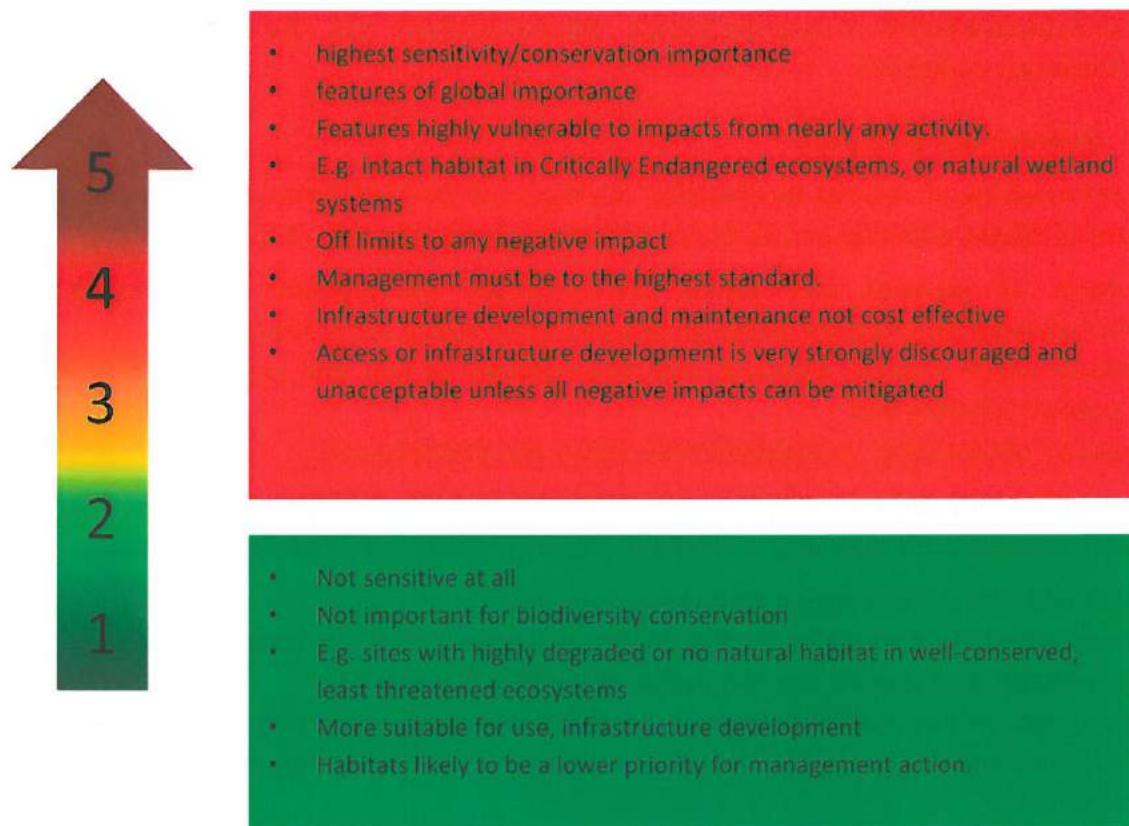


Figure 5.1: CapeNature Method for Sensitivity Scoring and Synthesis (Kirkwood in prep.)

5.1.1 De Mond Nature Reserves Complex Sensitivity Analysis

See Table 5.1 and Figures 5.2 – 5.9.

The DMNRC, comprising De Mond, Soetendalsvlei and Waenhuiskrans Natures Reserves, is a coastal and estuarine reserve system. Terrestrial habitats are all least threatened and well-conserved and therefore not exceptionally sensitive in terms of biodiversity, with the exception of sensitive bird breeding localities.

The estuary system of the Heuningnes River is however one of only six South African estuaries that have been designated as wetlands of international significance under the Convention on Wetlands of International Importance (Ramsar Convention), and one of only 20 South African Ramsar wetlands, and is therefore identified as a highest sensitivity special habitat, resulting in high overall biodiversity sensitivity for this and associated habitats. The estuary is currently considered to be in poor ecological condition and therefore does not contribute to the protection level for that ecosystem type (Driver *et al.* 2011), despite the 59 hectares protected within the DMNRC. Although only a small proportion of the system is conserved within De Mond Nature Reserve, protection of estuarine health and appropriate management of the estuary should be a key reserve management priority. De Mond Nature Reserve was established in 1975 with the purpose of protecting the estuary, including keeping the Heuningnes mouth artificially open to prevent flooding upstream. Management

has to date maintained this practise, including breaching at or before flood heights of approximately 1.5 m above mean sea level (MSL) (CapeNature information for period 2003-current). It is no longer clear that this practise is desirable and a clear management framework for managing the natural closing and artificial breaching of the mouth is urgently required. Decisions taken have a direct influence on the inundation/flooding risk for the De Mond Nature Reserve and large areas of the Agulhas Plain, and therefore the validity of the hydrological sensitivity portion of this sensitivity analysis which incorporates flood/inundation risk.

Despite this uncertainty, it is clear that the DMNRC includes a high proportion of physically sensitive environments. There are extensive mobile or semi-stabilised coastal sand habitats and large areas potentially prone to either direct inundation or wave action by seawater. Within De Mond itself, inundation occurs as a result of closing of the estuary mouth coinciding with high rainfall and rising water levels in the Heuningnes system. It is likely that if the Heuningnes mouth was allowed to close for extended periods of time, subsequent build-up of coastal dune systems could ultimately result in water levels as high as 5 m MSL (Van Niekerk pers. comm. March 2013). As much of the Agulhas Plain catchment is very close to sea level, recent 2003 - 2007 flood levels of less than 2 m were considered serious floods resulting in damage of tens of millions of Rands (Essop 2005). It seems unlikely that a natural Heuningnes mouth closure regime and associated potential for extreme flooding could reasonably be implemented, but this analysis does account for flood levels as high as 5 m MSL.

	Class	Sensitivity layer	Description
Biophysical sensitivity: ANY infrastructure or access	Biodiversity	Ecosystem representivity	Given the small size of the reserves, high day visitor use, and likely high sensitivity of certain habitat units, it was necessary to develop a 1:1000 scale map of habitat types and subtypes. Fortunately units corresponded well to the Vegetation of South Africa, Lesotho and Swaziland Ecosystem unit descriptions (Mucina and Rutherford 2010) allowing derivation of threat and conservation status. It is noted that spatial location of mapped units differs substantially from the very coarse SA Vegetation Map.
		Special habitat	The estuary system of the Heuningnes River is one of only six South African estuaries designated as wetlands of international significance under the Ramsar Convention, and one of only 20 South African Ramsar wetlands. The portion of the estuary and associated salt marsh habitat within De Mond Nature Reserve is therefore identified as special habitat
		Species	<p>Multiple breeding, roosting and foraging site records of species of conservation concern and/or species sensitive to disturbance are known for the reserve, these include:</p> <ul style="list-style-type: none"> • Caspian and Damara tern • Cape and White breasted cormorant • African Black Oystercatcher • Grass owl • Black harrier (<i>Circus maurus</i>) Vu D1 (small global population) <p>Where breeding sites move from season to season and are associated with particular areas or habitats, appropriate sensitivity was generalised to that broader area.</p>

	Heritage	Heritage	<p>A number of historical shipwrecks of unknown identity are buried in the beach sands in and west of the estuary mouth. Location data provided by J. Boshoff, SA Museum.</p> <p>The mature stands of Milkwood trees (<i>Sideroxylon inerme</i>) mapped at De Mond Nature Reserve are also included as a moderately sensitive heritage feature due to their status as protected species, their aesthetic value intrinsic to the character of the site, and age of over 60 years.</p>
	Physical	Slope	The Western Cape Digital Elevation Model provides inadequate resolution to usefully map slope in flat coastal environments. However, slope was mapped for the De Mond office area based on survey or point data. Known cliffs were manually mapped from detailed imagery for Waenhuiskrans Nature Reserve.
		Substrate	Mobile sands and beaches, and other loose sands corresponding to unstable, erosion-prone or mobile substrates are identified as sensitive features.
		Hydrological	Estuarine and coastal areas subject to regular inundation or wave action are identified as highest sensitivity. Although terrain mapping / height models do not currently allow accurate mapping of flood level and extent for the broader area, survey data was used to accurately model flood contours within the office and tourism complex of the DMNRC. Extent of flooding in recent memory (last 40 years), corresponding to a maximum of 1.5-1.75 m ASL, was also directly mapped from photographs of recent floods, supported by anecdotal evidence from long-service reserve staff. These historical flood areas, plus areas likely to be flooded by waters up to 3 m ASL were mapped as high sensitivity, with moderate, low and lowest sensitivity corresponding to less likely flood levels of up to 4 m, 5 m and over 5 m ASL respectively.

Table 5.1: Summary overview of sensitivity analysis components

No analysis of view sheds or visual sensitivity could be performed due to flat terrain and poor resolution of available Digital Elevation Model, but it should be noted that any tall

structure would be visible from large areas. The visual sensitivity of the reserve should be considered high sensitivity throughout unless specifically demonstrated otherwise by proper analysis.

For further information, please see the De Mond / Waenhuiskrans Nature Reserves Complex Conservation Development Framework Report (Kirkwood in prep.), which includes a detailed description of the Sensitivity Analysis components and analysis.

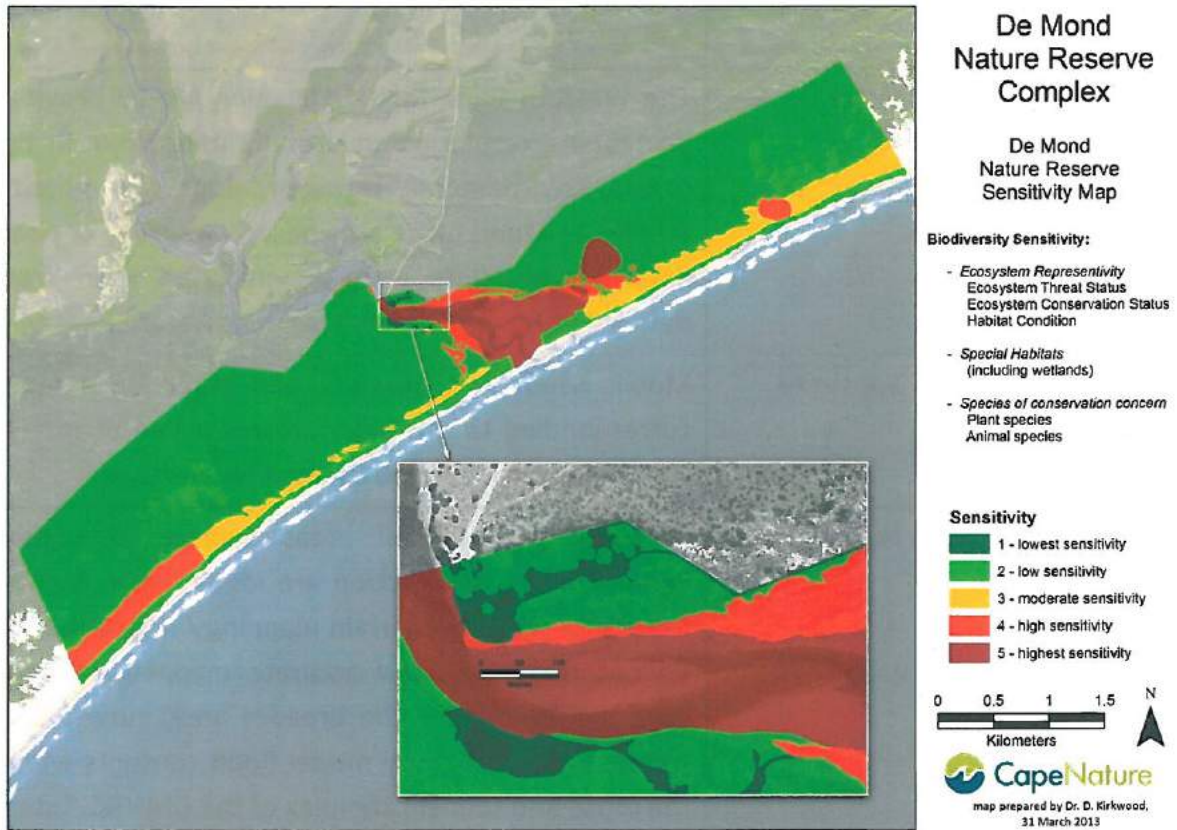


Figure 5.2: De Mond Nature Reserve sensitivity.

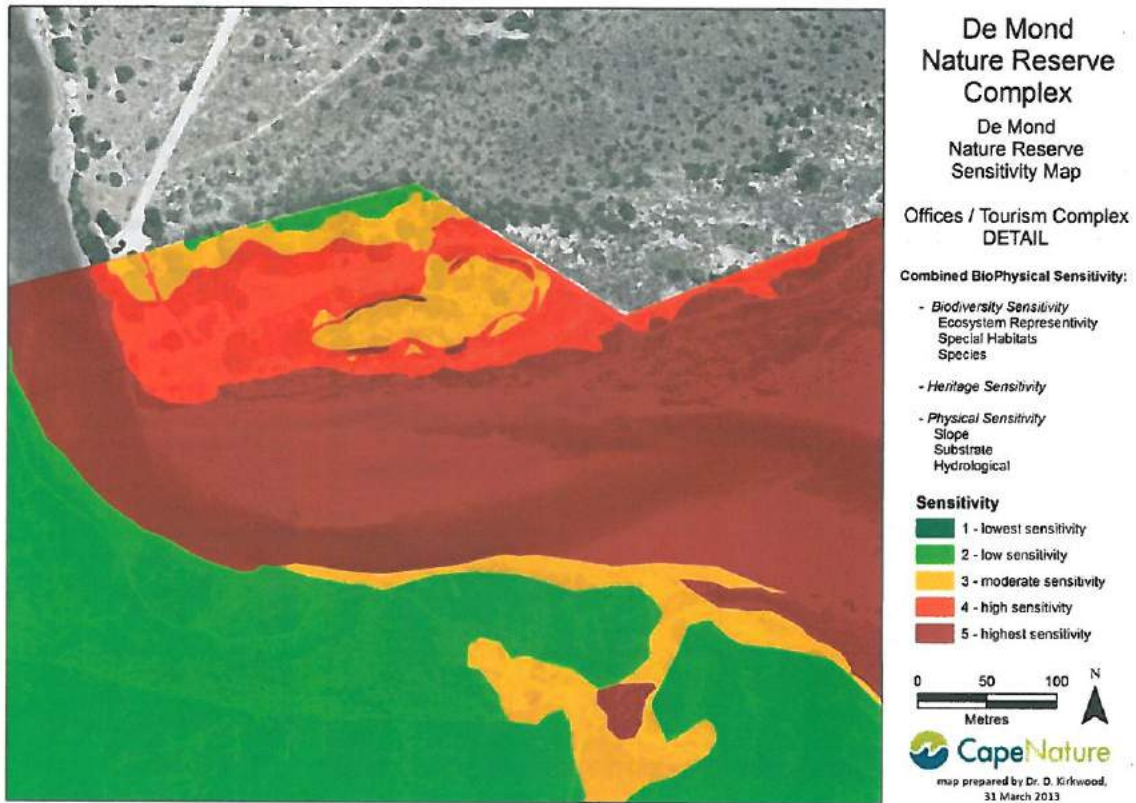


Figure 5.3: De Mond Nature Reserve sensitivity map (detail)

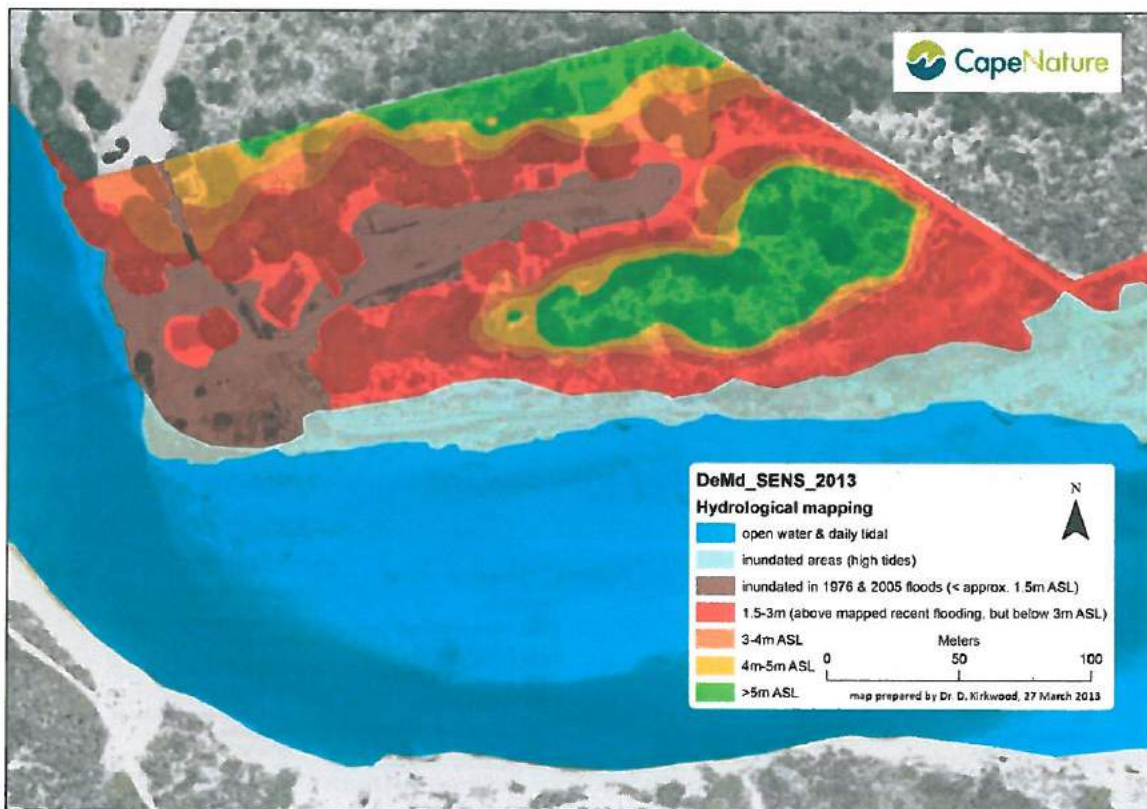


Figure 5.4: Hydrological map of De Mond Nature Reserve development zone.

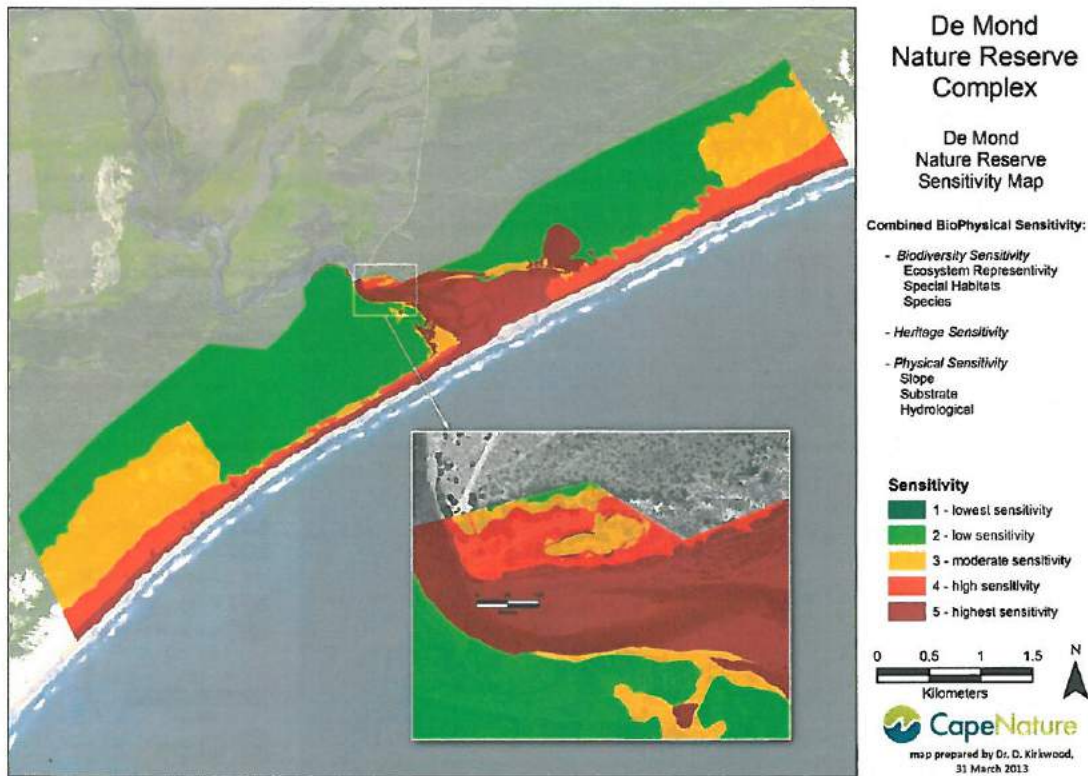


Figure 5.5: De Mond Nature Reserve sensitivity. Combined biophysical sensitivity

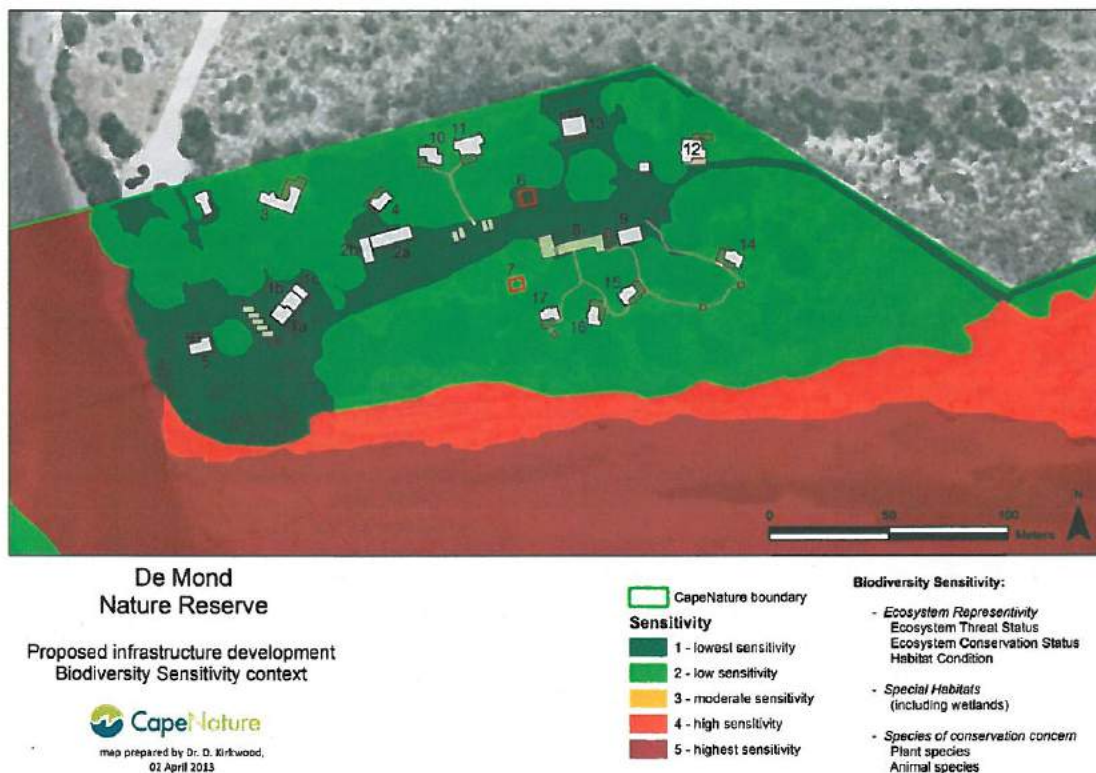


Figure 5.6: De Mond Nature Reserve proposed infrastructure development in relation to biodiversity sensitivity context.

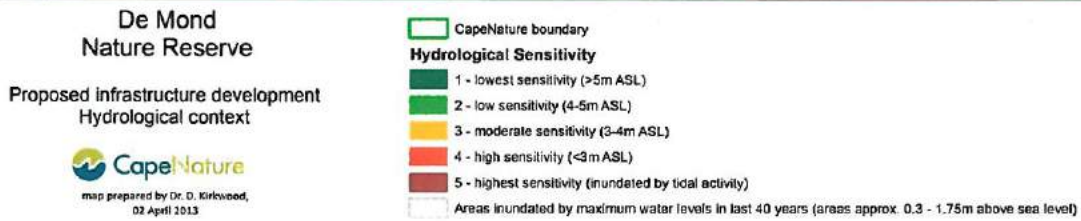
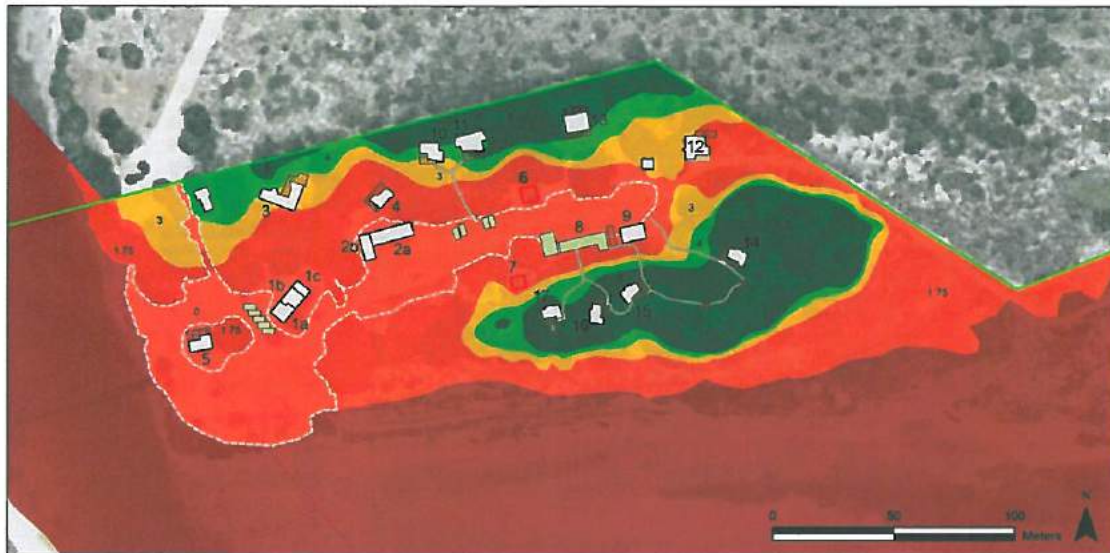


Figure 5.7: De Mond Nature Reserve proposed infrastructure development in relation to biodiversity and hydrological context.

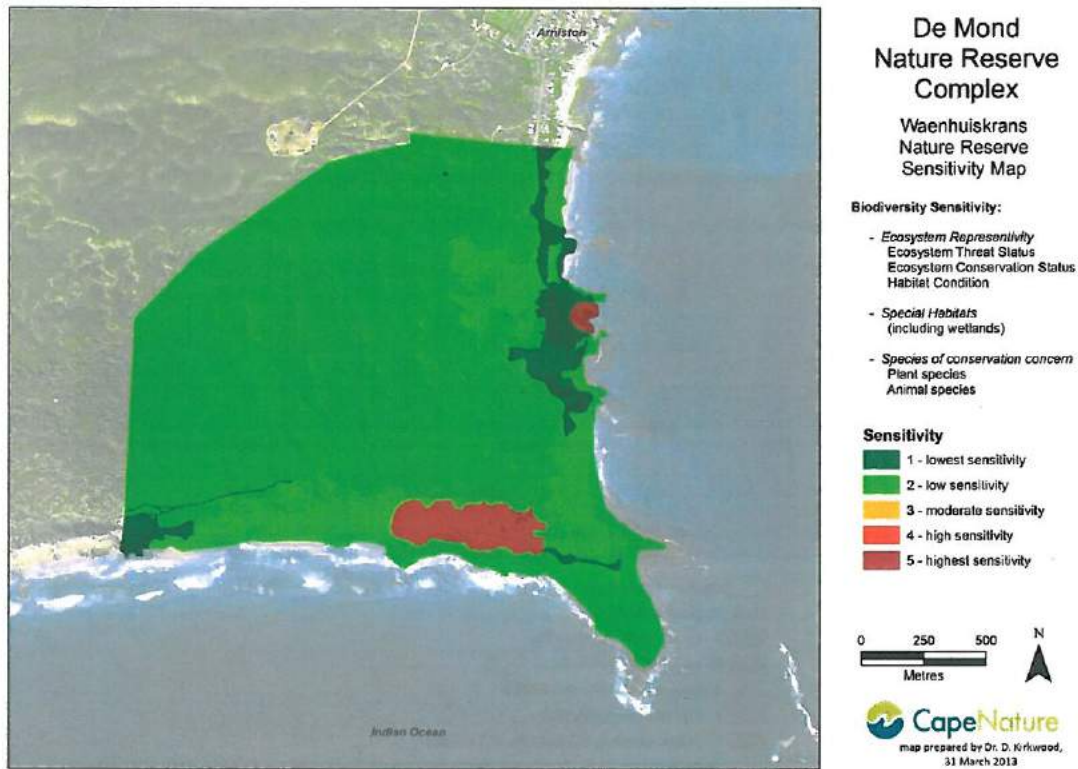


Figure 5.8: Waenhuiskrans Sensitivity in relation to biodiversity sensitivity

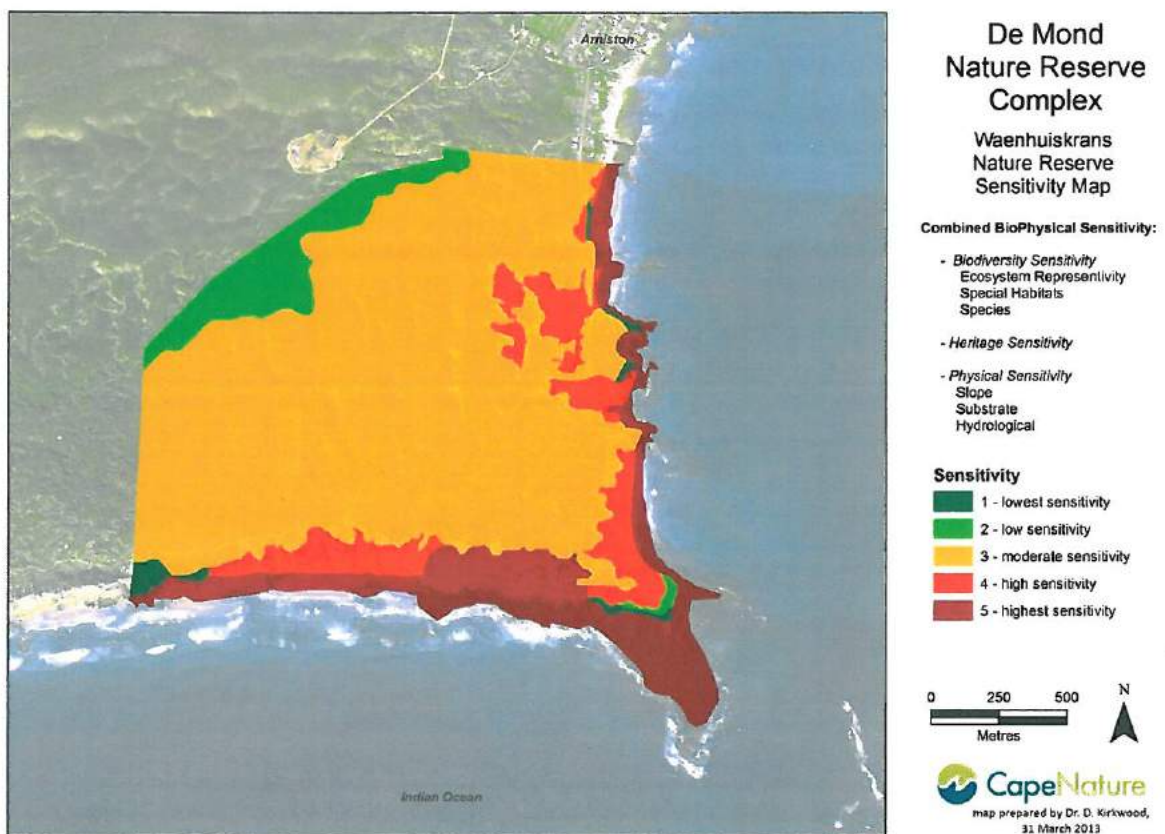


Figure 5.9: Waenhuiskrans Nature Reserve Sensitivity in relation to combined biophysical sensitivity

5.2 Zonation

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 Public Participation Process.

CapeNature's zonation categories (See Table 5.2) 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 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 the De Mond Nature Reserve Complex

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities Infrastructure	Visitor Access	Management Guidelines
Wilderness / Wilderness (declared)	<p><i>Users:</i> To provide an experience of solitude in pristine landscapes with minimal evidence of human presence or use.</p> <p>Conservation: To limit visitor numbers and use to minimise impact.</p> <p>Minimal management intervention for visitor or biodiversity management.</p> <p>Include sensitive or threatened habitats & species in this low use zone when contiguous sites meet the criteria for wilderness.</p>	<p>Completely wild and rugged landscapes (or being restored to this).</p> <p>Areas where users have little chance of encountering any other human presence or group.</p> <p>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.</p> <p>Natural burning regimes, with no active fire management and road/firebreak infrastructure.</p> <p>Areas with minimal invasive Alien Plant infestations, where IAP control can be done without vehicle access.</p> <p>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".</p>	<p>"Leave-no-trace" activities:</p> <p>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.</p> <p>Guided or unguided nature observation.</p> <p>No fires</p>	<p>No infrastructure of any type if possible.</p> <p>No roads or vehicle tracks.</p> <p>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.</p> <p>Narrow permanent walking trails.</p> <p>No signage except small, unobtrusive markers for closed routes, or at trail junctions.</p> <p>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.</p>	<p>Unguided visitor access only on foot.</p> <p>Visitors have freedom to use various trails.</p> <p>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.</p> <p>Limits on visitor numbers and/or control of routes and access so that zone objectives are met.</p> <p>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.</p> <p>No fires</p> <p>No vehicle access</p> <p>No access without zone permit</p>	<p>Visitor Management:</p> <p>Manage to conserve natural and cultural resources, ecological processes and wilderness integrity.</p> <p>Leave no trace ethic.</p> <p>Restrict numbers of visitors and allow for no-use rest periods if required.</p> <p>Limited management interventions. Management measures may be carried out in extreme conditions, but tread lightly principles must apply.</p> <p>Since visitor use cannot be intensively managed, re-route trails away from any areas with sensitive local habitats or plant and animal species.</p> <p>Trail layout, design and construction must reduce maintenance requirements.</p> <p>Conservation Management:</p> <p>Habitats with minimal management requirements, typically natural burning zones.</p> <p>Prevent or restore visible trampling or any other impact.</p> <p>Rehabilitate non-essential roads to natural vegetation. Re-zone essential roads out of Wilderness Zoning.</p> <p>Consumptive Use:</p> <p>Not compatible</p>

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

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

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

¹ Although 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	<p><i>Users:</i> To provide access to adjacent natural landscapes with no expectation of solitude.</p> <p>To provide low and/or higher density accommodation.</p> <p>May provide some conveniences such as restaurants and shops.</p> <p>Conservation: To locate the zone and infrastructure to minimise impact on sensitive environments.</p> <p>To actively manage users and visitor impacts on adjacent sensitive areas.</p> <p><i>Provide additional protection to sensitive or threatened habitats, species or other features by Special Management Overlays</i></p>	<p>Areas with extensive degraded or transformed footprints. Natural or semi-natural habitats only where benefits outweigh impacts.</p> <p>Areas able to accommodate very high numbers of visitors regularly, with no identified sensitive biodiversity.</p> <p>Areas able to accommodate roads, trails and accommodation infrastructure without risk.</p> <p>Areas easily accessible from reserve management centre.</p> <p>Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment.</p> <p>Areas where new infrastructure can be located with low visibility from the surrounding landscape. Areas not visible from Primitive or Wilderness Zones.</p> <p>Areas with available potable water, and not sensitive to disposal of larger amounts of treated wastewater.</p>	<p>Restaurants and small shops.</p> <p>Picnicking.</p> <p>Walking or bicycle access into adjacent areas.</p> <p>Accommodation in small hotels, lodges and higher density self-catering accommodation and/or camping.</p> <p>Meetings, workshop or mini-conference activities for no more than the number of people that can be accommodated overnight in the zone.</p>	<p>High density tourism development nodes.</p> <p>Modern amenities including restaurants & shops.</p> <p>Self-catering accommodation and camping for over 100 guests in total at any time.</p> <p>Lodges or small hotels.</p> <p>Roads in this zone must be surfaced to reduce management cost and environmental impacts.</p> <p>Development and infrastructure may take up a significant proportion of the zone, but planning should ensure that area still provides relatively natural outdoor experience.</p>	<p>Tour bus access.</p> <p>Motorised self-drive sedan car access.</p> <p>Parking areas.</p> <p>Air access only permitted if considered and approved as part of zoning scheme and there is no possibility of faunal disturbance.</p>	<p>Visitor Management:</p> <p>Management action will focus mostly on maintenance of facilities & providing high quality experiences.</p> <p>Use infrastructure solutions such as railings, hard surfacing and boardwalks to manage undesirable visitor impacts.</p> <p>Accept substantial impact on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay.</p> <p>Frequent landscape, footpath and road maintenance must be scheduled for high impact areas.</p> <p>Visible impacts to adjacent Zones should be mitigated.</p> <p>Conservation Management:</p> <p>Provide access and generate maximum revenue.</p> <p>Management should aim to mitigate the biodiversity impacts of the high number of visitors only in sensitive areas (if any) identified by Special Management Overlay.</p> <p>These are highly transformed habitats with lower management requirements. Natural fire exclusion areas.</p> <p>Prevent or rehabilitate visible trampling or any other visitor impact.</p> <p>Plan for a compact overall development footprint, avoiding dispersed infrastructure that will increase fire risk and/or environmental footprint. This is most critical in fire-prone environments.</p> <p>Consumptive Use:</p> <p>Sustainable use unlikely to be compatible.</p>

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

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities Infrastructure	Visitor Access	Management Guidelines
Development - Production	Commercial 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 / Cultural / Habitat / Protection	<p>Users: This zone's primary purpose is conservation and research. Limited tourism use only if compatible with conservation objective.</p> <p>Conservation: Protection of species or habitats of special conservation concern. Restrict access to prevent disturbance and/or damage.</p>	<p>Larger areas where uncontrolled public access is undesirable due to presence of regionally critically rare and endangered fauna, flora, habitat.</p> <p>Typical example would be a seabird breeding colony, particularly for threatened species.</p>	<p>Research. Nature observation under strictly controlled conditions only if specifically noted.</p>	<p>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.</p>	<p>Public / Tourism access normally not allowed. May be permitted under very tightly controlled conditions, to be determined per site.</p>	<p>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.</p>

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, adopted 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.
Resource	Access to identified sustainable consumptive use resources as per a resource management plan.	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.
Natural						

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 metres 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 DMNRC's zonation:

- Both De Mond and Waenhuiskrans are extremely popular, with high day visitor use, requiring nature based access zones for access and recreation.
- Relatively small reserve sizes means that nature access zones form a significant portion of both reserves and will require more stringent management of visitors and mitigation of impacts in order to prevent ongoing and worsening degradation of heavily used areas.
- Areas beyond the existing heavily accessed portions of these reserves are zoned as primitive zones, with access not freely permitted with a day visitor permit. These areas provide opportunities for solitude, limit visitor impacts overall, and correspond to identified habitats to provide refuges from disturbance for sensitive species, especially fauna of conservation concern.
- Formalisation of the existing administrative and tourism complex at the De Mond Nature Reserve as a Development – Low Intensity Zone (for tourism infrastructure and use) and Development – Management Zone (for management and administrative infrastructure and use) is appropriate despite the high physical sensitivity of that area. The site provides less natural areas suitable for the limited development planned as a result of long history of use and access at the site. Most importantly it is peripheral to the reserve and situated at the entrance from a public road. Any other location within the reserve would require even greater impacts as a result of traversing more sensitive habitats. Flood risks are a concern, but can be partly mitigated by placing damage-prone infrastructure above likely flood lines within this zone. However the unavoidable high risk nature of the site does mean that contingency plans to deal with possible flood events is essential for the safety of staff, guests and CapeNature assets and information.
- The entire Soetendalsvlei Nature Reserve is zoned as Species / Habitat Protection Zone. This area is surrounded by open water not accessible to the public; it comprises important hydrological function and habitat within the broader Heuningnes Estuary system. If the surrounding area were incorporated in an expanded protected area in future, less restrictive zoning compatible with conservation of the site could be contemplated.

The zonation of the DMNRC is shown in Figure 5.10.

De Mond Nature Reserve Complex

Zonation Map

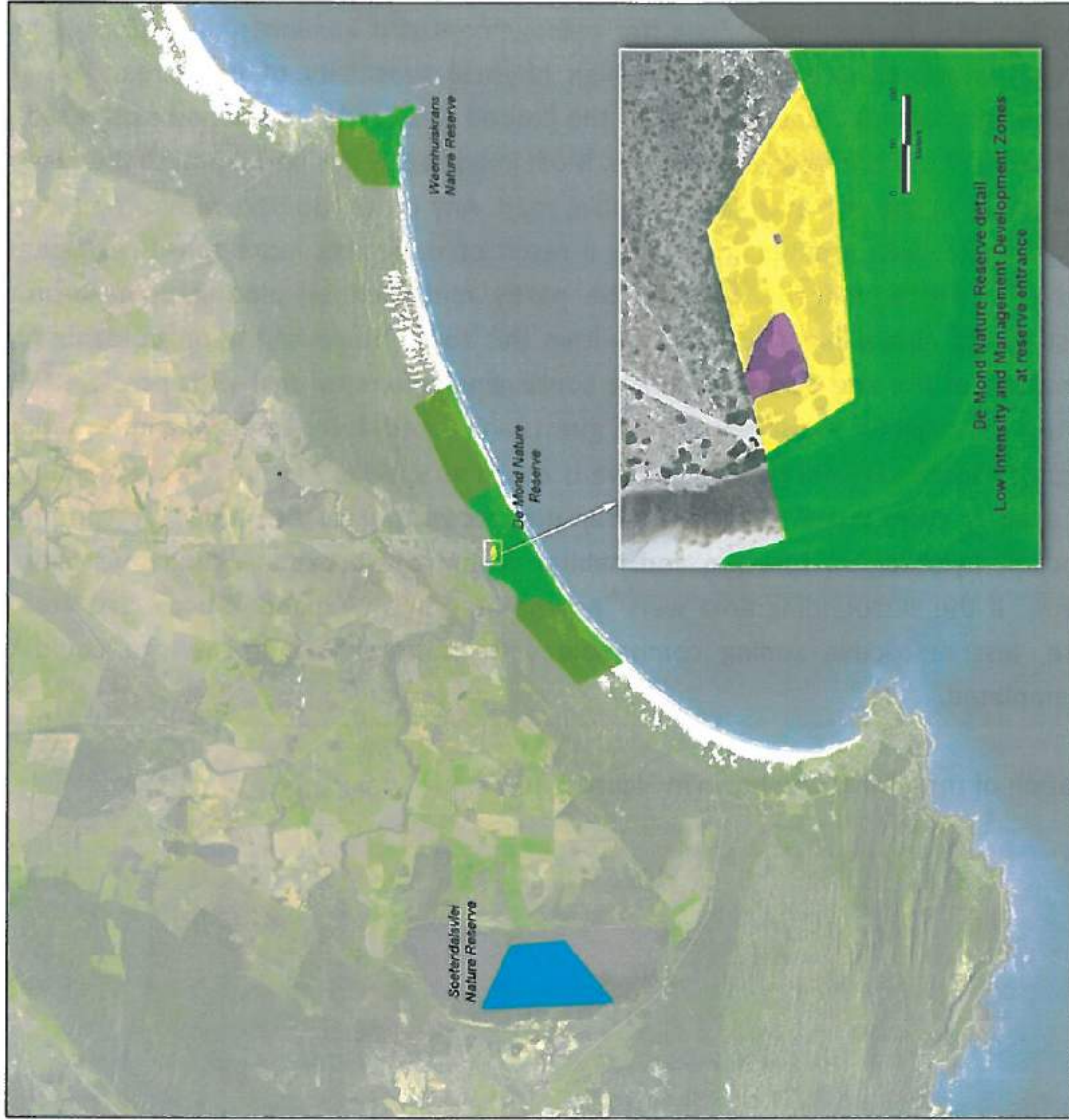


Figure 5.10: Zonation map of the De Mond Nature Reserve Complex

5.3 Access

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 the DMNRC for the public are listed in Table 5.3. Access and specific facilities are spatially mapped in Figures 3.8 and 3.9.

Table 5.3: Public access points to the De Mond Nature Reserve Complex

No.	Locality	Name	Type of Access	Activity
1	De Mond office	Main gate	Controlled access gate for staff and visitors	Accommodation, fishing picnicking hiking and management activities
2	De Mond beach	De Mond Beach	Uncontrolled access along the beach. Public may walk on the beach from the Waenhuiskrans side or Struisbaai side and then enter the reserve without permits as these areas are not permanently checked.	Hiking, Fishing, birding.
2	Waenhuiskrans	Roman beach	Uncontrolled public road access for pedestrians and vehicles	Swimming, fishing, sight seeing
3	Waenhuiskrans	Coastal access	A line approximately 63m (200ft) above the high-water line all along the coastline of the entire Waenhuiskrans Reserve	Fishing, swimming, hiking and sightseeing.

Current servitude, agreements and public rights applicable to the DMNRC are listed in Table 5.4.

Table 5.4: Servitudes, management agreements and title deed restrictions/conditions relevant to the De Mond Nature Reserve Complex

Date of Agreement	Type of Agreement	Beneficiary	Duration of Agreement (years)	Area Affected
1 December 2008	Fixed term licence to traverse the De Mond Nature Reserve by vehicle on track from the office to the beach to access the beach for fishing. Conditions apply.	Mrs A Scholtz	End 31 October 2018 (9 yrs. and eleven months), but can be renewed.	De Mond Nature reserve on route as described in agreement.

6 December 2009	Agreement between Western Cape Nature Conservation Board (CapeNature) and Let's Go Farming CC (Vogelgezang Farm) for entrance arrangements and payments with regards to the de Mond Nature Reserve in the district of Bredasdorp	Let's Go Farming CC (Vogelgezang Farm).	In perpetuity	De Mond Nature Reserve
13/3/1940	The property may not be leased or disposed of without the consent of the owners of the remainder nor shall any building be erected thereon for business or trade except with the consent of the said owner	Let's Go Farming CC (Vogelgezang Farm). (Successors in title of the remainder of Farm 269)	In perpetuity	Portion 3 of the farm 269 (Portion of the De Mond Nature Reserve. This does not include the development zone, portion 4. See appendix 10 for more detail)
Unknown	Public road for entering the Waenhuiskrans Nature Reserve by vehicle or by foot.	General public	In perpetuity unless de-proclaimed by the minister	Waenhuiskrans Nature Reserve
Unknown	Servitude to build and maintain a water reservoir for water provision to the residential area of Waenhuiskrans.	Cape Agulhas Municipality	In perpetuity	Waenhuiskrans Nature Reserve
29/6/1962	Title deed condition: The strip of ground between the high-water mark and the brown line (indicated on the original diagram) is 200ft (appr. 63 m.) and is open to the use of the public. See Figure 5.11	General public	In perpetuity	Waenhuiskrans Nature Reserve (Erf 171 portion of erf 115 Arniston)

The De Mond Nature reserve is currently open to the public via a controlled entrance gate. Picnic facilities do exist and limited facilities for overnight accommodation are provided. Visitors are allowed to fish in the estuary. See Concept Development Plan for future tourism development plans.

Public access to Waenhuiskrans Nature reserve for recreational purposes as well as fishing activities is presently uncontrolled due to the fact that a public road enters into the reserve for a distance of 1,5 km. A 200ft (app 63m) strip above the high-water mark is also open to the public in terms of a title deed condition. CapeNature has applied for the de-proclamation of the road during 2008, but it was denied by the Minister of Transport and Public Works based on high public opposition towards this proposal.

Preceding the above application, a tourism plan was compiled by CapeNature together with a working group comprising a wide spectrum of stakeholders. It was also decided that an MOU should be signed between CapeNature, the local Municipality and the Waenhuiskrans Rate Payers Association. Due to the dismissal of the application to de-proclaim the road, the MOU was never signed and the tourism plan not implemented.

As uncontrolled public access is regarded as a negative aspect with regards to the effective conservation management of the Waenhuiskrans Reserve and listed as a threat, the implementation and/or amendment of the draft tourism plan should be investigated and discussed between CapeNature and a Protected Area Advisory Committee (stakeholder working group) for the reserve.

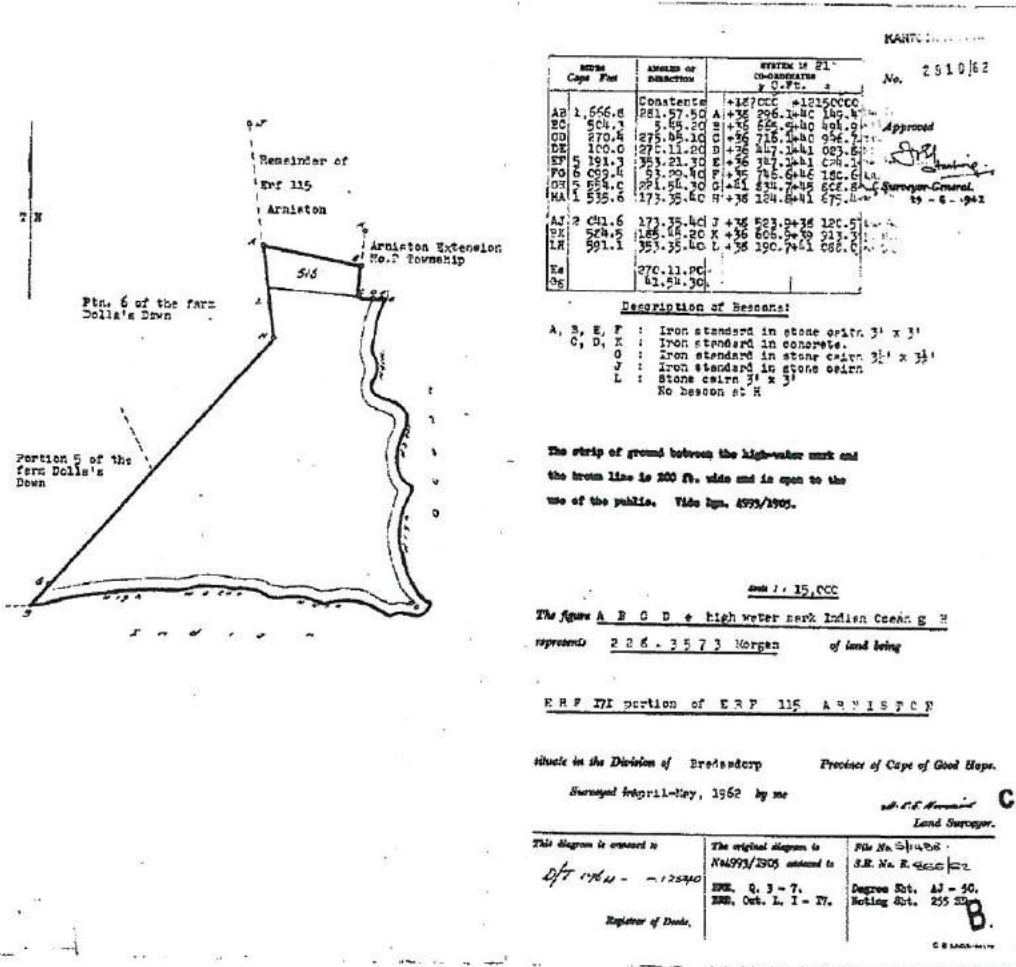


Figure 5.11: Diagram: Open Public Access

5.4 Concept Development Plan

CapeNature's envisaged small-scale development at De Mond Nature Reserve comprises expanded tourism infrastructure, along with a revised and upgraded Management Infrastructure layout.

Planning is based on high tourism potential of the site, and the need to upgrade management infrastructure and provide more, and improved management access. Historical use of the single tourism unit at De Mond has consistently been amongst CapeNature's most popular destinations, and projections provided by an independent financial study of tourism feasibility supported the viability of the proposed development.

All new infrastructures will require NEMA EIA authorisation, and this process was initiated in 2011.

The design and layout can be seen in Figure 5.5 (planned design) and Figures 5.6 and 5.7 (planned development layout).

- The current offices (Object 5 in Figure 5.6) are unsuitable due to their location in very high flood risk area closest to the banks of the estuary and within a busy day visitor recreation area. This prefabricated timber building will be converted to an open plan shell, suitable for use as an interpretation centre and events facility; with little risk of serious damage should it be partly or completely inundated.
- Likewise, the existing brick and mortar manager's house (objects 1a - 1c in Figure 5.6) is extremely poorly located in a public area, creating serious problems with visitor experience and staff privacy. This building will be converted for multiple-use with the front, public section (item 1a) used as the main reserve administrative offices (replacing offices current location at 5), with the screened rear of the building (item 1b) converted to provide a much needed 2-bedroom accommodation unit for visiting and relief staff. The existing single garage will be retained (1c).
- The existing, three-bedroom, 6-person tourism accommodation unit (item 13) will be retained and upgraded.
- New tourism accommodation comprising one two-bedroom unit (item 10), two three-bedroom units (items 11 and 12) and four one-bedroom units (items 14-17 – Figure 5.12) together provide the capacity for an additional 24 overnight guests (Figures 5.13 and 5.14).
- A small single bedroom cabin will be constructed to provide accommodation for a dedicated on-site tourism liaison staff member (item 4).
- New three-bedroom accommodation for the reserve manager will be constructed in a private, screened location, above highest risk flood-prone areas (item 3).
- The entrances to the shed (item 2a) will be relocated. Additional workspace will be provided.
- Poorly utilised and end-of-life shed (item 8) will be demolished and replaced with open parking for overnight guests.
- Current under-utilised workshop (item 9) will be converted to covered parking for official vehicles.

Sustainable design principles incorporated into phase 1 and 2:

- Assessment of suitability and identification of lowest impact footprints by whole reserve sensitivity analysis and consideration of visual impact;

- Mitigation of visual impact by careful placement of units in screened locations, unit design including roof planning, lathe panels and avoiding tall and/or monolithic structures;
- Mitigation of identified risks, especially flood inundation by use of timber-frame structures raised on pole footings;
- Use of timber frame construction with minimal footings to minimise construction impacts, and allow very low impact future decommissioning, and easy site restoration if ever required;
- Use of low embodied energy building materials;
- Design for low energy use and comfort through passive heating and cooling, high levels of insulation, use of solar water heating, use of clean-burning wood stoves, use of low-energy lighting. Use of quality, low energy appliances and lighting. Water supply to be supplemented by rainwater harvesting. Use of self-contained dry-composting toilets as preferred option to prevent water waste and leaching of any nutrients or pathogens into ground wherever possible. For shaded units or existing flush installations where composting toilets would be problematic, units will be provided with compact sewerage treatment plants meeting required DWA discharge standards (items 1, 4 and 13).



Figure 5.12: 3-D rendering of proposed new cabin (item 15), showing low footprint timber-frame construction, and visual mitigation.



De Mond
Nature Reserve

Proposed
infrastructure
development



map prepared by Dr. D. Kirkwood,
02 April 2013



- CapeNature boundary
- category**
- Existing: retain, convert and/or upgrade
- Existing: demolish/remove
- Proposed new infrastructure

Figure 5.13 De Mond Nature Reserve Proposed Infrastructure Development



De Mond Nature Reserve
Proposed infrastructure development

CapeNature
map prepared by Dr. D. Kirkwood,
02 April 2013

- CapeNature boundary
- category**
- buildings
- paving
- decks
- boardwalks
- parking
- remove / demolish

- 1: Convert existing manager's house to offices (1a), visiting staff quarters (1b), retain garage (1c)
- 2: Adapt existing shed to improve parking and provide work space.
- 3: New reserve manager's house (3 bedroom), & 4: new cabin for tourism liaison officer.
- 5: Convert existing admin offices to openplan interpretation centre / function room.
- 6: Remove delapidated, poorly constructed store.
- 7: Remove poorly constructed wooden hut.
- 8: Demolish end of life wooden store, replace with open parking.
- 9: Convert existing under-utilised workshop to lock up parking for staff / official vehicles.
- 10: New 2-bedroom self catering tourism accommodation.
- 11 & 12: New 3-bedroom self catering tourism accommodation (12 provides disabled access).
- 13: Existing 3-bedroom self catering tourism accommodation.
- 14 - 17: New, small, 1-bedroom self catering accommodation, "dune cabins".

Figure 5.14: De Mond Nature Reserve. Proposed Infrastructure Development

6) STRATEGIC IMPLEMENTATION FRAMEWORK

The Strategic Implementation Framework guides the implementation of the management plan over five years in order to ensure that it achieves its management objectives (see Table 6.1 to 6.15). 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 Management effectiveness
 - 6.13.1 Finance and administration management
 - 6.13.2 Human resources management
 - 6.13.3 Occupational health and safety management
 - 6.13.4 Risk management
- 6.14 Visitor management
- 6.15 Tourism development framework

LEGAL STATUS AND RESERVE EXPANSION					
To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats.					
Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
The DMNRC has secure permanent conservation status in terms of NEM: PAA.	Declare the DMNRC in terms of NEM: PAA. The protected area is listed in the National Register as required by NEM: PAA. Investigate the possibility to transfer Soetendalsvlei (Portion 9 a portion of 8 of the farm Zoetendals Vlei 280) to Agulhas National Park.	Executive Conservation Management, DEADP, Administration. Stewardship Programme Manager. Director: DEA, Law	The DMNRC is legally secure.	Year 3	NEM:PAA Proclamations
The DMNRC boundary is known and appropriately demarcated and secure.	Survey Heuningnes Estuary boundaries where it joins the land on the eastern and western side of De Mond Nature Reserve. Beacons placed to clearly demarcate boundaries.	Conservation Law Administration. Manager;		Year 1	NEM:PAA
To consolidate all possible land within the DMNRC, as well as other identified conservation-worthy areas adjacent to and contiguous with the reserve as identified (Heuningnes Estuary and River)	Declare (pending outcome of 1 above) Heuningnes Estuary/river as an extension of De Mond Nature Reserve. Identify potential stewardship agreements (Soetendalsvlei –De Mond river corridor and Waenhuiskrans –De Mond corridor) with the surrounding landowners in line with CNPAES. Ensure local strategy for De Mond Nature Reserve expansion is included in CNPAES.	Conservation Manager; Services Programme Manager: MPAs, Islands and Estuaries; Programme Manager: Stewardship Programme.	Hectares added to the conservation estate. See section 5	Year 5	CapeNature Protected Area Expansion Strategy and Implementation Plan 2010-2015; Extension nomination for the Cape Floral Region Protected Areas World Heritage Site.

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 390 842

REGIONAL INTEGRATED PLANNING AND COOPERATIVE GOVERNANCE							
To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats.							
Table 6.2	Objective 1	Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
		The DMNRC is integrated into land-use planning outside of the nature reserve.	Integrate with the SDFs and IDP's of the district and local municipalities. Provide comments/input into development/land use change proposals adjacent to the reserve. Attend, ensure reserve issues are profiled and actively contribute/advise in decision making: OICG, farmers association, HEF, HROA, WHKFA,SAP joint, Agulhas National Park forum, ABI	Conservation Manager, Community Conservation Manager; Biodiversity Mainstreamer.	The protected area is integrated into land-use planning outside of the protected area	Ongoing	SDF and IDP planning processes, NEMA regulations
		Establish a functioning Advisory committee for the DMNRC.	PAAC representative of all stakeholders functioning. Meetings are held as scheduled. Decisions taken are communicated to PAAC.	Conservation Manager; Community Conservation Manager	Advisory committee for the DMNRC has been established, is functioning and effective.	Ongoing	Ref Section 10.1.3: Regulations for the proper administration of nature reserve in terms of the

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 488 553

Table 6.3
ECOSYSTEM AND BIODIVERSITY MANAGEMENT

Objective 1	To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats.				
Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference Existing Procedures
<p>Compile an Ecological Plan of Operation and Ecological Matrix (i.e. the ecological projects planned for the reserve complex for the year) for DMNRC (including the estuary).</p>	<p>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 implement an approved Ecological Matrix for the DMNRC.</p>	<p>Conservation Manager; Regional Ecologist; Ecological Coordinator, GIS Technician.</p>	<p>The DMNRC will annually indicate an upward trend in METT-SA score. 100% of actions identified in the integrated auditing system will be implemented.</p>	<p>Ongoing</p>	<p>Ecological Plan of Operations, Ecological Matrix</p>
<p>A biodiversity resource inventory for the DMNRC (including the estuary) is in place.</p>	<p>Prioritisation of species for inclusion on the Ecological Matrix. Collect specimens (where relevant) and submit to Scientific Services. Analyse data, re-assess and implement adaptive management strategies.</p>	<p>Conservation Manager; Regional Ecologist; Ecological Coordinator, GIS Technician; Programme Manager: MPAs, Islands and Estuaries</p>	<p>Research projects undertaken to address management needs and inform management actions. Ecological Plan of Operations compiled. Ecological Matrix compiled, approved and implemented.</p>	<p>Ongoing</p>	<p>Baseline collection and monitoring manual (2010); SOB.</p>
<p>A monitoring programme for the DMNRC (including the estuary) is being implemented.</p>	<p>Review monitoring protocols. Identify monitoring needs of the reserve in consultation with Scientific Services. Establish indicators for monitoring. Implement National projects SABAP, CWAC Facilitate catch and release programme and limit fishing to day hours. 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. Hard and digital copies of all documents and publications resulting from all monitoring and research in the reserve must be catalogued and stored at the De Mond office with backup copies sent to Scientific Services. Collection of climatic data on the DMNRC. Source funding for automated weather station.</p>	<p>Conservation Manager; Regional Ecologist; Ecological Coordinator, SS Technician; Manager: Biodiversity; Programme Manager: MPAs, Islands and Estuaries</p>	<p>Ecological Matrix compiled, approved and implemented.</p>	<p>Ongoing</p>	<p>Baseline collection and monitoring manual (2010); SOB.</p>

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference Existing Procedures
A research programme for the DMNRC is being implemented.	Identify research needs for the reserve. Maintain a research register 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. Implement research projects in partnership with other agencies and institutions	Conservation Manager; Regional Ecologist; Ecological Coordinator; Programme Manager: MPAs, Islands and Estuaries		Ongoing	CN research needs list; Fynbos Forum research strategy, CN permitting procedure
The DMNRC contributes to the maintenance of ecosystem services.	Design and implement appropriate fire management programme including possible prescribed veld burning. Conduct a roads and footpath assessment at Waenhuiskrans Nature Reserve. Close and rehabilitate inappropriate roads and footpaths within the DMNRC. Monitor site recovery.	Conservation Manager; Regional Ecologist; Ecological Coordinator		Ongoing	ICM, AVM APO's, CapeNature Fire Policy Version 8
Prevent and mitigate soil erosion on the DMNRC.	Conduct trail profile monitoring to assess soil erosion for WHK. Facilitate a plan of action with regards to erosion banks at Roman beach. Map and ensure photo's available. Conduct ad hoc trail maintenance informed by trail profile monitoring. Monitor the affectivity of the erosion control mitigation. Monitor cost effectiveness of maintenance. Monitor site recovery.	Conservation Manager; Regional Ecologist; Ecological Coordinator		Ongoing	
Conserve, protect and manage estuary, tidal river and the river link/corridor to Soetendalsvlei	Implement CapeNature's responsibilities documented in the approved Heuningnes Estuary Management plan. Reserve manager to be actively involved in the management and activities of the estuary advisory forum Investigate conservation actions and the implementation thereof for the estuary and river corridor to Soetendalsvlei. Monitor water quality and bacterial counts in the estuary.	Conservation Manager; Programme Manager: MPAs, Islands and Estuaries		Ongoing	HEMP Management Plan

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference Existing Procedures
The protection of flora species of conservation concern.	Identify plant species of conservation concern and map localities of populations in the reserve. Conduct monitoring of populations of plant species of special concern. Limit activities that may impact on species of conservation concern. Baseline data collection the reserve.	Conservation Manager; Regional Ecologist; Ecological Coordinator.		Ongoing	SOB, SANBI TSP programme
Conservation of threatened and endemic fauna	Identify threatened and endemic species and map localities of populations on the reserve. Conduct monitoring of populations of fauna species of special conservation concern e.g. Damara terns, Black harrriers, Grass owl, White breasted cormorants, Cape cormorants and Crowned cormorants Fish catch, morphometric data collection. Limit activities that may impact on species of conservation concern. Baseline data collection on the reserve.	Conservation Manager; Regional Ecologist; Ecological Coordinator.		Ongoing	Ecological Plan of Operations, Ecological Matrix, SOB
Manage consumptive utilisation of biological resources.	Monitor quantity of sour fig harvesting. Investigate collecting techniques and impact monitoring. Investigate the possibility to implement a catch and release system for the fish in the estuary.	Conservation Manager, Community Manager, Regional Ecologist; Ecological Coordinator.		Ongoing	CapeNature Policy on consumptive utilisation (2007).

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 1 563 370

WILDLIFE MANAGEMENT					
Objective 1 To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats.					
Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
Manage damage causing animals.	<p>Comment on permit application from neighbouring land owners.</p> <p>Respond to request of assistance regarding damage causing animals off the reserve.</p> <p>Remove illegal dogs, cats or other pets and domestic stock found in the reserve.</p> <p>Manage pets kept by staff on the reserve in terms of CapeNature policy.</p> <p>Monitor kelp gull predation on breeding sea birds.</p>	<p>Conservation Manager,</p> <p>Conservation Services, Regional Ecologist, Ecological Coordinator</p>	Damage causing animal register	Ongoing	Ordinance, NEMA:PAA Reg: Proper administration of Nature Reserve Game Translocation and Utilisation Policy for the WC Province (2011).

Budget Allocation	
Development	
Operation (5 Year Forecast)	R 97 711

FIRE MANAGEMENT						
To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats.						
Objective 1	Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
	Reduce / avoid the spread of fires across the reserves borders and minimize accidental/deliberate fires within the reserve.	<p>Compile Fire Management Plan and investigate possible prescribed burns. Implement fire management plan.</p> <p>Update and implement Fire Protection and Reaction Plans including risk assessments.</p> <p>Construct priority firebreaks according to schedule.</p> <p>Fuel reduction around infrastructure to minimise risk.</p> <p>Conduct a pre-fire season fire audit.</p>	Conservation Manager, Regional Ecologist, Ecological Coordinator, Catchment 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).	Years 1-5	Fire Management Policy and Guidelines; Fire break register; ICM APO
	To allow for natural fire processes to occur without negatively impacting on safety and infrastructure.	<p>Fire Reports completed.</p> <p>Mapping of all fires and capture on GIS.</p> <p>De-briefing sessions held after each fire and records kept.</p>	Conservation Manager		Years 1-5	Fire Management Policy and Guidelines.
	Establish and maintain partnerships to improve fire management on the DMNRC.	Attend Fire Protection Association meetings.	Conservation Manager		Years 1-5	Fire Management Policy and Guideline; FPA operational rules and guidelines.
	Determine and implement thresholds of potential concern for fire management on the DMNRC.	<p>Approach tertiary institution for possible research project on fire frequency for coastal fynbos.</p> <p>Conduct post fire vegetation survey aligned to protocols to be developed for coastal reserves.</p>	Conservation Manager, Regional Ecologist, Ecological Coordinator.		Years 1-5	Fire Management Policy and Guidelines; Baseline data collection and Monitoring Manual; Ecological Matrix.
	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		Years 1-5	Fire Management Policy and Guidelines; Fire wise Implementation Guidelines

Budget Allocation	Development
	Operation (5 Year Forecast)
	R 488 553

INVASIVE AND NON-INVASIVE ALIEN SPECIES MANAGEMENT					
Objective 1 To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats.					
Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
Invasive Alien Flora					
Eradicate alien and invasive species within the DMNRC on an on-going basis.	Clear the reserve of all invasive alien plants and maintain that status.	Conservation Manager, Ecological Co-ordinator		Years 1-5	Ecological Plan of Operations, Ecological Matrix planning, ICM APO
Monitoring of alien vegetation on the DMNRC informs adaptive management strategies.	Monitor infestation on annual basis.	Conservation Manager, Regional Ecologist, Ecological Co-ordinator		Years 1-5	Alien Vegetation Management and Integrated Catchment Management Annual Plan of Operation.
Prevent the introduction of alien and invasive species from neighbouring landowners.	Ensure surrounding landowners are aware of relevant legislation. Bio control sites mapped and updated. Monitor success of bio control. Advise landowner on potential clearing and bio control sites	Conservation Manager, Regional Ecologist, Ecological Co-ordinator		Years 1-5	Working for Water and Department of Agriculture Landcare Guidelines
Invasive Alien Fauna					
Control alien and invasive species within the DMNRC on an on-going basis	Identify alien fauna occurring on the reserve. Investigate possible eradication programmes where appropriate (Mediterranean Mussel, Carp, Mallard Duck, etc.) Implement control measures where appropriate. Involve external stakeholders where necessary	Conservation Manager, Regional Ecologist, Ecological Co-ordinator, Scientific Services		Ongoing	CapeNature Policy on domestic animals on nature reserves CapeNature corporate alien fauna control programs

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 195 421

Table 6.7
CULTURAL HERITAGE RESOURCE MANAGEMENT

CULTURAL HERITAGE RESOURCE MANAGEMENT							
To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats. To protect the archaeological and cultural heritage on the reserve complex.							
Objective 1:	Objective 4:	Key Deliverable	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
To protect cultural heritage resources.		Cultural Heritage resources are managed to meet the protected area objectives.	Compile a cultural heritage resource inventory for the DMNRC. Establish and maintain a cultural heritage resource database and capture it on GIS.	Conservation Manager; Ecological Coordinator, GIS Technician	Inventory compiled and maintained. Cultural Heritage Resource Plan compiled and implemented.	Year 1	Ecological plan of Operations, Eco-matrix
		Collaboration with external partners, ensure the protection and preservation of cultural heritage resources.	Approach tertiary institution to source a student to compile a Cultural Heritage Resource Plan. Compile a Cultural Heritage Resource Management Plan for the DMNRC and determine management priorities. Implement the Cultural Heritage Resource Management Plan. Manage access control to cultural sites and maintain barriers.	Conservation Manager		Year 1-5	CapeNature's Research needs list
		Management interventions for cultural heritage resources.	External involvement. Promote external partners to provide expert advice on the protection of cultural resources.	Conservation Manager, Ecological Coordinator		Year 1-5	
			Actions to minimise impact at Waenhuiskrans Cave and Middens: <ul style="list-style-type: none"> • Build and maintain properly demarcated footpaths or boardwalks and close informal paths • Ensure signage is adequate and maintained. • Maintain and possibly re-align the demarcation (poles) to protect the middens • Implement fixed point photography at specific sights 	Conservation Manager		Year 1-5	

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 488 553

LAW ENFORCEMENT AND COMPLIANCE					
Objective 1	To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats.				
Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
Protection systems are in place and operating effectively.	<p>The following management mechanisms to control both illegal and legitimate access and use:</p> <p>Enforcing legislation related to illegal activities.</p> <p>Regular routine patrols are performed in identified priority areas.</p> <p>Monitor illegal fishing activities within the reserve.</p> <p>Set up and implement combined compliance operations (SAP, DAFF, Overberg Air force Base)</p> <p>Initiate regular meetings with all relevant parties in order to agree on and implement a strategic approach to eradicating illegal harvesting. Enlist the support of local CBOs and NGOs where possible and highlighting the issue through press releases as required.</p>	Conservation Manager, Conservation Services Manager		Year 1-5	Criminal Procedure Act 51 of 1977; Bill of Rights; Constitution

Budget Allocation	Development
	Operation (5 Year Forecast)
	R 1 465 659

INFRASTRUCTURE MANAGEMENT					
To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats.					
Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
Ensure maintenance of infrastructure and equipment.	Map all infrastructure and compile infrastructure register. The infrastructure necessary to manage the nature reserve effectively is in place and needs are listed in the U-AMP. Assess staff facilities adequacy 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. Equipment is maintained in good working condition. Liaise with Public Works where required.	Conservation Manager, Public Works, Technical Area Advisor, Manager	Maintenance of infrastructure and equipment is adequate given specific mitigation for operations in a coastal environment. Means of verifications: Infrastructure database Maintenance schedules	Ongoing	Infrastructure registers and Public Works Schedules U-Amp
Align all existing and new infrastructure to the conservation development framework and zonation.	Assess infrastructure development appropriateness to the CDF. Implement the infrastructure development plan when approved and adjust if necessary after the EIA process. Ensure EMP is in place.	Conservation Manager. Development project team	Infrastructure located in appropriate zones.	Two years	CDF; Infrastructure registers. Final inspection reports
Roads/Jeep Tracks and Trails are managed to minimise the impact on the environment.	Conduct an assessment on the DMNRC. Compile and implement a maintenance plan. Re-align trail network and align with the CDF. Rehabilitate where necessary. Monitor use and impact. Monitor cost of maintenance.	Conservation Manager, Ecological Coordinator	Updated infrastructure register. Maintenance of scheduled infrastructure works.	On-going	Infrastructure register and Public Works schedule
Buildings are effectively maintained.	Compile and maintain a building register. Provide Department of Public Works with works list to reflect maintenance requirements appropriate for the coastal environment. Minor maintenance with board operational budget is done as needed. Ensure energy saving and environmentally sound options are being implemented by Department of Public Works (Green	Conservation Manager,	Building register compiled and maintained. Well maintained buildings	On-going as per schedule	Infrastructure registers and Public Works Schedules

Table 6.9

Objective 1

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
	Building principals). Maintain thatched roofs bi-annually or as necessary.				
Maintain fences	Monitor fence line, repair where necessary and remove vegetation to prevent possible fire damage.	Conservation Manager.	Maintenance of fences according to register.	On-going	Infrastructure registers and Public Works Schedules
Environmental Management: Waste Disposal	Annual maintenance of storage bins to ensure upkeep and prevent pollution.	Conservation Manager, Tourism Officer	Updated Infrastructure Registers Maintenance of scheduled infrastructure works Awareness campaign implemented. Compliance with policy.	On-going	Infrastructure registers and Public Works Schedules
Environmental Management: Water	Maintenance of water works as scheduled in registers to ensure upkeep and prevent degradation. Investigate and implement measures to improve domestic water supply and quality. Schedule regular inspections. Install effective environmentally friendly sewage facilities.	Conservation Manager.	Water works maintained according to schedule.	Years 1-5	OHS Act, National Water Act
Environmental Management: Sewage		Conservation Manager.	Sewerage system is effective and not resulting in pollution. Health and Safety standards are met.	On-going	OHS Act, National Water Act
Environmental Management: Energy	Energy and water saving devices and cost effective habits.	Conservation Manager, Tourism Officer.	Appropriate technologies introduced in all new developments and where feasible in existing developments with reduced energy consumption resulting. Advocacy program to limit wastage	On-going	National Guidelines
Signage is appropriate and effective to support management.	Conduct a signage audit. Compile a signage register with maintenance plan.	Conservation Manager Tourism Officer.	Audit report and signage register.	Years 1, 3, 5	

Budget Allocation	Development
	Operation (5 Year Forecast)
	R 586 264

DISASTER MANAGEMENT					
Objective 1: To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats.					
Objective 4: To protect the archaeological and cultural heritage on the reserve complex.					
Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
Disaster prevention and preparedness	Conduct a risk assessment and identify areas of potential concern Compile and implement disaster management plan for DMNRC (Specifically focussed at Fires, flooding and oil spills). Engage and assist 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, Community Conservation Manager, Tourism Officer.	Communities, tourists and staff are aware and prepared for any likely disaster. Appropriate signage in place. Membership communication links with local municipalities in place. ICS training certificate. Oil spill contingency audits	Annually	Risk Management Policy; Fire management programme; Health and safety Act, Forest, Veld and Forest Fire Act; OHS Act; Bredasdorp Search and Rescue; Mountain Rescue; ICS systems; NSRI
Disaster response.	Train staff and NGOs to ensure capacity to manage and mitigate the effects of disasters. Compile an inventory of disaster response equipment available for disaster response and mitigation. Participate and assist district municipality disaster management structure. Activate evacuation and contingency plans.	Conservation Manager, Community Conservation Manager, Area Manager.		Annually	Bredasdorp Search and Rescue; Mountain Rescue; ICS systems; NSRI, Oil spill contingency plans

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 293 132

SOCIO-ECONOMIC FRAMEWORK						
To provide job and benefit sharing opportunities for communities and access where appropriate To instill conservation awareness through effective communication, partnerships, stakeholder engagement and environmental education						
Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures	
Create access to the conservation economy through the implementation and management of appropriate initiatives and projects.	Create jobs through a range of projects, such as: Clearing of invasive alien plants; maintenance of fire breaks; security guards at gate entrances and cleaning services, garden and other services. Complete monthly reporting as required.	Conservation 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)	Ongoing	Trade World; Procurement Procedures; Supply Chain Management Policy; WCNCB Outsourcing Policy 2004	
The DMNRC provides community development opportunities through various capacity building interventions, linked to job creation opportunities.	Training (ICM, Health and Safety, Services training for security guards, etc.).	Conservation Manager, Community Conservation Manager	Number of person days employment created (n).	Ongoing	Training and Development Policy	
Manage consumptive utilisation of biological resources.	Capture data to SOB database.	Conservation Manager		Ongoing	Marine Living Resources Act NEM: Biodiversity Act	
Access for spiritual or religious purposes is allowed and controlled.	Access to the DMNRC for spiritual, cultural and traditional purposes will be allowed subject to permit conditions and with prior approval.	Community Conservation Manager, Conservation Manager	Number of persons accessing CapeNature protected areas for cultural, traditional, spiritual, and sustainable harvesting activities (n).	Ongoing		
Ensure awareness raising initiatives elevate awareness of the DMNRC.	Compile information and material on DMNRC for dissemination and presentation on environmental and cultural calendar days. Collaborate with partners to arrange events on environmental awareness events and scheduled school activities. Facilitate production of media releases. Present talks, presentations when requested. Submit articles on the DMNRC to raise awareness.	Community Conservation Manager, Conservation Manager, Eco-coordinator, Conservation Services Manager	Number of learners provided with environmental education opportunities (n).	Ongoing	People and Conservation Action Plan, CapeNature Communication Policy Development of Educational Resources (Corporate Strategic Plan) Youth Development & Environmental Education Programme Strategic Plan	
Environmental education is provided to promote an understanding of biodiversity and the use of the natural environment as	Develop and implement an education and awareness plan linked to the objectives of DMNRC. Management will strive to raise the profile of World Heritage Site and Biosphere	Community Conservation Manager, Conservation Manager,		Ongoing	People and Conservation Action Plan, CapeNature Communication Policy	

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
a vehicle for learning and development.	Reserve through linked awareness and education programmes.	Conservation Services Manager			
Volunteers actively assist in the management of the DMNRC.	Involve volunteers where appropriate.	Conservation Manager, Community Conservation Manager.	Number of volunteer hours worked (n).	Ongoing	People and Conservation Action Plan

Budget Allocation	Development	Operation (5 Year Forecast)
		R 683 974

MANAGEMENT EFFECTIVENESS					
<p>Objective 1: To conserve and manage biodiversity and natural processes of the aquatic, terrestrial and marine environments within the DMNRC and expansion to include additional priority habitats.</p> <p>Objective 2: To provide job and benefit sharing opportunities for communities and access where appropriate.</p> <p>Objective 3: To instill conservation awareness through effective communication, partnerships, stakeholder engagement and environmental education</p> <p>Objective 4: To protect the archaeological and cultural heritage on the reserve complex.</p> <p>Objective 5: To provide sustainable visitor access and provide overnight accommodation for a limited number of guests within the existing tourism footprint.</p>					
Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
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.	Regional Ecologist, Ecological Coordinator, Conservation Manager, Area Manager, Programme Manager: Quality Management.	The DMNRC will annually indicate an upward trend in METT-SA score.	Annually	METT-SA
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.	Regional Ecologist, Ecological Coordinator, Conservation Manager, Area Manager, Programme Manager: Quality Management.		Every 2 nd year	Eco-audit process
A detailed work plan (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.	Regional Ecologist, Ecological Coordinator, Conservation Manager, Area Manager, Programme Manager: Quality Management.		Every 2 nd year	APO, PAMP
Progress reports are compiled.	Compile quarterly BMS progress reports. Progress reports as required. (List of relevant reports needed).	Conservation Manager, Area Manager, Programme Manager: Quality Management.		Quarterly	BMS
Implement and review the Management Plan for the DMNRC.	Assess all PAM audit results and ensure adaptive management strategies are implemented. Bi-annual assessment on progress of PAM actions. Compile annual report on the status of implementation of the PAMP and submit to the Provincial Minister.	Conservation Manager, Area Manager, Programme Manager: Quality Management.		Bi-annually	Eco-audit, PAMP

Budget Allocation	Development
	Operation (5 Year Forecast)
	R 390 842

FINANCE AND ADMINISTRATION MANAGEMENT					
To improve the reach and quality of biodiversity management.					
Objective 2	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
Key Deliverables					
To ensure financial accountability in terms of the PFMA and the Treasury Regulations.	Facilitate an annual internal audit of the nature reserve financial records. Internal audit report with findings and recommendations is tabled. 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. Cash flow management Supply Chain Management 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.	Financial Manager, Conservation Manager	Percentage increase shown on revenue as a result of additional funding sourced. Annual increase in visitor numbers.		Budgeting process; APO, SAP system; Supply Chain Management Act. Statements of GRAP.
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, Planning & Financial sections Marketing and Eco-tourism Foundation Management		Annually	National Treasury Regulations with regard to Donations, Sponsorships.
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	Conservation Manager Financial Management section		Bi-annually / monthly	SOP's and policies. Statement of GRAP, UAMP guidelines.

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
Capacity Building among staff.	<p>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 reserve management. 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. Provide relevant financial and Administrative training to reserve staff.</p>	Conservation Manager Financial Management section		Annually	SOP's and policies PFMA

Budget Allocation	Development	Operation (5Year Forecast)
		R 586 264

Table 6.13.2

HUMAN RESOURCE MANAGEMENT

To improve the reach and quality of biodiversity management.

Objective 2

Key Deliverables

	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
Ensure an adequately resourced staff complement on the reserve.	<p>Ensure current posts are filled and appointment of additional staff (subject to funding).</p> <p>Ensure resourced (tools and skills) staff in line with approved budget to manage the nature reserve effectively (subject to funding).</p> <p>Prioritise all critical posts for filling and develop a phased implementation plan in line with approved personnel budget.</p> <p>Ensure on-going assessment of workloads (volumetric analysis) through interventions in consultation with the Organisational Development Unit of the Department of the Premier.</p> <p>Employment relationship is in line with employment contract commitments.</p> <p>Implement an Employment Well-being Programme</p>	<p>Conservation Manager, Area Manager, Executive Directors: Conservation Management and HR</p>	<p>Human resource capacity is adequate to manage the protected area effectively subject to funding</p>	<p>On-going</p>	<p>Recruitment and Selection Policy; Standard Operating Procedures for Recruitment and Selection</p> <p>SA Constitution</p> <p>Labour Relations Act</p> <p>Basic Conditions of Employment Act</p> <p>Occupational Health & Safety Act</p> <p>Overtime Policy</p> <p>Equitate System for Job Evaluation</p> <p>Leave Policy</p>
Integrate and align organisational and employee performance.	<p>There is an effective Performance Management System in place.</p> <p>Ensure compliance with Code of Conduct.</p>	<p>Line Manager; Conservation Manager; Area Manager; Executive Director Conservation Management, HR and CEO</p>	<p>Performance agreements completed and signed for all employees.</p> <p>Performance appraisals completed for all employees.</p>	<p>Annually</p>	<p>Performance Management Handbook</p> <p>Annual Plan of Operations</p> <p>Rewards Foundation Policy</p> <p>Disciplinary Code and Procedures</p> <p>(Managing poor performance)</p> <p>Code of Conduct</p>
Skilled employees on the reserve	<p>All staff are skilled to perform according to job specification in the roles they occupy in line with mandatory legislative requirements.</p> <p>Develop personal development plan for all staff on the reserve (swimming competency).</p> <p>Roll out of personal development plan for all staff on the reserve.</p> <p>Reflect capacity development interventions which are supported by mentorship and coaching agreements.</p>	<p>Conservation Manager; HR and Employment Equity Training Committees</p>	<p>Develop personal development plan for all staff on the reserve.</p> <p>Mentorship and coaching agreements.</p> <p>Implement Skills Plan according to priorities and budget availability</p>	<p>Annually</p>	<p>Individual PDPs</p> <p>Mentorship strategy and toolbox</p> <p>Skills Development Act</p> <p>Training Policy</p> <p>Bursary Policy</p> <p>Internship Policy</p> <p>Human Capital Development strategy</p>

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
	Conduct annual Skills audit.				

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 293 132

Table 6.13.3

OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

To improve the reach and quality of biodiversity management.

Objective 2

Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
To implement policies, procedures and systems to ensure compliance to the Occupational Health and Safety Act. (OS4909H Act).	Implement Occupational Health and Safety System.	Conservation Manager, OHS manager	No disabling injuries occur.	Year 1-5	OHS Act, Internal Health and Safety System
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) certificates (OHS Reqs & First Aid Officers). Attend in-house OHS Training Workshops. Provide monthly Toolbox Talks.	Conservation Manager, OHS Reqs, operators of equipment and machinery. First Aid Officers; Designated OHS risk specific appointments, OHS Officer OHS Manager		Year 1 on-going	OHS Training Needs Analysis (conducted annually and aligned with available legislative requirements and available resources)
Hazard Identification, Risk Assessment and Risk Management and Risk Control are implemented on the DIMNRC.	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.	Conservation Manager Reserve staff OHS Officer		Year 1 on-going	HIRA Report Safe Operating Procedure
Monitor and review to ensure adaptive management strategies are applied to improve health and safety on the DIMNRC.	Assist in conducting of Internal Audit Process to determine effectiveness and level of compliance of implementation of OHS Management Control System. Implement regular self-audits	Conservation Manager, OHS Officer, OHS Manager		Year 1	Worksite Audit Report

Budget Allocation	Development
	Operation (5 Year Forecast)
	R 488 553

RISK MANAGEMENT						
To improve the reach and quality of biodiversity management.						
Objective 2	Key Deliverables	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
	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.	Conservation Manager Chief Risk Officer	Risks in the Risk Register mitigated in a cost effective manner and to an acceptable level.	Year 1-5	PFMA Section 38. Risk Management Policy and Strategy.

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 97 711

Table 6.14

VISITOR MANAGEMENT AND SERVICES						
To provide appropriate opportunities and facilities for recreation.						
Objective 3	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures	
Key Deliverables						
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. Survey visitor opinions. Ensure tourism facilities are accessible for disabled persons. Consult with stakeholders on the best way to manage roads access in Waenhuiskrans NR in order to minimise impact on the environment and to comply with relevant legislation. Investigate the possibility of implementing the Waenhuiskrans tourism plan to allow free walk in access and control vehicle access. Investigate funding for a gate house interpretation centre with concessions such as curios, take away etc.	Conservation Manager, Tourism officer	Annual increase in visitor numbers. Annual increase in tourism income.	Ongoing	Tourism Plan	
To strive to ensure visitor safety.	Provide a gate guarding service during reserve open hours. Establish collaborative relationships with policing authorities. Gate Entrances to be protected against armed robberies and (install drop safe). Liaise with local authorities and stakeholders on security issues.	Conservation Manager, Tourism officer		Ongoing	Tourism plan, OHSA	
To promote and manage access to the reserve.	Set management guidelines for different use zones. 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.	Conservation Manager, Tourism officer		1-5 Years	Tourism plan.	

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 977 106



TOURISM DEVELOPMENT FRAMEWORK					
To provide job and benefit sharing opportunities for communities and access where appropriate To provide appropriate opportunities and facilities for recreation.					
Action plans	Management/Monitoring Activities	Responsibility	Indicators	Timeframe	Reference to Existing Procedures
<p>To provide nature and cultural tourism and recreational opportunities within the reserve without affecting the ecological processes negatively.</p>	<p>Establish and implement concessionaire process. Prioritise different types of tourism development within the reserve. Monitor concessionaire compliance with national and international standards. Develop accommodation and other visitor facilities as per development plan and strategy</p>	<p>Conservation Manager and Standards Committee Reserve Management and Concessionaires Tourism section</p>	<p>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). Standards Committee established for monitoring tourist facilities within the reserve Development priorities in place and implemented in the correct Zones within the reserve Recommendations within these plans implemented</p>	<p>Year 1 on-going</p>	<p>Reserve Zonation Development framework. EIA ROD's</p>
<p>Promote Community-Based Tourism and SMIME initiatives in and around the reserve</p>	<p>Facilitate private / community sector involvement in the planning, design, financing and / or running of tourist facilities.</p>	<p>Conservation Manager and Private/Community Sector</p>	<p>Concessionaire compliance audited Successful operation (stable tourist flow and financial success) of SMMEs and community-based tourist facilities</p>		
<p>Ensure tourism contributes to conservation on the reserve</p>	<p>Monitor Tourist use and interest within the reserve, including negative impacts, adapt where necessary. Establish a Financial Management System for the reserve. Ensure proper control of the reserve's assets. Identify the potential for negative consequences and their adverse effects on tourism (Risk assessment).</p>	<p>Conservation Manager</p>	<p>Tourist Use Monitoring Programme in place Management systems (financial, risk and asset register) are in place and implemented</p>	<p>By year 3</p>	

Budget Allocation	Development	
	Operation (5 Year Forecast)	R 195 421

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8) DEFINITION OF TERMS

Alien species	Species or genotypes, which are not indigenous to Ntsikeni 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 (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 services	As defined in Section 1 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) as "environmental goods and services"

	<p>meaning:</p> <ol style="list-style-type: none"> 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;” <p>For the purposes of this IMP, sustainable water production is also specifically included under this definition.</p>
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 – <ol style="list-style-type: none"> 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. <p>(As per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).</p>
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 Game Reserve management / EKZNW and a third party that supports the achievement of the Game Reserve management objectives.
Protected areas	<ul style="list-style-type: none"> • 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).
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).

APPENDIXES: DE MOND NATURE RESERVE MANANAGEMENT PLAN

APPENDIX 1:

Mammals.

TERRESTRIAL
MAMMALS

Family	TaxonName	Verification for Listing (SoBD = CapeNature State of Biodiversity Database)	Common name (as per Skinner & Chimimba, 2005)	IUCN	SA Red Data Book	Western Cape SOBR 2012 Threat Status	Endemicity
<i>Bathyergidae</i>	<i>Bathyergus suillus</i>	Specimen record SoBD	Cape dune mole rat	Least Concern	Least Concern	LC	WC
<i>Bathyergidae</i>	<i>Georychus capensis</i>	Observation record SoBD	Cape mole rat	Least Concern	Least Concern	LC	Near, WC/ EC, isolated populations elsewhere.
<i>Bovidae</i>	<i>Pelea capreolus</i>	Observation record SoBD	Grey rhebok	Least Concern	Least Concern	LC	SA
<i>Bovidae</i>	<i>Raphicerus campestris</i>	Observation record SoBD	Steenbok	Least Concern	Least Concern	LC	
<i>Bovidae</i>	<i>Raphicerus melanotis</i>	Observation record SoBD	Cape grysbok	Least Concern	Least Concern	LC	Near, CFK
<i>Bovidae</i>	<i>Syvicapra grimmia</i>	Specimen record SoBD (Hess)	Common duiker	Least Concern	Least Concern	LC	
<i>Bovidae</i>	<i>Tragelaphus strepsiceros</i>	Observation record SoBD	Kudu	Least Concern	Least Concern	LC	
<i>Canidae</i>	<i>Canis mesomelas</i>	Within natural distribution range	Black-backed jackal	Least Concern	Least Concern	LC	
<i>Canidae</i>	<i>Vulpes chama</i>	Specimen record SoBD (Kilpin)	Cape fox	Least Concern	Least Concern	LC	
<i>Cercopithecidae</i>	<i>Papio ursinus ursinus</i>	Observation record SoBD	Chacma baboon	Least Concern	Least Concern	LC	

Chnysochloridae	<i>Chrysochloris asiatica</i>	Within natural range	distribution	Cape golden mole	Least Concern	Data Deficient	DD	Near, NC	WC,
<i>Felidae</i>	<i>Caracal caracal</i>	Specimen record	SoBD (Nel)	Caracal	Least Concern	Least Concern	LC		
<i>Felidae</i>	<i>Felis silvestris</i>	Within natural range	distribution	African Wild Cat	Least Concern	Least Concern	LC		
<i>Felidae</i>	<i>Panthera pardus</i>	Within natural range	distribution	Leopard	Near Threatened	Least Concern	LC		
<i>Herpestidae</i>	<i>Atilax paludinosus</i>	Observation record	SoBD	Marsh mongoose	Least Concern	Least Concern	LC		
<i>Herpestidae</i>	<i>Cynictis penicillata</i>	Within natural range	distribution	Yellow mongoose	Least Concern	Least Concern	LC		
<i>Herpestidae</i>	<i>Galerella pulverulenta</i>	Observation record	SoBD	Cape grey mongoose	Least Concern	Least Concern	LC	SA	
<i>Herpestidae</i>	<i>Galerella pulverulenta</i>	Observation record	SoBD	Large grey mongoose	Least Concern	Least Concern	LC		
<i>Hystricidae</i>	<i>Herpestes ichneuemon</i>	Observation record	SoBD	Porcupine	Least Concern	Least Concern	LC		
<i>Hystricidae</i>	<i>Hystrix africaeaustralis</i>	Observation record	SoBD	Cape hare	Least Concern	Least Concern	LC		
<i>Leporidae</i>	<i>Lepus capensis</i>	Observation record	SoBD	Scrub hare	Least Concern	Least Concern	LC		
<i>Leporidae</i>	<i>Lepus saxatilis</i>	Within natural range	distribution	Cape water rat	Not Evaluated	Not Evaluated	NE	WC	
<i>Muridae</i>	<i>Dasymys capensis</i>	Within natural range	distribution	Grey climbing mouse	Least Concern	Least Concern	LC		
<i>Muridae</i>	<i>Dendromys melanotis</i>	Within natural range	distribution	Brants' climbing mouse	Least Concern	Least Concern	LC		
<i>Muridae</i>	<i>Dendromys mesomelas</i>	Within natural range	distribution	Pygmy mouse	Least Concern	Least Concern	LC		
<i>Muridae</i>	<i>Mus minutoides</i>	Within natural range	distribution	Verreaux's mouse	Not Evaluated	Least Concern	LC	Near, CFK	
<i>Muridae</i>	<i>Myomyscus verreauxii</i>	Specimen record	SoBD	Vlei rat	Least Concern	Least Concern	LC		
<i>Muridae</i>	<i>Otomys irroratus</i>	Specimen record	SoBD	Striped mouse	Least Concern	Least Concern	LC		
<i>Muridae</i>	<i>Rhabdomys pumilio</i>	Specimen record	SoBD	Krebs' fat mouse	Least Concern	Least Concern	LC		
<i>Muridae</i>	<i>Rhabdomys pumilio</i>	Within natural range	distribution	Cape gerbil	Least Concern	Least Concern	LC	WC	
<i>Muridae</i>	<i>Steatomys krebsii</i>	Within natural range	distribution						
<i>Muridae</i>	<i>Steatomys krebsii</i>	Specimen record	SoBD						
<i>Muridae</i>	<i>Tatera afra</i>	Specimen record	SoBD						

<i>Mustelidae</i>	<i>Aonyx capensis</i>	Observation record SoBD	African clawless otter	Least Concern	Least Concern	LC
<i>Mustelidae</i>	<i>Ictonyx striatus</i>	Observation record SoBD	Striped polecat	Least Concern	Least Concern	LC
<i>Mustelidae</i>	<i>Mellivora capensis</i>	Observation record SoBD	Honey badger	Least Concern	Near Threatened	NT
<i>Mustelidae</i>	<i>Poecilogale albinucha</i>	Possible range extension Within natural distribution	African striped weasel	Least Concern	Data Deficient	DD
<i>Procyonidae</i>	<i>Procyon capensis</i>	Within natural distribution	Rock dassie	Least Concern	Least Concern	LC
<i>Soricidae</i>	<i>Crocidura cyanea</i>	Within natural distribution	Reddish-grey musk shrew	Least Concern	Data Deficient	DD
<i>Soricidae</i>	<i>Crocidura flavescens</i>	Within natural distribution	Greater red musk shrew	Least Concern	Data Deficient	DD
<i>Soricidae</i>	<i>Myosorex varius</i>	Within natural distribution	Forest shrew	Least Concern	Data Deficient	
<i>Soricidae</i>	<i>Suncus varilla</i>	Observation record SoBD (Struisbaai)	Lesser dwarf shrew	Least Concern	Data Deficient	DD
<i>Viverridae</i>	<i>Genetta genetta felina</i>	Within natural distribution	Small-spotted genet	Least Concern	Least Concern	LC
<i>Viverridae</i>	<i>Genetta tigrina tigrina</i>	Within natural distribution	South African large-spotted genet	Least Concern	Least Concern	LC
CHIROPTERA						
- BATS		41				
Family	TaxonName	Verification for Listing (SoBD = CapeNature State of Biodiversity Database)	Common name (as per Skinner & Chimimba, 2005)	IUCN	SA Red Data Book	Western Cape SOBR 2012 Threat Status Endemicity
<i>Molossidae</i>	<i>Tadarida aegyptiaca</i>	Within natural distribution	Egyptian free-tailed bat	Least Concern	Least Concern	LC
<i>Nycteridae</i>	<i>Nycteris thebaica</i>	Within natural distribution	Egyptian slit-faced bat	Least Concern	Least Concern	LC
<i>Pteropodidae</i>	<i>Rousettus aegyptiacus</i>	Within natural distribution	Egyptian fruit bat	Least Concern	Least Concern	LC
<i>Rhinolophidae</i>	<i>Rhinolophus capensis</i>	Within natural distribution	Cape horseshoe bat	Least Concern	Near Threatened	NT

<i>Rhinolophidae</i>	<i>Rhinolophus clivosus</i>	Observation record (Soetendalsvlei)	Geoffroy's horseshoe bat	Least Concern	Near Threatened	NT
<i>Vespertilionidae</i>	<i>Eptesicus hottentotus</i>	Within natural range	Long-tailed serotine bat	Least Concern	Least Concern	LC
<i>Vespertilionidae</i>	<i>Miniopterus schreibersii</i>	Within natural range	Schreiber's long-fingered bat	Near Threatened	Near Threatened	NT
<i>Vespertilionidae</i>	<i>Myotis tricolor</i>	Within natural range	Temminck's hairy bat	Least Concern	Near Threatened	NT
<i>Vespertilionidae</i>	<i>Neoromicia capensis</i>	Within natural range	Cape serotine bat	Least Concern	Least Concern	LC
CETACEANS - WHALES and DOLPHINS						
Family	TaxonName	Verification for Listing (SoBD = CapeNature State of Biodiversity Database)	Common name (as per Skinner & Chimimba, 2005)	IUCN	SA Red Data Book	Western Cape SOBR 2012 Threat Status
<i>Balaenidae</i>	<i>Eubalaena australis</i>	within natural range, coastal - inshore winter concentrations	Southern right whale	Least Concern	Least Concern	LC
<i>Balaenopteridae</i>	<i>Balaenoptera edeni</i>	within natural range, coastal - inshore concentrations along the southern- and south-western Cape	Bryde's whale	Data Deficient	Vulnerable (D1)	VU
<i>Delphinidae</i>	<i>Delphinus capensis</i>	within natural range, coastal - inshore along coast of South Africa	Long-beaked common dolphin	Data Deficient	Least Concern	LC
<i>Delphinidae</i>	<i>Delphinus delphis</i>	within natural range, infrequent observations	Short-beaked common dolphin	Least Concern	Least Concern	LC

<i>Delphinidae</i>	<i>Feresa attenuata</i>	within natural distribution range, rare and infrequent oceanic observations	Pygmy killer whale	Data Deficient	Data Deficient	DD
<i>Delphinidae</i>	<i>Globicephala melas edwardii</i>	within natural distribution range, oceanic (upper continental slope, shelf edge and pelagic waters) observations	Southern long-finned pilot whale	Data Deficient	Least Concern	LC
<i>Delphinidae</i>	<i>Grampus griseus</i>	within natural distribution range, oceanic (upper continental slope, shelf edge and pelagic waters) observations	Risso's dolphin	Least Concern	Data Deficient	DD
<i>Delphinidae</i>	<i>Orcinus orca</i>	within natural distribution range, rare coastal observations	Killer whale	Data Deficient	Data Deficient	DD
<i>Delphinidae</i>	<i>Pseudorca crassidens</i>	within natural distribution range, rare and infrequent oceanic observations, numerous stranding along SA coast	False killer whale	Data Deficient	Least Concern	LC
<i>Delphinidae</i>	<i>Sousa chinensis</i>	within natural distribution range, coastal - inshore along south- and east coast of South Africa	Indo-pacific hump-backed dolphin	Near Threatened	Vulnerable (B1ab(ii,iii))	VU
<i>Delphinidae</i>	<i>Stenella coeruleoalba</i>	within natural distribution range, infrequent oceanic observations	Striped dolphin	Least Concern	Least Concern	LC
<i>Delphinidae</i>	<i>Tursiops aduncus</i>	within natural distribution range, coastal - inshore along south- and east coast of South Africa	Indian Ocean bottlenosed dolphin	Data Deficient	Vulnerable (B2ab(ii,iii,v)C2a(ii))	VU
<i>Delphinidae</i>	<i>Tursiops truncatus</i>	within natural distribution range, infrequent oceanic observations	Atlantic Ocean bottlenosed dolphin	Least Concern	Data Deficient	DD

<i>Kogia breviceps</i>	within natural distribution range, rare and infrequent oceanic observations	Pygmy sperm whale	Data Deficient	Least Concern	LC
<i>Caperea marginata</i>	within natural distribution range, infrequent oceanic observations	Pygmy right whale	Data Deficient	Least Concern	LC
<i>Megaptera novaeangliae</i>	within natural distribution range, infrequent coastal and oceanic observations	Humpback whale	Least Concern	Near Threatened	NT
<i>Physeter macrocephalus</i>	within natural distribution range, infrequent oceanic observations	Sperm whale	Vulnerable (A1d)	Vulnerable (A2bd)	VU
<i>Berardius arnuxii</i>	within natural distribution range, infrequent oceanic observations	Arnoux's beaked whale	Data Deficient	Data Deficient	DD
<i>Hyperoodon planifrons</i>	within natural distribution range, infrequent oceanic observations	Southern bottlenose whale	Least Concern	Least Concern	LC
<i>Ziphius cavirostris</i>	within natural distribution range, rare and infrequent oceanic observations	Cuvier's beaked whale	Least Concern	Data Deficient	DD
SEALS					
Family	TaxonName	Common name (as per Skinner & Chimimba, 2005)	IUCN	SA Red Data Book	Western Cape SOBR 2012 Threat Status Endemicity
Otaridae	<i>Arctocephalus pusillus</i>	Cape fur seal	Least Concern	Least Concern	LC
Phocidae	<i>Mirounga leonina</i>	Southern elephant seal	Least Concern	Endangered (A2b)	EN

TERRESTRIAL MAMMALS - WITHIN HISTORICAL DISTRIBUTION RANGE (~ recent 500 years)

Family	TaxonName	Verification for Listing (SoBD = CapeNature State of Biodiversity Database)	Common name (as per Skinner & Chimimba, 2005)	IUCN	SA Red Data Book	Western Cape SOBR 2012 Threat Status	Endemicity
Bovidae	<i>Alcelaphus buselaphus</i>	Within historical distribution range	Red hartebeest	Least Concern	Least Concern	LC	
Bovidae	<i>Damaliscus pygargus</i>	Within historical distribution range	Bontebok	Near Threatened	Vulnerable (D1)	VU	WC
Bovidae	<i>Syncerus caffer caffer</i>	Within historical distribution range	African buffalo	Least Concern	Least Concern	LC	
Bovidae	<i>Tragelaphus oryx oyx</i>	Within historical distribution range	Eland	Least Concern	Least Concern	LC	
Felidae	<i>Leptailurus serval serval</i>	Within historical distribution range	Serval	Least Concern	Near Threatened	NT	
Hippopotamidae	<i>Hippopotamus amphibius capensis</i>	Within historical distribution range	Hippopotamus	Vulnerable (A4cd)	Least Concern	LC	
Hyaenidae	<i>Parahyaena brunnea</i>	Within historical distribution range	Brown hyaena	Near Threatened	Near Threatened	NT	
Hyaenidae	<i>Proteles cristatus</i>	Within historical distribution range	Aardwolf	Least Concern	Least Concern	LC	
Muridae	<i>Mystromys albicaudatus</i>	Within historical distribution range	White-tailed mouse	Endangered (A3c)	Endangered (A3c)	EN	SA

References which were cited regarding the compilation of the mammal lists.

Best, P.B. 2007.; Birss, C. & Palmer, N.G. 2012; Friedmann, Y. & Daly, B. (eds.) 2004; IUCN 2011; IUCN 2001; Monadjem, A. et al, 2010; Mucina, L. & Rutherford, M.C. (eds.) 2006; Picker, M. & Griffiths, C. 2011; Skead, C.J. 2011; Stuart, C. & Stuart, T. 2007; Ruggiero, M. et al 2012; Skinner, J.D. & Chimimba, C.T. (revisers) 2005; Van Cakenberghe, V. & Seemark, E.C.J. (eds.) 2011.

APPENDIX 2:

Fish Species recorded from Soetendalsvlei from several surveys between 1938 and 1980 (from CSIR 1984)

Freshwater fishes

Cape kurper	<i>Sandelia capensis</i>	indigenous
Bluegill sunfish	<i>Lepomis macrochirus</i>	alien
Carp	<i>Cyprinus carpio</i>	alien
Largemouth bass	<i>Micropterus salmoides</i>	alien
Spotted bass	<i>M. punctulatus</i>	alien

Estuarine / Marine fishes

Estuarine round herring	<i>Gilchristella aestuaria</i>
Cape moony	<i>Monodactylus falciformis</i>
Flathead mullet	<i>Mugil cephalus</i>
Southern mullet	<i>Liza richarsoni</i>
White steenbras	<i>Lithognathus lithognathus</i>

APPENDIX 3:

Comparison of two fish surveys undertaken by CapeNature personnel in 1968 and 2005 in Soetendalsvlei. From the catch records it appears that bass numbers may be decreasing in the vlei (Table adapted from Cleaver 2005).

Species	Common Name	1968	2005
<i>Mugil cephalus</i>	Flathead Mullet	319	81
<i>Myxus capensis</i>	Freshwater Mullet	0	11
<i>Monodactylus argenteus</i>	Round Moony	0	6
<i>Monodactylus falciformis</i>	Cape Moony	19	46
<i>Micropterus punctulatus</i>	Spotted Bass	15	5
<i>Cyprinus carpio</i>	Carp	4	20
<i>Micropterus salmoides</i>	Largemouth Bass	5	0
<i>Lepomis macrochirus</i>	Bluegill Sunfish	1	0
<i>Lithognathus lithognathus</i>	White Steenbras	7	0

APPENDIX 4:

List of all fish species recorded in the Heuningnes Estuary and tributaries. The species are classified into five major categories of estuarine-dependence as suggested by Whitfield (1994) (information provided by Dr S Lamberth).

Family name	Species name	Common name	Dependence category	Comments
Osteichthyes				
Anabantidae	<i>Sandelia capensis</i>	Cape kurper	IV	
Anguillidae	<i>Anguilla mossambica</i>	Longfin eel	Va	
	<i>Anguilla bengalensis</i>	African mottled eel	Va	
	<i>Anguilla marmorata</i>	Madagascar mottled eel	Va	
Ariidae	<i>Galeichthyes feliceps</i>	Barbel	I Ib	
Atherinidae	<i>Atherina breviceps</i>	Cape silverside	Ib	
Blenniidae	<i>Omobranchus banditus</i>	Bandit blenny	III	
	<i>Omobranchus woodi</i>	Kappie blenny	Ia	
Carangidae	<i>Lichia amia</i>	Leervis	IIa	Optimally exploited
	<i>Seriola lalandi</i>	Yellowtail	III	Optimally exploited
Centrarchidae	<i>Micropterus dolomieu</i>	Smallmouth bass	IV	Alien introduction
	<i>Micropterus salmoides</i>	Largemouth bass	IV	Alien introduction
Clinidae	<i>Clinus superciliosus</i>	Super klipvis	Ib	
Clupeidae	<i>Gilchristella aestuaria</i>	Estuarine round herring	Ia	
	<i>Sardinops sagax</i>	Pilchard	III	
Cyprinidae	<i>Cyprinus carpio</i>	Carp	IV	Alien species
	<i>Pseudobarbus burchelli</i>	Burchell's redfin	IV	Endangered
Engraulidae	<i>Engraulis capensis</i>	Cape anchovy	III	
Elopidae	<i>Elops machnata</i>	Ladyfish / springer	IIa	Optimally exploited
Gobiidae	<i>Caffrogobius multifasciatus</i>	Prison goby	Ib	
	<i>Caffrogobius natalensis</i>	Baldy	Ib	
	<i>Caffrogobius nudiceps</i>	Barehead goby	Ib	
	<i>Psammogobius knysnaensis</i>	Knysna sandgoby	Ib	
Haemulidae	<i>Pomadasys commersonii</i>	Spotted grunter	IIa	Overexploited
	<i>Pomadasys olivaceum</i>	Piggy	III	
Hemiramphidae	<i>Hemiramphus far</i>	Spotted halfbeak	IIc	
	<i>Hyporhamphus capensis</i>	Cape halfbeak	Ia	Vulnerable
Monodactylidae	<i>Monodactylus argenteus</i>	Natal moony	I Ib	
	<i>Monodactylus falciformis</i>	Cape moony	IIa	
Mugilidae	<i>Liza dumerilii</i>	Groovy mullet	I Ib	
	<i>Liza macrolepis</i>	Largescale mullet	IIa	Verification needed
	<i>Liza richardsonii</i>	Harder	IIc	Overexploited

	<i>Liza tricuspidens</i>	Striped mullet	IIb	
	<i>Mugil cephalus</i>	Flathead mullet	IIa	
	<i>Myxus capensis</i>	Freshwater mullet	Vb	Vulnerable
	<i>Valamugil buchanani</i>	Bluetail mullet	IIc	Verification needed
Ophichthidae	<i>Ophisurus serpens</i>	Sand snake-eel	III	
Pomatomidae	<i>Pomatomus saltatrix</i>	Elf	IIc	Overexploited
Sciaenidae	<i>Argyrosomus japonicus</i>	Dusky kob	IIa	Collapsed
Soleidae	<i>Heteromycteris capensis</i>	Cape sole	IIb	
	<i>Solea bleekeri</i>	Blackhand sole	IIb	
Sparidae	<i>Diplodus cervinus</i>	Wildeperd	III	Overexploited
	<i>Diplodus sargus</i>	Dassie	IIc	Overexploited
	<i>Lithognathus lithognathus</i>	White steenbras	IIa	Collapsed
	<i>Lithognathus mormyrus</i>	Sand steenbras	III	
	<i>Rhabdosargus globiceps</i>	White stumpnose	IIc	Overexploited
	<i>Rhabdosargus holubi</i>	Cape Stumpnose	IIa	Optimally exploited
	<i>Sarpa salpa</i>	Strepie	IIc	Optimally exploited
	<i>Sparodon durbanensis</i>	White musselcracker	III	Overexploited
	<i>Spondyliosoma emarginatum</i>	Steentjie	III	Optimally exploited
Syngnathidae	<i>Syngnathus acus</i>	Pipefish	Ib	Vulnerable
Tetraodontidae	<i>Amblyrhynchotes honckenii</i>	Blaasop	III	
	<i>Pelagocephalus marki</i>	Rippled blaasop	III	
Triglidae	<i>Chelidonichthys capensis</i>	Cape gurnard	III	
Chondrichthyes				
Dasyatidae	<i>Dasyatis chrysonota</i>	Blue stingray	III	
	<i>Gymnura natalensis</i>	Butterfly ray	III	
Myliobatidae	<i>Myliobatis aquila</i>	Bullray	III	
	<i>Pteromylaeus bovinus</i>	Duckbill ray	III	
Rhinobatidae	<i>Rhinobatos annulatus</i>	Lesser guitarfish	III	
Triakidae	<i>Mustelus mustelus</i>	Smooth houndshark	III	Overexploited

APPENDIX 5:

List of bird species recorded on De Mond Nature Reserve complex. Information obtained from reserve records, Birds in Reserves Project and the South African Bird Atlas Project (Compiled by Kevin Shaw, 2013).

English Name	Scientific name
African Penguin	<i>Spheniscus demersus</i>
Bank Cormorant	<i>Phalacrocorax neglectus</i>
Caspian Tern	<i>Sterna caspia</i>
Great White Pelican	<i>Pelecanus onocrotalus</i>
Greater Flamingo	<i>Phoenicopterus ruber</i>
African Marsh-Harrier	<i>Circus ranivorus</i>
Damara Tern	<i>Sterna balaenarum</i>
African Black Oystercatcher	<i>Haematopus moquini</i>
Cape Cormorant	<i>Phalacrocorax capensis</i>
Crowned Cormorant	<i>Phalacrocorax coronatus</i>
Eurasian Curlew	<i>Numenius arquata</i>
Denham's Bustard	<i>Neotis denhami</i>
Martial Eagle	<i>Polemaetus bellicosus</i>
African Grass-Owl	<i>Tyto capensis</i>
Black Harrier	<i>Circus maurus</i>
Blue Crane	<i>Anthropoides paradiseus</i>
Cape Gannet	<i>Morus capensis</i>
Cape Vulture	<i>Gyps coprotheres</i>
Acacia Pied Barbet	<i>Tricholaema leucomelas</i>
African Darter	<i>Anhinga rufa</i>
African Fish-Eagle	<i>Haliaeetus vocifer</i>
African Hoopoe	<i>Upupa africana</i>
African Olive-Pigeon	<i>Columba arquatrix</i>
African Paradise-Flycatcher	<i>Terpsiphone viridis</i>
African Pipit	<i>Anthus cinnamomeus</i>
African Sacred Ibis	<i>Threskiornis aethiopicus</i>
African Spoonbill	<i>Platalea alba</i>
African Stonechat	<i>Saxicola torquatus</i>
Alpine Swift	<i>Tachymarptis melba</i>
Arctic Tern	<i>Sterna paradisaea</i>
Banded Martin	<i>Riparia cincta</i>
Barn Owl	<i>Tyto alba</i>
Barn Swallow	<i>Hirundo rustica</i>
Bar-tailed Godwit	<i>Limosa lapponica</i>
Bar-throated Apalis	<i>Apalis thoracica</i>
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>
Black-headed Heron	<i>Ardea melanocephala</i>
Black-shouldered Kite	<i>Elanus caeruleus</i>
Blacksmith Lapwing	<i>Vanellus armatus</i>
Bokmakierie	<i>Telophorus zeylonus</i>
Booted Eagle	<i>Aquila pennatus</i>
Brimstone Canary	<i>Crithagra sulphuratus</i>
Brown-throated Martin	<i>Riparia paludicola</i>
Cape Batis	<i>Batis capensis</i>
Cape Bulbul	<i>Pycnonotus capensis</i>
Cape Bunting	<i>Emberiza capensis</i>
Cape Canary	<i>Serinus canicollis</i>
Cape Crow	<i>Corvus capensis</i>
Cape Grassbird	<i>Sphenoeacus afer</i>

Cape Longclaw
Cape Robin-Chat
Cape Sparrow
Cape Spurfowl
Cape Sugarbird
Cape Teal
Cape Turtle-Dove
Cape Wagtail
Cape Weaver
Cape White-eye
Capped Wheatear
Cardinal Woodpecker
Common Fiscal
Common Greenshank
Common House-Martin
Common Quail
Common Ringed Plover
Common Sandpiper
Common Starling
Common Tern
Common Waxbill
Common Whimbrel
Crowned Lapwing
Curlew Sandpiper
Diderick Cuckoo
Egyptian Goose
Eurasian Oystercatcher
Fiery-necked Nightjar
Fiscal Flycatcher
Fork-tailed Drongo
Giant Kingfisher
Great Crested Grebe
Greater Double-collared Sunbird
Greater Sand Plover
Greater Striped Swallow
Grey Heron
Grey Plover
Grey-backed Cisticola
Grey-headed Gull
Grey-winged Francolin
Hadedda Ibis
Hartlaub's Gull
Helmeted Guineafowl
House Sparrow
Jackal Buzzard
Karoo Prinia
Karoo Scrub-Robin
Kelp Gull
Kittlitz's Plover
Klaas's Cuckoo
Lanner Falcon
Laughing Dove
Lesser Sand Plover
Lesser Swamp-Warbler
Levaillant's Cisticola
Little Egret
Little Stint

Macronyx capensis
Cossypha caffra
Passer melanurus
Pternistis capensis
Promerops cafer
Anas capensis
Streptopelia capicola
Motacilla capensis
Ploceus capensis
Zosterops virens
Oenanthe pileata
Dendropicos fuscescens
Lanius collaris
Tringa nebularia
Delichon urbicum
Coturnix coturnix
Charadrius hiaticula
Actitis hypoleucos
Sturnus vulgaris
Sterna hirundo
Estrilda astrild
Numenius phaeopus
Vanellus coronatus
Calidris ferruginea
Chrysococcyx caprius
Alopochen aegyptiacus
Haematopus ostralegus
Caprimulgus pectoralis
Sigelus silens
Dicrurus adsimilis
Megaceryle maxima
Podiceps cristatus
Cinnyris afer
Charadrius leschenaultii
Hirundo cucullata
Ardea cinerea
Pluvialis squatarola
Cisticola subruficapilla
Larus cirrocephalus
Scleroptila africanus
Bostrychia hagedash
Larus hartlaubii
Numida meleagris
Passer domesticus
Buteo rufofuscus
Prinia maculosa
Cercotrichas coryphoeus
Larus dominicanus
Charadrius pecuarius
Chrysococcyx klaas
Falco biarmicus
Streptopelia senegalensis
Charadrius mongolus
Acrocephalus griseldis
Cisticola tinniens
Egretta garzetta
Calidris minuta

Little Swift
Little Tern
Long-billed Crombec
Malachite Kingfisher
Malachite Sunbird
Marsh Sandpiper
Namaqua Dove
Neddicky
Osprey
Pearl-breasted Swallow
Pied Crow
Pied Kingfisher
Pied Starling
Pin-tailed Whydah
Plain-backed Pipit
Purple Heron
Red Knot
Red-eyed Dove
Red-faced Mousebird
Red-winged Starling
Reed Cormorant
Rock Kestrel
Rock Martin
Ruddy Turnstone
Ruff
Rufous-chested Sparrowhawk
Sanderling
Sandwich Tern
Sombre Greenbul
Southern Black Korhaan
Southern Boubou
Southern Double-collared Sunbird
Southern Red Bishop
Southern Tchagra
Speckled Mousebird
Speckled Pigeon
Spotted Eagle-Owl
Spotted Thick-knee
Spur-winged Goose
Steppe Buzzard
Streaky-headed Seedeater
Swift Tern
Terek Sandpiper
Three-banded Plover
Water Thick-knee
Wattled Starling
White-backed Mousebird
White-breasted Cormorant
White-fronted Plover
White-necked Raven
White-rumped Swift
White-throated Canary
White-throated Swallow
Wood Sandpiper
Yellow Bishop
Yellow Canary
Yellow-billed Duck

Apus affinis
Sterna albifrons
Sylvietta rufescens
Alcedo cristata
Nectarinia famosa
Tringa stagnatilis
Oena capensis
Cisticola fulvicapilla
Pandion haliaetus
Hirundo dimidiata
Corvus albus
Ceryle rudis
Spreo bicolor
Vidua macroura
Anthus leucophrys
Ardea purpurea
Calidris canutus
Streptopelia semitorquata
Urocolius indicus
Onychognathus morio
Phalacrocorax africanus
Falco rupicolus
Hirundo fuligula
Arenaria interpres
Philomachus pugnax
Accipiter rufiventris
Calidris alba
Sterna sandvicensis
Andropadus importunus
Afrotis afra
Laniarius ferrugineus
Cinnyris chalybeus
Euplectes orix
Tchagra tchagra
Colius striatus
Columba guinea
Bubo africanus
Burhinus capensis
Plectropterus gambensis
Buteo vulpinus
Crithagra gularis
Sterna bergii
Xenus cinereus
Charadrius tricollaris
Burhinus vermiculatus
Creatophora cinerea
Colius colius
Phalacrocorax carbo
Charadrius marginatus
Corvus albicollis
Apus caffer
Crithagra albogularis
Hirundo albigularis
Tringa glareola
Euplectes capensis
Crithagra flaviventris
Anas undulata

Yellow-billed Egret
Yellow-billed Kite

Egretta intermedia
Milvus aegyptius

APPENDIX 6:

List of threatened birds that are either occasional visitors to the reserve complex or occur in low or unknown numbers.

English Name	Scientific name	South African Conservation Status	IUCN Conservation Status
African Penguin	<i>Spheniscus demersus</i>	Endangered	Vulnerable
Bank Cormorant	<i>Phalacrocorax neglectus</i>	Endangered	Vulnerable
Great White Pelican	<i>Pelecanus onocrotalus</i>	Least Concern	Near Threatened
Greater Flamingo	<i>Phoenicopterus ruber</i>	Least Concern	Near Threatened
African Marsh-Harrier	<i>Circus ranivorus</i>	Least Concern	Vulnerable
Cape Cormorant	<i>Phalacrocorax capensis</i>	Near Threatened	Near Threatened
Eurasian Curlew	<i>Numenius arquata</i>	Near Threatened	Null
Denham's Bustard	<i>Neotis denhami</i>	Near Threatened	Vulnerable
Martial Eagle	<i>Polemaetus bellicosus</i>	Near Threatened	Vulnerable
Blue Crane	<i>Anthropoides paradiseus</i>	Vulnerable	Vulnerable
Cape Gannet	<i>Morus capensis</i>	Vulnerable	Vulnerable
Cape Vulture	<i>Gyps coprotheres</i>	Vulnerable	Vulnerable

APPENDIX 7:**Reptilian species that occur on the De Mond Nature Reserve Complex.**

Species	English name
<i>Agama atra atra</i>	southern rock agama
<i>Bitis arietans arietans</i>	puff adder
<i>Chersina angulata</i>	angulate tortoise
<i>Crotaphopeltis hotamboeia</i>	herald snake
<i>Dasypeltis scabra</i>	common egg eater
<i>Dispholidus typus typus</i>	boomslang
<i>Homoroselaps lacteus</i>	spotted harlequin snake
<i>Lamprophis inornatus</i>	olive house snake
<i>Naja nivea</i>	Cape cobra
<i>Pelomedusa subrufa</i>	marsh terrapin
<i>Psammophis notostictus</i>	Karoo Whip Snake
<i>Psammophylax rhombeatus rhombeatus</i>	spotted skaapsteker
<i>Pseudaspis cana</i>	mole snake
<i>Scelotes bipes</i>	silvery dwarf burrowing skink
<i>Trachylepis capensis</i>	Cape skink

APPENDIX 8: Amphibian species that occur on the De Mond Nature Reserve Complex.

Species	English name
<i>Amietia fuscigula</i>	Cape river frog
<i>Xenopus laevis</i>	common platanna
<i>Amietophrynus rangeri</i>	raucous toad
<i>Breviceps rosei</i>	sand rain frog
<i>Cacosternum platys</i>	flat caco
<i>Hyperolius horstockii</i>	arum lily frog
<i>Strongylopus grayii</i>	clicking stream frog
<i>Semnodactylus wealii</i>	rattling frog
<i>Tomopterna delalandii</i>	Cape sand frog

APPENDIX 9:

Invertebrate species that occur on the De Mond Nature Reserve complex.

Species	English name
<i>Arenicola loveni</i>	bloodworm
<i>Ficopomatus enigmatica</i>	tube worm
<i>Rhopalophtalamus terranatalis</i>	mysid
<i>Penaeus japonicus</i>	ginger prawn
<i>Palaemon pacificus</i>	sand shrimp
<i>Callinassa kraussi</i>	burrowing sand prawn
<i>Upogebia africana</i>	mud prawn
<i>Diogenes brevisrostris</i>	common hermit crab
<i>Cleistostoma edwardsii</i>	crab
<i>Cyclograpsus punctatus</i>	common shore crab
<i>Hymenosoma orbiculare</i>	crown crab
<i>Scylla serrata</i>	giant mud crab
<i>Notarchus spp.</i>	sea hare
<i>Nerita albicilla</i>	common nerite
<i>Siphonaria oculus</i>	false limpet
<i>Notica spp.</i>	necklace shell

Appendix 10:

The State Attorney
Die Staatsprokureur
iGqwetha likaRhulumente
4th FLOOR - OFFICE BUILDING
JUBILEUM LIFE CENTRE - GENERAL
22 Lomb Street
Langstraat 22
CAPE TOWN 8001
7021

Postal address/posadres
Private Bag X 9001
Mowbray
CAPE TOWN
8001
7021
Tel: (021) 441-9200
Fax: (021) 421-9500
BOX NO: 136, CAPE
TOWN

My Ref: My Verrekenings nommer
40627097A7D

Your Ref: Uwe Verrekenings nommer
1757771

Electronic Address:

The Chief Executive Officer
Cape Nature
Private Bag X29
RONDEBOSCH
7701

2015-01-27

Gentlemen / Mesdames

RE: TITLE DEED RESTRICTIONS: DE MOND

Your letter of 23 November 2009.

My understanding is that the proposed development will be in portion 4 of the farm
Bushy Park no. 269, Division Broederscop.

This property is held by the State by virtue of Deed of Transfer No. T15864/1961.

Title deed condition in the said deed reads as follows:

"Geëgig op die sakeklou was na verloop van die eekondement godsêre 13 Maart
1940 op Transfersklou No. 3137 gedateer 26 April 1934, wat as volg lees:-

By Transfer No. 2289 dated 13.3.1940 the property conveyed thereby shall not
be leased or otherwise disposed of without being first offered to the owner or
successors of the remainder held hereunder nor shall any building be erected
thereon for business or trade except with the consent of said owner or
successors of remainder, as will more fully appear on reference to the said
Transfer."

The following transpires:

1. Portion 4 of the said farm is entitled to this condition as this condition was
created in 1940 when portion 4 was still part of the remainder (portion 4 was
only subdivided and transferred to the State in 1961).

2. The land subject to this restrictive condition is portion 3 of the said farm which is still held by Deed of Transfer No. T2289/1940 (the same title deed mentioned in the condition) and registered in the name of the State.

If the development is only on Portion 4 of the farm, no consent will be required in terms of the restrictive condition, as it does not apply.

If however the development is on portion 3, the consent of the owner of the remainder will be required (as well as the consent by the owner of portion 4 and maybe owners of the other later subdivisions).

I trust that the above will address your question.


M. STOCKENSTRÖM
for: STATE ATTORNEY
/ing

Windhoek - Deeds and Companies Office Enquiries

Enquiry by Property

as at 12:01 on 19/05/2004

Key/Title	Cape Town
Deed Type	Farm
Registration Division	Bredasdorp RD
Farm Number	269
Portion Number	4
Farm Name	Bushy Park

Information

Region	Western Cape
Registration Division	Bredasdorp RD
Local Authority	Bredasdorp-Swellendam DC
Transfer Description	FM OF 1
Original Deed Number	T15864/1961
Notes	A.0852M

Owners

1 of 1	
Deed Type	Government
Name	Republiek Van Suid-Afrika
Deed Number	T15864/1961
Registration Date	19611113
Purchase Price	Unknown
Deed	
Purchase Date	Unknown
Multiple Registrations	Not Microfilmed
Multiple Registrations	No
Multiple Registrations	No

Encumbrances

1 of 1	
Deed Type	FARM ER 269/4
Name	Unknown
Registration Reference	1985 0013 0970

History (None)

End of Report

RECORDED
14-5-58
RECORDED

15864

1000
15/136/45 + 5102/56
60/100
Pindamantim 2

100

100

17/165/1/1/53

RECORDED
14-5-58
RECORDED

15864

1961

Oppgesteld door NY.

TRANSPORT SERVICES

EXCLUDED INFORMATION ONLY
Programme in het kader van de...
van de... 1961

ELIJAH WERE REKARD HENKEL :

KANEMAN die hierondergeroemde grond terug-
geenst is door de REPUBLIEK VAN ZIMBABWE ingevolge
de bepalingen van Artikel 5 van het John Smith's
Wetboek van 6 Augustus 1961, welke grond te
voorziening is 'n die Registratiekantoor te Harare
op naam van -

OTLISOTPEK /.....

Handwritten vertical text:
D. P. ...
...

13 dag van *februari* in dit jaar van ons
veer Zandrisend Beghonderd Eoc-cc-mastig (1961).

[Signature]
ASSOCIATED REGISTERED BANKERS

[Signature]
GEREGISTREKT IN DIE FIAAS REGIEDEKA VAN BREDASCORE
3068 W.C. 10 *P. W. A. 2*

[Signature]
KLEEF IN MEMBER

ISSUED FOR INFORMATION ONLY
ALLEN VAN INFORMATIEDEKLINGEN UITGEVEN

[Small mark]

4



A. 7743/525.

Approved by Minister of Finance	Approved by Minister of Education
- 11 - 1 - 51	
L. 10000	

Resolusie van die Eerste Minister
Prime Minister's Office

P R O V I N S I E
- 2. 5. 1956

MINUUT. 1873

MEMBERS het die ooreenstemming te bewoel dat dit Sy Eksellenste die Gouverneur-generaal mag behou om ingevolge die bepaling van artikel 5 van Sir John Craddock se Proklamasie van 6 Augustus 1813, sy goedkeuring te begaan die toewysing vir openbare doeleindes, sonder betaling van vergoeding, van 'n gedeelte, ongeveer 5 morg groot, van die rooibergse gedeelte van DE WIND, gedeelte van die plaas Bushy Park, geleë in die afdeling Broedersdorp, die Provinsie die Kaap die Gooie Hoop, gehou deur CHRISTOPPEL JOHANNES OBERDAL kragtens Akte van Transmissie no. 7669 gedateer 10 Julie 1942.

Die gemelde ooreenstemming word deur die Departement van Bousaak benodig as 'n terrein vir 'n

houster /

FOR INFORMATION ONLY
 VOOR INFORMATIE SLEK

bestaat in verband met die bestyding van werkers
 oor 'n uitgetrekte oppervlakte. Dit is die enigste
 stuk grond in daardie omgewing wat vir die doel
 geskik is. Die amsuar is egter nie bereid om die
 grond aan die Hegering te verhuur of te verkoop nie
 en toediening kragtens die voorreëlende wetbepaling
 in dies die enigste uitweg.

J. B. VERVOORDEN

D. R. SWART

11

FOR INFORMATION ONLY
 INFORMATIONAL PURPOSES ONLY

[Handwritten signature]
 D. R. Swart

F R A N S / 5 H P

CHRISTOFFEL JOHANNES OEDENAL

aga

RTM: INVESTERING VAN NEDERLANDEN

HEERDE Gedeelte 4 (= gedeelte van De Mand)
van die plaats Basky Park, gele* in
die afdeling Brodaadong;

GROOT Vier desimale maal ag vyf twee (1.0652)
marge;

GROND deur Christoffel Johannes Oedenal kragtens
Transportakie No. 7669 gedateer 10 Julie 1942

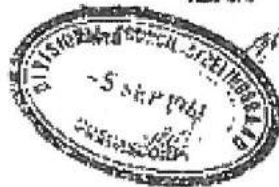
Registrasie van transport genagtig ingewolge
Artikel 120 van Oudwetboek 15 van 1950.
Hierdie registrasie verskyn op

REGISTERED

Registered in accordance with the provisions of the Companies Act
Registered office: 100, Market Street, Cape Town.
Incorporated in South Africa.

REGISTERED

100 Market Street, Cape Town



REGISTERED
100 MARKET STREET
CAPE TOWN

P. GEOMETRIC of
endowment
No. 117 50

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Klasse	Soort	Aantal - Stuks	EENHEIDSWAARDE	
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Konstante				
			+235000,00	+12170000,00
A	561,00	302,15,00	+241706,98	+33881,25
B	808,01	68,30,40	+241732,58	+34180,76
C	740,00	89,9,30	+241509,08	+34283,93
D	358,33	133,74,70	+241242,05	+34382,65
E	796,53	255,40,40	+241178,85	+34478,32
F	51,52	75,40,40	+241128,93	+34565,57
G	1000,00	1000,00,00	+241000,00	+34600,00
H	1000,00	1000,00,00	+241000,00	+34600,00

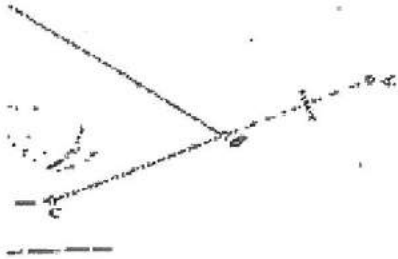
Nr. 2120/03

Goedgekeurd

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Landmeter - generaal
20 - 2 - 1901

Beschrijving van balen:

- A, B, F : Ieter paal, in gemiddelde klip balen 1' hoog en 1' 6" hoog.
- C : Ieter paal in gemiddelde klip balen 3' 1" hoog en 3' 6" hoog.
- D : Ieter paal in gemiddelde klip balen 3' 1" hoog en 3' 9" hoog.
- E : Geen balen, twee aansluitingsbalen.
- G : Ieter paal in gemiddelde klip balen 2' 1" hoog en 2' 8" hoog.
- H : Ieter paal in klip balen 1' hoog en 1' hoog.



Getekend door: *[Signature]*
In opdracht van: *[Text]* van de plaats
Burg. Park No. 260
Middelburg

Schaal 1:2500

Die figuur	A	B	C	D	E
Stel voor	4	0	5	2	0

GEWELDE (1/2 deel van DE NOORD) van die plaats **HAAR RAMP**,
gelee in die Afdeeling Landmeter Provincie Kamp Die Gode Hoop
Opgezet in Maart, 1901 door *[Signature]*

Meridie Kaart Noort by
Kamp Noort, No. 100
van de Afdeeling van
Landmeter - generaal
Middelburg

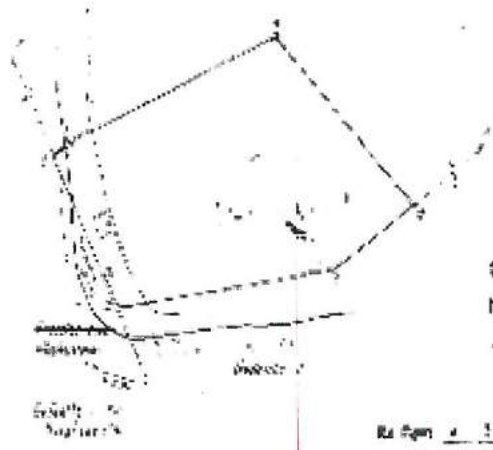
Die oorspronklike kaart is
Nr. 100/1001 van Maart 01
No. 1350-77 5750

150485
Landmeter - generaal
Middelburg
A. W. J. van der Merwe
20 - 2 - 1901



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5	IS/OS	IS/OS	IS/OS
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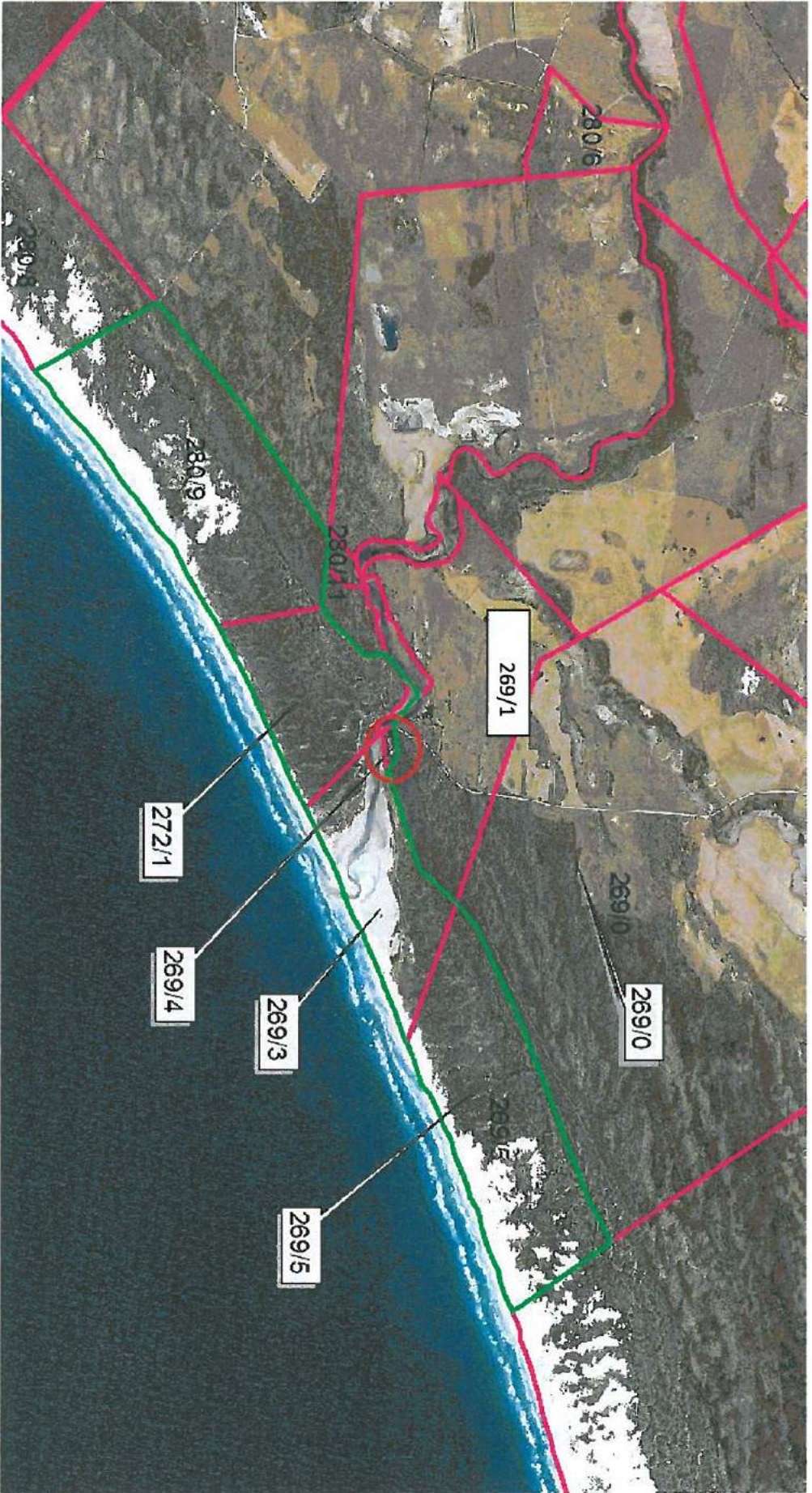


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IS/OS	IS/OS	IS/OS

IS/OS





state land

portion 4 of
farm 269
Bushy Park
(state land)

private property

portion 3 of
farm 269
Bushy Park
(state land)

100 m

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