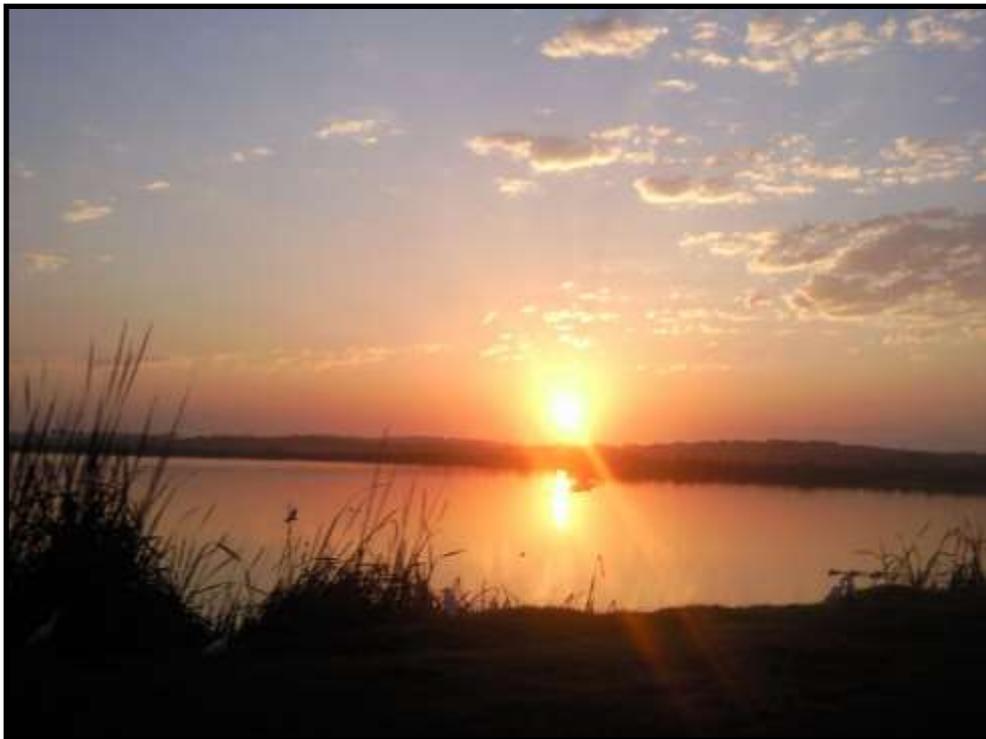


# INTEGRATED RESERVE MANAGEMENT PLAN

## FALSE BAY NATURE RESERVE

June 2011



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## AUTHORIZATION PAGE

This Integrated Management Plan for the False Bay Nature Reserve was drafted by the Area Manager and recommended by the Reserve Planning Team, a multi-disciplinary team consisting of:

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*Branch Manager, Regional Manager, Area Manager, Reserve Managers, Biophysical Specialist, Biodiversity Coordinator, Sustainable Resource Specialist and Monitoring and Evaluation Coordinator*

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**DOCUMENTED**

<b>Integrated Reserve Management Plan</b>	
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# **INTEGRATED RESERVE MANAGEMENT PLAN**

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**City of Cape Town**

**False Bay Nature Reserve**

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## List of abbreviations used

<b>ADU</b>	<b>Animal Demography Unit</b>
<b>APO</b>	<b>annual plan of operations</b>
<b>C.A.P.E</b>	<b>Cape Action for People and the Environment</b>
<b>CARA</b>	<b>Conservation of Agricultural Resources Act</b>
<b>CDF</b>	<b>Conservation Development Framework</b>
<b>CFR</b>	<b>Cape Floristic Region</b>
<b>CFWWTW</b>	<b>Cape Flats Wastewater Treatment Works</b>
<b>CTEET</b>	<b>Cape Town Environmental Education Trust</b>
<b>CWAC</b>	<b>coordinated water-bird count</b>
<b>EIA</b>	<b>environmental impact assessment</b>
<b>FoZR</b>	<b>Friends of Zeekoevlei and Rondevlei</b>
<b>GIS</b>	<b>geographic information system</b>
<b>IBA</b>	<b>important birding area</b>
<b>IDP</b>	<b>Integrated Development Plan</b>
<b>IMEP</b>	<b>Integrated Metropolitan Environmental Policy</b>
<b>IRMP</b>	<b>Integrated Reserve Management Plan</b>
<b>IUCN</b>	<b>International Union for Conservation of Nature and Natural Resources</b>
<b>LBSAP</b>	<b>Local Biodiversity Strategy and Action Plan</b>
<b>METT-SA</b>	<b>Management Effectiveness Tracking Tool South Africa</b>
<b>MOU</b>	<b>memorandum of understanding</b>
<b>NGO</b>	<b>non-governmental organisation</b>
<b>NEMA</b>	<b>National Environmental Management Act</b>
<b>NEM:PAA</b>	<b>National Environmental Management: Protected Areas Act</b>
<b>NEM:BA</b>	<b>National Environmental Management: Biodiversity Act</b>
<b>RPC</b>	<b>Reserve Planning Committee</b>
<b>SASTS</b>	<b>South African Students' Travel Services</b>
<b>SDF</b>	<b>spatial development framework</b>
<b>SWOT</b>	<b>strengths, weakness, opportunities and threats</b>
<b>TOR</b>	<b>terms of reference</b>
<b>UCT</b>	<b>University of Cape Town</b>
<b>WPSP</b>	<b>Workplace Skills Plan</b>
<b>WWF</b>	<b>Worldwide Fund for Nature</b>
<b>ZEEP</b>	<b>Zeekoevlei Environmental Education Programme</b>

## **PART 1**

### **DESCRIPTION**

#### **1. INTRODUCTION**

False Bay Nature Reserve is a multi-use area of just over 2 300 ha in extent, stretching over 9,5 km along the False Bay coastline from Wolfgat Nature Reserve in the Macassar area in the east, up to Zandvlei Nature Reserve in Muizenberg in the west. Five kilometres northwards, False Bay Nature Reserve is bordered by the suburbs of Grassy Park to the north and Zeekoevlei to the north-east, with Pelican Park to the east and Lavender Hill to the west.

False Bay Nature Reserve comprises several ecologically linked sites, which form an important ecosystem and unique platform for conservation and partnerships in Cape Town (City of Cape Town 2010). The reserve consists of the following sections: Rondevlei (proclaimed local-authority nature reserve); Zeekoevlei (proclaimed local-authority nature reserve); Strandfontein (important birding area (IBA) located in the Cape Flats Wastewater Treatment Works (CFWWTW); Coastal Park landfill isle (which is still active); the Pelican Park section; the Slangetjebos section, and the Zandwolf coastal strip (from Zandvlei Nature Reserve to Wolfgat Nature Reserve).

The value of False Bay Nature Reserve goes far beyond its value as a natural area. It is also an area where diverse line functions of the City of Cape Town work together within the reserve boundaries. In addition, the reserve functions as an ecological corridor for the False Bay coastline.

False Bay Nature Reserve has enormous conservation, recreational and ecotourism value (City of Cape Town 2010). It is an oasis of peace in nature amidst urban development on the Cape Flats. It often represents the only link that people in local surrounding communities have to the natural world. For this reason, it is imperative that we conserve and rehabilitate this parcel of land and water for present and future generations.

Environmental education constitutes an important focus area in False Bay Nature Reserve, with four environmental education programmes currently running: the Zeekoevlei Environmental Education Programme (ZEEP) (a multi-day programme), the False Bay Ecology Park Environmental Centre (a multi-day programme), the Rondevlei day programme, and the outreach programme, which includes a live animal and reptile display that is shared with learners at their schools. An average of 4 000 learners participate in

these environmental education programmes annually, where they are educated through field trips and/or bush camps, hands-on environmental activities, displays and talks, as well as reptile and animal shows.

In addition to school pupils undergoing environmental education, False Bay Nature Reserve is also visited by more than 100 000 people each year, who engage in recreational and ecotourism activities, such as picnicking, boating, fishing, bird-watching and walking the reserve trails in natural surroundings. The infrastructure at the reserve lends itself to these activities in the form of bird hides, public foot paths and fishing platforms. Conference and wedding facilities as well as overnight island camp accommodation, which are made available through a local tourism company at the Rondevlei section, are also utilised by many visitors to the reserve.

False Bay Nature Reserve has a great deal of ongoing community involvement, inter alia through the employment of people from local communities, skills training, environmental education, and assistance from community members in conservation and fundraising activities by means of an active local Friends group.

The reserve contains precious natural habitat, with active dune systems and several important wetlands and water bodies. In addition, it supports two endangered vegetation types, namely Cape Flats Dune Strandveld and Cape Flats Sand Fynbos (Rebelo *et al.* 2006), which are classified as endangered and critically endangered respectively.

These varied habitats support close to 300 plant species, including several endangered and critically endangered plants. Examples include *Serruria aemula foeniculaceae* (Rondevlei spiderhead), *Leucadendron levisanus* (Cape Flats cone bush), *Cliffortia ericifolia*, *Psoralea glaucina* (Muizenberg pea bush) and *Passerina corymbosa* ssp. *paludosa* (Cape Flats gonna bush/barkersbos), which are all critically endangered, as well as *Muraltia mitior* (purple gorse/kroesbossie), *Cliffortia longifolia*, *Satyrrium carneum* (ever Trevor or 'ewwa Trewwa'/rooikappie) and *Bonatea speciosa* (green-wood orchid/oktoberlelie), which are all endangered. *Erica verticillata* (Cape Flats erica) is considered extinct in the wild, but a population of nursery stock exists that has been reintroduced to False Bay Nature Reserve with the hope of it becoming naturalised.

Understandably, the high diversity of plants attracts a host of animal life. There are over 240 recorded bird species in or passing through False Bay Nature Reserve. This represents

about 60% of all the bird species found within the Western Cape. At least 84 of these bird species breed in False Bay Nature Reserve. Water birds are particularly abundant, with up to 72 species and 30 000 individuals having been recorded at a single time.

Twenty-one mammal species occur at False Bay Nature Reserve, including the first and only population of *Hippopotamus amphibious* (Hippopotamus) to have been reintroduced to the Cape Town area after an absence of almost 300 years. Examples of other mammals present include *Raphicerus melanotis* (Cape Grysbok), *Raphicerus campestris* (Steenbok), *Sylvicapra grimmia* (Common Duiker), *Caracal caracal* (Caracal), *Geneta geneta* (Small Spotted Genet), *Herpestes pulverulentus* (Small Grey Mongoose), *Hystrix africaeaustralis* (Porcupine), *Bathyergus suillus* (Cape Dune Mole Rat), *Lepus capensis* (Cape Hare) and *Aonyx capensis* (Cape Clawless Otter).

Twenty-nine reptile species and nine amphibian species, including the endangered *Amietophrynus pantherinus* (Western Leopard Toad), are present in the reserve. Two butterfly species are of particular conservation interest, namely *Kedestes barbarae bunta* (Barber's Ranger) and *Kedestes lenis lenis* (Unique Ranger), both of which are highly threatened due to uncontrolled wildfires on the Cape Flats and the destruction of suitable habitat, namely their larval food source *Imperata cylindrica* (Cotton Wool Grass) (Woodhall 2005) that occurs in dune seeps. The *K. barbarae bunta* subspecies has not been recorded outside False Bay Nature Reserve in recent years, and is therefore believed to be extinct outside the reserve's boundaries (Gibbs 2010).

Considering the uniqueness and high value of False Bay Nature Reserve in terms of biodiversity conservation, ecotourism and environmental education, an appropriate management plan needs to be developed in a strategic manner to enable the best decision making and management in the reserve. The strategic management planning process (which results in the development of an Integrated Reserve Management Plan, or IRMP) for False Bay Nature Reserve began with the definition of the vision followed by the purpose for the reserve. This purpose is then supported by desired states for the reserve. The reserve objectives contribute to realising the purpose and desired states. For each desired state, a number of management objectives are identified. These management objectives are then implemented through the identification of outputs. Objectives for each desired state are prioritised for the five-year time horizon of the plan. Time frames, deliverables, performance indicators and targets are then allocated to each objective, or a group of linked outputs contributing to the desired states.

## 1.1 Aim of the Integrated Reserve Management Plan

The aim of the IRMP is to ensure that False Bay Nature Reserve has clearly defined objectives and activities to direct the protection and sustainable use of its natural, scenic and heritage resources over a five-year period. The IRMP 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 IRMP intends to add value and continuity by clearly stating management objectives, scheduling action, and providing management guidelines.

The planning process for False Bay Nature Reserve takes place against the backdrop of (i) the City of Cape Town's Integrated Development Plan (IDP) (Anon 2010); (ii) the City of Cape Town's Integrated Metropolitan Environmental Policy (IMEP) (Anon 2003<sup>1</sup>); (iii) the biodiversity strategy (Anon 2003<sup>2</sup>) and Local Biodiversity Strategy and Action Plan (LBSAP) (Anon 2009), and (iv) the bioregion (Cape Action for People and the Environment, or C.A.P.E). The major elements of the IRMP are this document (overall strategy, vision and context); the detailed subsidiary plans (as required) and an annual plan of operations (APO). The IRMP for False Bay Nature Reserve is supported by a State of Biodiversity report, operational guidelines, and a monitoring and evaluation framework to ensure ongoing implementation and review of protected-area management activities (figure 1).

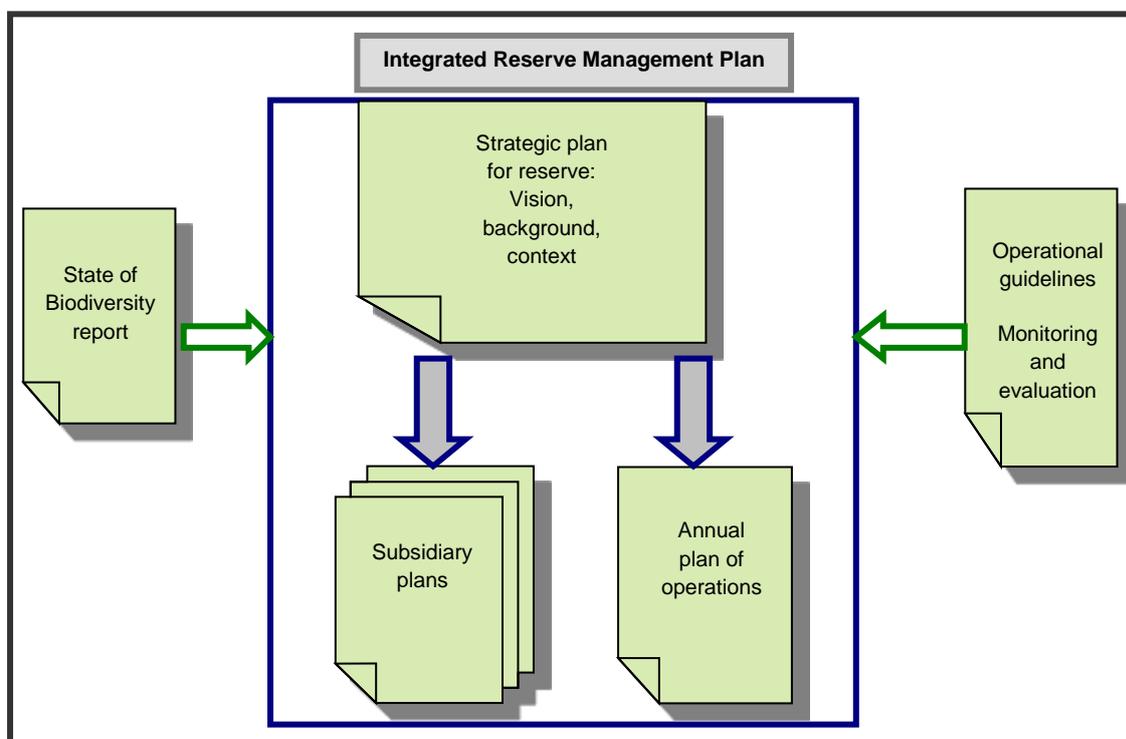
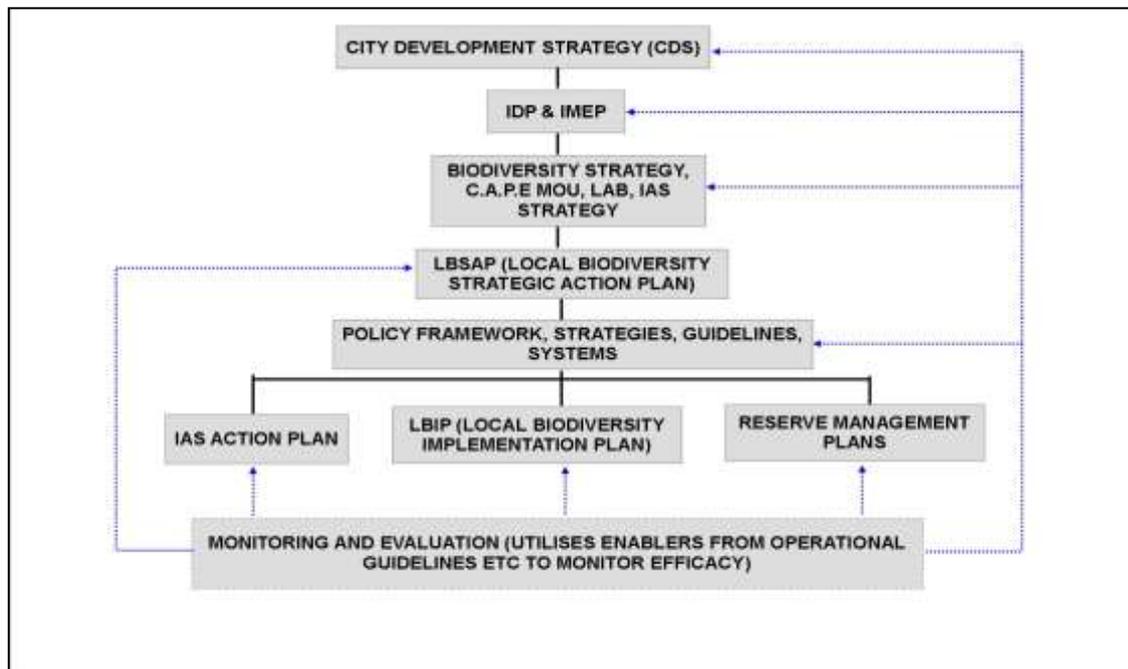


Figure 1: Elements of the IRMP

The IRMP for False Bay Nature Reserve forms part of a tiered series of policies, legislation and related planning documents at the sector, institutional, agency and local levels (figure 2).



**Figure 2: Legal and planning framework for the IRMP**

Where possible, emphasis has been placed on the following:

- Assigning responsibility for management interventions
- Scheduling said management interventions
- Quantifying management costs

This approach is specifically intended to create a mechanism whereby management intervention can be monitored and audited on an annual basis.

In context, this IRMP is a dynamic document, and the detailed subsidiary plans should be updated on an annual basis or as soon as new information comes to light that may better inform decisions on responsible land management. The IRMP should be updated every five years.

The drafting of this IRMP has been guided by a small interdisciplinary Reserve Planning Committee (RPC) comprising the branch manager, the regional manager, the area manager, reserve managers, various specialists, and other interested and affected persons. Repeated

drafts of the IRMP were presented to, and discussed by, the RPC before broader circulation for public participation.

Pre-engagement workshops were held with community partners from March to May 2010. This afforded key community partners an opportunity to provide their input at an early stage. Where practical, the ideas and outputs from the workshops have been incorporated into the IRMP.

## **1.2 Location and extent**

False Bay Nature Reserve is situated on the Cape Flats, about 23 km south of the Cape Town city centre, and about 7 km east/north-east of Muizenberg (map 1). The approximate coordinates are 34°03'S, 18°30'E.

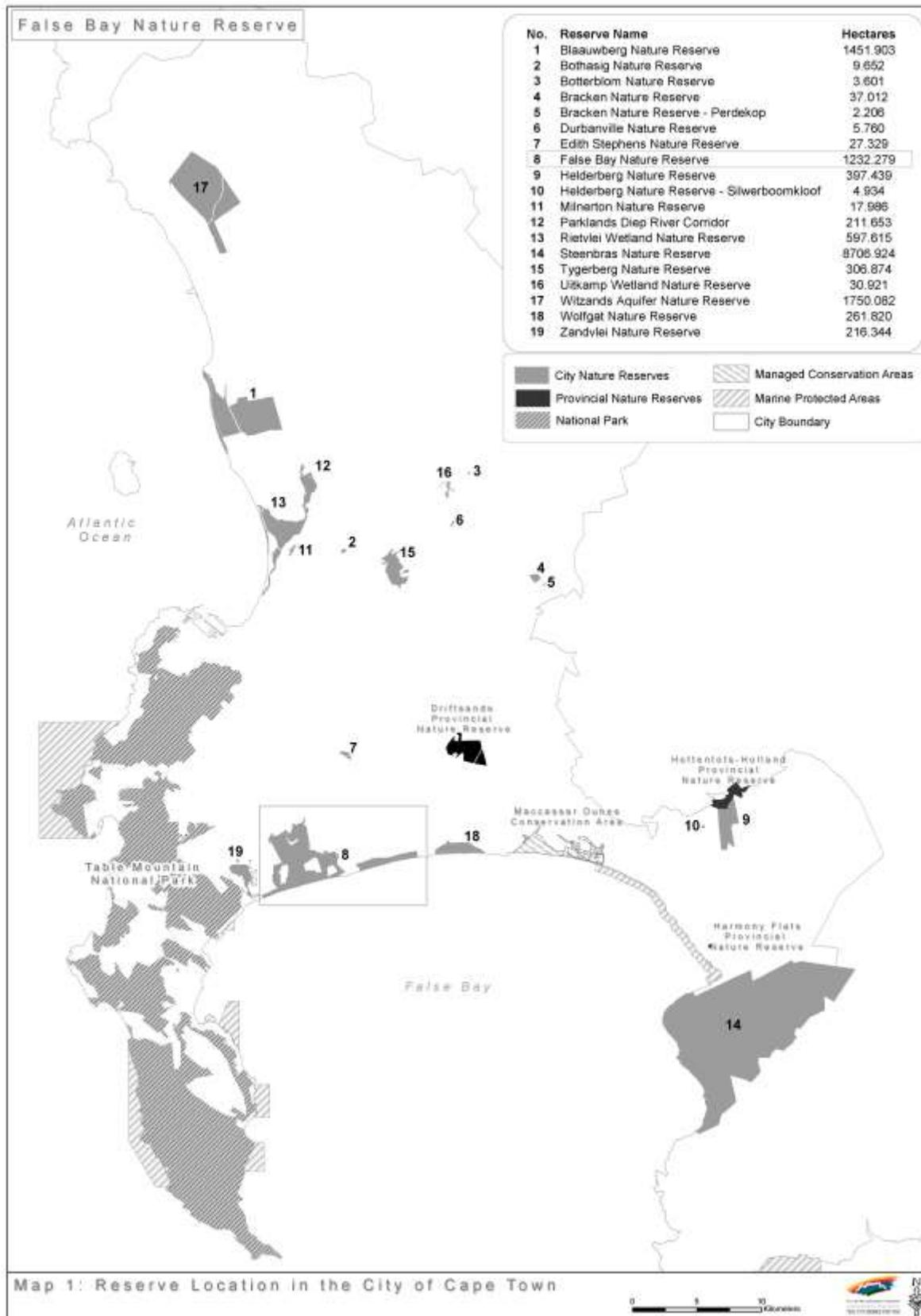
The total area of the reserve is approximately 2 300,7 ha in extent. Please see map 2 for the reserve boundaries and map 3(b) for the different sections making up False Bay Nature Reserve.

The sectors making up False Bay Nature Reserve are as follows:

- Zeekoevlei section: 344 ha
- Strandfontein birding area: 387 ha
- Rondevlei section: 290 ha
- Pelican Park section: 244 ha
- Slangtjebos section: 220 ha
- Zandwolf coastal strip (up to Wolfgat Nature Reserve): ± 815,7 ha

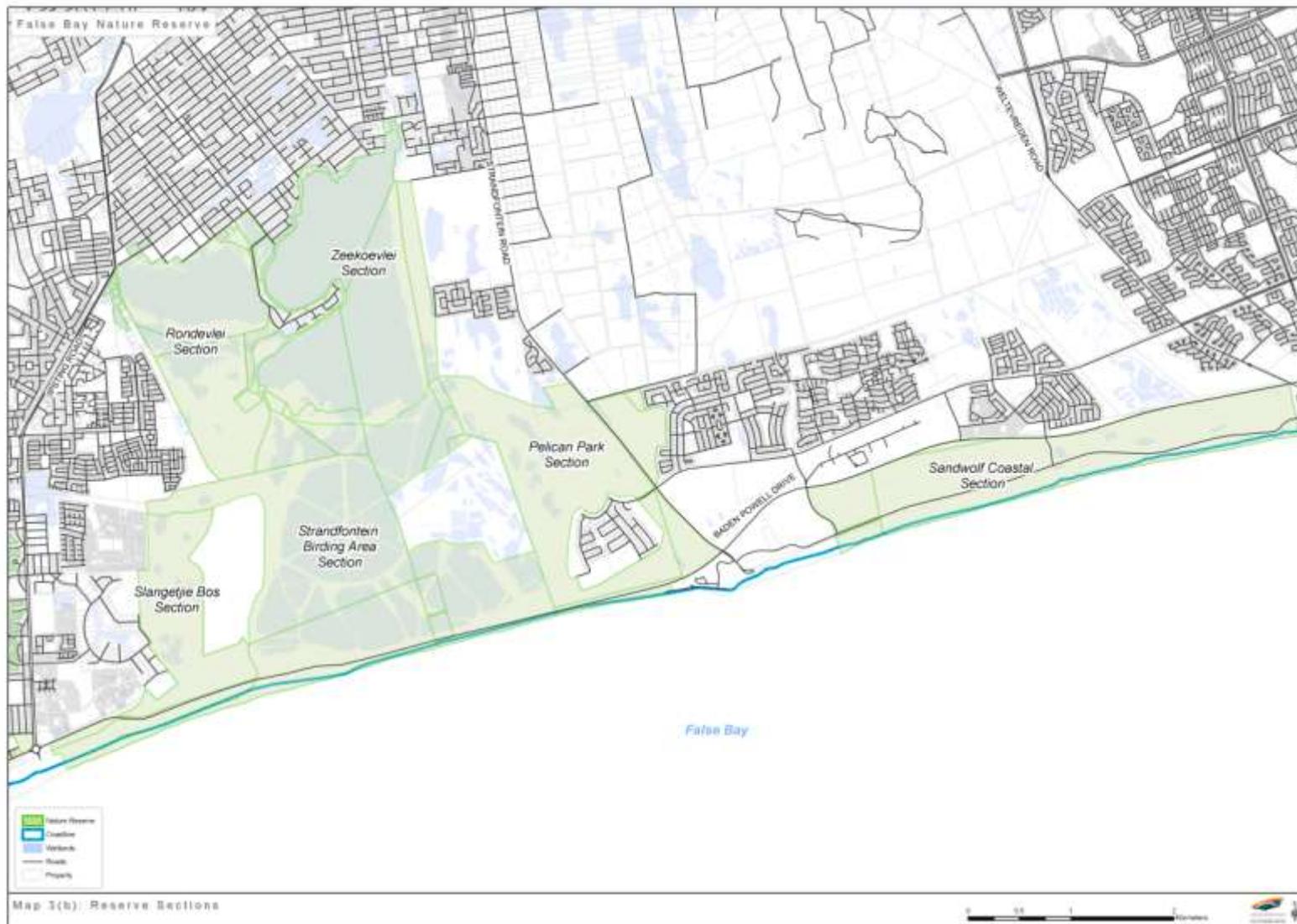
The 633 ha permanent freshwater section consists of the following:

- Zeekoevlei section: 256 ha
- Rondevlei section: 58 ha
- Strandfontein birding area: 319 ha









## 2. DESCRIPTION OF LANDHOLDINGS AND OWNERSHIP

### 2.1 Property details and title deed information

As previously mentioned, False Bay Nature Reserve comprises several sites, namely the Rondevlei section, the Zeekoevlei section, the Strandfontein birding area, the Pelican Park section, the Slangetjebos section, and the Zandwolf coastal strip (map 3 (b)). These sites, in turn, are made up of numerous erven (map 3(a)), as listed in table 1.

**Table 1: Erf numbers of the False Bay Nature Reserve**

Erf Number	Property ID	Suburb	Owner
00-87375	409453	Muizenberg	CCT
00-87374	61387	Muizenberg	CCT
97-1	538117	Capricorn	CCT
00-93284	64511	Cape Town	CCT
CA 844-37	384932	Grassy Park-844	CCT
CA 844-31	384933	Grassy Park-844	CCT
CA 846-0	345022	Zeekoevlei Nature Reserve west 846	CCT
CA 847-0	343121	Zeekoevlei Nature Reserve west 847	CCT
29-738	385056	Zeekoevlei	CCT
30-1834	385057	Grassy Park	CCT
29-730	385065	Zeekoevlei	CCT
29-1076	385160	Zeekoevlei	CCT
CA 848-0	343102	Zeekoevlei Nature Reserve west 848	CCT
CA 848-1	343915	Cape farm 840	CCT
CA 837-0	344224	Cape farm Wagenpad 837	CCT
CA 838-0	343016	Cape farm Koe Valley	CCT
00-0000-22	3726	Schotschekloof	CCT
00-115790-1	342811	Muizenberg	CCT
00-115790-2	342811	Muizenberg	CCT
24-829	179812	Muizenberg	CCT
22-28079-3	158365	Mitchell's Plain	CCT
28-974	393573	Schaapkraal	CCT
24-0000	-	-	-
22-21188	-	-	-

22-21168	1069716	Mitchell's Plain	CCT
22-1212-3	132449	Mitchell's Plain	CCT
22-1215-2	131229	Mitchell's Plain	CCT
22-1212-1	132449	Mitchell's Plain	CCT

## 2.2 Landscape perspective

### 2.2.1 Bioregional context

False Bay Nature Reserve falls within the Cape Floristic Region (CFR). The CFR is the smallest yet richest of the world's six floral kingdoms, and the only one to be found entirely within one country. This rich biodiversity is under serious threat for a variety of reasons, including conversion of natural habitat to permanent agricultural area, inappropriate fire management, rapid and insensitive development, over-exploitation of water resources, and infestation by alien species. The region has been identified as one of the world's 'hottest' biodiversity hot spots (Myers *et al.* 2000).

In response to this challenge, a process of extensive consultation involving various interested parties, including local government and non-governmental organisations (NGOs), resulted in the establishment of a strategic plan (C.A.P.E Project Team 2000) referred to as the Cape Action Plan for the Environment, which identified the key threats and root causes of biodiversity losses that need to be addressed in order to conserve the floral kingdom. This resulted in a spatial plan identifying areas that need to be conserved and a series of broad programme activities that need to take place over a 20-year period. Based on the situation assessment and analysis of threats, three overarching, mutually complementing and reinforcing themes were developed:

- To establish an effective reserve network, enhance off-reserve conservation, and support bioregional planning
- To strengthen and enhance institutions, policies, laws, cooperative governance, and community participation
- To develop methods to ensure sustainable yields, promote compliance with laws, integrate biodiversity concerns with catchment management, and promote sustainable eco-tourism

The Cape Action for People and Environment (C.A.P.E) partnership works together to implement the C.A.P.E vision and plan by strengthening institutions, supporting conservation efforts, enhancing education, developing tourism benefits, and involving people in conservation. The City of Cape Town was one of the 19 founding signatories of the C.A.P.E memorandum of understanding (MOU).

False Bay Nature Reserve forms an important platform and integral link within the City of Cape Town's biodiversity network. This network ensures that parcels of land worthy of conservation are included in a protective network, connected to other parcels of conservation-worthy land.

### 2.2.2 Landscape context

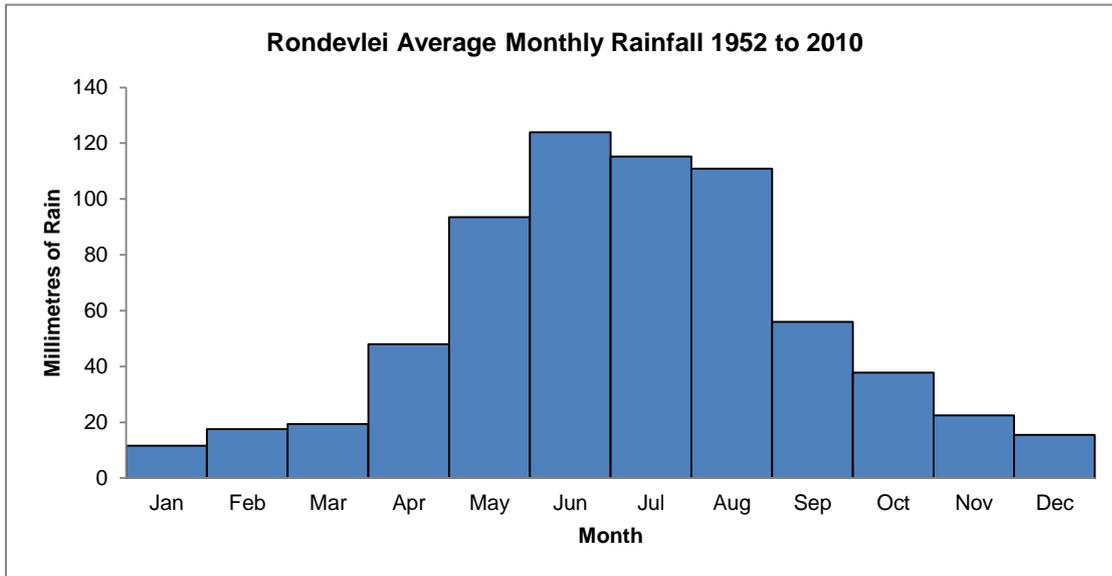
The western part of the Zandwolf coastal strip links False Bay Nature Reserve to the Peninsula mountain range through Zandvlei Estuary Nature Reserve. The eastern part of the Zandwolf coastal strip connects False Bay Nature Reserve to both Macassar Dunes Conservation Area and Wolfgat Nature Reserve. These two nature reserves, in turn, are linked to the Lourens River, which acts as a biological corridor to the Hottentots Holland mountain range.

## 2.3 Physical environment

### 2.3.1 Climate

False Bay Nature Reserve lies within a temperate winter-rainfall region, and experiences a typically Mediterranean climate. The regional climate is characterised by summer months of low humidity, minimal rainfall and strong south-easterly winds, while the winter months bring fog, some frost, rain and higher humidity. The winter north-westerly winds bring rain to the area (Murdoch 2006).

Rondevlei Nature Reserve has the oldest continuous rain station on the Cape Flats. The average total annual rainfall measured between 1952 and 2009 was 672,4 mm (appendix A1 and figure 3). Due to False Bay Nature Reserve's small size, rainfall is more or less constant throughout the reserve area. Rain is frontal in nature, and is primarily associated with cold fronts that reach the Cape during the winter months. These cold fronts are subjected to orographic lift by the Table Mountain range, which increases the precipitation over the immediate lee of the mountain range. Rondevlei Nature Reserve is about 8 km from the foothills of Table Mountain, and, as such, still falls within this higher-rainfall area. Occasional summer rain occurs due to thunderstorm activity (Murdoch 2006).



**Figure 3: Summarised average monthly rainfall recorded at Rondevlei Nature Reserve**

### 2.3.2 Geology, geomorphology, soils and land types

The soils in False Bay Nature Reserve consist mainly of calcareous sands of marine origin, which overlay a deeper layer of granite. An area of hard, calcified limestone occurs in the north-western sections of the reserve. To the south of Rondevlei Nature Reserve, the series of high dunes are comprised of wind-driven coastal sands. The sands to the south of False Bay Nature Reserve are younger and more alkaline in composition, and are richer in shell deposits. These are derived from the Fernwood and also, rarely, the Mispah series, while the older sands of the northern section of False Bay Nature Reserve are more acidic and highly leached soils (Murdoch 2006).

Soil samples taken in 1991 of Rondevlei Nature Reserve's main vlei and seasonal wetlands on the northern side of False Bay Nature Reserve reflect an acid seasonal wetland system in acidic soils. When the southern areas of False Bay Nature Reserve were tested however, these revealed a higher pH, reflecting alkaline soils. The seasonal wetlands to the west of the reserve have a particularly high pH due to the presence of sodium, which is evident in the salty conditions when the wetlands dry up during summer (Murdoch 2006).

In 2002, Hughes conducted a study on the dunes nearer the coast in Pelican Park. He determined that the Cenozoic sands of the area are part of the Witzand formation of the Sandveld group, and comprise very fine to very coarse calcareous sands, with abundant

small shells and shell fragments. This layer is 25 m thick. The bedrock component consists of granite.

Organic humus content, as is evidenced by the colour of the soil, increases as one moves northwards away from the False Bay coastline into older, more established vegetated dunes. The pH values decrease as one moves northwards, as the sands are older and experience more leaching. Alkaline pH values of 9,08 and the highest sodium reading have been recorded on the Rondevlei section's southern boundary. Older, acidic sands are restricted to the northern shores of the Rondevlei section and Zeekoevlei section, with pH values varying from 4,7 to 7,27. These acidic sands have a larger grain size and are characterised by the absence of shell particles. The slope position of these acidic soils is related to organic matter content. Low-lying wetlands have black, organically rich soils, with dune slopes having whiter, leached soils.

The topography of False Bay Nature Reserve predominantly consists of rolling, transverse dune structures, with flats in the north. Much of the original topography, particularly in the Zeekoevlei section and Strandfontein birding area has been altered for various past and current functions. Details are dealt with below on a site-by-site basis.

The Rondevlei section is located approximately 1 km from the False Bay coastline, and, as a result, experiences a considerably flat topography, with a series of dunes located to the south-western section of False Bay Nature Reserve, running in an east-west direction. The central dune of this series, which rises to an altitude of approximately 26 m above sea level, forms the highest topographical feature of the reserve, and is known as Lavender Hill. A large, 58 ha main vlei (from which the name Rondevlei was derived) lies within a depression formed by low dunes, which are approximately 10 m above sea level, while the lowest areas of False Bay Nature Reserve lie at about 3,5 m above sea level. The water level of the main vlei fluctuates between a winter high of 4,9 m above sea level (fixed by a weir) and an average summer low of 4,1 m above sea level (Murdoch 2006).

The five distinct natural features that make up the Rondevlei section include the following:

- The large permanent vlei, with its associated islands, sedge beds and their habitats
- The alkaline seasonal wetlands to the south of the vlei (Moddervlei)
- The coastal dune system, with its associated Cape Flats Dune Strandveld vegetation
- The lowland areas

- The neutral to acidic wetlands to the north-east, with its associated Cape Flats Sand Fynbos

(Murdoch 2006)

The vlei at the Zeekoevlei section has a lake bathymetry that is gentle and simple, but variable due to the soft, sandy and muddy sediments that make up the lake bed. The maximum depth is no more than about 3,5 m. All inclines are gentle, except in the inflowing and outflowing river channels, where banks can be very steep.

The topography of the terrestrial part of the Zeekoevlei section has been altered to a large extent. The eastern shore is largely flat, with a 2 m-high dune ridge running parallel to the shore. It is suspected that this ridge is artificial and that the rest of the shore has been artificially levelled. 'Billy's block', a management block on the southern shore, includes remnants of the natural dune system as well as some areas that were artificially levelled. These levelled areas have been filled with a layer of sludge taken from the Zeekoevlei section during the dredging operations of the 1980s.

The CFWWTW (where the Strandfontein birding area is situated) was built in the dunes a few metres higher than the Zeekoevlei section. The net flow of seepage is therefore leaching into the main Zeekoevlei water body from the CFWWTW. This has been reduced to a manageable level through the recent installation of a cut-off drain, which was completed in August 2008.

The Strandfontein birding area forms part of the CFWWTW. It consists of 22 settling and oxidation pans (Barnes 2002). The pans were made from two vleis that originally occurred in the area, namely Maccoa Vlei and Tamatie Vlei, when the treatment of extra water was required (Gibbs 2010). Five different aquatic habitats occur here: permanent open ponds, seasonal open ponds, canals with aquatic vegetation, reed beds and sludge beds. The verges between ponds are grassed, while some of the ponds have sandy islands. Sandy dune ridges can be found to the east, west and south of the area (Barnes 2002).

The topography of the Pelican Park section is gently undulating, with north-west/south-east trending dunes intersected by low dune slack across the central portion, and more subdued topography occurring in the southern and northern portion of the area (Hughes 2002). The highest dunes reach an altitude of 40 m above sea level.

The Slangetjiebos section is centred on three spine dunes that rise to 20 m above sea level. The primary dune system forms an almost continuous barrier, running east-west along the northern edge. The primary dune varies in height up to 7 m above sea level. The remainder of the area is a gently undulating plain, varying in height from 3 to 6 m above sea level (Van den Honert 1997).

The Zandwolf coastal strip makes up nearly a third of the False Bay Nature Reserve area. It acts as the corridor connecting False Bay Nature Reserve to Zandvlei Nature Reserve in the west, and to Wolfgat Nature Reserve in the east (Samsodien 2010), and, as a result, links the conservation area of the Table Mountain range with the conservation areas of the Hottentots Holland mountain range. Therefore, False Bay Nature Reserve acts as a reservoir for faunal movement between these mountain ranges.

### 2.3.3 Hydrology and aquatic systems

#### 2.3.3.1 Catchments and rivers

Rondevlei and Zeekoevlei form part of the Zeekoe catchment. This catchment is approximately 90 km<sup>2</sup> and consists of farmland, informal settlements, industrial, commercial and residential areas.

The two rivers that feed into the Zeekoevlei section are the Big and Little Lotus rivers, with the former entering at the north-eastern corner of the vlei, and the latter about halfway along the northern shore.

The Little Lotus river is only 4 km in length, and is bordered by residential areas for much of its length. The river is therefore polluted by the usual array of contaminants associated with urban runoff. This may include oils from roads, household chemicals, litter, raw sewage (with associated high *Escherichia coli* counts) and anything else that may wash, blow or be dumped into the canal. The Big Lotus river is about 18 km long and drains approximately 80 km<sup>2</sup>. It is therefore much longer, with a higher average flow rate. It also winds its way through residential areas, so everything that applies to the Little Lotus applies here as well, only on a greater scale. In addition, it flows through informal settlements, industrial areas and farmland, which all add pollutants to the mix. The Philippi farmlands, in particular, add significant amounts of phosphorus and nitrogen to the system.

The Rondevlei section catchment is characterised by residential land use, but is buffered by the presence of Princess Vlei upstream. This impoundment tends to trap most of the litter and much of the contaminants that wash into the system.

The hardening of all catchments has resulted in increased runoff, and floods peak sooner and higher than for a natural system. All of the rivers are also sources of alien invasive species.

The sewage system that forms the catchment area for the CFWWTW, which directly influences the Strandfontein birding area, extends from Lansdowne Road in the south through Constantia to Millers Point, and eastward through parts of Philippi, Athlone and Raapenberg.

Two rivers, namely the Big and Little Lotus rivers, empty into the Zeekoevlei section, whereas the Princess Vlei canal empties into the north-western corner of the Rondevlei section. These rivers are very polluted by solid waste and other pollutants from runoff from the surrounding industrial, agricultural and residential areas.

All of the rivers are canalised for most of their lengths. The flood hydrographs tend to peak early and with a much higher peak flow rate than would be the case with natural, uncanalised rivers. By limiting the flow of a river and straightening its course, a canal increases the volume of water moving past a particular point, as well as the speed of the river. In the event of above-average rainfall in the catchment, flooding may occur downstream. Because a canal is cut off from the river bed and banks, no infiltration (natural seepage) can take place. This means that, in times of large floods, where a river canal cannot cope with the increased volume of water, it is forced to overflow and flood the surrounding areas.

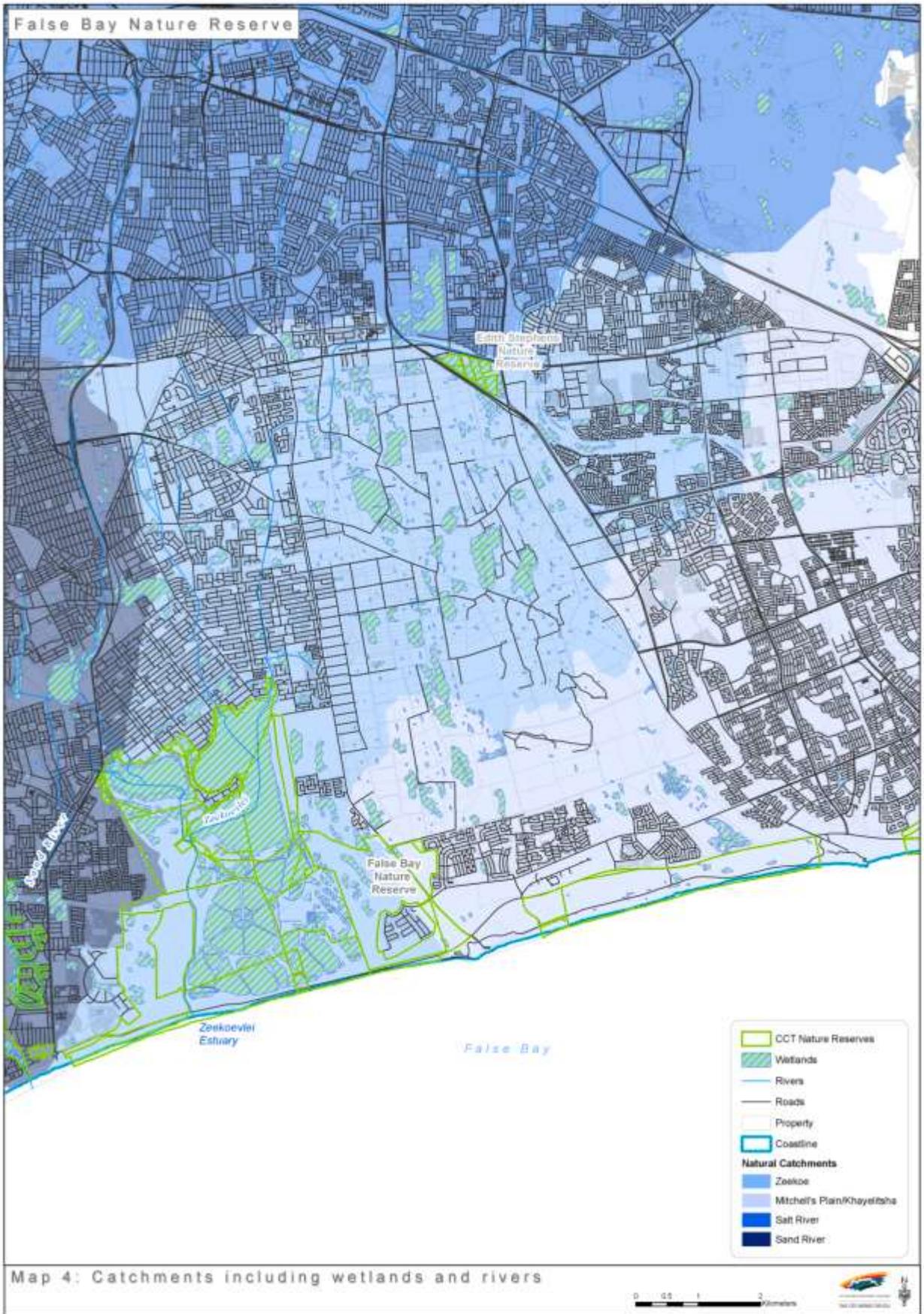
#### 2.3.3.2 Wetlands

False Bay Nature Reserve consists of numerous wetlands and pans, with the Zeekoevlei and Rondevlei sections containing the largest of these water bodies. Smaller seasonal dune slack wetlands can be found to the north-eastern and southern/south-western parts of the Rondevlei section as well as in the low-lying areas of the Pelican Park section. The Strandfontein birding area consists of 22 pans that are connected to the CFWWTW and two seasonal wetlands. The Zandwolf coastal strip contains a number of man-made and natural-occurring wetlands.

Please see map 4, which shows the catchments of False Bay Nature Reserve, including rivers and wetlands.

#### 2.3.3.3 Aquifers

False Bay Nature Reserve overlies the Cape Flats aquifer. Part of this aquifer is protected (Xu & Usher 2006), most notably the sections underlying the Pelican Park section and part of the aquifer under the Slangetjebos section.



## 2.4 Biological environment

### 2.4.1 Vegetation

The majority of False Bay Nature Reserve comprises Cape Flats dune strandveld, with a transition to a small area of the Cape Flats sand fynbos in the north (Rebello *et al.* 2006). The vlei areas are classified as Cape lowland freshwater wetlands).

The biological diversity of the reserve simply cannot be overstated. Please see Map 5 for reserve's position in the Biodiversity network and appendix C1 for the reserve's plant species listing.

#### 2.4.1.1 Rondevlei section

The southern areas of the Rondevlei section, as with most of the rest of False Bay Nature Reserve, are typically dominated by the coastal vegetation type known as Cape Flats Dune Strandveld, associated with the alkaline soils. Cape Flats Sand Fynbos occurs to the north-eastern side of the Rondevlei section. The main water body (the 57 ha vlei) prevents younger dune sands from reaching the northern shore, and results in this area having leached, neutral to acidic soils, which support Cape Flats Sand Fynbos. Distinct ecotones occur between the two vegetation types. Low-lying depressions in both soil types often have high salt concentrations as a result of leaching. These areas are characterised by *Sarcocornia* (Dead Man's Finger) species. The close proximity to the coast and the prevailing on-shore winds result in salts being added to the system, particularly in the southern areas of the Rondevlei section as well as the southern portions of the rest of False Bay Nature Reserve.

The plant species list for Rondevlei section (as recorded on the South African Biodiversity Database (<http://www.seen.co.za>)) currently stands at 277 species. Seventeen plant species of these recorded on site are classified as threatened in the latest Red Data book of plants.

Six distinct plant communities were identified for the Rondevlei section in the previous management plans of 1987 and 2006 (Murdoch 2006). These are as follows:

- Vlei and wetland communities
- Lowland communities
- Dune scrub communities
- Disturbed communities
- Invasive alien plant communities

- Cape Sand Plain Fynbos (now known as Cape Flats Sand Fynbos)

#### 2.4.1.2 Zeekoevlei section

The Zeekoevlei section is similar to the Rondevlei section, with the vlei being the barrier between the alkaline soils to the south, and the neutral to acidic soils to the north. There is therefore a similar distribution of vegetation types, with Cape Flats Dune Strandveld predominating, and Cape Flats Sand Fynbos being evident in the extreme north of the eastern shore of Zeekoevlei. Unfortunately, the eastern shore vegetation is much degraded.

While no detailed botanical assessment has been done specifically for the Zeekoevlei section of False Bay Nature Reserve, the preliminary plant species list currently stands at 48, and includes three Red List threatened species, two of which have been declared extinct in the wild and are being re-established at the site.

#### 2.4.1.3 Pelican Park section

At Pelican Park, the vegetation type is Cape Flats Dune Strandveld (Rebello *et al.* 2006). Disturbed areas near the Pelican Heights suburb contain pioneer forms of this vegetation type. Until 1997, 86 species had been recorded. By 2002, this number had risen to 149 in a total area of approximately 280 ha (Hughes 2002). The area is characterised by parallel dune ridges, with dune slack wetlands occurring in the troughs. The majority of the vegetation is in extremely good condition.

#### 2.4.1.4 Slangetjebos section

Also known as the Capricorn section (Van den Honert 1997), the Slangetjebos section's dominant vegetation type is considered to be Cape Flats Dune Strandveld (Rebello *et al.* 2006). The greater Capricorn area is known to have populations of several threatened plant species. These include the Critically Endangered *Cliffortia ericifolia*, *Psoralea glaucina* (Muizenberg Pea Bush) and *Passerina corymbosa* ssp. *paludosa* (Cape Flats Gonna Bush/Barkersbos). All three of these species are confined to the Cape Flats. Also known from the area are the Endangered *Muraltia mitior* (Purple Gorse/Kroesbossie), the vulnerable *Cliffortia longifolia* and the Near Threatened *Satyrium carneum* (Ever Trevor or 'ewwa Trewwa'/Rooikappie). The Slangetjebos section is very rich in plant species, and within a recent short site visit of approximately one hour, 69 plant species were recorded.

The Slangetjebos section itself is a particularly important parcel of land, as it is in relatively good condition and, in a spatial sense, forms an important component of False Bay Nature Reserve.

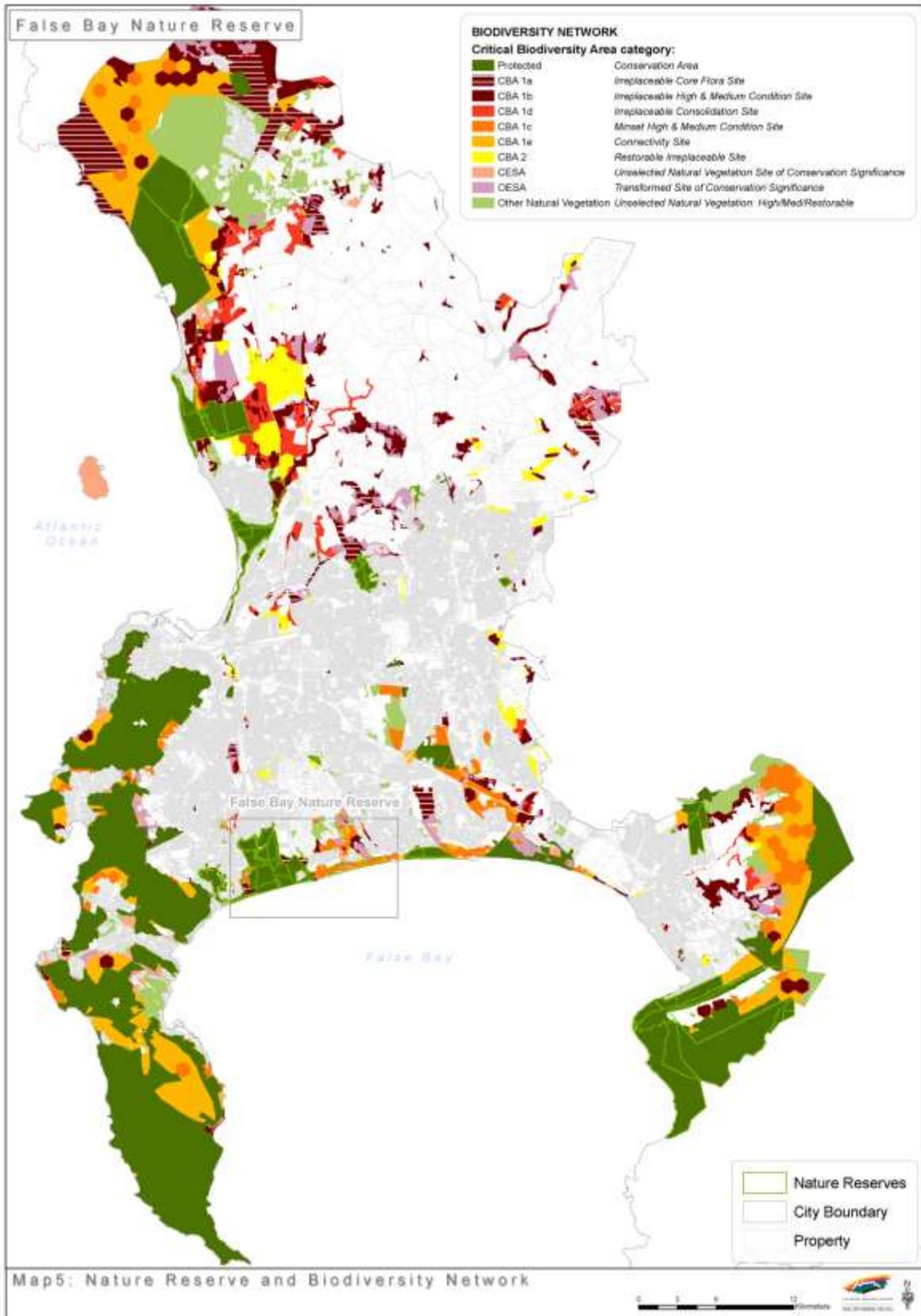
Approximately 139 indigenous plant species were recorded in 1997. The daisy family (*Asteraceae*) is the dominant plant family (61,1% of the total number of species recorded), followed by sedges (*Cyperaceae*) (10,9%); grasses (*Poaceae*) (5,8%), and the pea family (*Fabaceae*) and *Scrophulariaceae* (4,4% each).

#### 2.4.1.5 Strandfontein birding area

The vegetation type found at the Strandfontein birding area is Cape Flats Dune Strandveld(Rebelo *et al.* 2006). Much of the vegetation around the sewage detention pans has been altered or displaced with perennial grasses and other invasive alien species over time.

#### 2.4.1.6 Zandwolf coastal strip

The Zandwolf coastal strip consists of mainly Cape Dune Strandveld(Rebelo *et al.* 2006), which has been disturbed in areas through the development of roads and recreational areas. The coastal strip also consists of active dune fields and a number of natural and artificial wetlands (Samsodien 2010).



#### 2.4.2 Mammals

Twenty-four mammal species are currently recorded for False Bay Nature Reserve. These are mainly small mammal species, such as *Hystrix africaeaustralis* (Porcupine), *Aonyx capensis* (Cape Clawless Otter), *Galerella pulverulenta* (Small Grey Mongoose), *Caracal caracal* (caracal, re-introduced 1996–1999), various rodents such as *Otomys irroratus* (Vlei Rat), and small antelope such as *Raphicerus melanotis* (Cape Grysbok), *Sylvica pragrimmia* (Common Duiker) (re-introduced 2008–2010) and *Raphicerus campestris* (Steenbok). The Rondevlei section also supports a small population of six *Hippopotamus amphibious* (Hippopotamus). These were re-introduced to the vlei in 1979, after an absence of almost 300 years, initially in order to control *Paspalum vaginatum* (Vlei Grass), an invasive alien grass. The full mammal species list for False Bay Nature Reserve can be seen in appendix C2.

Four alien mammal species have been recorded at Rondevlei Nature Reserve, namely *Canis familiaris* (domestic dogs) and *Felis domesticus* (domestic cats) that also enter False Bay Nature Reserve, as well as *Mus musculus* (House Mouse) and *Rattus norvegicus* (Brown Rat).

#### 2.4.3 Birds

False Bay Nature Reserve has a rich avifaunal diversity. This can be attributed to reserve's diversity of habitats. About 240 bird species are currently listed for the site on the South African Biodiversity Database (<http://www.seen.co.za>), including several listed as threatened or near threatened in the Red Data book of birds. This constitutes over 60% of the bird species in the South-western Cape, with at least 84 species breeding within False Bay Nature Reserve. *Struthio camelus* (Ostrich) have been re-introduced to the Rondevlei section, with the most recent re-introduction in April 2010. Please see appendix C3 for a full bird species list for False Bay Nature Reserve.

The Strandfontein birding area was identified as an IBA site in a 1998 assessment (Barnes 1998) under site code SA116. It has also been given status as one of the top three birding sites in Southern Africa (Barnes 2002). The Cape Bird Club has been monitoring the site since 1950, but regular counts started in July 1983. The Strandfontein birding area provides habitat for 76 freshwater bird species, 23 of which have been confirmed to breed there. Bird numbers can reach up to 30 000 individuals at one time. Bird counts at Strandfontein birding area on average yield numbers of up to 15 000 in the summer months and 8 000 in the

winter months. For some species, numbers reach up to 1% of the world's population and/or 0,5% of the regional population threshold.

The Strandfontein birding area has a species list of 197 species, including South African endemics like the *Pycnonotus capensis* (Cape Bulbul), *Phalacrocorax capensis* (Cape Cormorant), *Anas smithii* (Cape Shoveller), *Ploceus capensis* (Cape Weaver), *Telophorus zeylonus* (Bokmakerie), *Larus hartlaubii* (Hartlaub's Gull), *Prinia maculosa* (Karoo Prinia) and *Francolinus capensis* (Cape Spurfowl). To date, 23 bird species have been confirmed as breeding at the site. The site also plays host to a number of migrant Palearctic species. *Larus dominicanus* (Kelp Gull) has a shared breeding colony with both Strandfontein birding area and Wolfgat Nature Reserve, being the only land-based breeding colony for this species in South Africa (Barnes 1998).

#### 2.4.4 Reptiles

Thirty-one reptile species are currently listed on the South African Biodiversity Database (<http://www.seen.co.za>) for False Bay Nature Reserve. Two of these are alien species, namely *Geochelone pardalis* (Leopard Tortoise), which is indigenous to South Africa but an exotic on the Cape Flats, and *Trachemys scripta* (American Red-eared Terrapin), which is alien to the African continent. Neither species has managed to establish a population. Previous records only consist of individuals. *Psammophis leightoni* (Cape Sand Snake) is classified as vulnerable, and is the only threatened reptile species known to occur in False Bay Nature Reserve. Appendix C4 contains a reptile species list for False Bay Nature Reserve.

#### 2.4.5 Amphibians

According to the previous Rondevlei section management plan of 2006 (Murdoch 2006), nine amphibian species have been recorded (two of which are Red Data book species). However, revised surveys are needed, as only six amphibian species are currently listed on the South African Biodiversity Database (<http://www.seen.co.za>) for the entire False Bay Nature Reserve (appendix C5). The endangered *Amietophrynus pantherinus* (Western Leopard Toad) occurs at several sites throughout False Bay Nature Reserve, while the vulnerable *Breviceps gibbosus* (Cape Rain Frog) is also found here.

#### 2.4.6 Invertebrates

Updated invertebrate surveys are required for False Bay Nature Reserve, as invertebrate species lists are limited. Eleven *Mollusca* species and six *Formicidae* (ant family) species,

including the alien *Iridomyrmex humilis* (Argentine ant), were recorded in the last Rondevlei Nature Reserve management plan (Murdoch 2006), but only five insect species and no mollusc species are currently listed on the South African Biodiversity Database (<http://www.biodiversity.co.za>) for the site. Please see appendix C6 for the False Bay Nature Reserve insect species list.

It is noteworthy that False Bay Nature Reserve contains habitat stands of *Imperata cylindrica* (Cotton Wool Grass), which are utilised by two threatened butterfly taxa of the genus *Kedestes*, namely the endangered *Kedestes lenis lenis* (Unique Ranger) and the critically endangered *K. barberae bunta* (Barber's Ranger).

The two subspecies are limited to a narrow distribution range between Muizenberg and Strandfontein, occurring in scattered sites across the Cape Flats. The last confirmed locality for *K. barberae bunta* is in Strandfontein. *Kedestes spp.* larvae have been found in the Strandfontein birding area, the Rondevlei section and the Pelican Park section in recent years, but it is likely that most of these larvae were *K. lenis lenis*, as the only sighting of adult *K. barberae bunta* in flight was at Strandfontein in recent years.

As mentioned above, the larval food of the *Kedestes* butterflies is *Imperata cylindrica* (cotton-wool grass). Interestingly, although this grass species is widespread from Africa to Asia, these two particular *Kedestes* butterfly taxa, *K. barberae bunta* and *K. lenis lenis*, only occur in damp seeps of this grass between dunes in the strandveld vegetation of the Cape Flats. Other subspecies of *Kedestes* all occur at much higher altitudes. For example, *K. barberae barberae* is found at altitudes reaching 2 800 m in Lesotho, whereas the Cape Flats subspecies occur at altitudes below 10 m. Another Hesperiid butterfly associated with the same grass is the commonly found *Pelopidas thrax inconspicua* (White-banded Swift) (Woodhall 2005).

False Bay Nature Reserve contains some of the last viable remnants of suitable habitat for these endemic *Kedestes* butterflies, and is the last known locality for *K. barberae bunta* in particular. The reserve is therefore of extreme significance in the conservation of the two butterfly taxa, and can potentially act as a suitable source population for future re-establishment of the subspecies at other suitable sites across the Cape Flats.

#### 2.4.7 Fish

Historically, at least ten fish species have been recorded in False Bay Nature Reserve, including the estuarine species *Gilchristella aestuaris* (Estuarine Round Herring), *Liza richardsonii* (Southern Mullet) and *Mugil cephalus* (Flathead Mullet). At present, the only indigenous freshwater fish known to occur in the wetlands of False Bay Nature Reserve is a remnant population of *Galaxia zebratus* (Cape Galaxias) at the Rondevlei section. Five species of introduced alien fish occur in False Bay Nature Reserve, namely *Cyprinus carpio* (Common Carp), *Clarias gariepinus* (Sharp-tooth Catfish), *Gambusia affinis* (Mosquito Fish), *Oreochromis mossambicus* (Mozambique Tilapia/Kurper) and *Tilapia sparmanii* (Banded Tilapia). Appendix C7 lists the fish species found in False Bay Nature Reserve.

### 2.5 Socio-political context

#### 2.5.1 History

Only two sections of False Bay Nature Reserve enjoy legal protection. The Rondevlei section was proclaimed as the Rondevlei Wild Bird Sanctuary in 1950. The name was changed to that of Rondevlei Nature Reserve in 1986, a local-authority nature reserve (Murdoch 2006). The Zeekoevlei section was proclaimed a local-authority nature reserve on 2 June 2000.

##### 2.5.1.1 False Bay Ecology Park

The concept of a large protected area on the False Bay coast has existed since the “Greening of the Cities” report (1982), in which a proposed False Bay coastal park was mooted. This comprised much of the similar area to what is now known as False Bay Nature Reserve, and False Bay Ecology Park forms the ‘core’ of the proposed False Bay Nature Reserve. Work has also previously been done (Khan 2010) that proposed the establishment of a nature reserve around the False Bay coast, linking Muizenberg to Macassar and beyond.

The False Bay Ecology Park Development and Action Plan was prepared in 2001, and formed the basis on which False Bay Ecology Park has been established to date. False Bay Ecology Park consists of Rondevlei Nature Reserve, Zeekoevlei Nature Reserve, the CFWWTW and the Strandfontein birding area, and is not a formally proclaimed entity, but rather a cooperative working partnership between City of Cape Town departments and external partners. An advisory group known as the False Bay Ecology Park Steering Committee meets on a quarterly basis to discuss matters relating to False Bay Ecology Park.

#### 2.5.1.2 Rondevlei section

In the 1920s and 1930s, the northern portion of what is now known as Rondevlei Nature Reserve (erf number 1834) supported a small farm of 30 dairy cows and pigs called Laughing Waters (Gibbs 2010). In 1950, the secretary of the then Divisional Council of the Cape recommended to its Council that this be proclaimed as the Rondevlei Section Bird Sanctuary in terms of section 2(i) of the Wild Bird Sanctuary Ordinance, No. 17 of 1948 (appendix B1). This ordinance was superseded by the Provincial Nature and Environmental Ordinance of 1974. After having been approved by the Administrator of the Cape, Rondevlei Nature Reserve's establishment was finalised, and its creation was published in the Official Gazette No. 2509 of December 1950. In 1986, the name of the sanctuary was changed to that of Rondevlei Nature Reserve (Murdoch 2006).

A minor adjustment was made to Rondevlei Nature Reserve's south-east boundary in 1962 with a further addition of two small areas totalling 13 ha, followed by the addition of another 100 ha in 1990 (98 ha of dunes and a seasonal wetland to the south). A further 70 ha has since been incorporated to the south-east of Rondevlei Nature Reserve. Rondevlei Nature Reserve is currently standing at a total of 290 ha, which includes a 5 ha site originally designated for a school, belonging to the Western Cape Education Department. In July of 1995, the east/west old boundary fence that separated the two halves of Rondevlei Nature Reserve was removed, while, in November 2000, the dividing fence along the gravel road on the western bank of the Zeekoevlei Nature Reserve canal was removed. This links the eastern and western sides of the Zeekoevlei Nature Reserve canal (Murdoch 2006).

Large portions of Rondevlei Nature Reserve were infested by extensive stands of alien *Acacia* species, which was not addressed by early management practices. This is because early reserve management at the site by Ernst Middlemiss focused largely on the research of water birds, and did not address terrestrial issues (Gibbs 2010). High infestation of invasive alien *Acacia* species resulted in the large withdrawal of moisture, and altered the soil humus and pH levels. The resultant disturbed soil conditions hampered the rehabilitation of rare and endangered plant species in later years. By 1990, the Rondevlei Nature Reserve management focus was expanded also to include the management of the full spectrum of floral and faunal biodiversity present in the reserve, including alien invasive species management (Murdoch 2006).

The reserve managers of Rondevlei Nature Reserve are as follows:

- 1952 to 1974: Ernst Middlemiss

- 1975 to 1993: Clifford Howard Langley
- 1993 to 2006: Dalton Jerome Gibbs
- 2006 to 2009: Penelope Sian Murdoch
- 2009 to present: Tamaryn Kelley Allan (reserve amalgamated into the False Bay Nature Reserve)

Shortly after the inception of the proclaimed Rondevlei Nature Reserve, the surrounding semi-rural area rapidly began to urbanise, with high-density sub-economic housing developments predominating. To facilitate the drainage of these townships, a number of canals and water channels were fed into Rondevlei Nature Reserve, even though the original intention was to exclude the vlei from such drainage schemes. In 1959, to accommodate further drainage and prevent flooding of the adjoining residential area, the vlei level was permanently lowered. This was done by means of severing the vlei's connection with Zeekoevlei Nature Reserve, and the construction of a weir and outlet canal. The inclusion of Rondevlei Nature Reserve into the drainage system of the surrounding suburbia, and the lowering of the vlei level, had a negative impact on the ecology of the area, resulting in the need for more intensive conservation management. In 1987, the Rondevlei Nature Reserve Advisory Board recommended that every effort be made to direct the existing stormwater drains away from the vlei, and to disallow any future such drains into the reserve. If implemented, this will be a major step towards resolving a serious eutrophication problem, caused by the excess input of nutrients into the system (Murdoch 2006). As a result, the stormwater drainage system for Lavender Hill was routed south of Rondevlei (Gibbs 2010).

In 1979, *Hippopotamus amphibious* (hippopotamus) were re-introduced into Rondevlei Nature Reserve after an absence of almost 300 years. The population was initially introduced in order to control *Paspalum vaginatum* (Vlei Grass), an alien grass species.

#### 2.5.1.3 Zeekoevlei section

In the 1600s, Zeekoevlei Nature Reserve's lake was much larger than its present size. It was inhabited by *Hippopotamus amphibious* (hippopotamus), which caused Jan van Riebeeck to call it Zeekoe Vlei (Dutch for 'hippopotamus lake'). It flooded large areas of the surrounding flatlands during winter, and dried up again in summer, becoming considerably smaller but still larger than it is today. This cycle naturally regulated the growth of aquatic plant populations (Southern Waters 2000).

During the 1900s, the annual changes in water level and surface area were not conducive to water sports and recreational activities, nor were they conducive to lakefront development. The solution was first to harden the edges, and later to build a weir (completed in 1954).

The water level varied little thereafter. This caused a multitude of problems, one of which was excessive and unrelenting plant growth. This new problem was 'solved' when the local municipality at the time added several tons of arsenic to the system, thereby causing a catastrophic vegetation die-back. The indigenous *Potamogeton* sp. (Pond Weed) became locally extinct as a result (Southern Waters 2000).

In 1997, sluice gates were added to the weir thanks to the efforts of local residents, and a 'drawdown' flushing period was instituted to mimic the natural cycle. The summer-time use of the vlei by boaters, fishermen, etc. meant that the cycle had to be reversed. Zeekoevlei Nature Reserve now experiences its lowest water level in mid-winter (Khan 2010).

Zeekoevlei Nature Reserve was declared a local-authority nature reserve on 2 June 2000, under section 7(5) of the Nature Conservation Ordinance 19 of 1974 (appendix B1), and has been managed primarily for conservation ever since.

The terrestrial area surrounding the water body has an even more vague history. Local residents suggest that the degraded eastern shore was at one time farmland, and that a section of the land on the southern shore was used as a municipal dump.

The reserve managers of Zeekoevlei Nature Reserve are as follows:

- 2000 to 2005: Dalton Gibbs
- 2005 to 2009: Asieff Khan
- 2009 to present: Joshua Gericke (reserve amalgamated into the False Bay Nature Reserve)

#### 2.5.1.4 Strandfontein birding area

The Strandfontein birding area was originally made up of naturally occurring wetlands, the largest of which were known as Tamatie Vlei and Maccoa Vlei (Gibbs 2010). Due to the increasing need for wastewater treatment in 1964, the CFWWTW was upgraded from a system of oxidising pans based on the naturally occurring winter vleis, to a system with sector-shaped oxidising pans. Another upgrade was necessary in 1970, when the overflow from Athlone Wastewater Treatment Plant was diverted to the then Wynberg works (as the

CFWWTW was formerly known). With the need for a proper sewage works, the CFWWTW was commissioned to be built in 1980 (Barnes 2002).

The Cape Bird Club has been active in the area for more than 50 years by recording bird species and numbers on a regular basis. They decided that a person trained in nature conservation was required at the site to ensure that the needs of biodiversity were balanced with the needs of the wastewater treatment works. In 2004, funding was secured through a bequest by Julie te Groen “to enhance the biodiversity of the environment at the Strandfontein birding area”. The Cape Bird Club used this money to fund the site manager position in partnership with the City of Cape Town, with whom it had an MOU regarding provision of management services for the Strandfontein birding area.

The reserve managers of the Strandfontein Birding Area are as follows:

- 2003: Linden Rhoda
- 2004 to 2005: Jeremy Keyser
- 2006: Morné Carstens
- 2007 to 2008: Eben Olderwagen
- 2008 to present: Victoria Day (reserve amalgamated into the False Bay Nature Reserve)

#### 2.5.1.5 Pelican Park

Pelican Park has not yet been proclaimed, although its conservation significance has been recognised in several reports (Hughes 2002). It was intended for residential development, but growing awareness of its ecological significance has allowed some land to be set aside for conservation. The high rolling dunes prevented farming of the site, and ensured that it remained in relatively good condition.

The reserve managers of Pelican Park are as follows:

- 2009: Asieff Khan (reserve amalgamated into the False Bay Nature Reserve)
- 2010: Mogamat Samsodien (seconded from the Cape Town Environmental Education Trust (CTEET) on behalf of the City of Cape Town)

#### 2.5.1.6 Slangetjebos section

The Slangetjebos section has not yet been proclaimed, but its conservation significance has been recognised in several reports (Van den Honert 1997). It was earmarked for the development of one of the largest industrial parks to be built in Africa, catering for local and

international technology and the research-related industry. In the mid-1990s, an agreement was drawn up between South Peninsula Municipality and Capricorn Development, stating that the developer had first preference to the area now known as the Slangetjebos section. In mid-2000, however, due to a change in circumstances, the agreement was terminated.

The Slangetjebos section is managed for conservation by Mr Zieyaad Allie, seconded from CTEET on behalf of the City of Cape Town since mid-2010. Conservation management in the area has thus far consisted mainly of clearing invasive alien vegetation.

## 2.5.2 Socio-economic context

### Towns

False Bay Nature Reserve is situated in the south-western corner of the Cape Flats, approximately 21 km south of central Cape Town, and 7 km east/north-east of Muizenberg.

### Municipalities

False Bay Nature Reserve falls under the administration of the City of Cape Town (municipality). The presiding subcouncils for the False Bay Nature Reserve area are Rondevlei Subcouncil 18, Muizenberg Subcouncil 19, and the Mitchells Plain Subcouncil 12. There are two proclaimed local-authority nature reserves in False Bay Nature Reserve, namely Rondevlei and Zeekoevlei nature reserves. The Strandfontein birding area falls under the jurisdiction of the municipal CFWWTW. The Coastal Park landfill falls within the boundaries of False Bay Nature Reserve, but is under the direct jurisdiction of the City of Cape Town's Solid Waste Management Department.

### Socio-economic demography

False Bay Nature Reserve is surrounded by residential developments to the east, west and north. These areas range from disadvantaged, low-income (e.g. Lavender Hill, Lotus River and Capricorn) communities to middle-class and affluent suburbs (e.g. Grassy Park and Zeekoevlei Peninsula). There is only one rural area in the vicinity of the reserve, namely the Philippi agricultural area opposite Strandfontein Road, opposite Pelican Park and Zeekoevlei. Labour export supports the income of most of the surrounding communities, and the Philippi economy revolves around the production of vegetables and similar foods.

### Competing land uses

False Bay Nature Reserve shares the Strandfontein birding area with a municipal wastewater treatment works, and the Coastal Park landfill site forms a non-conservation

island in the middle of the reserve. Conflicts of interest are omnipresent. Past conflicts have taken the form of contaminants percolating through the soil and polluting the aquifers, litter blowing into False Bay Nature Reserve, and direct dumping of sludge.

The different land uses in the catchments also affect False Bay Nature Reserve. These include a variety of industrial, residential and agricultural uses.

In addition, many users of False Bay Nature Reserve have implemented certain management interventions that are harmful from a purely ecological standpoint. An example of this is the weir built at Zeekoevlei Nature Reserve to ensure constant water levels for boating and for the development of houses and urban infrastructure.

### Volunteers

False Bay Nature Reserve receives assistance from volunteers on an ad hoc basis, usually in the form of private volunteers from the community, or through local high-school work shadow programmes, international volunteer recruitment agencies (e.g. the South African Students' Travel Services, or SASTS; Connect 123) and criminal offenders from Pollsmoor Correctional Facility who are carrying out community service.

### Friends, partners and interest groups

Many people provide support in various ways, including administrative support and the sharing of resources, useful information and advice.

There is an active Friends group known as the Friends of Zeekoevlei and Rondevlei (FoZR), who supports False Bay Nature Reserve through fundraising efforts (e.g. the Zeekoefees; sponsoring projects, such as the re-introduction of *Struthio camelus* (Ostrich) to Rondevlei Nature Reserve, and purchasing equipment, such as tree poppers for alien clearing), involvement in conservation activities (e.g. alien-vegetation 'hack groups', veld rehabilitation projects, etc.) and providing advice and legal aid to False Bay Nature Reserve (e.g. support in opposing inappropriate development). FoZR also runs an indigenous nursery on the Rondevlei Nature Reserve premises (appendix B2), which sells indigenous plants to the public, and propagates genetically suitable plants for veld rehabilitation in False Bay Nature Reserve.

The Zeekoevlei Powerboat Club has recently been re-established, with the expectation of a long and fruitful partnership with Zeekoevlei Nature Reserve. Several longstanding rowing clubs are also active at Zeekoevlei Nature Reserve.

The Western Province Angling Club is very active at Zeekoevlei and Rondevlei nature reserves as well as the Strandfontein birding area. They assist in conservation by providing input into reserve management and planning, and volunteering for reserve projects and maintenance, particularly (but not only) with projects relating to fishing.

A user group known as the Peninsula Radio Flyers utilises a portion of Zeekoevlei Nature Reserve for flying model aircraft. This group uses an 80 m model aircraft runway through a lease agreement with the City of Cape Town. The current lease (appendix B4) expires in 2013, and is renewable every five years. All infrastructure used by this group is 'soft development' (i.e. non-permanent structures), which can be easily removed, thus limiting negative impacts on the environment (Khan 2011).

The Cape Bird Club is one of the longest-standing partners of False Bay Nature Reserve (appendix B3), particularly of the Strandfontein birding area, and has sponsored several posts in the reserve. The Strandfontein birding area probably would not have been established as a bird sanctuary were it not for their passion and support.

Several local residents have formed special partnerships with the City of Cape Town's nature conservation authorities in adopting and rehabilitating sections of land around their properties, and, in some cases, including parts of their property into the areas that are being rehabilitated. Most notable in this regard is the Bottom Road sanctuary in Zeekoevlei. Other projects have been committed to in Bass Road, Flamingo Crescent and 14<sup>th</sup> Avenue, Zeekoevlei.

An advisory board (the False Bay Ecology Park Steering Committee), made up of various stakeholders and City of Cape Town departments, meets quarterly to discuss projects taking place across False Bay Nature Reserve, and to lend support and provide advice for such initiatives. The committee includes representatives from City of Cape Town departments, such as Catchment Management, Water and Sanitation, and Solid Waste Management. Public stakeholders represented include the Zeekoevlei Yacht Club, the Cape Bird Club, Western Province Angling, and others. Appendices B2 and B3 contain legal agreements relating to the various partner organisations associated with False Bay Nature Reserve.

## 2.6 Protected-area expansion

Two nodes situated along the Zandwolf coastal strip, namely Kapteinsklip and the Strandfontein Pavillion, are not discussed in this management plan, as portions of these erven are still the subject of negotiations for possible inclusion in the Zandwolf coastal strip, thereby expanding the management area of False Bay Nature Reserve.

## 3. PURPOSE, VISION/MISSION, SIGNIFICANCE/VALUE

### 3.1 Purpose of the protected area

False Bay Nature Reserve is located in the CFR, an area of global biodiversity significance. The reserve conserves a unique combination of habitats, ecosystems and species, many of which are either rare or endemic to the area.

The primary purpose and objective of False Bay Nature Reserve is the **conservation of its unique biodiversity and associated ecosystem features and functions.**

While conserving this unique biodiversity, secondary objectives will include:

- conserving and rehabilitating indigenous biodiversity;
- providing and promoting environmental education;
- creating appropriate recreational and tourism nodes and opportunities; and
- striving to create job opportunities.

### 3.2 Vision and mission

#### 3.2.1 Vision

##### Integrated Development Plan (IDP) vision

The vision of the City of Cape Town remains as follows:

- To be a prosperous city that creates an enabling environment for shared growth and economic development
- To achieve effective and equitable service delivery
- To serve the citizens of Cape Town as a well-governed and effectively run administration

In order to achieve this vision, the City recognises that it must:

- actively contribute to the development of its environmental, human and social capital;
  - offer high-quality services to all who live in, do business in, or visit Cape Town as tourists;
- and

- be known for its efficient, effective and caring government.

(City of Cape Town 2011<sup>1</sup>)

#### C.A.P.E vision

We, the people of South Africa, are proud to be the custodians of our unique Cape Floristic Region, and share its full ecological, social and economic benefits now and in the future. (Fowkes and Younge 2003)

#### Environmental Resource Management Department vision

To ensure that sustainable and equitable development is combined with sound environmental practices for a healthy local environment, which sustains people and nature, provides protection for our unique resources, and results in an enhanced quality of life for all. (City of Cape Town 2011<sup>2</sup>)

#### Biodiversity Management Branch vision

To be a City that leads by example in the protection and enhancement of biodiversity; a City within which biodiversity plays an important role, and where the right of present and future generations to healthy, complete and vibrant biodiversity is entrenched; a City that actively protects its biological wealth, and prioritises long-term responsibility over short-term gains. (Holmes *et al.* 2007)

#### False Bay Nature Reserve vision

To manage and restore the natural assets of False Bay Nature Reserve by partnering with people to ensure the area's survival for present and future generations.

### 3.2.2 Mission

#### Biodiversity Management Branch mission

- To manage biodiversity proactively and effectively
- To ensure an integrated approach to biodiversity between City of Cape Town line functions and departments, and actively pursue external partnerships
- To adopt a long-term approach to biodiversity
- To ensure sustainability of our rich biodiversity
- To adopt a holistic and multifaceted approach to biodiversity
- To continue to measure and monitor the City of Cape Town's performance in the protection and enhancement of biodiversity
- To continue to measure and monitor the state of biodiversity in Cape Town

### False Bay Nature Reserve mission

To restore and maintain the natural environment and its associated ecological processes and services through the implementation of the management objectives of False Bay Nature Reserve.

### **3.3 Significance of property (biodiversity, heritage and social)**

False Bay Nature Reserve has many attributes that contribute to the overall significance of the site. These include the following:

- It is an important ecological node within the City of Cape Town's biodiversity network.
- It forms the largest conservation area on the Cape Flats (2 300,7 ha).
- It acts as an ecological corridor between Table Mountain National Park, the False Bay coastline (including Wolfgat Nature Reserve) and Kogelberg Biosphere Reserve.
- The vegetation of the area is of global biodiversity significance, falling under the Cape Floristic Region (CFR), the smallest yet richest of the world's six plant kingdoms.
- It contains two endangered vegetation types (one of which is critically endangered, the other endangered), which contribute to national vegetation targets. For example, Cape Flats Sand Fynbos occurs only on the acidic soils of the Cape Flats, and is arguably the rarest vegetation type on earth, with only about 14% remaining, of which less than 1% is conserved.
- Among the almost 300 plant species currently recorded, 19 are listed as threatened species in the Red Data list of threatened plant species. This includes *Erica verticillata* (Cape Flats Erica) (which is listed as extinct in the wild, but has been propagated and re-introduced to the site), *Leucodendron levisanus* (Cape Flats Cone Bush) and the endemic *Serruria aemula* ssp. *foeniculaceae* (Rondevlei Spiderhead).
- Rondevlei Nature Reserve has one of the oldest rainfall stations in Cape Town.
- Half of the water birds in the greater Cape Town region breed on site at False Bay Nature Reserve.
- Rondevlei Nature Reserve has the oldest continuous bird count in Africa, having started in 1952.
- The Strandfontein birding area regularly receives numbers of up to 30 000 birds in the summer season, and up to 1% of the global population (0,5% of the regional population threshold) of certain bird species.
- A component of False Bay Nature Reserve (the Strandfontein birding area) has been awarded IBA status (IBA – SA 116).

- The area contains the only population of hippopotamus in the boundaries of the City of Cape Town.
- Not only is False Bay Nature Reserve surrounded by urban development, but it is also unique conservation site in that it contains operational urban components, such as a landfill site and a wastewater treatment works, within its boundaries.
- Several City of Cape Town line functions work in conjunction with each other for the management of the various sites making up False Bay Nature Reserve.
- There are over 100 000 visitors to False Bay Nature Reserve per year.
- Twenty-four official user groups utilise False Bay Nature Reserve.
- The local community actively supports the management of False Bay Nature Reserve, including a Friends group (FoZR), who fundraises and volunteers at the various sites.
- False Bay Nature Reserve actively supports skills development and job creation within the surrounding communities, through employing and training local individuals.
- Nine confirmed amphibian species are listed for the site, and False Bay Nature Reserve acts as an important breeding and foraging site for the endangered *Amietophrynus pantherinus* (Western Leopard Toad).
- Populations of the threatened *Psammophis leightoni* (Cape Sand Snake) and *Bradypodion pumlium* (Cape Dwarf Chameleon) occur in False Bay Nature Reserve.
- The False Bay Nature Reserve area is of cultural and historical significance, with middens discovered on site (circa 250 years old).
- False Bay Nature Reserve is the last known locality for *Kedestes barbarae bunta* (Barber's Ranger), and supports populations of the other associated threatened subspecies *Kedestes lenis lenis* (Unique Ranger).
- Four different education programmes are run through False Bay Nature Reserve, and there are several environmental education facilities provided at Rondevlei and Zeekoevlei nature reserves.
- False Bay Nature Reserve is recognised as a strategic project of the City of Cape Town, and is listed in the IDP.
- False Bay Nature Reserve is a line-item budget allocation that is reflected and reported on in the City of Cape Town Mayor's dashboard of priorities.
- False Bay Nature Reserve constitutes a strong partnership project.

## PART 2

### MANAGEMENT POLICY FRAMEWORK

#### 4. ADMINISTRATIVE AND LEGAL FRAMEWORK FOR THE MANAGEMENT AUTHORITY

##### 4.1 Legal framework

**Table 2: Legal framework**

The following is a list of legislation applicable to the City of Cape Town's Biodiversity Management Branch. Repealed legislation has been included as greyed-out text for information purposes only.

Legislation: Acts, ordinances, bylaws	Relevance: Description	Amendment: Latest amendment date	Comment: Other notes
<b>Constitution of the Republic of South Africa, Act 108 of 1996</b>	Lists South African citizens' environmental rights	N/A	Chapter 2: Bill of Rights assigns citizens with particular rights
<b>ENVIRONMENTAL LEGISLATION</b>			
<b>National legislation</b>			
<b>National Environmental Management Act (NEMA), Act 107 of 1998</b>	One of the most important environmental laws relating to most aspects of the environment, including environmental impact assessments (EIAs), environmental information and legal standing, etc.	<ul style="list-style-type: none"> <li>Amendment Act 56 of 2002</li> <li>Amended by GN 26018, Vol 464 of 13 February 2004</li> </ul>	Provides for cooperative environmental governance
<b>National Environmental Management: Biodiversity Act, Act 10 of 2004</b>	<p>The objectives of the Act are to provide for:</p> <ul style="list-style-type: none"> <li>the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998;</li> <li>the protection of species and ecosystems that warrant national protection;</li> <li>the sustainable use of indigenous biological resources;</li> <li>the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources; and</li> <li>the establishment and functions of a South African National</li> </ul>	N/A	The development of the IRMP will assist in ensuring that the objectives of this Act are achieved in the reserve.

	<p>Biodiversity Institute.</p> <p>In essence, the Act was put in place to safeguard the important biodiversity attributes in the country, while allowing people to benefit equally from the natural resources. In order to achieve these goals, the Act made provision for the South African National Biodiversity Institute (SANBI), which has been designated certain functions and afforded powers and duties in respect of this Act.</p>		
<p><b>National Environmental Management: Protected Areas Act, Act 57 of 2003</b></p>	<p>To provide for:</p> <ul style="list-style-type: none"> <li>the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and natural landscapes and seascapes;</li> <li>the establishment of a national register of all national, provincial and local protected areas;</li> <li>the management of those areas in accordance with national norms and standards;</li> <li>intergovernmental cooperation and public consultation on matters concerning protected areas; and</li> <li>matters in connection therewith.</li> </ul>	<ul style="list-style-type: none"> <li>Amendment Act 62 of 2008</li> <li>Amendment Act 15 of 2009</li> </ul>	<p>Regulations Notice 1029 of 2009 lists specific regulations for reserves proclaimed by the Member of the Executive Council (MEC) (draft August 2009).</p>
<p><b>Conservation of Agricultural Resources Act (CARA), Act 43 of 1983</b></p>	<p>The CARA regulations contain a list of alien invasive vegetation categorised according to their legal status. The Act regulates the sale, position and use of listed species.</p>	<ul style="list-style-type: none"> <li>Amended by GN R 2687 of 6 December 1985 and GN R 280 of 30 March 2001</li> </ul>	<p>Alien invasive plant legislation to be included under the Biodiversity Act in future</p>
<p><b>National Veld and Forest Fire Act, Act 101 of 1998</b></p>	<p>Relates to veld fire prevention, fire protection associations, fire danger indexing, enforcement of fire legislation, and the fighting of fires</p>	<p>N/A</p>	<p>A detailed fire management plan will be developed.</p>
<p><b>Marine Living Resources Act, Act 18 of 1998</b></p>	<p>Regulates conservation of the marine ecosystem and the long term sustainable utilisation of marine living resources</p>		
<p><b>Environment Conservation Act, Act 73 of 1989</b></p>	<p>The Environment Conservation Act is the other law that relates specifically to the environment. Although most of this Act has been replaced by NEMA, some important sections still remain in operation. These sections relate to:</p> <ul style="list-style-type: none"> <li>protected natural environments;</li> </ul>	<ul style="list-style-type: none"> <li>Environment Conservation Amendment Act 98 of 1991</li> <li>Environment Conservation Amendment Act 79 of 1992</li> <li>Environment Conservation</li> </ul>	

	<ul style="list-style-type: none"> <li>• littering;</li> <li>• special nature reserves;</li> <li>• waste management;</li> <li>• limited-development areas;</li> <li>• regulations on noise, vibration and shock; and</li> <li>• EIAs.</li> </ul>	<p>Second Amendment Act 115 of 1992</p> <ul style="list-style-type: none"> <li>• Environment Conservation Amendment Act 94 of 1993</li> <li>• Environment Conservation Second Amendment Act 52 of 1994</li> <li>• Proclamation R27 of 1995</li> <li>• Proclamation R43 of 1996</li> <li>• National Environment Management Act 107 of 1998</li> </ul>	
<b>National Water Act, Act 36 of 1998</b>	Relates to all use of water and the management of all water resources in South Africa	•	
<b>National Environmental Management: Air Quality Act, Act 39 of 2004</b>	To provide for enhancing the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of the people		Promulgated to give effect to section 24(b) of the Constitution. The South African Air Quality Information System is a web-based system that provides information on the quality of ambient air across the country.
<b>Animal Protection Act, Act 71 of 1962</b>	To consolidate and amend the laws relating to the prevention of cruelty to animals	Animal Matters Amendment Act, Act 42 of 1993	
<b>Animal Diseases Act, Act 35 of 1985</b>	Provides for control measures relating to animal diseases		
<b>Animal Health Act, Act 7 of 2002</b>	Regulates animal health		
<b>Game Theft Act, Act 105 of 1991</b>	Regulates the ownership and protection of game		
<b>Mountain Catchment Areas Act, Act 63 of 1970</b>	Provides for catchment conservation		Administered under the Western Cape Nature Conservation Board Act, Act 15 of 1998
<b>National Heritage Resources Act 25 of 1999</b>	Provides for the protection of heritage resources		N/A
<b>World Heritage Conservation Act 49 of 1999</b>	Incorporates the World Heritage Convention into South African law		N/A
<b>Problem Animal Control Ordinance, Ordinance 26 of 1957</b>	Regulates problem animals		Administered under the Western Cape Nature Conservation Board Act, Act 15 of

			1998
<b>Mineral and Petroleum Resources Development Act, Act 28 of 2002</b>	Provides for equitable access to, and sustainable development of, mineral and petroleum resources		
<b>Atmospheric Pollution Prevention Act, Act 45 of 1965</b>		Entire Act repealed on 1 April 2010 in favour of the National Environmental Management: Air Quality Act, Act 39 of 2004	
<b>Provincial legislation</b>			
<b>Land Use Planning Ordinance, Ordinance 15 of 1985</b>	The purpose of the Ordinance is to regulate land use and to provide for incidental matters related to land use.	<ul style="list-style-type: none"> <li>Assented to on 22 November 1985</li> <li>Western Cape Land Use Planning Ordinance, 1985, Amendment Act, 2004</li> </ul>	Although it might not have a direct application in the management of nature reserves, it does affect the surrounding properties, and could possibly be used to control activities/developments around the reserves to minimise negative effects, for example in applying zoning restrictions.
<b>Cape Nature and Environmental Conservation Ordinance, Ordinance 19 of 1974</b>	The purpose of this Ordinance is to regulate wild animals and plants, and the establishment of nature reserves.	Publication date 1 September 1975	Administered under the Western Cape Nature Conservation Board Act, Act 15 of 1998
<b>Western Cape Nature Conservation Board Act, Act 15 of 1998</b>	The purpose of this Act is to promote and ensure nature conservation, render services and provide facilities for research and training and to generate income		Biodiversity agreements are signed under this Act.
<b>Municipal legislation</b>			
<b>Integrated Metropolitan Environmental Policy (IMEP), 2001</b>	Envisages a set of Citywide aligned strategies dealing with all aspects of the environment.		Influenced the Biodiversity Strategy, 2003
<b>Biodiversity Strategy, 2003</b>	To be a city that leads by example in the protection and enhancement of biodiversity	<ul style="list-style-type: none"> <li>Draft amendment for 2009–2019</li> </ul>	Influenced the development of the IRMP
<b>City of Cape Town Bylaw relating to Stormwater Management, LA 31420</b>	To provide for the regulation of stormwater management in the area of the City of Cape Town, and to regulate activities that may have a detrimental effect on the development, operation or maintenance of the stormwater system	<ul style="list-style-type: none"> <li>Publication date 23 September 2005</li> </ul>	Communication strategy and action plan will take effect to address the issues with the relevant departments

<b>City of Cape Town Air Pollution Control Bylaw, LA 12649</b>	The purpose of this bylaw is to give effect to the right contained in section 24 of the Constitution of the Republic of South Africa Act (Act 108 of 1996) by controlling air pollution within the area of the Council's jurisdiction; to ensure that air pollution is avoided, or, where it cannot be altogether avoided, is minimised and remedied.	<ul style="list-style-type: none"> <li>• Publication date 4 February 2003</li> </ul>	
<b>Bylaw relating to Community Fire Safety, Province of the Western Cape, LA 11257</b>	The purpose and scope of the bylaw is to promote the achievement of a fire-safe environment for the benefit of all persons within the municipality's area of jurisdiction, and to provide for procedures, methods and practices to regulate fire safety within the municipal area.	<ul style="list-style-type: none"> <li>• Publication date 28 February 2002</li> </ul>	A fire management plan to be designed
<b>City of Cape Town Draft Animal Bylaw, 2009</b>	The purpose of the Bylaw is to formulate a new single bylaw, including ten different municipal dog bylaws and the Animal Protection Act of 1962. The Bylaw includes chapters on dogs, cats, poultry and working equines.	<ul style="list-style-type: none"> <li>• Draft, 2009</li> </ul>	
<b>HUMAN RESOURCES/ADMINISTRATION LEGISLATION</b>			
<b>National legislation</b>			
<b>Occupational Health and Safety Act, 1993</b>	To provide for the health and safety of persons at work, and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety, and to provide for matters connected therewith.	Occupational Health and Safety Amendment Act, No 181 of 1993	
<b>Basic Conditions of Employment Act, Act 3 of 1997</b>	Provides for control measures pertaining to employment	<ul style="list-style-type: none"> <li>• Amendment Act 11 of 2002</li> </ul>	
<b>Labour Relations Amendment Act, Act 66 of 1995</b>	The Act aims to promote economic development, social justice, labour peace and democracy in the workplace.	<ul style="list-style-type: none"> <li>• Labour Relations Amendment Act, 42 of 1996</li> <li>• Afrikaans Labour Relations</li> </ul>	

		<ul style="list-style-type: none"> <li>Amendment Act, 1998</li> <li>Labour Relations Amendment Act, 127 of 1998</li> <li>Labour Relations Amendment Act, 2000</li> <li>Amendment Act 12 of 2002</li> </ul>	
<b>Local Government Municipal Systems Act, Act 32 of 2000</b>	Establishes core principles, processes and mechanisms relating to local government		
<b>Promotion of Equality/Prevention of Unfair Discrimination Act, Act 4 of 2000</b>	Provides for the prevention of discrimination and other related matters		
<b>Criminal Procedure Act, Act 51 of 1977</b>	Makes provision for procedures and related matters in criminal proceedings	<ul style="list-style-type: none"> <li>Criminal Procedure Amendment Act, Act 65 of 2008</li> </ul>	
<b>Firearms Control Act, Act 60 of 2000</b>	To establish a comprehensive and an effective system of firearms control and, to provide for matters connected therewith		
<b>Civil Aviation Act, Act 13 of 2009</b>			
<b>Fencing Act, Act 31 of 1963</b>	Regulates all matters relating to fencing		
<b>Hazardous Substances Act, Act 15 of 1973</b>	Controls substances that may cause injury or ill health to, or death of, human beings by reason of their toxic nature		
<b>Land Survey Act, Act 8 of 1997</b>	Regulates land surveying, beacons and other related matters		
<b>Promotion of Access to Information Act, Act 2 of 2000</b>	Promotes access to information		
<b>Promotion of Administrative Justice Act, Act 3 of 2000</b>	Provides for the promotion of administrative justice	<ul style="list-style-type: none"> <li>Amendment Act 53 of 2002</li> </ul>	
<b>Regional Services Council Act, Act 109 of 1985</b>	Regulates and controls land, land use and other related matters		
<b>Skills Development Act, Act 97 of 1998</b>	Promotes the development of skills		
<b>State Land Disposal Act, Act 48 of 1961</b>	Regulates the disposal of state-owned land		
<b>Subdivision of Agricultural Land Act, Act 70 of 1970</b>	Regulates the subdivision of agricultural land		
<b>Tourism Act, Act 72 of 1993</b>	Provides for the promotion of tourism, and regulates the tourism industry		A tourism strategy is envisaged.

<b>Public Resorts Ordinance, Ordinance 20 of 1971</b>	Regulates nuisance and pollution control		
<b>Municipal Ordinance, Ordinance 20 of 1974</b>	Regulates pollution and waste management		
<b>South African National Road Agency Limited and National Roads Act, Act 7 of 1998</b>			
<b>Aviation Act, Act 74 of 1962</b>	Provides for the control, regulation and encouragement of aviation activities in the Republic of South Africa	<ul style="list-style-type: none"> <li>• Repealed in favour of the Civil Aviation Act, Act 13 of 2009</li> </ul>	
<b>Provincial legislation</b>			
<b>Western Cape Land Administration Act, Act 6 of 1998</b>	Regulates land and land use		
<b>Western Cape Planning and Development Act, Act 7 of 1999</b>	Regulates planning and development within the province		
<b>Municipal legislation</b>			
<b>City of Cape Town Bylaw relating to Filming, LA30441</b>	The purpose of the Bylaw is to regulate and facilitate filming in Cape Town.	<ul style="list-style-type: none"> <li>• Provincial Gazette 6277, 24 June 2005</li> </ul>	
<b>City of Cape Town Bylaw relating to Streets, Public Places and the Prevention of Noise Nuisances, 2007</b>	The purpose of the Bylaw is to regulate activities in streets and public places, and to prevent excessive noise nuisance	<ul style="list-style-type: none"> <li>• Promulgated 28 September 2007, PG 6469; LA 44559</li> </ul>	
<b>City of Cape Town Bylaw relating to signage</b>		<ul style="list-style-type: none"> <li>•</li> </ul>	

## 4.2 Administrative framework

False Bay Nature Reserve is managed by the City of Cape Town’s Biodiversity Management Branch of the Environmental Resource Management Department in the Strategy and Planning Directorate. False Bay Nature Reserve is located within the southern region, and falls under the oversight of the regional manager. The reserve is the management responsibility of an area manager, who is assisted by ten operational staff members. The operational management of False Bay Nature Reserve is supported by various other City of Cape Town departments, including, but not limited to, Law Enforcement; Bulk Water; Water and Sanitation; City Parks; Human Resources, and Finance. The current staffing complement for False Bay Nature Reserve can be seen in table 3.

**Table 3: Current staffing complement of False Bay Nature Reserve**

Post	No.	Function	Status
Area manager	1	Management	Permanent
Reserve manager	5	Conservation and law enforcement	2 x permanent, 3 x contract
Visitor control officers	4	Visitor services	Permanent
People and conservation officers	1	Environmental education	Permanent
Assistant people and conservation officers	2	Environmental education	Contract
Education administrator	1	Environmental education	Contract
Education officers	3	Environmental education	Contract
Senior field rangers	3	Maintenance and reserve work	1 X permanent, 2 X contract
Field rangers	13	Maintenance and reserve work	Contract
Conservation students	4	Maintenance and reserve work	Contract
Conservation interns	5	Maintenance and reserve work	Contract

The reserve also has an advisory board called the False Bay Ecology Park Steering Committee, which is made up of various stakeholders and City of Cape Town departments, who meet quarterly to discuss projects taking place across False Bay Nature Reserve, and to lend support and provide advice for events, processes and initiatives that concern the reserve. The committee includes representatives from City of Cape Town departments such as Catchment Management, Water and Sanitation, and Solid Waste. Public stakeholders represented include the Zeekoevlei Yacht Club, the Cape Bird Club, Western Province Angling, and others. Please see appendix B2 and B3 for legal documentation associated with some of these stakeholders.

## 5. PROTECTED-AREA POLICY FRAMEWORK AND GUIDING MANAGEMENT PRINCIPLES

### 5.1 Management objectives

The tables that follow list the management objectives for False Bay Nature Reserve.

**Table 4: The biodiversity and heritage management objectives for False Bay Nature Reserve**

High-level objective	Objective	Sub-objective	Initiative	Low-level plan
<p><b>CONSERVATION OF REPRESENTATIVE, FUNCTIONAL ECOSYSTEMS</b></p> <p>To conserve a representative sample of the region's ecosystems in a linked landscape, and maintain or restore environmental processes to enable natural spatial and temporal variation in structural, functional and compositional components of biodiversity</p>	<p><b>Representative ecosystems</b></p> <p>To incorporate a spectrum of viable aquatic and terrestrial ecosystems characteristic of False Bay Nature Reserve, and to re-introduce missing elements where possible</p>	<p><b>Consolidation and expansion of land areas</b></p> <p>Consolidate protected areas, focusing on underrepresented ecosystems, functional linkages and processes</p>	<p>(1) Identify underrepresented habitats/ecosystems</p> <p>(2) Consolidate reserve boundaries</p> <p>(3) Incorporate areas identified on the City of Cape Town's biodiversity network</p> <p>(4) Establish corridors linking False Bay Nature Reserve with mountain catchments</p>	Reserve expansion plan (still to be completed)
		<p><b>Re-introduction of biota</b></p> <p>Re-establish locally extinct or depleted biodiversity components and populations where possible, in accordance with International Union for Conservation of Nature (IUCN) principles and guidelines</p>	<p>(1) Re-establish indigenous herbivore complement within constraints of reserve size and urban setting</p>	Faunal management plan (still to be completed)
		<p><b>Fire management</b></p> <p>Apply appropriate fire regime (frequency, season, intensity, size)</p>	<p>(1) Implement a fire management plan in accordance with objectives of conserving biodiversity and threatened biota</p> <p>(2) Monitor impact of fire management regime</p>	Fire management plan (still to be completed)
		<p><b>Threatened biota</b></p> <p>Maintain viable populations of threatened species in order to meet obligations in terms of international agreements and</p>	<p>(1) Maintain viable populations of rare/threatened plant and animal species (identify, locate and monitor</p>	

		conventions	populations of priority species)	
		<b>Monitoring plan</b> Implement and maintain an approved monitoring plan for False Bay Nature Reserve	(1) Implement and maintain a biological monitoring programme for False Bay Nature Reserve	
	<b>Rehabilitation</b> Rehabilitate degraded areas, including the re-establishment of natural biodiversity patterns, and the restoration of key processes that support the long-term persistence of biodiversity	<b>Vegetation</b> Re-establish physical, chemical and biological processes in degraded vegetation areas	(1) Rehabilitate all old, degraded sites	
		<b>Alien plants and other alien biota</b> Control and, where possible, eliminate alien biota to facilitate re-establishment of natural biodiversity patterns and process in invaded areas	(1) Establish the distribution and density of invasive species (2) Prioritise areas for alien removal, focusing on biodiversity restoration (3) Implement removal programmes for priority species and areas	Invasive-plant management plan  Invasive-animal management plan  Alien-biota management plan
<b>MITIGATE INTERNAL and EXTERNAL PRESSURES</b> To reduce threats and pressures and limit environmental impacts resulting from non-biodiversity management aspects and operations on surrounding land and resource use	<b>Reconciling biodiversity with other reserve objectives</b> To ensure that non-biodiversity management aspects of reserve operations (revenue generation, including visitor, resource use, developments, management activities, etc.) are informed and constrained by biodiversity conservation objectives, and that	<b>Internal developments</b> Minimise the impacts associated with the development of visitor and reserve management infrastructure, and ensure that such developments do not compromise biodiversity objectives	(1) Reserve zoning (2) Develop and implement a Conservation Development Framework (CDF) (3) Develop in accordance with environmental impact assessment (EIA) processes (NEMA) and corporate policies (4) Establish visitor carrying capacities (5) Implement green standards and environmental best practice based on	CDF
	<b>Internal activities</b> Minimise the impacts associated with visitor and reserve management activities, and ensure that such activities do not			

	the impacts of these activities on biodiversity are minimised	compromise biodiversity objectives	corporate policy	
		<b>Extractive resource use</b> Minimise the impacts of extractive resource use, and ensure that such activities are aligned with corporate guidelines, are within management capacity constraints, and do not compromise biodiversity objectives	(1) Quantify current extractive resource activities (2) Define opportunities and constraints in line with corporate guidelines (3) Regulate resource use according to adaptive management process	Sustainable resource use management plan
	<b>Reconciling biodiversity with external threats</b> To reduce external threats and pressures, and limit impacts of surrounding land and resource use on biodiversity conservation within False Bay Nature Reserve	<b>External developments</b> Minimise the impacts associated with inappropriate developments outside False Bay Nature Reserve	(1) Engage regional land management authorities, including IDPs and spatial development frameworks (SDFs) at local and regional level (2) Align with bioregional planning, including explicitly identified areas for the maintenance of important biodiversity patterns and processes with appropriate land use guidelines (3) Provide input into planning and decision-making processes for external development that may compromise reserve and biodiversity network objectives (4) Negotiate to ensure that external developments are not visually obtrusive or out of character with False Bay Nature Reserve	
		<b>External activities</b> Negotiate to ensure that external resource and land use does not detrimentally affect ecological processes within False Bay Nature Reserve	(1) Negotiate to mitigate or improve the management of external, potentially detrimental impacts (2) Encourage eco-friendly resource use and land management practices on adjacent properties (3) Mitigate the impacts of oil, sewage and other pollution events through appropriate contingency planning	Water pollution contingency plan (cooperative governance and communication plan) (still to be completed)

		<p><b>Hydrological and water chemistry changes</b> Participate in activities for the maintenance of river flow regimes and water chemistry within limits for the maintenance of ecosystem processes in aquatic ecosystems in False Bay Nature Reserve</p>	<p>(1) Lobby for appropriate catchment categorisation (currently general authorisation) (2) Encourage enforcement of legislation applicable to the management and protection of aquatic resources (3) Facilitate regular assessments of river health (4) Address the issue of sewage and other point-source pollution of aquatic systems</p>	<p>Wetland rehabilitation plan  (completed)</p>
		<p><b>Illegal harvesting of resources</b> Prevent the illegal collection, removal and destruction of physical and biological resources</p>	<p>(1) Public liaison (2) Law enforcement</p>	<p>Reserve protection plan  Safety and security programme</p>
<p><b>WILDNESS/REMOTENESS</b> To maintain and restore wildness/remoteness in False Bay Nature Reserve so that the spiritual and experiential qualities of wildness are maintained, enhanced or, where necessary, restored</p>	<p><b>Range of experiences</b> Provide a range of visitor experiences</p>		<p>(1) Reserve zoning (2) Develop CDF and sensitivity-value analysis</p>	<p>(1) CDF (2) Reserve expansion plan (3) Invasive-plant management plan</p>
	<p><b>Sense of place</b> Maintain or restore appropriate sense of place</p>		<p>(1) Implement and update CDF every five years (2) Establish and apply appropriate visitor carrying capacity (3) Negotiate to ensure that external developments are not visually obtrusive or out of character with False Bay Nature Reserve</p>	

<p><b>CULTURAL HERITAGE MANAGEMENT</b></p> <p>To investigate and manage all cultural assets</p>	<p>Conserve and manage cultural heritage assets</p>	<p>N/A</p>	<p>(1) Develop a database of all tangible and intangible cultural assets, including inventory, maps and relevant documentation</p> <p>(2) Develop site management plans for each cultural heritage site, with monitoring systems in place for management priorities and prescriptions</p> <p>(3) Facilitate appropriate interpretation of cultural heritage associated with False Bay Nature Reserve</p>	<p>Cultural heritage management plan (still to be completed)</p>
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**Table 5: The socio-economic objectives for the False Bay Nature Reserve**

High-level objective	Objective	Sub-objective (where required)	Initiative	Low-level plan
<b><i>Nurture productive and mutually beneficial partnerships that result in gains in economic and/or biodiversity equity</i></b>	Enhance socio-economic benefits to local communities	N/A	<p>(1) Contribute to local community development by supporting the Expanded Public Works Programme/poverty relief initiatives</p> <p>(2) Contribute to local skills development by supporting the skills and learnership programmes</p> <p>(3) Identify and facilitate the creation of business opportunities in association with False Bay Nature Reserve</p> <p>(4) Support community-based social development initiatives</p>	
	Increase environmental awareness, and encourage participation in conservation initiatives	Inspire visitors and communities to consider the environment as an interrelated and interdependent system, of which they are an integral part	<p>(1) Develop and implement an interpretation plan that feeds into both the education and zoning plans</p> <p>(2) Implement environmental education and youth development programmes suited to the needs of each focus group (i.e. tailor-made programmes for each focus group)</p>	
		Educate learners, educators and other community focus groups to be able to take environmental action		
	Support educators and community leaders with resource and information materials	<p>(1) Establish and market an environmental resource centre and outdoor classrooms, with a range of interpretive and information resources</p>		

<b>Support cooperative governance that will build custodianship</b>	Maintain good reserve/community/stakeholder relations	N/A	(1) Identify and involve all relevant stakeholders in the False Bay Nature Reserve advisory forum  (2) Develop effective communication mechanisms and responsibilities for representatives	
	Effective cooperative governance	Minimise degrading impact and consequences of inappropriate development in and around False Bay Nature Reserve	(1) Establish and maintain good working relationship with relevant government departments as well as internal City of Cape Town departments	
		Ensure support/buy-in for management decisions through participatory decision-making processes	(1) Define roles and responsibilities with stakeholder groups, partnerships and government through written agreements/terms of reference (TORs) and MOUs	
<b>Become the nature-based visitor destination of choice in the region</b>	To develop, manage and enhance a range of sustainable visitor products		(1) Design customer satisfaction survey  (2) Analyse current product usage, and identify opportunities	Business and development framework, incorporating a visitor plan (in process)
			(1) Plan for visitor infrastructure and facilities, as identified by the CDF  (2) Develop and implement the infrastructure management plan (in compliance with State of Infrastructure report)  (3) Compile a State of Infrastructure report	Infrastructure programme (still to be completed)

	Conserve and manage cultural heritage assets		<p>(1) Develop a database of all tangible and intangible cultural assets, including inventory, maps and relevant documentation</p> <p>(2) Develop management plans for each cultural heritage site, with monitoring systems in place for management priorities and prescriptions</p> <p>(3) Facilitate appropriate interpretation of cultural heritage associated with False Bay Nature Reserve</p>	Cultural heritage management plan (still to be completed)
<b>Grow the domestic visitor profile to be representative of South African society</b>	Grow the domestic visitor profile of False Bay Nature Reserve to be representative of regional demographics	N/A	<p>(1) Promote and manage access to False Bay Nature Reserve</p> <p>(2) Develop and support dedicated access programmes, or incorporate a 'dedicated access' element into existing programmes</p> <p>(3) Actively market reserve resources and services</p>	
<b>Enhance the City of Cape Town's reputation</b>	Enhance False Bay Nature Reserve's reputation	N/A	(1) Develop and implement a communication plan to promote reserve activities	
<b>Advance strategic human resource management</b>	Ensure good human resource management	N/A	<p>(1) Implement and support learnerships and volunteer programmes</p> <p>(2) Ensure that all staff have access to training initiatives as per the Workplace Skills Plan (WPSP)</p> <p>(3) Ensure that all corporate human resources policies are adhered to</p>	
<b>Financial management</b>	Ensure that sound financial management practices are applied to and underpin	N/A	Manage cost spending appropriately	Business development framework (in process)

	False Bay Nature Reserve			
<b><i>Achieve good corporate governance management</i></b>	Manage risk profile effectively	N/A	Conduct legal compliance audits and health and safety audits (workplace risk assessments)	Risk management programme

## 5.2 SWOT analysis

### Strengths

- Local knowledge and expertise of areas under jurisdiction
- Good relations with local law enforcement
- Increasing public awareness
- Large staff component
- Positive attitude among staff
- Strong community involvement
- Active Friends group
- Good biological connectivity
- Potential to provide increased options for ecological corridors
- Legislative support – municipal bylaws, Nature Conservation Ordinance and National Environmental Management Act (NEMA)
- Constitutional support
- All staff and management have experience and knowledge in managing protected areas
- Reserve entrance and exit are controlled by visitor access booms and gates
- Defensible boundaries
- Staff determination and will to succeed
- Existing, fully functional ecosystems
- Regular implementation and monitoring of biological monitoring systems
- Variety of recreational activities
- Extensive environmental education programmes
- Good partnerships with NGOs
- Enhanced consolidation of conservation areas and biomes
- Increased area available for conservation of both flora and fauna

### Weaknesses

- Insufficient appropriately trained staff to ensure that all biodiversity objectives are met, such as basic field ranger and law enforcement capacity
- Limited knowledge of security threats within False Bay Nature Reserve
- Few patrols during the day and none after hours
- Operational budget needs review
- Law enforcement tends to be reactive instead of proactive
- Small permanent staff component

- Lack of resources
- Lack of reliable vehicles
- Lack of perimeter fences
- Outdated facilities
- Public's ignorance of applicable environmental legislation
- False Bay Nature Reserve sites not all proclaimed
- Logistics of management
- Financial demands to ensure management
- May cause line function difficulties between different City of Cape Town departmental objectives
- Will require clearly defined task allocation to avoid personality conflict

### Opportunities

- Size of area allows for re-introduction of historical game species
- Community outreach programmes
- Increased community ownership
- Inclusion of local communities in all stages of development
- Job creation, and career succession and planning
- Proactively engaging communities bordering False Bay Nature Reserve, recognising their needs
- Continuous liaison with, and support of, Friends groups
- Linking up with surrounding landowners, and sharing knowledge and resources in order to manage the biodiversity network effectively
- Promoting False Bay Nature Reserve as a destination for outdoor eco-activities
- Increasing educational situations and programmes
- Allowing for experimentation and learning in the management of urban conservation areas and the setting of new standards in this field
- Possibilities include more user groups, such as eco-tourism – horse trails

### Threats

- Unemployment in local communities (leads to rising crime levels and security threats)
- Threats and intimidation to conservation staff when enforcing legislation
- Lack of appropriate training, e.g. fire-fighting, chainsaw operation, peace officer training
- Personal safety of staff

- Growing external communities with increasing needs
- Increased incidence of crime and other illegal activities (security of property and personnel)
- Lack of sustained funding for students and interns
- Lack of sustainable operational funding
- Departmental financial strains, which may lead to cut-backs in biodiversity management budgets
- Loss of biodiversity due to inappropriate fire regimes, invasive alien species, illegal activities and inappropriate land use practices
- Urban development
- Change in local government political structures
- Changing or 'relaxing' of legislation, which could lead to the de-proclamation or reduced legislative protection of biodiversity
- Staff not able to maintain perimeter fence due to high crime rate
- High amounts of vandalism
- Illegal dumping
- Illegal harvesting
- Unauthorised entry
- Local communities may see conservation areas as a threat to their lifestyle, or as taking up space that could have been utilised for other needs such as housing

### **5.3 Protected-area management policy framework and guiding principles**

#### 5.3.1 Community participation

False Bay Nature Reserve will strive to nurture productive and mutually beneficial partnerships, which, in turn, will result in economic and/or biodiversity equity. This will be achieved through the creation of job opportunities in support of the Expanded Public Works Programme and poverty relief projects. Participation in skills development and learnership programmes will also contribute to the development of local skills. Through the support of community-based social development initiatives, False Bay Nature Reserve can also enhance socio-economic benefits to local communities.

Through the development of an education plan, False Bay Nature Reserve will contribute to raising environmental awareness, and encourage participation in conservation initiatives.

The main aims of the False Bay Nature Reserve education plan will be:

- to inspire visitors and communities to consider the environment as an interrelated and interdependent system, of which they are an integral part;
- to educate learners, educators and community focus groups to take environmental action, assisted by resource and information materials;
- to develop and implement environmental education programmes suited to the needs of various focus groups; and
- to develop and implement an interpretation plan that complements the education plan.

In order to develop and maintain good reserve/community/stakeholder relations, all relevant stakeholders of False Bay Nature Reserve need to be identified. The development of an effective communication system in order to liaise with interested and affected parties is also required. Where necessary, task teams and working groups may be established in order to assist False Bay Nature Reserve with key issues (table 5).

### 5.3.2 Safety and security

False Bay Nature Reserve has a high safety and security risk (appendix D2). Crimes at the reserve are usually of a violent nature, and include rape, murder, dumping of bodies, malicious damage to property, trespassing, illegal hunting with dogs and snares, illegal dumping, 'muti'/medicinal plant collection, 4x4 driving in the coastal zone, armed robberies, kidnapping, theft relating to infrastructure and illegal harvesting. Records show that several criminal incidents occur every week, and these are of both an opportunistic and an organised nature, occurring during the day and at night. Incidents range from petty theft to violent attacks on visitors. Learners at the False Bay Environmental Education Centre have also been subjected to armed robberies.

A safety and security audit aimed at completing a rapid and verifiable analysis of the current security situation, security services, infrastructure, staffing and social context was carried out in False Bay Nature Reserve. This project was undertaken by Plan-It, in collaboration with Thorn-Ex and Titan Security (appendix D2).

The main problems that contribute to the abovementioned security risks include the following:

- Lack of permanent ground staff
- Lack of funding, especially for basic maintenance and alien clearing
- Lack of patrol coverage – safety and security

- Lack of proper fencing around False Bay Nature Reserve
- Remote location of some of the buildings
- Lack of security features: alarms, burglar alarms, etc.
- Illegal entry into the reserve
- Being bordered by low-income communities, such as Lavender Hill and Vrygrond
- Lack of equipment, e.g. binoculars, mace, batons, cuffs and bullet-proof vests

### 5.3.3 Culture-historical, archaeological and paleontological management

A midden was discovered at the Rondevlei section in 1996, and was surveyed by Dalton Gibbs and Antonio Doe. It was found to contain post-colonial material from circa 1800. Further study is required to determine the full extent and time period represented by the midden (Gibbs 2010). Another midden was discovered at the Slangetjebos section, and is thought to be of similar antiquity. It has yet to be surveyed (Khan 2010).

### 5.3.4 Tourism development and management

Following an increase in tourists and diversification of visitor activities at Rondevlei Nature Reserve in the 1990s, the need arose to establish a professional tourism service. In order to meet this need and create employment opportunities in the local area, a tourism company was established by the former South Peninsula Municipality, using funding received from the Department of Environment Affairs and Tourism and the City of Cape Town's Community-Based Tourism Development Fund (Murdoch 2006). This tourism company trades as Imvubu Nature Tours, and is based in an office leased at Rondevlei Nature Reserve (see appendix B4).

The tourism company has a management agreement with the City of Cape Town, which affords it access to City of Cape Town-owned facilities for the exclusive purpose of activities related to tourists visiting False Bay Nature Reserve. Use of the facilities is in keeping with reserve operating guidelines and the IRMP, and occurs with due consideration for the environment, visitors and surrounding residents. The tourism company is responsible for maintenance due to any damage done by visitor groups while utilising the facilities. Visitors to the Rondevlei section who make use of the tourism service pay the normal entrance fees as well as fees levied for tourism services.

Development plans are in progress to broaden the reach of the tourism operations to include the entire False Bay Nature Reserve, which will provide greater opportunities for surrounding communities to utilise more of the reserve's sites for recreational and educational activities,

and will widen the tourist market for the area. An example of this is the master plan for the eastern shore of the Zeekoevlei section, which has been drawn up and is due for commencement in 2013. It details an array of appropriate visitor facilities, which are designed to support increasing tourism (appendix D4).

### 5.3.5 Infrastructure management

A large amount of infrastructure exists within False Bay Nature Reserve. Various departments within the City of Cape Town share responsibility for these structures. A full audit of all infrastructures in False Bay Nature Reserve is required, during which the infrastructure uses and structural integrity need to be documented. All infrastructure will soon be mapped.

Infrastructure that is and may be used should be included in a five-year maintenance plan. Infrastructure with no use should be demolished, and these sites should then be rehabilitated.

### 5.3.6 Biodiversity conservation management

#### 5.3.6.1 Community-based natural resource management

The legal harvesting of natural resources within False Bay Nature Reserve is currently limited. Research on the amount of harvesting and the species harvested across the City of Cape Town is currently under way. Some investigation into the types and extent of harvesting in False Bay Nature Reserve has started, but, to date, there is no detailed or conclusive data to determine whether current harvesting is sustainable, and the potential threats should these activities persist. Illegal harvesting of natural resources is a problem that is regularly encountered. The main types of illegal harvesting are plant species for herbal/medicinal purposes, harvesting of wood (from invasive alien vegetation) and illegal hunting of wildlife. Some woodcutting permits have been issued, but are very limited.

From time to time, students from tertiary institutions collect plant specimens in False Bay Nature Reserve for projects, e.g. for herbarium collections, sampling and identification purposes. This is monitored by means of issuing permits with collection guidelines.

A few bee-keepers from the public currently operate in False Bay Nature Reserve. However, the City of Cape Town has recently requested that no further bee-keepers be permitted to place beehives in its reserves until such time that the effects of such activities on indigenous pollinator and plant species have been researched. Existing bee-keepers at False Bay

Nature Reserve are being issued permits to operate, and will not be permitted to place any new or additional hives in the reserve.

#### 5.3.6.2 Fire management

Fire plays an essential ecological role in the life cycle of fynbos species (Cowling & Richardson 1995). Likewise, fire is also crucial to the long-term conservation of biodiversity within False Bay Nature Reserve, and is therefore considered an important component of reserve management. Fire management involves varying the season, frequency and intensity of fires, and reconciling ecological and practical requirements. Too frequent fires, or fires that burn out of phase with the natural burning regime, present a threat to slower-growing species, which may be entirely eliminated. If fire is excluded from the area, thicket species may invade, resulting in other indigenous species being lost. Conversely, if vegetation is allowed to burn too frequently, the area becomes degraded, and alien species, especially invasive alien grasses, take over. Grasses maintain a shorter fire cycle, and therefore change the vegetation structure and biodiversity value of an area.

Due to the size and location of False Bay Nature Reserve, fire management varies according to the diversity of habitats present on the different sites making up the reserve. Different veld types have different fire requirements, which, in turn, govern the creation of fire management blocks for the purposes of prescribed burning. As False Bay Nature Reserve contains largely Cape Flats Dune Strandveld and Cape Flats Sand Fynbos, a burning regime needs to accommodate their different fire frequency needs. The recommended fire cycle for Cape Flats Dune Strandveld is 35–50 years, whereas the recommended frequency for Cape Flats Sand Fynbos is eight to 15/20 years (Holmes 2011).

The fire management programme for False Bay Nature Reserve involves the monitoring and control of all fires within the reserve. Fire is usually started from external ignition sources, such as fires on adjacent properties, but, often, trespassers onto the reserve start fires in the veld, or set off flares that land in the reserve. Historic records of fire events in the False Bay Nature Reserve area as well as post-fire monitoring records assist in the documentation of veld ages, which again influence fire management decisions. During uncontrolled wildfires, all possible actions are taken to prevent the spread of fire onto adjacent properties. All unnatural fires that threaten False Bay Nature Reserve ecologically (i.e. that disrupt the appropriate fire cycle), or that pose a threat to infrastructure and/or public safety, are controlled.

Prescribed burning of vegetation is a management option in areas where vegetation becomes senescent (old) and where there is a risk of species loss, as fire can stimulate seed dispersal and germination. The use of prescribed burning practices assists in maintaining a vegetation mosaic that promotes plant and animal diversity. A mosaic pattern of fire events protects faunal species that rely on the veld for food and shelter (Murdoch 2006).

Accurate fire records and post-fire monitoring data help facilitate planning of appropriate prescribed burning cycles for False Bay Nature Reserve. The decision to administer prescribed burns is considered annually and, if required, planned and implemented accordingly with the acquiring of necessary permits from the City of Cape Town's Air Pollution Control and Fire & Rescue departments.

Fire may be used to limit fuel loads in order to reduce the risk of uncontrolled fires, particularly on the urban edge and in areas that pose a potential risk to infrastructure and public safety.

Existing reserve service tracks used for patrols and reserve management activities also allow for rapid vehicular access to fires, and in themselves act as fire breaks. A fire belt of minimum width ( $\pm 4$  m) around the boundary fences is also maintained by means of brush cutting to prevent spread of fire to surrounding areas (Murdoch 2006).

The nature of the area's terrain, property boundaries and extensive areas of natural veld increase the chances of fire spreading both into and out of False Bay Nature Reserve. Reasonable pre-fire protection measures are necessary, as well as a plan of action in the event of wildfire. Interaction with various City of Cape Town departments and independent stakeholders, and continuous public and private landowner involvement, are essential. The development of a fire protection and response plan is an important component of False Bay Nature Reserve's fire management.

Fire management implementation in the reserve involves the following:

- Application of guidelines on seasonal burning intervals and species requirements acquired from relevant documentation and biophysical specialists
- Accurate record keeping of all fires, including details and maps
- Use of fire data and geographic information system (GIS) for recording and mapping

- Application of post-fire monitoring programmes
- Application of fire data to determine prescribed burning needs
- Development and implementation of a fire protection and response plan, including affected stakeholders as well as other City of Cape Town departments and private landowners neighbouring False Bay Nature Reserve
- Membership of the Cape Peninsula Fire Protection Association

### 5.3.6.3 Catchment management

#### Zeekoevlei

In 1997, after more than 40 years of impoundment, the Zeekoevlei section weir was breached and the waters of the vlei ran free once more. Six sluice gates were constructed and are opened each year on 27 April (Freedom Day). The sluice gates are returned at the end of June or early July, during which time the draw-down accomplishes the following objectives:

- The cleanup of litter, particularly in the Little and Groot Lotus rivers. In the two-month cleanup period, some 6 000–15 000 black bags, 20 tons of tyres as well as miscellaneous old furniture and appliances are removed.
- The ever-present scourge of water hyacinth is also kept in check, with the plants being much easier and cheaper to handle when the water level is lower.
- The draw-down emulates the natural seasonal changes in water level as closely as possible, without interfering with water sports and similar activities. As a result, with the water level lowered, the shoreline becomes a different habitat for birds and animals. It is during this period that the spectacular flocks of *Phoenicopterus ruber* (Greater Flamingo) and *Pelicanus onocrotalus* (Great White Pelican) (both endangered species) arrive at the vlei. This also attracts wading birds that are absent during periods of constant high water levels.

With the sluice gates open, the runoff from the first winter rains (which is the most polluted of the season) has the opportunity to pass directly through the vlei, and is prevented from depositing its nutrient and sediment load. Some of the sediment already in the vlei is washed out during heavy rainfall events.

Once closed, the vlei has the opportunity to fill with groundwater as it used to do. This source of water is cleaner than what is received from the incoming canals, and helps reduce nutrient loading.

Until the three main sources of nutrients and pollution (the Groot Lotus river, the seepage from the CFWWTW, and the sediments in the vlei) are dealt with, the draw-down remains the only management option to enhance the water quality of the vlei.

#### Strandfontein birding area

The Strandfontein birding area is made up of a series of 22 sewage detention pans. The pans are interlinked by means of inflow and outflow weirs. The water level in all the pans is monitored, but three pans are most influenced by the water level, namely P2, P3 and P4. The water level is manipulated by means of placing wooden planks into the weir to prevent water from flowing in or out of the pan. Water level manipulation is carried out when required.

P2 has been favoured by the Palaearctic waders that visit during the summer months. In order to create this type of habitat for them, the water level has to be decreased.

P3, also known as 'J dam', is used by fishermen. The water level has to be a certain depth in order for the water to reach the fishing platforms for angling purposes.

P4 has been favoured by the *Phoenicopterus ruber* (Greater Flamingo). It is hoped that, with the regular reduction of the water level in this pan, they will start breeding at the Strandfontein birding area, as they have never been recorded breeding in the Cape Town area.

#### Rondevlei section

The water levels of the main vlei at the Rondevlei section can be manipulated for management purposes by means of the Rondevlei Nature Reserve weir, e.g. to flush excess nutrients from the system and to replicate natural water movements.

Plans are under way to reposition the Rondevlei Nature Reserve weir closer to the Zeekoevlei section's weir, as the current location of the canal and weir causes excess draining of the seasonal wetlands to the western side of False Bay Nature Reserve (Khan 2010). Moving the weir will also create easier access for management activities and the manipulation of water levels.

A fish ladder was built at the Rondevlei section's weir to facilitate the movement of fish over the weir wall into the main vlei. This fish ladder also needs to be upgraded to appropriate specifications when the weir is relocated.

#### 5.3.6.4 Soil erosion and control

Within False Bay Nature Reserve, natural erosion processes are allowed to take their course without interference. In the case of human-induced erosion and natural areas where erosion is particularly aggravated due to extensive influences, appropriate management actions are taken.

Potential human impacts that increase soil erosion can be avoided through correct planning and maintenance of infrastructure. Areas that had been previously degraded through human activities and are no longer in use are restored to as close as possible to their natural state. Disturbed areas and areas affected by unnatural accelerated erosion are controlled by means of appropriate methods. The cause and management of problem erosion sites are also considered.

Soil management implementation in False Bay Nature Reserve includes the following:

- Identification and recording of all soil erosion sighted, including the assessment and development of restoration plans where required
- Use of soil erosion data and GIS for recording and mapping
- Application of fixed-point monitoring programmes at identified soil erosion sites
- Accurate documentation of management actions applied to restoration sites, including results from areas responding to these actions

The topography of False Bay Nature Reserve, i.e. the sandy nature of the soils and the presence of naturally moving dune systems (i.e. natural wind erosion), does not lend itself to large-scale erosion problems, but soil erosion may occur in areas where man-made structures have been erected and disturb the natural movement of sands, e.g. palisade fencing, or where repeated intensive disturbance occurs, e.g. vehicle tracks.

#### 5.3.6.5 Alien-species management

Invasive species are animals and plants occurring outside their natural distribution ranges, establishing themselves, spreading, and outcompeting and replacing indigenous species. Not all alien species are invasive, and not all invasive species are alien (Stafford 2011).

Alien species are species introduced to areas outside their natural distribution range – alien to a country/region (Stafford 2011).

Invasive alien species are introduced species that are alien to the country/region, and that establish, spread and outcompete/replace indigenous species (Stafford 2011).

*Amietophrynus gutturalis* (guttural toad) is a good example of a species that is indigenous to South Africa, but invasive to the Cape Town area.

The management of invasive and alien species is one of the highest management priorities within False Bay Nature Reserve. It is essential to control and, where possible, eliminate alien biota in order to facilitate the re-establishment of natural biodiversity and processes in invaded areas.

Invasive and alien species management within False Bay Nature Reserve is applied in accordance with the City of Cape Town's invasive alien species strategy and in coordination with various government-funded initiatives, including Working for Water and Working for Wetlands. The City of Cape Town's Biodiversity Management Branch has an Alien Invasive Species Coordination Unit, which coordinates all alien-clearing activities in the City of Cape Town's nature reserves, and allocates budgets to carry out such programmes. Invasive alien species could spread rapidly should management fail to continue to implement a properly planned and coordinated programme.

Until recently, invasive species management had focused largely on woody alien plant species, such as *Acacia saligna* (Port Jackson) and *Acacia cyclops* (Rooikrans). Herbaceous weeds had been largely ignored. However, recent monitoring and the development of an extensive herbaceous weed and grass species survey for False Bay Nature Reserve (Khan 2010) have shown that some herbaceous species already pose a risk to biodiversity in the area, while others have the potential to become one in the near future.

Within False Bay Nature Reserve, a number of indigenous species that are not endemic to the area have been identified. The occurrence of such species is generally as a result of attempts to beautify old recreational areas. Horticultural strains of indigenous species also present a risk to naturally occurring specimens. Some species are known to hybridise with local species in the area, and pose a potential threat to the genetic diversity of such populations.

The eradication of invasive and alien faunal species is also carried out in False Bay Nature Reserve. Formal plans that outline the monitoring of the removal of identified alien faunal species still need to be developed, but the Alien Invasive Species Coordination Unit does have eradication programmes in place for certain species, e.g. *Corvus splendens* (Indian House Crow) and *Amietophrynus gutturalis* (Guttural Toad), which support all the City of Cape Town's nature reserves.

The following objectives are the focus of invasive-species management at False Bay Nature Reserve:

- The prioritisation of areas for alien removal, focusing on biodiversity restoration
- The implementation of removal programmes for priority species and areas
- The development and implementation of an invasive-plant plan and an invasive-animal plan

#### 5.3.6.6 Species introduction

Species that historically occurred in False Bay Nature Reserve, and for which suitable habitat and eco-niches are still available, may be re-introduced. Several indigenous fauna species that previously occurred in False Bay Nature Reserve are no longer present or are down to small numbers.

Prior to the re-introduction of any species, a full proposal is required. The availability of suitable habitat for the species as well as the historical occurrence and status of the species need to be investigated. The impacts of re-introducing species to the area must also be researched. The re-introduction of potentially dangerous and problematic species may also require a public participation process. An investigation of suitable source populations for re-introduction is also necessary.

All proposed re-introductions need to be approved by the flora and faunal management committee of the City of Cape Town's Biodiversity Management Branch before implementation. Capture and translocation permits are obtained from provincial authorities (CapeNature) prior to the movement of animals for re-introduction. The implementation of any re-introduction programmes must be specified in a plan of action, and documented accurately.

#### 5.3.6.7 Strategic research

Many of the projects at False Bay Nature Reserve are conducted by outside student researchers and organisations, and are not informed by reserve needs. Research topics

beneficial to the management of the reserve need to be identified, as different management needs and questions continuously arise. These subjects are then to be prioritised and suitable people sought to pursue them. Nature Conservation students completing their experiential training year carry out small-scale research projects in the reserve as part of their study requirements. Other students from tertiary institutions also often use False Bay Nature Reserve to do fieldwork for research projects.

A concerted effort needs to be made to obtain copies of data and results from research projects conducted within False Bay Nature Reserve boundaries, so as to retain useful information that may guide future management decisions as well as prevent the duplication of research activities.

#### **5.4 Sensitivity analysis of False Bay Nature Reserve**

False Bay Nature Reserve is a considerable asset to the City of Cape Town, and significantly contributes to national vegetation targets of threatened vegetation types, as listed in the National Spatial Biodiversity Assessment (Driver *et al.* 2005), as well as provides a service and facilities to local residents and schools.

The development of the sensitivity and zoning plan is one of the steps required in compiling a CDF for False Bay Nature Reserve. CDFs are tools used to reconcile the various land use needs, and to delineate visitor use zones and the positioning and nature of new infrastructure, access points, roads and facilities.

The CDF process has grown in response to the requirements of the National Environmental Management: Biodiversity Act (NEMBA) (2004), and seeks to comply with the spatial planning requirements of the Act. The CDFs will ensure that best practice and sustainable development principles are integrated with spatial planning within protected areas.

The sensitivity-value analysis is the landscape analysis portion of the broader CDF. It is a multi-criteria decision-support tool for spatial planning, designed to present the best available information in a format that enables defensible and transparent decision making. The sensitivity-value process is based on the principle that the acceptability of a development (or placement of a structure) at a site is based on that site's value (arising from the site's biodiversity, heritage, aesthetic or other values) and its sensitivity or vulnerability to a variety of disturbances (Holness 2005).

The sensitivity-value analysis, the CDF and the associated zoning plan should form part of an adaptive management system. They will grow and change over time as the understanding of the landscapes and ecosystems improve. However, they will never replace the need for detailed site and precinct planning and EIA compliance at site level.

The small size of False Bay Nature Reserve did not warrant an extensive analysis, and resulted in a fairly straightforward subsequent zoning process. The methodology used for both the sensitivity-value analysis and the zoning process was adapted from Holness and Skowno (2008) and SRK Consulting (2008<sup>1</sup>; 2008<sup>2</sup>).

All geographic information work was carried out in ESRI's ArcMap, version 9.3.1, using the ArcInfo licence level, with Spatial Analyst and 3D Analyst extensions. Appendix D1 contains the complete sensitivity-value analysis and a description of the zoning process.

## **5.5 Zoning plan of False Bay Nature Reserve**

### **5.5.1 Zoning informants**

This section briefly outlines the values underlying the identification of broad tourism use zones. It is important to remember that the landscape/biodiversity analysis is just one of the informants in the zoning process. Although the biodiversity analysis is intrinsically a relatively objective scientific process, other informants to the zoning process are not.

Although every attempt is made to place high sensitivity-value sites into more protected zones where possible, the zoning process is essentially a compromise between environment and development. In particular, the identified high-value sites are often the key biodiversity assets that need to be made available to the ecotourism market in an appropriate manner. The biodiversity layers and the spatial management of False Bay Nature Reserve are directly linked during the identification of special management areas (where applicable). Even within broad high tourist-use zones, some areas are likely to be subject to very tight conservation controls (potentially including complete exclusion of human impacts from an area).

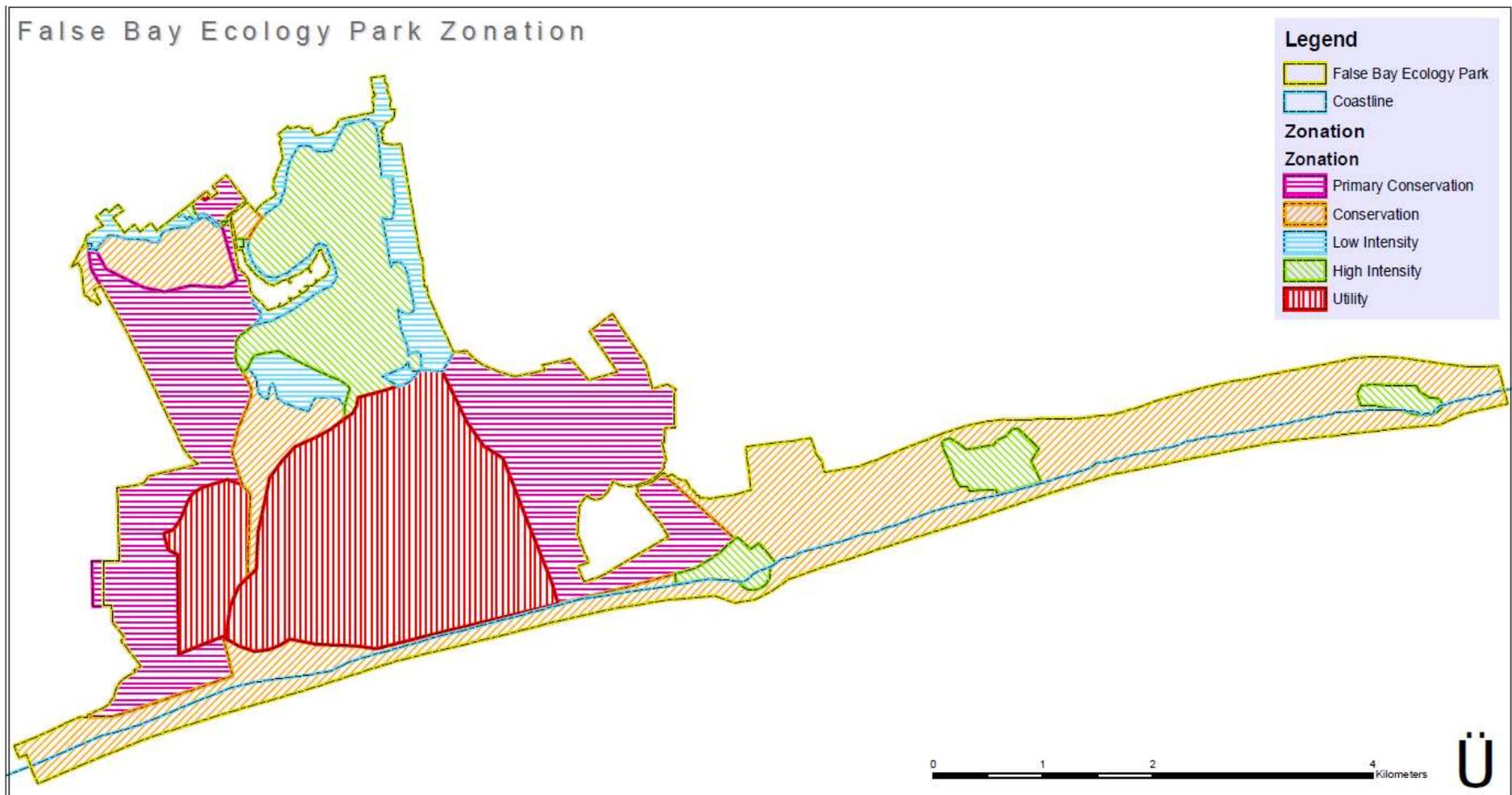
### **Underlying decision-making rules used in the zoning process**

- The zoning process is aimed at striking a balance between environmental protection and the development required to meet the broader economic and social objectives of False Bay Nature Reserve.

- The zoning process takes into account existing development footprints and tourism access routes.
- It is based on the underlying principle that, all else being equal, an existing transformed site is preferable to a 'greenfield' site from a biodiversity perspective.
- Infrastructure costs are dramatically increased when developments take place away from existing infrastructure.
- Existing tourism nodes and access routes are a reality of the economic landscape, and it would not be possible to shut down existing tourism sites that compromise the development objectives of False Bay Nature Reserve.
- Where existing development nodes, tourist sites and access routes occur in areas with high sensitivity-value, the broad-use zoning aims to keep the development footprint as small as is realistically possible, preferably within the existing transformed site.
- Where possible, sites with high biodiversity sensitivity-value are put into stronger protection zones.
- Peripheral development is favoured and, where possible, should be located outside the conservation area.
- Two key points need to be emphasised: The designation of a broad use zone does not imply that all sites within that zone would be suitable for all the development types anticipated. Detailed site-level planning is still required, and many sites may prove to be unsuitable at a site/precinct/EIA level of planning. Also, special management areas/overlays need to be formalised and linked to the management plans.

#### 5.5.2 Zoning definitions and descriptions

The zoning definitions and descriptions were workshopped with regional and area managers. Four categories were decided on, namely primary conservation zone, conservation zone, low-intensity leisure zone and high-intensity leisure zone. Map 6 and appendix A2 outline the proposed zoning and zone descriptions. The process is still linked to the zoning used for CapeNature reserves (Holness & Skowno 2008), as there should be general alignment of the broader use zones to allow for comparison and integration if provincial documents so require.



Map 6: Zoning output map of False Bay Nature Reserve

## **6. DEVELOPMENT PLAN**

A full development plan for False Bay Nature Reserve must still be compiled. Progress so far has been the completion of a master plan for the eastern shore at the Zeekoevlei section (see appendix D4) and a business and development framework for False Bay Nature Reserve, which is currently being drawn up by the consulting company Activate. This framework is due for completion by late 2011 (Khan 2011).

## **7. COSTING PLAN**

### **7.1 Costing report**

The APO has been utilised in this report in order to reflect an associated budget. The budget is split into two categories, namely the estimated amount required for each respective section of False Bay Nature Reserve, and the amount of money actually committed to each section. The sections that have been highlighted indicate fields to which finances have been assigned (appendix D6). Funding for False Bay Nature Reserve is received from various sources, including the City of Cape Town and its partners. For the purpose of this exercise, no distinction has been made between the various funding sources. All estimated values reflect the amount of money that is required to fulfil a particular line item, but that does not mean that it will be committed.

The budget is revised annually. A five-year estimated and committed projection has been provided for the main sections, with an annual increase of 8% for staff and 5% for the other main headings (CDF, biodiversity management, staff, environmental education, infrastructure development, infrastructure repairs and maintenance). Finance committed to infrastructure development does not increase annually, as it is a fixed amount that is allocated for development. Once the development has been completed, only the maintenance of such development remains. Please see appendix D6 for the budget of False Bay Nature Reserve.

## PART 3

### MONITORING & AUDITING

#### 8. MONITORING & AUDITING

##### 8.1 Annual audit procedure

###### 8.1.1 Management Effectiveness Tracking Tool South Africa (METT-SA)

The METT-SA is a rapid, site-level assessment tool adapted from the World Bank and Worldwide Fund for Nature (WWF) system (second edition 2007). METT-SA assessments were conducted for Rondevlei Nature Reserve, Zeekoevlei Nature Reserve and the Strandfontein birding area in 2007 (appendix D3).

The system is based on the idea that good protected-area management follows a process comprising six distinct stages or elements:

It begins with understanding the **context** of existing values and threats (where are we now?), then progress through **planning** (where do we want to be?), followed by allocation of resources (**inputs**) (what do we need?). As a result of management actions (**processes**) (how do we go about it?), it eventually produces products and services (**outputs**) (what were the results?), which result in impacts or **outcomes** (what did we achieve?).

This version has been compiled so that it can be applied to the full range of protected areas managed by all C.A.P.E partners. It also applies to protected areas in other regions, and, with minor adaptations, could be applied outside of South Africa as well. It may also be used for marine protected areas (MPAs) and islands, but, in the long run, it may become necessary to amend the system to be more specific to these areas. In addition, a system for off-reserve conservation areas, such as conservancies or stewardships, may need to be developed.

When applying METT-SA, it is important for the following to be kept in mind:

- The METT-SA is intended to report on the reserve's progress. Thus, the score is the baseline against which future assessments are made to see if there has been an improvement.
- It is site-specific and must therefore not be used to compare scores between different protected areas.
- It is a useful tool to give indications of management trends. In this version, the six elements of the management process, as defined in the original version, are scored as subsets of the total. This gives an indication of where management should strive for improvement.

- It is not intended to replace more detailed assessments as part of adaptive management systems.
- The METT-SA has limitations in the quantitative measurement of outcomes, and these should be measured by more objective and quantitative systems.
- This version adjusts the total score where questions are irrelevant.
- Often, low scores on some questions could be a reflection on the organisation as a whole, and do not necessarily point to issues over which the protected-area manager has control. **The performance of managers should therefore under no circumstances be measured against the METT-SA results.**

Tracking the trends of management effectiveness is a long-term process, and instant improvements are unlikely. Generally, the METT-SA is applied at three-year intervals, but an annual application is acceptable if it is understood that changes may only be slight.

#### 8.1.2 Protected-area review

The protected-area review is an internal review conducted annually to assist managers in reviewing their sites, and to allow for adaptive management actions to be taken where required (and within managers' control).

#### 8.1.3 Annual plan of operations (APO)

An APO is compiled for each reserve, and is submitted for approval. It assists managers in planning time management and budgeting. Please see appendix D5 for the APO of False Bay Nature Reserve.

### 8.2 Management plan review

Every five years, this IRMP should be reviewed and adjusted where necessary. To achieve this, the following questions (and others as needed) should be addressed:

- Did this management plan make a meaningful contribution to the management of False Bay Nature Reserve?
- Were individual management 'prescripts' realistic and achievable? Were they written unambiguously, or was there room for misunderstanding?
- Were budgets for each management activity realistic? Were the allocated budgets too much or too little?
- Were sufficient staff members with the right qualifications allocated to each management activity?

There will be some overlap between the review and the audit, and they should therefore be done on the same day, by the same team.

### **8.3 Biodiversity monitoring**

The Rondevlei section has the oldest-running rainfall monitoring station on the Cape Flats. The visitor controllers are responsible for checking the rain gauge, recording rainfall data, and then submitting this information to the Cape Town Weather Bureau.

Bird species monitoring constitutes bird counts undertaken weekly at Rondevlei Nature Reserve by foot, along the public pathway. A coordinated water-bird count (CWAC) is conducted mid-monthly, and this data are submitted to the Animal Demography Unit (ADU) of the University of Cape Town (UCT). Bush (terrestrial) bird counts are also conducted, which data are loaded onto the South African Biodiversity Database website (<http://www.biodiversity.co.za>) by Rondevlei Nature Reserve staff.

At the Strandfontein birding area, a bird count is done on the second Sunday of every month in conjunction with the Cape Bird Club and the Strandfontein birding area reserve manager. These counts are currently coordinated by Dick Barnes, a member of the Cape Bird Club, and include all terrestrial and aquatic birds.

Every six months, the above count is recorded as a CWAC, which is then sent through to the ADU at UCT. Weekly counts on P2 and S8 are done by the Strandfontein birding area reserve manager and other reserve staff who are able to identify the birds. This count focuses on water birds.

Other types of faunal monitoring include conducting night drives on a quarterly basis to conduct faunal species surveys, and monitoring of the resident *Hippopotamus amphibious* (hippopotamus) population at the Rondevlei and Zeekoevlei sections and the Strandfontein birding area to determine population size, dynamics and behaviour.

Faunal and floral species sightings throughout False Bay Nature Reserve are captured on the South African Biodiversity Database (<http://www.biodiversity.co.za>), as are wildlife and floral re-introductions/translocations. Mortality diaries are kept by the visitor controllers at Rondevlei Nature Reserve and other reserve managers, keeping track of mortality sightings

in False Bay Nature Reserve, or road kills observed by the public in the surrounding areas. These are also captured onto the database.

Standardised protocols need to be drawn up and implemented for monitoring other important ecological aspects, e.g. vegetation, flora species, soil erosion, post-fire monitoring, and faunal species such as aquatic, amphibian and invertebrate groups. Fixed-point photography is to be implemented in the near future at False Bay Nature Reserve to improve monitoring programmes.

*Eichhornia crassipes* (Water Hyacinth) monitoring is also conducted within the reserve at Zeekoevlei Nature Reserve, Rondevlei Nature Reserve and the Strandfontein birding area pans. At Zeekoevlei Nature Reserve, daily visual monitoring occurs at the Big Lotus river bridge. The entire vlei and the Big Lotus river are thoroughly checked by wading on a three-day continuous cycle. At Rondevlei Nature Reserve, monthly checks of the entire vlei are conducted by boat.

At the Strandfontein birding area, *Eichhornia crassipes* (Water Hyacinth) has been cleared from six of the ten infested pans. These pans are P2, P7, P8, S2, T1 and T2. Also, two associated channels have been cleared of this plant. Pans P2, P7, S2 are in the maintenance phase, so they are only followed up twice a year, in January and July. The other pans and channels are monitored regularly. Pans T1, T2 and P8 will be checked on a month-to-month basis until no more Water Hyacinthis found.

## **PART 4**

### **REFERENCES**

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## Appendix A: Charts and Tables

### A (1) Rainfall Table: Rainfall Data for Rondevlei Nature Reserve - Rain Gauge 1952 to 2010

	RONDEVLEI NATURE RESERVE NATURE RESERVE - RAINFALL												
YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
<b>1952</b>			23.40	31.50	64.80	53.80	120.90	214.90	110.70	25.70	50.00	4.80	700.50
<b>1953</b>	2.50	4.00	5.30	236.60	154.10	70.60	134.30	143.00	18.40	26.40	38.70	7.80	841.70
<b>1954</b>	11.50	21.60	15.20	73.70	243.30	150.30	282.40	133.90	55.10	32.10	15.40	30.40	1064.90
<b>1955</b>	0.20	93.10	3.10	48.60	17.70	83.10	125.10	228.10	30.10	72.20	26.60	12.80	740.70
<b>1956</b>	2.90	7.70	22.20	33.50	99.90	206.90	161.50	115.70	61.30	54.70	5.40	46.60	818.30
<b>1957</b>	5.40	28.10	32.60	27.60	148.40	138.70	181.10	201.00	42.30	103.60	6.50	0.30	915.60
<b>1958</b>	14.10	34.60	21.00	69.60	105.80	51.00	33.90	113.00	30.00	27.60	31.60	0.00	532.20
<b>1959</b>	16.80	4.70	29.40	111.50	277.90	28.30	28.00	117.60	35.30	33.00	1.30	12.50	696.30
<b>1960</b>	8.70	4.60	21.20	42.70	82.20	190.60	39.60	30.00	44.30	4.90	0.10	15.40	484.30
<b>1961</b>	26.80	5.00	21.70	6.60	51.60	120.10	61.70	106.80	107.40	20.10	0.00	13.60	541.40
<b>1962</b>	7.20	31.30	33.60	62.10	21.60	256.00	75.70	169.70	42.40	128.00	18.50	0.60	846.70
<b>1963</b>	4.00	0.90	2.80	10.10	25.10	79.20	106.10	164.10	41.10	11.50	43.50	13.90	502.30

<b>1964</b>	0.70	61.20	2.00	22.20	39.70	135.80	98.80	95.50	35.50	30.80	30.50	8.40	561.10
<b>1965</b>	20.50	27.10	66.30	46.80	73.00	48.90	82.10	95.20	35.90	31.00	7.30	47.00	581.10
<b>1966</b>	7.30	5.70	53.10	45.50	43.40	99.50	132.50	95.10	51.40	19.00	8.80	9.80	571.10
<b>1967</b>	12.70	0.40	7.10	82.70	57.90	164.50	82.20	58.10	28.80	41.80	38.30	6.20	580.70
<b>1968</b>	15.90	11.70	0.00	56.40	107.00	107.20	131.40	83.30	8.30	59.70	8.30	22.40	611.60
<b>1969</b>	21.80	6.50	19.00	38.40	9.90	84.30	45.20	80.30	73.20	74.90	6.10	5.00	464.60
<b>1970</b>	3.90	17.40	2.00	6.80	86.90	143.10	144.20	86.70	71.00	36.70	11.70	33.90	644.30
<b>1971</b>	2.80	0.40	9.00	9.30	66.30	93.40	115.60	113.20	30.90	14.00	3.30	7.20	465.40
<b>1972</b>	18.30	19.50	17.80	51.20	92.50	64.10	41.70	72.20	40.40	9.80	0.00	23.10	450.60
<b>1973</b>	0.20	1.20	13.20	8.30	36.30	43.60	162.20	48.40	78.60	18.20	4.80	20.00	435.00
<b>1974</b>	6.60	4.70	10.60	2.50	138.60	244.10	65.20	323.70	53.40	40.40	21.90	4.40	916.10
<b>1975</b>	20.90	5.00	8.00	69.90	169.90	56.40	146.50	90.90	21.60	49.60	18.40	0.00	657.10
<b>1976</b>	0.00	6.80	24.50	39.30	90.70	226.70	75.40	56.40	53.40	11.50	116.60	49.40	750.70
<b>1977</b>	13.00	79.80	11.10	74.60	110.50	253.20	189.90	210.80	32.30	15.10	5.60	18.30	1014.20
<b>1978</b>	7.10	20.10	21.80	26.00	36.70	42.50	25.00	153.00	80.80	38.60	4.70	14.10	470.40
<b>1979</b>	29.10	34.50	7.20	10.20	97.90	117.10	44.00	58.10	40.50	82.30	4.00	4.60	529.50
<b>1980</b>	8.90	17.70	9.30	53.60	102.00	103.30	44.70	62.40	34.30	28.30	90.30	45.10	599.90
<b>1981</b>	53.00	0.00	45.90	58.10	10.00	55.70	193.60	93.70	170.70	8.20	21.50	14.00	724.40
<b>1982</b>	17.10	19.80	6.20	46.80	40.80	87.40	48.60	94.20	29.00	46.20	22.40	23.70	482.20

<b>1983</b>	1.70	43.80	43.40	9.30	190.60	254.20	193.10	45.00	88.00	15.20	6.60	7.50	898.40
<b>1984</b>	7.20	3.40	21.20	27.00	240.40	69.30	92.40	113.30	98.80	99.70	1.00	48.60	822.30
<b>1985</b>	15.10	12.90	79.10	52.90	39.70	106.30	128.60	135.40	31.70	4.20	2.00	5.10	613.00
<b>1986</b>	6.70	5.90	44.20	37.80	66.90	194.10	143.40	140.00	29.20	38.00	27.70	6.00	739.90
<b>1987</b>	14.00	16.50	9.90	36.10	124.30	108.40	163.10	136.30	43.40	12.00	10.80	34.30	709.10
<b>1988</b>	1.30	0.00	20.70	59.90	93.70	70.40	88.90	100.60	42.20	21.70	5.50	15.90	520.80
<b>1989</b>	6.50	23.00	49.30	73.30	65.90	73.20	121.70	120.00	118.10	40.90	21.50	4.00	717.40
<b>1990</b>	8.50	36.20	0.90	194.10	101.70	113.60	196.70	83.70	38.20	4.10	27.20	10.00	814.90
<b>1991</b>	5.00	5.30	6.70	25.00	101.20	218.40	181.10	35.00	149.50	42.90	14.30	5.30	789.70
<b>1992</b>	0.40	31.70	12.00	82.10	67.00	196.80	126.10	55.70	55.30	140.10	14.10	9.40	790.70
<b>1993</b>	6.20	46.70	4.10	152.80	106.50	105.80	210.40	91.50	12.50	2.90	11.50	21.90	772.80
<b>1994</b>	0.30	0.90	12.70	22.00	44.70	344.70	76.00	42.40	51.80	8.90	7.20	6.90	618.50
<b>1995</b>	7.90	6.30	3.50	17.10	74.90	87.90	139.60	86.20	19.10	62.90	14.20	36.40	556.00
<b>1996</b>	1.20	20.30	24.00	13.80	48.50	202.40	97.00	113.10	113.20	65.60	58.50	34.30	791.90
<b>1997</b>	6.80	3.00	0.80	53.70	89.10	185.00	30.40	139.20	32.10	19.10	58.30	11.40	628.90
<b>1998</b>	11.30	0.00	11.70	41.60	180.60	59.70	109.70	57.90	34.60	24.40	45.10	37.50	614.10
<b>1999</b>	0.00	0.30	0.40	28.00	35.70	117.00	53.00	140.80	86.20	0.20	17.60	4.60	483.80
<b>2000</b>	11.00	0.00	14.50	9.50	59.90	70.80	109.00	65.20	76.70	10.30	2.50	6.20	435.60
<b>2001</b>	15.20	5.50	2.00	43.40	140.20	64.90	288.80	183.30	70.20	52.10	11.80	5.90	883.30

<b>2002</b>	70.20	76.90	9.30	19.50	84.00	84.60	111.00	39.20	25.00	26.60	21.70	0.00	568.00
<b>2003</b>	4.70	7.40	42.10	9.40	39.40	13.80	37.10	188.80	81.50	28.40	2.70	28.40	483.70
<b>2004</b>	10.10	2.70	38.50	69.90	11.90	95.20	93.60	106.50	43.70	102.60	1.30	8.50	584.50
<b>2005</b>	24.65	3.80	6.40	59.40	127.87	156.15	43.82	163.15	43.34	30.10	30.60	0.00	689.28
<b>2006</b>	0.45	11.20	3.30	28.70	129.63	133.45	212.36	97.60	22.20	40.30	57.00	14.65	750.84
<b>2007</b>	41.30	36.00	100.80	92.85	154.20	132.00	184.50	139.30	58.50	15.80	33.60	8.90	997.75
<b>2008</b>	24.00	28.12	9.15	9.30	116.70	139.70	214.70	149.05	210.85	53.50	64.55	14.40	1034.02
<b>2009</b>	9.65	8.01	4.20	31.15	84.25	148.30	96.00	129.95	64.20	30.90	105.70	2.50	714.81
<b>2010</b>	2.05	5.15	6.66	15.35	166.85	95.25	43.50	43.25	27.10	28.25	19.26	0.00	452.67

<b>MEAN</b>	11.61	17.52	19.37	48.04	93.52	123.91	115.24	110.96	55.95	37.79	22.52	15.50	672.40
<b>MIN</b>	0.00	0.00	0.00	2.50	9.90	13.80	25.00	30.00	8.30	0.20	0.00	0.00	435.00
<b>MAX</b>	70.20	93.10	100.80	236.60	277.90	344.70	288.80	323.70	210.85	140.10	116.60	49.40	1064.90

A (2): Explanation of zoning criteria

**Table 11: City of Cape Town Nature Reserves and Conservation Areas: Visitor Use Zoning - Desired State<sup>a</sup> & Experiential Qualities**

Experience	Zone	Desired State <sup>a</sup>	Conservation objectives	Secondary objective	Experiential Qualities	Activities	Interaction between users	Frequency of use	Group size	Sophistication and type of facilities	Primary user movement within the zone	Roads & footpaths	Equivalent Provincial zone
Close To Nature Activities tend to be at landscape level	Primary conservation	Natural or near-natural areas (or areas that can be rehabilitated to this state) that are managed primarily for biodiversity conservation. The experience is one of relative solitude and wildness. The nature of the experience is dependant on the quality of the natural environment. The main accent of management is biodiversity conservation and "Pack it in Pack it out" principles are applied to all activities including management. There may be some signs of infrastructure mainly of a heritage nature. In the longer term, unused utility infrastructure (e.g. reservoirs) should be phased out and the site rehabilitated.	Natural areas should be kept intact in order to protect habitat required to meet biodiversity targets for various vegetation types and to provide undisturbed habitat for a range of species. Where possible degraded areas should be rehabilitated.	Managed to provide visitor experiences in a way that does not impact on the biodiversity objective.  Where appropriate, heritage values are managed as required	Relative sense of isolation	Controlled access <sup>ii</sup> Research and monitoring. Accompanied small groups. The size and frequency of groups to be specified for each reserve.	None or very low	None -Very low	Small	No new facilities. Existing structures should be phased out where appropriate.  Heritage assets are managed where appropriate	Pedestrian access in accompanied small groups  Motorised for essential management only.	Absolutely essential management tracks and footpaths in accordance with the foot path and road management plan  Ongoing restoration of old paths/roads to be prioritized and monitored.	Quiet
	Conservation	Natural or near-natural areas (or areas that can be rehabilitated to this state) that are managed for biodiversity conservation. This zone provides experiences of a relative sense of relaxation in an environment that is openly exposed to the sights and sounds of the city. Although it is a place of quietness and naturamness, there will be more interaction between users than in the Primary Conservation Zone. The quality of the experience is less dependant on the quality of the natural environment.	Natural areas should be kept intact in order to protect habitat required to meet biodiversity targets for various vegetation types and to provide undisturbed habitat for a range of species. Where possible degraded areas should be rehabilitated.	Managed to provide visitor experiences in a way that does not impact on the biodiversity objective.	Relaxation	Self guided hiking, non-motorised access <sup>iii</sup> , bird watching, etc. In reserves where access to water bodies is allowed, this area is limited to non-motorized vessels only in accordance with the Vlei By-Laws.	Moderate	Moderate	Small	Low impact, eco-friendly facilities that facilitate ecologically sustainable activities and visitor experiences may be permitted under certain circumstances. These are strictly for achieving the social and development objectives of the reserve where appropriate and are subject to a stringent internal approval process and must be in line with an approved reserve management plan.	Pedestrian Non motorised  Motorised access for management only.	Management tracks/roads and footpaths. Minimal footpath construction to prevent ecological damage. Boardwalks may be permitted where appropriate to protect sensitive areas. The footpath system should be designed so as to control access into the Primary Conservation zone.  Off road wheelchair access may be provided where appropriate.	
Outdoor Natural Experience Activities tend to be at precinct level	Low Intensity Leisure	Natural, near-natural or managed landscapes which are primarily managed to promote recreational and educational objectives. The main accent is on recreational activities which are more reliant on the quality of the facilities provided than in a Conservation Zone. By their nature these zones are placed in more transformed landscapes. Interaction and socialisation are an integral part of the experience.	Although some areas will be impacted by a range of activities and limited infrastructure, most areas should be kept largely intact and ecological processes should remain functioning. Where possible degraded areas should be rehabilitated.	Recreation and education Managed to provide a largely natural outdoor area to support the recreational and education objectives of the reserve.	Socialisation	Walking, non-motorised access, bird watching. In reserves where access to water bodies is allowed, motorized vessels are only allowed under strict control (e.g. no waterskiing, low speed limits and wake-free zones) in accordance with the Vlei By-Laws.	Frequent	Moderate -high	Small - moderate	Low-Medium impact, eco-friendly facilities that facilitate ecologically sustainable activities and visitor experiences. E.g. Benches, bird hides, informative signage, lookouts.  Parking for access to this and other zones.	Pedestrian Non motorised  Motorised access for management only	Appropriate foot paths with directional signage Boardwalks should facilitate access and protect sensitive areas. Normal wheelchair access where appropriate  Parking with no facilities for access to this and other zones	Low Intensity Leisure
	High Intensity Use	High use landscapes, which are often largely transformed, which are managed largely to support visitor activities more dependent on facilities, education and administrative functions of reserves. High intensity visitor facilities with modern commercialised amenities with very concentrated, activities. The quality of the visitor experience is heavily dependant of the quality of the facilities which enable the visitor to experience the environment with a minimum of effort. Due to the high impacts these are concentrated at specific nodes. These nodes are generally situated at existing facilities including historic buildings and precincts. The main focus of management is to ensure a high quality visitor experience whilst ensuring that the activities have a minimal impact on the surrounding environment and that heritage resources are respected and celebrated.	The activities and infrastructure in these areas should be managed to minimize impacts on biodiversity and visitor experience in other zones. Where feasible, non-crucial infrastructure should over time be removed from the reserve and the sites rehabilitated.	Facilities are managed to facilitate and promote appropriate visitor activities and educational use of the reserve. Administration; provides appropriate management infrastructure to facilitate other objectives of the reserve.	Entertainment	Events, self guided walks, wheelchair accessible trails, parking, picnicking. In reserves where access to water bodies is allowed, this area is appropriate for high intensity uses such as power boating and waterskiing in accordance with the Vlei By-Laws.	Very frequent	Very high	Small - Large	Picnic areas, parking areas, restaurants, information centers, ablutions, environmental education facilities, nurseries etc. Provides parking from which pedestrian access is gained to other zones.	Motorised Access People movers & Pedestrian access	Access roads and associated parking. Footpaths constructed to a higher standard for the comfort of the user. Design standards to be set in the footpath and road management plan Wheelchair access encouraged in this zone.	High Intensity Leisure
Site Specific Level	Utility zone	Area used for utility functions such as bulk water provision, landfill sites within the protected /conservation areas etc.	The activities and infrastructure in these areas should be managed to minimize impacts on biodiversity and visitor experience in other zones. Where feasible, non-crucial infrastructure should over time be removed from the reserve and the sites rehabilitated.	Administration Conservation where appropriate	Utility	Determined at site	Determined at site	Determined at site	Determined at site	Determined at site	Determined at site level	Access roads and associated parking as required by the Utility Function	

<sup>a</sup> Note. The "Desired State" is the long term objective of the zone and these desired conditions may not actually exist at the time of zoning. Achieving the "Desired State" will be informed by many factors and may only be reached after many years.  
<sup>ii</sup> Accompanied access refers to controlled access. The level and type of control is determined at reserve level.  
<sup>iii</sup> Non-motorised access refers to mountain bikes, horses, paragliding etc. These activities are reserve specific and reference must be made to the reserve management plan for a list of acceptable activities per reserve.

## **Appendix B: Legal Agreements**

### **Appendix B1: Gazettes for reserve proclamations**

AFDELINGSRAAD VAN GORDONIA.

SLUITING VAN PUBLIEKE PAD—F. W. C. LOXTON EN J. H. VAN NIEKERK.

**K**ENNIS geskied hiermee kragtens artikels 184 en 185 van Ordonnansie nr. 13 van 1917, soos gewys, dat die Afdelingsraad van Gordonia van voornemens is om aansoek te doen by Sy Edele die Administrateur vir die uitreiking van 'n proklamasie om die pad soos hieronder beskryf, te sluit vir publieke verkeer.

'n Pad beginnende op die grens tussen Loxtonvale East en Loxtonsvale, 1.000 tree vanwaar dit uitdraai uit die Enkele Duin—Bieslepoort pad, 1½ myl vanaf die Hoofpad Al Keimoes na Kakamas, en dan loop in 'n noord-oostelike rigting vir 'n afstand van 1 myl oor Loxtonsvale East tot waar dit op die grens van Enkele Duin kom, en vandaar vir 'n half myl in 'n noordoostelike rigting oor Enkele Duin en dan wegdraai en in 'n noordelike rigting gaan vir 'n afstand van 9 myl tot waar dit die grens van Brakbosch Kolk oorskry en v.r. 7 myl in 'n noordelike rigting oor Brakbosch Kolk tot waar dit aansluit by die Hoofweg na Suidwes-Afrika.

'n Totale afstand van 19 myl.

Enige persoon wat beswaar wil maak teen die bogenemde sluiting, moet sy beswaar skriftelik indien, by die ondergetekende binne drie maande vanaf datum van die eerste publikasie hiervan.

Op Las,  
S. A. M. Jonker,  
Sekretaris.

Afdelingsraadskantoor,  
Le Rouxstraat,  
Uppington, K.F.  
7 Desember 1950.

V280

DIE AFDELINGSRAAD VAN DIE KAAP.

STIGTING VAN 'N VOELTUIN VIR DIE BESKERMING VAN VOELS TE RONDEVLEI, AFDELING KAAP.

**H**IERBY word ingevolge die bepaling van artikel 2 van Ordonnansie nr. 17 van 1948 bekend gemaak dat die Afdelingsraad, met die goedkeuring van Sy Edelaagbare die Administrateur, besluit het om 'n Voeltuin te Rondevlei, Kaapse Vlakte, binne die magsgebied van die Raad, vir die beskerming van voels, te stig.

Die grense van die Voeltuin word hierby as volg bepaal:—

Van die mees westelike baken van Perseel 34 van die landgoed Grassy Park-uitbreiding; daarvandaan in 'n algemeen suidelike rigting vir 'n afstand van ongeveer 903 voet; dan verder in 'n algemeen suidelike rigting langs die oostelike grens van 'n bestaande landgoedstraat vir 'n afstand van ongeveer 1.030 voet; vandaar in 'n sudoostelike rigting vir 'n afstand van omtrent 1.950 voet; dan in 'n algemeen oostelike rigting vir 'n afstand van ongeveer 2.228 voet; waarvandaan dit wegdraai en verder in 'n algemeen noordelike rigting gaan vir 'n afstand van omtrent 658 voet langs die westelike kant van 'n bestaande landgoedstraat tot by sy kruising met die bestaande pad na Zeekoevlei, vanwaar dit in 'n algemeen noordelike rigting wegdraai en langs die westekant van laasgenoemde pad loop tot waar dit die oostelike grens van Perseel 107 van die landgoed Grassy Park-uitbreiding kruis; dan langs die oostelike grens van laasgenoemde Perseel en oor Perseel 92, landgoed Grassy Park-uitbreiding tot by die oostelike baken van Perseel 80, landgoed Grassy Park-uitbreiding; vandaar langs die grense van die volgende Persele van landgoed Grassy Park-uitbreiding om hulle binne hierdie gebied in te sluit:—

80, 79, 78, 77, 76, 75, 46, 43, 38, 37, 36, 35, 34 tot by die ooreenkomende punt—d.w.s. Rondevlei en omliggende grond soos saamgevat in Diagram nr. 6507/50 van Perseel B.S., wat in die kantoor van die Landmeter-generaal, Kaapstad, weggeleë is en naasteby as volg begrens is, naamlik aan die noordekant deur dorp Grassy Park-uitbreiding (Kaart nr. G.32), aan die westekant deur Landgoed Nuwe Retreat (Kaart nr. R.51A) en aan die oostekant deur Zeekoevlei.

Die goedkeuring van Sy Edelaagbare die Administrateur vir die stigting van die Voeltuin soos hierbo beskrywe, is aan die Raad oorgegedra by dienbrief van die Provinsiale Sekretaris, nr. C19/2B, gedateer 14 Desember 1950.

Op Las van die Raad,  
G. O. Owen,  
Sekretaris.

Dorpstraat 6,  
Kaapstad,  
18 Desember 1950.

V318

DIVISIONAL COUNCIL OF GORDONIA.

CLOSING OF PUBLIC ROAD—F. W. C. LOXTON AND J. H. VAN NIEKERK.

**N**OTICE is hereby given in terms of sections 184 and 185 of Ordinance No. 13 of 1917 as amended, that it is the intention of the Divisional Council of Gordonia to apply to His Honour the Administrator, to issue a proclamation closing the undermentioned road to public traffic.

A road commencing on the boundary between the farms Loxtonsvale East and Loxtonsvale, 1,000 yards from where it turns out of the Enkele Duin—Bieslepoort Road, 1½ miles from the Al Main Road Keimoes to Kakamas, and then running in a north-easterly direction for a distance of 1 mile, across Loxtonsvale East until it crosses the boundary of Enkele Duin, and from there for half a mile across Enkele Duin in a north-easterly direction thence swinging in a northerly direction for a distance of 9 miles until it crosses the boundary of Brakbosch Kolk, and for 7 miles across Brakbosch Kolk in a northerly direction until it reaches and turns into the Keimoes—South West Africa main road.

A total distance of 19 miles.

Any person objecting to the above proposal, is required to lodge such objection in writing with the undersigned within three months from the date of the first publication hereof.

By Order,  
S. A. M. Jonker,  
Secretary.

Divisional Council Office,  
Le Roux Street,  
Uppington, C.F.  
7th December, 1950.

V280

THE DIVISIONAL COUNCIL OF THE CAPE.

ESTABLISHMENT OF SANCTUARY FOR THE PROTECTION OF BIRD LIFE AT RONDEVLEI, CAPE DIVISION.

**N**OTICE is hereby given, in accordance with the provisions of section 2 of Ordinance No. 17 of 1948, that the Divisional Council has, with the consent of the Honourable the Administrator, resolved to establish a Sanctuary for the purpose of protecting bird life at Rondevlei, Cape Flats, within the area of the Council's jurisdiction.

The boundaries of the Sanctuary are hereby defined as follows:—

From the most western beacon of Lot 34 of the Grassy Park Extension Estate; thence proceeding in a general southerly direction for a distance of approximately 903 feet; thence continuing in a general southerly direction along the eastern boundary of an existing estate street for a distance of approximately 1.030 feet; thence in a south-easterly direction for a distance of approximately 1.950 feet; thence proceeding in a general easterly direction for a distance of approximately 2.228 feet; thence turning and proceeding in a general northerly direction for a distance of approximately 658 feet along the western side of an existing estate street until its intersection with the existing road to Zeekoevlei; thence turning in a general northerly direction along the western side of the last-mentioned road to where it intersects the eastern boundary of Lot 107 of the Grassy Park Extension Estate; thence along the eastern boundary of the last-mentioned Lot and over Lot 92, Grassy Park Extension Estate to the eastern beacon of Lot 80, Grassy Park Extension Estate; thence along the boundaries of the following Lots of the Grassy Park Extension Estate, so as to include them within this area:—

80, 79, 78, 77, 76, 75, 46, 43, 38, 37, 36, 35, 34 to the point firstnamed,—being Rondevlei and surrounding land included in Diagram No. 6507/50 of Lot B.S., filed in the Surveyor-General's Office, Cape Town, and bounded approximately as follows, viz. northwards by Grassy Park Extension Township (Plan G.32), westwards by New Retreat Estate (Plan R.51A) and eastwards by Zeekoevlei.

The approval of the Honourable the Administrator as to the establishment of the Sanctuary as above defined has been conveyed to the Council by the Provincial Secretary's minute No. C19/2B dated the 14th December, 1950.

By Order of the Council,  
G. O. Owen,  
Secretary.

6, Dorp Street,  
Cape Town,  
18th December, 1950.

V318



**MANAGEMENT AGREEMENT**

**ENTERED INTO BETWEEN**

**THE CITY OF CAPE TOWN**  
(hereinafter referred to as 'the City')

and

**SOUTHERN AMBITION 160CC**  
**Trading as Imvubu Nature Tours**  
(hereinafter referred to as 'the Company')

**PREAMBLE**

Zeekoevlei and Rondevlei are two adjacent local nature reserves on the Cape Flats, Rondevlei being declared so in 1952 and Zeekoevlei in 2000. Both are administered by the City of Cape Town and form part of the False Bay Ecology Park.

Following a diversification of visitor activities at the Rondevlei in the 1990's and an increase in tourists to the area, the need arose for the establishment of professional tourism service.

In order to facilitate this need and create employment opportunities in the local area, a tourism company was established by the City with the funding received from the Department of Environment & Tourism and the City's Community Based Tourism Development Fund. This management agreement serves to formalise the agreement between this company and the City of Cape Town.

**AGREEMENT**

Whereas the City is the owner of Rondevlei and Zeekoevlei Nature Reserves as well as all buildings and facilities on these premises.

And whereas the company requires use of such property and facilities to operate tourism.

NOW THEREFORE it is agreed as follows.

## 1. FACILITIES AVAILABLE TO THE COMPANY

- 1.1 Access to the premises of both Zeekoevlei and Rondevlei Nature Reserves.
- 1.2 The premises are to include the land of Rondevlei and Zeekoevlei Nature Reserves and the following buildings:

- The lecture theatre in the Rondevlei museum complex
- The boma area and outdoor conference area at Rondevlei
- The boathouse
- The island bush camp at Rondevlei
- The indigenous plant nursery at Rondevlei
- The entrance gatehouse shop at Rondevlei

- 1.3 The vehicle for use by the company is:

A 14 seater boat with outboard motor

## 2. USE OF FACILITIES

- 2.1 The company is given access exclusively for the purpose of activities related to tourists visiting the False Bay Ecology Park.
- 2.2 The company staff, volunteers or sub contractors may make use of the above-mentioned facilities for the exclusive use of bona fide tourism related programmes; such as but not limited to: guided walks, conferences and events, overnight accommodation, boat trips, food outlet/catering, indigenous plant sales, fishing tours, and visitor curios sales point, and identified office.
- 2.3 Should the company wish to utilise the facilities for any other purpose the written consent of the City's Conservation Manager must be obtained.
- 2.4 Use of the facilities is to be within the keeping of the nature reserves operating guidelines, management plan and with due consideration for the environment, visitors and surrounding residents.
- 2.5 All staff of the company must be considered competent by the City Conservation Manager and / or undergo any training deemed necessary by him/ her.
- 2.6 Tourists visiting and participating in the Company's tours will pay the City's prescribed entrance fees as determined from time to time to by the City of Cape Town.
- 2.7 The company is granted precedence and the exclusive right to utilise the above facilities with the following exceptions:



- 2.7.1 If not booked, the lecture theatre is made available for day or overnight education programmes.
- 2.7.2 If not booked, and subject to the approval of the reserve manager, the City's nature conservation division may utilise any of the facilities listed above for in house related programmes; up to a maximum of 18 functions per year per venue.
- 2.7.3 If an event is deemed as a necessity by the Reserve Manager at Rondevlei Nature Reserve, of which at least one (1) month's prior notice is given to the company, it can take precedence over tourism programmes utilising the Rondevlei or Zeekoevlei Nature Reserve's infrastructure or equipment.

### 3. MAINTENANCE

- 3.1 The company is responsible for the maintenance incurred by visitor groups whilst utilising the museum room, the boma, lecture theatre, overnight accommodation, office area and boat as detailed in 1.3, 1.4, 1.5.
- 3.2 The company undertakes to inform the City of any damage to any premises or vehicle and/or situation requiring maintenance within 24 hours of it becoming aware thereof.
- 3.3 Notwithstanding 3.1 above, the City may recover the costs of any maintenance conducted from the company if such maintenance was a direct or indirect result of negligence by the company, its employees, volunteers, agents or clients. The company undertakes to pay for any such costs within one calendar month from receiving a written demand from the City.
- 3.4 The company shall pay for the cost of all electricity, gas and water supplied to and consumed upon the premises, as detailed in clause 1.2 hereof, during the occupation of these premises. (Refer to Annexure "A" attached hereto) During any period for which there may be no separate meter for any of such supply and where the premises forms part only of the larger metered premises/entity, the company shall pay a pro rata share of the cost of such supplies metered for the larger premises/entity.

### 4. INSURANCE

- 4.1 Insurance of the building and premises and all objects attached thereto will be undertaken by the City within the scope of its normal operation and budgetary constraints.
- 4.2 The company will be responsible for insuring all its movable property including, but not limited to, vehicles, equipment and furniture, which it introduces onto the premises.

*Handwritten initials and signature:*  
PJT gmt  
B



4.3 Further to 4.1 above, the City undertakes to maintain its usual public liability insurance in respect of public facilities that it operates.

4.4 Further to 4.2 and 4.3 above, the company undertakes to obtain all necessary insurance cover relevant to any indemnity it provides in respect of this agreement.

## 5. PERIOD OF AGREEMENT

This agreement shall run indefinitely unless terminated in terms of clause 6 or the period is varied in terms of clause 9.7

## 6. TERMINATION

6.1 This agreement shall terminate if the Company gives three (3) complete calendar months written notice to the City

6.2 If the Company

6.2.1 commits any act of insolvency,

6.2.2 is liquidated, provisionally or finally,

6.2.3 enters any arrangement or compromise with any of its creditors,

6.2.4 fails to comply with any legislation applicable to their use of the property,  
or

6.2.5 shifts its activities away from the False Bay Ecology Park to an extent that tourists at the Rondevlei and Zeekoevlei Nature Reserves are no longer catered for

it shall be a material breach of this agreement.

6.3 In the event of either party committing a material breach of the provisions of this agreement and failing to remedy such breach within 7 days of receiving written notification by the other party to remedy such breach, then, in that event, the aggrieved party shall be entitled to terminate the agreement by written notice received by the other party

6.4 On termination of this agreement, the Company must vacate the premises within seven (7) days

6.5 Any termination shall be without prejudice to any rights, including the right to claim damages, including consequential damages, which the City or Company may have in law by reason of the breach and / or by reason of the termination itself.

## 7. INDEMNITY

The company indemnifies the City against any claims, actions, demands, costs, damages and expenses arising directly or indirectly from any activities

or negligence on the premises or in the vehicles by the company, its employees, agents or clients.

## 8. REMUNERATION

8.1 As the company undertakes to market and promote the False Bay Ecology Park, and attract visitors to it and in so doing increase the City's revenue, no management fee will be charged for use of premises and facilities referred to in this agreement provided such use is in accordance with clause 2 of this agreement.

8.2 The company will pay for its separate water meter on Peninsula Road and any repairs that may arise from this water connection.

8.3 Any written consent provided in terms of clause 2.3 of this agreement may make such consent subject to the payment of remuneration considered appropriate by the City's Conservation Manager.

8.4 In the spirit of the False Bay Ecology Park and the funding with which it was established, the company will support the City's local environment education initiative (the Zeekoevlei Environmental Education Programme Trust) by a monthly donation of 5% of its takings.

8.5 In the spirit of which it was established, the company shall, where the standard and capacity is sufficient, source all services and goods from the communities abutting the Rondevlei and Zeekoevlei Nature Reserves.

8.6 Where such services and goods are unavailable, the company is encouraged to support local enterprises in developing the skills and resources needed to provide such services and goods for the tourism industry.

8.7 Ownership of close corporation (company) shall vest with all full time employees of the company.

## 9. GENERAL

### 9.1 Telephone

The cost of installation and/or call charges related to any telephone(s) used by the company will be for its own account.

### 9.2 Building alterations

The company may not erect and/or alter any buildings on the premises without obtaining prior written approval of the City's Conservation Manager and complying with any requirements stipulated by law.

### 9.3 Payment by client groups

The company will ensure that all groups participating in their tours pay the prescribed City's entrance tariffs.

#### 9.4 Addresses for services

The parties hereby nominate the following addresses as *domicilium citandi et executandi* for purposes of this agreement.

City c/o RONDEVLEI NATURE RESERVE  
FISHERMAN'S WALK  
ZEKOEVELI  
7941

Telephone: 021 706 2404  
Fax: 021 706 2405

The Company:  
Imvubu Nature Tours  
1 Fisherman's Walk  
Zeekevelei  
7941

Telephone: (021) 706 0842  
Fax: (021) 706 9793

#### 9.5 Dispute

The parties hereto agree that any dispute arising from this agreement shall be referred to an independent arbitrator in the event of such dispute not being resolved within one calendar month of it arising or such extended period as agreed to by the parties in writing. The decision of such arbitrator shall be binding on the parties.

#### 9.6 Commencement Date

The company will take occupation on 15-02-2005 or on date of last signature hereof, whichever is the earlier.

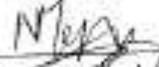
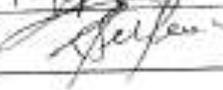
#### 9.7 Entire agreement

This agreement comprises all terms agreed upon by the parties. No variation or amendment of this agreement shall be of any force or effect unless reduced to writing and signed by or on behalf of both parties.



Date at RANDOLPH on this 11<sup>th</sup> day of FEBRUARY 2005.

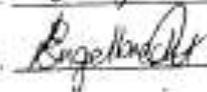
AS WITNESSES

1. 
2. 

  
For and behalf of the Company, such signatory warranting he/she has the authority so to sign

Date at Randolph Nat. Res. on this 15<sup>th</sup> day of FEBRUARY 2005.

AS WITNESSES

1. 
2. 

  
For and behalf of the City, such Signatory warranting he/she has the authority so to sign





## ANNEXURE A

### 3. MAINTENANCE

- 3.4 The company shall pay a pro rata rate of R100 (One Hundred Rands) per month for the cost of all electricity, gas and water supplied to and consumed upon the premises, as detailed in clause 1.2 of the management agreement, during the occupation of these premises.

*Handwritten signature*

#### ANNEXURE B:

The company shall pay the pro rata rate of R100 as mentioned in Annexure A (one hundred Rand) per month for the cost of electricity, gas and water supplied to and consumed upon the premises. The management requests that this money be paid in total (R1200) annually, on the 30 June along with the full amount of money collected from gate fees from throughout the year. These gate fees apply to all members of the public who have entered the reserve as guests of Imvubu Tours.

The management requests a monthly break down, from each month, of the number and category of visitor who have entered the reserve through Imvubu's books. This will be used in the annual audit.

*[Handwritten signature]*  
*[Handwritten signature]*

## Appendix C: Species Checklist

### Appendix C1: plant lists

#### Pelican Park Section: Plant Species List

Family	Genus	Species Name	Common Name	Threatened Status
Orchidaceae	Bonatea	<i>Bonatea speciosa</i>		

#### Rondevlei Section: Plant Species List

Family	Genus	Species Name	Common Name	Threatened Status
Aizoaceae	Aizoon	<i>Aizoon paniculatum</i>		
Aizoaceae	Tetragonia	<i>Tetragonia fruticosa</i>		
Amaryllidaceae	Amaryllis	<i>Amaryllis belladonna</i>	March Lily	
Amaryllidaceae	Brunsvigia	<i>Brunsvigia orientalis</i>	Candelabera Flower	
Amaryllidaceae	Haemanthus	<i>Haemanthus coccineus</i>	April Fool	
Amaryllidaceae	Haemanthus	<i>Haemanthus pubescens pubescens</i>	Poeierkwas	
Anacardiaceae	Harpephyllum	<i>Harpephyllum caffrum</i>		
Anacardiaceae	Rhus	<i>Rhus crenata</i>	Blink Taaibos, Turkeyberry	
Anacardiaceae	Rhus	<i>Rhus glauca</i>	Blou Taaibos	
Anacardiaceae	Rhus	<i>Rhus laevigata</i>		
Anacardiaceae	Rhus	<i>Rhus lucida</i> ~		

Anacardiaceae	Schinus	<i>Schinus terebinthifolius</i>		
Apiaceae	Capnophyllum	<i>Capnophyllum africanum</i>		
Apocynaceae	Cynanchum	<i>Cynanchum africanum</i>		
Apocynaceae	Gomphocarpus	<i>Gomphocarpus fruticosus fruticosus</i>		
Apocynaceae	Gomphocarpus	<i>Gomphocarpus fruticosus</i> ~	Wild cotton	
Aponogetonaceae	Aponogeton	<i>Aponogeton angustifolius</i>		
Aponogetonaceae	Aponogeton	<i>Aponogeton distachyos</i>		
Araceae	Zantedeschia	<i>Zantedeschia aethiopica</i>	Arum Lilly	
Araliaceae	Hydrocotyle	<i>Hydrocotyle verticillata</i>		
Asparagaceae	Asparagus	<i>Asparagus aethiopicus</i>		
Asparagaceae	Asparagus	<i>Asparagus asparagoides</i>		
Asparagaceae	Asparagus	<i>Asparagus capensis</i>		
Asparagaceae	Asparagus	<i>Asparagus rubicundus</i>		
Asphodelaceae	Bulbine	<i>Bulbine favosa</i>		
Asphodelaceae	Trachyandra	<i>Trachyandra divaricata</i>		
Asteraceae	Arctotheca	<i>Arctotheca calendula</i>		
Asteraceae	Arctotis	<i>Arctotis acaulis</i>		
Asteraceae	Athanasia	<i>Athanasia dentata</i>		

Asteraceae	Chrysanthemoides	<i>Chrysanthemoides monilifera</i>	Bitoubos	
Asteraceae	Chrysanthemoides	<i>Chrysanthemoides monilifera monilifera</i>	Bitoubos	
Asteraceae	Chrysocoma	<i>Chrysocoma coma-aurea</i>		
Asteraceae	Cineraria	<i>Cineraria geifolia</i>		
Asteraceae	Conyza	<i>Conyza canadensis</i>		
Asteraceae	Conyza	<i>Conyza pinnatifida</i>		
Asteraceae	Cotula	<i>Cotula coronopifolia</i>		
Asteraceae	Cotula	<i>Cotula turbinata</i>		
Asteraceae	Dimorphotheca	<i>Dimorphotheca pluvialis</i>		
Asteraceae	Eriocephalus	<i>Eriocephalus africanus~</i>		
Asteraceae	Helichrysum	<i>Helichrysum crispum</i>		
Asteraceae	Helichrysum	<i>Helichrysum indicum</i>		
Asteraceae	Helichrysum	<i>Helichrysum litorale</i>		
Asteraceae	Helichrysum	<i>Helichrysum moesianum</i>		
Asteraceae	Helichrysum	<i>Helichrysum niveum</i>		
Asteraceae	Helichrysum	<i>Helichrysum patulum</i>		
Asteraceae	Helichrysum	<i>Helichrysum petiolare</i>		
Asteraceae	Metalasia	<i>Metalasia muricata</i>		
Asteraceae	Nidorella	<i>Nidorella foetida</i>		
Asteraceae	Othonna	<i>Othonna</i>		

		<i>coronopifolia</i>		
Asteraceae	Plecostachys	<i>Plecostachys serpyllifolia</i>		
Asteraceae	Senecio	<i>Senecio arenarius</i>		
Asteraceae	Senecio	<i>Senecio burchellii</i>		
Asteraceae	Senecio	<i>Senecio elegans</i>		
Asteraceae	Senecio	<i>Senecio halimifolius</i>	Tabakbos	
Asteraceae	Senecio	<i>Senecio littoreus</i> ~		
Asteraceae	Senecio	<i>Senecio pterophorus</i>		
Asteraceae	Senecio	<i>Senecio tamoides</i>		
Asteraceae	Seriphium	<i>Seriphium plumosum</i>		
Boraginaceae	Lobostemon	<i>Lobostemon glaucophyllus</i>		
Brassicaceae	Heliophila	<i>Heliophila africana</i>		
Brassicaceae	Nasturtium	<i>Nasturtium officinale</i>	Watercress	
Brassicaceae	Sisymbrium	<i>Sisymbrium capense</i>		
Campanulaceae	Wahlenbergia	<i>Wahlenbergia androsacea</i>		
Campanulaceae	Wahlenbergia	<i>Wahlenbergia capensis</i>		
Caryophyllaceae	Dianthus	<i>Dianthus albens</i>		
Celastraceae	Gymnosporia	<i>Gymnosporia heterophylla</i>		
Celastraceae	Pterocelastrus	<i>Pterocelastrus tricuspidatus</i>		
Celastraceae	Putterlickia	<i>Putterlickia pyracantha</i>		
Chenopodiaceae	Sarcocornia	<i>Sarcocornia</i>		

		<i>natalensis</i> ~		
Colchicaceae	Ornithoglossum	<i>Ornithoglossum viride</i>		
Commelinaceae	Commelina	<i>Commelina benghalensis</i>	Blouselblommetjie	
Crassulaceae	Cotyledon	<i>Cotyledon orbiculata</i>	Plakkies, Varkoor	
Crassulaceae	Cotyledon	<i>Cotyledon orbiculata</i> ~		
Crassulaceae	Crassula	<i>Crassula dichotoma</i>		
Crassulaceae	Crassula	<i>Crassula glomerata</i>		
Cucurbitaceae	Kedrostis	<i>Kedrostis nana</i> ~		
Cyperaceae	Bolboschoenus	<i>Bolboschoenus maritimus</i>		
Cyperaceae	Carex	<i>Carex aethiopica</i>		
Cyperaceae	Carex	<i>Carex clavata</i>		
Cyperaceae	Cladium	<i>Cladium mariscus</i> ~		
Cyperaceae	Cyperus	<i>Cyperus esculentus</i> ~		
Cyperaceae	Ficinia	<i>Ficinia dunensis</i>		
Cyperaceae	Ficinia	<i>Ficinia nigrescens</i>		
Cyperaceae	Ficinia	<i>Ficinia nodosa</i>		
Cyperaceae	Ficinia	<i>Ficinia ramosissima</i>		
Cyperaceae	Hellmuthia	<i>Hellmuthia membranacea</i>		
Cyperaceae	Isolepis	<i>Isolepis antarctica</i>		
Cyperaceae	Isolepis	<i>Isolepis bulbifera</i>		
Cyperaceae	Isolepis	<i>Isolepis incomtula</i>		
Cyperaceae	Tetraria	<i>Tetraria cuspidata</i> ~		
Droseraceae	Drosera	<i>Drosera hiliaris</i>		

Droseraceae	Drosera	<i>Drosera trinervia</i>		
Ebenaceae	Euclea	<i>Euclea racemosa</i>		
Ericaceae	Erica	<i>Erica margaritacea</i>		
Ericaceae	Erica	<i>Erica multumbellifera</i>		
Ericaceae	Erica	<i>Erica subdivaricata</i>		
Ericaceae	Erica	<i>Erica turgida</i>		Extinct in the Wild (EW)
Ericaceae	Erica	<i>Erica verticillata</i>	Cape Flats Erica	Extinct in the Wild (EW)
Euphorbiaceae	Euphorbia	<i>Euphorbia marlothiana</i>		
Euphorbiaceae	Euphorbia	<i>Euphorbia mauritanica</i> ~		
Euphorbiaceae	Euphorbia	<i>Euphorbia peplus</i>		
Euphorbiaceae	Euphorbia	<i>Euphorbia tuberosa</i>		
Euphorbiaceae	Ricinus	<i>Ricinus communis</i> ~		
Fabaceae	Acacia	<i>Acacia cyclops</i>	Rooikrans	
Fabaceae	Acacia	<i>Acacia saligna</i>	Port Jackson	
Fabaceae	Aspalathus	<i>Aspalathus ternata</i>		
Fabaceae	Indigofera	<i>Indigofera capillaris</i>		
Fabaceae	Lessertia	<i>Lessertia tomentosa</i>		
Fabaceae	Otholobium	<i>Otholobium bracteolatum</i>		
Fabaceae	Otholobium	<i>Otholobium fruticans</i>		
Fabaceae	Psoralea	<i>Psoralea glaucina</i>	Muizenburg fountainbush	
Fabaceae	Psoralea	<i>Psoralea pinnata</i>		
Fabaceae	Psoralea	<i>Psoralea repens</i>		

Fabaceae	Sutherlandia	<i>Sutherlandia frutescens</i>		
Fabaceae	Vicia	<i>Vicia hirsuta</i>		
Fumariaceae	Cysticapnos	<i>Cysticapnos vesicaria</i>		
Gentianaceae	Orphium	<i>Orphium frutescens</i>		
Geraniaceae	Geranium	<i>Geranium dissectum</i>		
Geraniaceae	Geranium	<i>Geranium incanum</i> ~		
Geraniaceae	Geranium	<i>Geranium molle</i>		
Geraniaceae	Pelargonium	<i>Pelargonium betulinum</i>		
Geraniaceae	Pelargonium	<i>Pelargonium capitatum</i>		
Geraniaceae	Pelargonium	<i>Pelargonium gibbosum</i>		
Geraniaceae	Pelargonium	<i>Pelargonium myrrhifolium</i> ~		
Geraniaceae	Pelargonium	<i>Pelargonium triste</i>		
Haemodoraceae	Wachendorfia	<i>Wachendorfia brachyandra</i>		
Haemodoraceae	Wachendorfia	<i>Wachendorfia paniculata</i>		
Hyacinthaceae	Albuca	<i>Albuca cooperi</i>		
Hyacinthaceae	Albuca	<i>Albuca maxima</i>		
Hyacinthaceae	Lachenalia	<i>Lachenalia bulbifera</i>		
Hyacinthaceae	Lachenalia	<i>Lachenalia orchioides</i> ~		
Hyacinthaceae	Lachenalia	<i>Lachenalia rubida</i>		
Hyacinthaceae	Ornithogalum	<i>Ornithogalum thyrsoides</i>		

Iridaceae	Aristea	<i>Aristea africana</i>		
Iridaceae	Babiana	<i>Babiana ambigua</i>		
Iridaceae	Babiana	<i>Babiana tubiflora</i>		
Iridaceae	Chasmanthe	<i>Chasmanthe aethiopica</i>	Suurkanol	
Iridaceae	Ferraria	<i>Ferraria crispa</i>		
Iridaceae	Ferraria	<i>Ferraria crispa</i> ~		
Iridaceae	Geissorhiza	<i>Geissorhiza aspera</i>		
Iridaceae	Geissorhiza	<i>Geissorhiza tenella</i>		
Iridaceae	Gladiolus	<i>Gladiolus angustus</i>		
Iridaceae	Gladiolus	<i>Gladiolus carinatus</i>	Blou Afrikaner	
Iridaceae	Gladiolus	<i>Gladiolus cunonius</i>		
Iridaceae	Gladiolus	<i>Gladiolus gracilis</i>		
Iridaceae	Gladiolus	<i>Gladiolus quadrangulus</i>		Endangered (EN)
Iridaceae	Gladiolus	<i>Gladiolus undulatus</i>		
Iridaceae	Hesperantha	<i>Hesperantha falcata</i>		
Iridaceae	Ixia	<i>Ixia dubia</i>		
Iridaceae	Ixia	<i>Ixia paniculata</i>		
Iridaceae	Lapeirousia	<i>Lapeirousia anceps</i>		
Iridaceae	Lapeirousia	<i>Lapeirousia jacquinii</i>		
Iridaceae	Melasphaerula	<i>Melasphaerula ramosa</i>		
Iridaceae	Micranthus	<i>Micranthus junceus</i>		
Iridaceae	Moraea	<i>Moraea collina</i>		
Iridaceae	Moraea	<i>Moraea fugax</i>		
Iridaceae	Moraea	<i>Moraea miniata</i>		
Iridaceae	Moraea	<i>Moraea setifolia</i>		

Iridaceae	Moraea	<i>Moraea tripetala</i>		
Iridaceae	Moraea	<i>Moraea viscaria</i>		
Iridaceae	Romulea	<i>Romulea flava</i> ~		
Iridaceae	Romulea	<i>Romulea rosea</i> ~		
Iridaceae	Romulea	<i>Romulea tabularis</i>		
Iridaceae	Sparaxis	<i>Sparaxis grandiflora</i>		
Iridaceae	Watsonia	<i>Watsonia meriana</i> ~		
Juncaceae	Juncus	<i>Juncus kraussii</i>		
Juncaginaceae	Triglochin	<i>Triglochin bulbosa</i>		
Lamiaceae	Leonotis	<i>Leonotis leonurus</i>		
Lamiaceae	Plectranthus	<i>Plectranthus barbatus</i>		
Lamiaceae	Salvia	<i>Salvia africana-lutea</i>		
Lamiaceae	Salvia	<i>Salvia lanceolata</i>		
Lemnaceae	Lemna	<i>Lemna gibba</i>		
Lobeliaceae	Lobelia	<i>Lobelia anceps</i>		
Lobeliaceae	Lobelia	<i>Lobelia erinus</i>		
Lobeliaceae	Monopsis	<i>Monopsis debilis</i> <i>var. depressa</i>		
Lobeliaceae	Monopsis	<i>Monopsis lutea</i>		
Lobeliaceae	Monopsis	<i>Monopsis simplex</i>		
Menispermaceae	Cissampelos	<i>Cissampelos capensis</i>		
Mesembryanthemaceae	Carpanthea	<i>Carpanthea pomeridiana</i>		
Mesembryanthemaceae	Carpobrotus	<i>Carpobrotus acinaciformis</i>	Elandsvy	
Mesembryanthemaceae	Carpobrotus	<i>Carpobrotus edulis</i>	Sour Fig	

Mesembryanthemaceae	Carpobrotus	<i>Carpobrotus muirii</i>		
Mesembryanthemaceae	Lampranthus	<i>Lampranthus reptans</i>		
Mesembryanthemaceae	Phyllobolus	<i>Phyllobolus canaliculatus</i>		
Mesembryanthemaceae	Ruschia	<i>Ruschia macowanii</i>		
Molluginaceae	Pharnaceum	<i>Pharnaceum lineare</i>		
Myoporaceae	Myoporum	<i>Myoporum tenuifolium</i>	Manatoka	
Myrsinaceae	Myrsine	<i>Myrsine africana</i>		
Nyctaginaceae	Mirabilis	<i>Mirabilis jalapa</i>		
Oleaceae	Olea	<i>Olea europaea africana</i>		
Oleaceae	Olea	<i>Olea exasperata</i>		
Orchidaceae	Bonatea	<i>Bonatea speciosa</i>		
Orchidaceae	Corycium	<i>Corycium orobanchoides</i>		
Orchidaceae	Disa	<i>Disa bracteata</i>		
Orchidaceae	Disa	<i>Disa draconis</i>	Dragon Disa	
Orchidaceae	Disperis	<i>Disperis villosa</i>		
Orchidaceae	Holothrix	<i>Holothrix villosa</i>		
Orchidaceae	Holothrix	<i>Holothrix villosa</i> ~		
Orchidaceae	Pterygodium	<i>Pterygodium catholicum</i>		
Orchidaceae	Pterygodium	<i>Pterygodium volucris</i>		
Orchidaceae	Satyrium	<i>Satyrium carneum</i>		
Orchidaceae	Satyrium	<i>Satyrium odorum</i>		
Orobanchaceae	Orobanche	<i>Orobanche ramosa</i> ~		

Oxalidaceae	Oxalis	<i>Oxalis caprina</i>		
Oxalidaceae	Oxalis	<i>Oxalis obtusa</i>		
Oxalidaceae	Oxalis	<i>Oxalis pes-caprae</i> ~		
Oxalidaceae	Oxalis	<i>Oxalis polyphylla</i> ~		
Oxalidaceae	Oxalis	<i>Oxalis purpurea</i>		
Oxalidaceae	Oxalis	<i>Oxalis versicolor</i> ~		
Plumbaginaceae	Limonium	<i>Limonium equisetinum</i>		
Plumbaginaceae	Plumbago	<i>Plumbago auriculata</i>		
Poaceae	Briza	<i>Briza maxima</i>	Large quaking grass	
Poaceae	Briza	<i>Briza minor</i>	small quaking grass	
Poaceae	Bromus	<i>Bromus diandrus</i>	ripgut brome; predikantsluis	
Poaceae	Cortaderia	<i>Cortaderia selloana</i>	Pampas Grass	
Poaceae	Ehrharta	<i>Ehrharta calycina</i>		
Poaceae	Ehrharta	<i>Ehrharta erecta</i> ~		
Poaceae	Ehrharta	<i>Ehrharta villosa</i> ~		
Poaceae	Hordeum	<i>Hordeum murinum</i> ~		
Poaceae	Imperata	<i>Imperata cylindrica</i>	Sword Grass, Sword Grass; cotton wool grass	
Poaceae	Lagurus	<i>Lagurus ovatus</i>	Hare's tail	
Poaceae	Lolium	<i>Lolium multiflorum</i>	Italian ryegrass; annual ryegrass	
Poaceae	Paspalum	<i>Paspalum dilatatum</i>		
Poaceae	Pennisetum	<i>Pennisetum clandestinum</i>	Kikuyu grass	
Poaceae	Stenotaphrum	<i>Stenotaphrum secundatum</i>	Buffalo Grass	

Polygalaceae	Nylandtia	<i>Nylandtia spinosa</i>	Skilpadbessie Bos, Tortoise Berry Bush	
Polygalaceae	Polygala	<i>Polygala garcinii</i>		
Polygonaceae	Rumex	<i>Rumex lanceolatus</i>		
Pontederiaceae	Eichhornia	<i>Eichhornia crassipes</i>	Water Hyacinth	
Primulaceae	Anagallis	<i>Anagallis arvensis</i> ~		
Proteaceae		<i>Serruria aemula foeniculaceae</i>	Rondevlei Spiderhead	Critically Endangered (CR)
Proteaceae	Diastella	<i>Diastella proteoides</i>		
Proteaceae	Leucadendron	<i>Leucadendron coniferum</i>		
Proteaceae	Leucadendron	<i>Leucadendron floridum</i>		
Proteaceae	Leucadendron	<i>Leucadendron levisanus</i>	Cape Flats Conebush	
Proteaceae	Leucadendron	<i>Leucadendron macowanii</i>		
Proteaceae	Leucadendron	<i>Leucadendron salignum</i>		
Proteaceae	Protea	<i>Protea repens</i>	Sugarbush, Suikerbos	
Proteaceae	Protea	<i>Protea scolymocephala</i>		
Ranunculaceae	Knowltonia	<i>Knowltonia vesicatoria</i> ~		
Restionaceae	Chondropetalum	<i>Chondropetalum nudum</i>		
Restionaceae	Elegia	<i>Elegia tectorum</i>		
Restionaceae	Ischyrolepis	<i>Ischyrolepis eleocharis</i>		
Restionaceae	Thamnochortus	<i>Thamnochortus erectus</i>		

Restionaceae	Willdenowia	<i>Willdenowia teres</i>		
Rhamnaceae	Phylica	<i>Phylica ericoides</i> ~		
Rhamnaceae	Phylica	<i>Phylica plumosa</i> ~		
Rosaceae	Cliffortia	<i>Cliffortia ericifolia</i>		
Rosaceae	Cliffortia	<i>Cliffortia ferruginea</i>		
Rosaceae	Cliffortia	<i>Cliffortia hirta</i>		
Rosaceae	Cliffortia	<i>Cliffortia obcordata</i>		
Rosaceae	Cliffortia	<i>Cliffortia polygonifolia</i> ~		
Rosaceae	Cliffortia	<i>Cliffortia strobilifera</i>		
Santalaceae	Osyris	<i>Osyris compressa</i>		
Sapotaceae	Sideroxylon	<i>Sideroxylon inerme</i> ~		
Scrophulariaceae	Diascia	<i>Diascia elongata</i>		
Scrophulariaceae	Hemimeris	<i>Hemimeris sabulosa</i>		
Scrophulariaceae	Manulea	<i>Manulea tomentosa</i>		
Scrophulariaceae	Zaluzianskya	<i>Zaluzianskya villosa</i>		
Solanaceae	Cestrum	<i>Cestrum laevigatum</i>		
Solanaceae	Lycium	<i>Lycium afrum</i>		
Solanaceae	Lycium	<i>Lycium ferocissimum</i>		
Solanaceae	Physalis	<i>Physalis peruviana</i>		
Solanaceae	Solanum	<i>Solanum africanum</i>		
Solanaceae	Solanum	<i>Solanum guineense</i>		
Solanaceae	Solanum	<i>Solanum linnaeanum</i>		
Tamaricaceae	Tamarix	<i>Tamarix ramosissima</i>		
Thymelaeaceae	Gnidia	<i>Gnidia juniperifolia</i>		

Thymelaeaceae	Gnidia	<i>Gnidia spicata</i>		
Thymelaeaceae	Passerina	<i>Passerina corymbosa</i>		
Thymelaeaceae	Passerina	<i>Passerina paleacea</i>		
Thymelaeaceae	Passerina	<i>Passerina paludosa</i>	Cape Flats gonnabos	
Thymelaeaceae	Struthiola	<i>Struthiola dodecandra</i>		
Verbenaceae	Lantana	<i>Lantana camara</i>		
Zygophyllaceae	Zygophyllum	<i>Zygophyllum flexuosum</i>		
Zygophyllaceae	Zygophyllum	<i>Zygophyllum morganiana</i>		

#### Strandfontein Birding Area: Plant Species List

Family	Genus	Species Name	Common Name	Threatened Status
Araceae	Zantedeschia	<i>Zantedeschia aethiopica</i>		
Asteraceae	Arctotheca	<i>Arctotheca calendula</i>		
Asteraceae	Arctotis	<i>Arctotis acaulis</i>		
Asteraceae	Chrysanthemoides	<i>Chrysanthemoides monilifera</i>	Bitoubos	
Asteraceae	Chrysanthemoides	<i>Chrysanthemoides monilifera monilifera</i>	Bitoubos	
Asteraceae	Chrysocoma	<i>Chrysocoma coma-aurea</i>		
Asteraceae	Dimorphotheca	<i>Dimorphotheca pluvialis</i>		
Crassulaceae	Cotyledon	<i>Cotyledon orbiculata</i>	Plakkies, Varkoor	
Cyperaceae	Bolboschoenus	<i>Bolboschoenus maritimus</i>		
Fabaceae	Acacia	<i>Acacia cyclops</i>	Rooikrans	
Fabaceae	Acacia	<i>Acacia saligna</i>	Port Jackson	
Geraniaceae	Geranium	<i>Geranium incanum</i> ~		

Geraniaceae	Pelargonium	<i>Pelargonium capitatum</i>		
Hyacinthaceae	Lachenalia	<i>Lachenalia rubida</i>		
Iridaceae	Chasmanthe	<i>Chasmanthe aethiopica</i>	Suurkanol	
Iridaceae	Ferraria	<i>Ferraria crispa</i>		
Iridaceae	Watsonia	<i>Watsonia meriana</i> ~		
Mesembryanthemaceae	Carpanthea	<i>Carpanthea pomeridiana</i>		
Mesembryanthemaceae	Carpobrotus	<i>Carpobrotus acinaciformis</i>		
Mesembryanthemaceae	Carpobrotus	<i>Carpobrotus edulis</i>		
Myoporaceae	Myoporum	<i>Myoporum tenuifolium</i>	Manatoka	
Orchidaceae	Bonatea	<i>Bonatea speciosa</i>		
Poaceae	Briza	<i>Briza maxima</i>	Large quaking grass	
Poaceae	Briza	<i>Briza minor</i>	small quaking grass	
Poaceae	Bromus	<i>Bromus diandrus</i>	ripgut brome; predikantsluis	
Poaceae	Cortaderia	<i>Cortaderia selloana</i>	Pampas Grass	
Poaceae	Imperata	<i>Imperata cylindrica</i>	Sword Grass, Sword Grass; cotton wool grass	
Poaceae	Pennisetum	<i>Pennisetum clandestinum</i>	Kikuyu grass	
Poaceae	Stenotaphrum	<i>Stenotaphrum secundatum</i>	Buffalo Grass	
Pontederiaceae	Eichhornia	<i>Eichhornia crassipes</i>	Water Hyacinth	
Scrophulariaceae	Zaluzianskya	<i>Zaluzianskya villosa</i>		
Solanaceae	Cestrum	<i>Cestrum laevigatum</i>		

Slangetjebos Section: Plant Species List

Family	Genus	Species Name	Common	Threatened Status
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			Name	
Anacardiaceae	Rhus	<i>Rhus glauca</i>	Blou Taaibos	
Apiaceae	Torilis	<i>Torilis arvensis</i>		
Apocynaceae	Cynanchum	<i>Cynanchum africanum</i>		
Araceae	Zantedeschia	<i>Zantedeschia aethiopica</i>		
Asparagaceae	Asparagus	<i>Asparagus asparagoides</i>		
Asparagaceae	Asparagus	<i>Asparagus retrofractus</i>		
Asparagaceae	Asparagus	<i>Asparagus rubicundus</i>		
Asphodelaceae	Trachyandra	<i>Trachyandra ciliata</i>		
Asphodelaceae	Trachyandra	<i>Trachyandra divaricata</i>		
Asteraceae	Chrysanthemoides	<i>Chrysanthemoides monilifera</i>	Bitoubos	
Asteraceae	Cineraria	<i>Cineraria geifolia</i>		
Asteraceae	Dimorphotheca	<i>Dimorphotheca pluvialis</i>		
Asteraceae	Helichrysum	<i>Helichrysum niveum</i>		
Asteraceae	Metalasia	<i>Metalasia muricata</i>		
Asteraceae	Othonna	<i>Othonna filicaulis</i>		
Asteraceae	Plecostachys	<i>Plecostachys serpyllifolia</i>		
Asteraceae	Senecio	<i>Senecio arenarius</i>		
Asteraceae	Senecio	<i>Senecio burchellii</i>		
Asteraceae	Trichogyne	<i>Trichogyne repens</i>		
Colchicaceae	Androcymbium	<i>Androcymbium eucomoides</i>		
Crassulaceae	Crassula	<i>Crassula dichotoma</i>		
Crassulaceae	Crassula	<i>Crassula glomerata</i>		
Cyperaceae	Ficinia	<i>Ficinia nodosa</i>		
Cyperaceae	Hellmuthia	<i>Hellmuthia membranacea</i>		
Ebenaceae	Euclea	<i>Euclea racemosa</i>		
Fabaceae	Otholobium	<i>Otholobium bracteolatum</i>		
Geraniaceae	Pelargonium	<i>Pelargonium</i>		

		<i>betulinum</i>		
Geraniaceae	Pelargonium	<i>Pelargonium capitatum</i>		
Hyacinthaceae	Lachenalia	<i>Lachenalia bulbifera</i>		
Iridaceae	Babiana	<i>Babiana tubulosa</i>		
Iridaceae	Chasmanthe	<i>Chasmanthe aethiopica</i>	Suurkanol	
Iridaceae	Ferraria	<i>Ferraria crispa</i>		
Iridaceae	Gladiolus	<i>Gladiolus cunonius</i>		
Iridaceae	Moraea	<i>Moraea fugax</i>		
Juncaceae	Juncus	<i>Juncus kraussii</i>		
Linaceae	Linum	<i>Linum thunbergii</i>		
Lobeliaceae	Monopsis	<i>Monopsis lutea</i>		
Mesembryanthemaceae	Carpobrotus	<i>Carpobrotus acinaciformis</i>		
Mesembryanthemaceae	Ruschia	<i>Ruschia macowanii</i>		
Myricaceae	Morella	<i>Morella cordifolia</i>		
Poaceae	Imperata	<i>Imperata cylindrica</i>	Sword Grass, Sword Grass; cotton wool grass	
Poaceae	Stenotaphrum	<i>Stenotaphrum secundatum</i>	Buffalo Grass	
Polygalaceae	Muraltia	<i>Muraltia mitior</i>	Cape Flats tybos	
Polygalaceae	Nylandtia	<i>Nylandtia spinosa</i>	Skilpadbessie Bos, Tortoise Berry Bush	
Santalaceae	Osyris	<i>Osyris compressa</i>		
Scrophulariaceae	Zaluzianskya	<i>Zaluzianskya capensis</i>		
Scrophulariaceae	Zaluzianskya	<i>Zaluzianskya villosa</i>		
Solanaceae	Solanum	<i>Solanum africanum</i>		
Thymelaeaceae	Passerina	<i>Passerina paleacea</i>		
Thymelaeaceae	Passerina	<i>Passerina paludosa</i>	Cape Flats gonnabos	

Family	Genus	Species Name	Common Name	Threatened Status
Anacardiaceae	Rhus	<i>Rhus crenata</i>	Blink Taaibos, Turkeyberry	
Aponogetonaceae	Aponogeton	<i>Aponogeton angustifolius</i>		
Araceae	Zantedeschia	<i>Zantedeschia aethiopica</i>		
Asteraceae	Athanasia	<i>Athanasia crithmifolia</i> ~		
Asteraceae	Athanasia	<i>Athanasia dentata</i>		
Asteraceae	Chrysanthemoides	<i>Chrysanthemoides monilifera</i>	Bitoubos	
Asteraceae	Eriocephalus	<i>Eriocephalus africanus</i> ~		
Asteraceae	Helichrysum	<i>Helichrysum petiolare</i>		
Asteraceae	Metalasia	<i>Metalasia muricata</i>		
Asteraceae	Plecostachys	<i>Plecostachys serpyllifolia</i>		
Asteraceae	Senecio	<i>Senecio halimifolius</i>	Tabakbos	
Cannaceae	Canna	<i>Canna indica</i>	Canna	
Commelinaceae	Commelina	<i>Commelina benghalensis</i>	Blouselblommetjie	
Cyperaceae	Carex	<i>Carex clavata</i>		
Cyperaceae	Ficinia	<i>Ficinia nodosa</i>		
Ericaceae	Erica	<i>Erica turgida</i>		Extinct in the Wild (EW)
Ericaceae	Erica	<i>Erica verticillata</i>	Cape Flats Erica	Extinct in the Wild (EW)
Fabaceae	Dolichos	<i>Dolichos decumbens</i>		
Fabaceae	Psoralea	<i>Psoralea glaucina</i>	Muizenburg fountainbush	
Fabaceae	Psoralea	<i>Psoralea pinnata</i>		
Fabaceae	Psoralea	<i>Psoralea repens</i>		
Gentianaceae	Chironia	<i>Chironia decumbens</i>		
Gentianaceae	Orphium	<i>Orphium frutescens</i>		
Geraniaceae	Pelargonium	<i>Pelargonium betulinum</i>		

Geraniaceae	Pelargonium	<i>Pelargonium capitatum</i>		
Iridaceae	Gladiolus	<i>Gladiolus angustus</i>		
Iridaceae	Gladiolus	<i>Gladiolus undulatus</i>		
Iridaceae	Hesperantha	<i>Hesperantha falcata</i>		
Iridaceae	Watsonia	<i>Watsonia meriana</i> ~		
Juncaceae	Juncus	<i>Juncus kraussii</i>		
Lamiaceae	Leonotis	<i>Leonotis leonurus</i>		
Lamiaceae	Salvia	<i>Salvia africana-lutea</i>		
Lobeliaceae	Lobelia	<i>Lobelia anceps</i>		
Mesembryanthemaceae	Jordaaniella	<i>Jordaaniella dubia</i>		
Mesembryanthemaceae	Lampranthus	<i>Lampranthus reptans</i>		
Orchidaceae	Satyrium	<i>Satyrium odorum</i>		
Poaceae	Stenotaphrum	<i>Stenotaphrum secundatum</i>	Buffalo Grass	
Proteaceae	Leucadendron	<i>Leucadendron levisanus</i>	Cape Flats Conebush	
Proteaceae	Serruria	<i>Serruria aemula</i>		Critically Endangered (CR)
Restionaceae	Chondropetalum	<i>Chondropetalum nudum</i>		
Restionaceae	Elegia	<i>Elegia tectorum</i>		
Restionaceae	Thamnochortus	<i>Thamnochortus punctatus</i>		
Restionaceae	Thamnochortus	<i>Thamnochortus spicigerus</i>		
Rosaceae	Cliffortia	<i>Cliffortia ericifolia</i>		
Rosaceae	Cliffortia	<i>Cliffortia ferruginea</i>		
Rosaceae	Cliffortia	<i>Cliffortia obcordata</i>		
Rosaceae	Cliffortia	<i>Cliffortia strobilifera</i>		
Thymelaeaceae	Passerina	<i>Passerina paludosa</i>	Cape Flats gonnabos	

## Appendix C2: Mammals

Pelican Park Section: Mammal Species List

Species Name	Common Name	Threatened Status
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<i>Lepus capensis</i>	Cape Hare	Least Concern (LC)
<i>Myosorex varius</i>	Forest Shrew	Data Deficient (DD)
<i>Raphicerus melanotis</i>	Cape Grysbok	Least Concern (LC)
<i>Galerella pulverulenta</i>	Small Grey Mongoose	Least Concern (LC)
<i>Mus minutoides</i>	Pygmy Mouse	Least Concern (LC)
<i>Rhabdomys pumilio</i>	Striped Mouse, Striped Field Mouse	Least Concern (LC)

Rondevlei Section: Mammal species list

<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
<i>Hippopotamus amphibius</i>	Hippopotamus	Least Concern (LC)
<i>Lepus capensis</i>	Cape Hare	Least Concern (LC)
<i>Myosorex varius</i>	Forest Shrew	Data Deficient (DDD)
<i>Rattus norvegicus</i>	Brown Rat	Not Evaluated (NE)
<i>Bathyergus suillus</i>	Cape Dune Molerat	Least Concern (LC)
<i>Georychus capensis</i>	Cape Molerat	Least Concern (LC)
<i>Raphicerus campestris</i>	Steenbok	Least Concern (LC)
<i>Raphicerus melanotis</i>	Cape Grysbok	Least Concern (LC)
<i>Sylvicapra grimmia</i>	Common Duiker	Least Concern (LC)
<i>Canis lupus familiaris</i>	Domestic dog	
<i>Vulpes chama</i>	Cape Fox	Least Concern (LC)
<i>Felis caracal</i>	Caracal	Least Concern (LC)
<i>Felis silvestris catus</i>	Domestic cat	
<i>Atilax paludinosus</i>	Water Mongoose	Least Concern (LC)
<i>Galerella pulverulenta</i>	Small Grey Mongoose	Least Concern (LC)

<i>Hystrix africaeaustralis</i>	Porcupine	Least Concern (LC)
<i>Dendromus mesomelas</i>	Brant's Climbing Mouse	Least Concern (LC)
<i>Mus minutoides</i>	Pygmy Mouse	Least Concern (LC)
<i>Mus musculus</i>	House Mouse	
<i>Otomys irroratus</i>	Vlei Rat	Least Concern (LC)
<i>Rhabdomys pumilio</i>	Striped Mouse, Striped Field Mouse	Least Concern (LC)
<i>Tatera afra</i>	Cape Gerbil	Least Concern (LC)
<i>Aonyx capensis</i>	Cape Clawless Otter	Least Concern (LC)
<i>Genetta tigrina</i>	Large-spotted Genet	Least Concern (LC)

Strandfontein Birding Area: mammal species list

<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
<i>Lepus capensis</i>	Cape Hare	Least Concern (LC)
<i>Bathyergus suillus</i>	Cape Dune Molerat	Least Concern (LC)
<i>Raphicerus melanotis</i>	Cape Grysbok	Least Concern (LC)
<i>Atilax paludinosus</i>	Water Mongoose	Least Concern (LC)
<i>Galerella pulverulenta</i>	Small Grey Mongoose	Least Concern (LC)
<i>Hystrix africaeaustralis</i>	Porcupine	Least Concern (LC)
<i>Mus minutoides</i>	Pygmy Mouse	Least Concern (LC)
<i>Otomys irroratus</i>	Vlei Rat	Least Concern (LC)
<i>Rhabdomys pumilio</i>	Striped Mouse, Striped Field Mouse	Least Concern (LC)
<i>Tatera afra</i>	Cape Gerbil	Least Concern (LC)
<i>Aonyx capensis</i>	Cape Clawless Otter	Least Concern (LC)

<i>Genetta genetta</i>	Smallspotted Genet	Least Concern (LC)
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Zeekoevlei Section: Mammal species list

<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
<i>Lepus capensis</i>	Cape Hare	Least Concern (LC)
<i>Papio ursinus</i>	Chacma Baboon	Least Concern (LC)
<i>Bathyergus suillus</i>	Cape Dune Molerat	Least Concern (LC)
<i>Connochaetes gnou</i>	Black Wildebeest	
<i>Raphicerus campestris</i>	Steenbok	Least Concern (LC)
<i>Raphicerus melanotis</i>	Cape Grysbok	Least Concern (LC)
<i>Canis lupus familiaris</i>	Domestic dog	
<i>Felis silvestris catus</i>	Domestic cat	
<i>Atilax paludinosus</i>	Water Mongoose	Least Concern (LC)
<i>Galerella pulverulenta</i>	Small Grey Mongoose	Least Concern (LC)
<i>Mus minutoides</i>	Pygmy Mouse	Least Concern (LC)
<i>Aonyx capensis</i>	Cape Clawless Otter	Least Concern (LC)
<i>Genetta genetta</i>	Smallspotted Genet	Least Concern (LC)
<i>Genetta tigrina</i>	Large-spotted Genet	Least Concern (LC)



### Appendix C3: Bird species list

Pelican Park Section: Bird species list

Species Name	Common Name	Threatened Status
<i>Crithagra sulphuratus</i>	Brimstone Canary	
<i>Buteo vulpinus</i>	Steppe Buzzard	
<i>Apus affinis</i>	Little Swift	
<i>Apus barbatus</i>	African Black Swift	
<i>Tachymarptis melba</i>	Alpine Swift	
<i>Caprimulgus pectoralis</i>	Fiery-necked Nightjar	
<i>Apalis thoracica</i>	Bar-throated Apalis	
<i>Prinia maculosa</i>	Karoo Prinia	
<i>Corvus albus</i>	Pied Crow	
<i>Estrilda astrild</i>	Common Waxbill	
<i>Falco rupicolus</i>	Rock Kestrel	
<i>Hirundo cucullata</i>	Greater Striped Swallow	
<i>Hirundo fuligula</i>	Rock Martin	
<i>Hirundo rustica</i>	Barn Swallow	

<i>Cercotrichas coryphoeus</i>	Karoo Scrub-Robin	
<i>Cossypha caffra</i>	Cape Robin-Chat	
<i>Pternistis capensis</i>	Cape Spurfowl	
<i>Ploceus capensis</i>	Cape Weaver	
<i>Sphenoeacus afer</i>	Cape Grassbird	
<i>Zosterops virens</i>	Cape White-eye	

Rondevlei Section: Bird species list

<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
<i>Alopochen aegyptiacus</i>	Egyptian Goose, Kolgans	
<i>Anas capensis</i>	Cape Teal	
<i>Anas clypeata</i>	Northern Shoveler	
<i>Anas erythrorhyncha</i>	Red-billed Teal	
<i>Anas hottentota</i>	Hottentot Teal	
<i>Anas platyrhynchos</i>	Mallard	
<i>Anas smithii</i>	Cape Shoveler	
<i>Anas sparsa</i>	African Black Duck	
<i>Anas undulata</i>	Yellow-billed Duck	
<i>Netta erythrophthalma</i>	Southern Pochard	
<i>Oxyura maccoa</i>	Maccoa Duck	Near Threatened (NT)
<i>Plectropterus gambensis</i>	Spur-winged Goose	
<i>Tadorna cana</i>	South African Shelduck	
<i>Crithagra albogularis</i>	White-throated Canary	
<i>Crithagra flaviventris</i>	Yellow Canary	
<i>Crithagra sulphuratus</i>	Brimstone Canary	

<i>Emberiza capensis</i>	Cape Bunting	
<i>Serinus canicollis</i>	Cape Canary	
<i>Batis capensis</i>	Cape Batis	
<i>Laniarius ferrugineus</i>	Southern Boubou	
<i>Telophorus zeylonus</i>	Bokmakierie	
<i>Phoenicopterus minor</i>	Lesser Flamingo	Near Threatened (NT)
<i>Phoenicopterus ruber</i>	Greater Flamingo	Near Threatened (NT)
<i>Accipiter melanoleucus</i>	Black Sparrowhawk	
<i>Accipiter rufiventris</i>	Rufous-chested Sparrowhawk	
<i>Accipiter tachiro</i>	African Goshawk	
<i>Aquila pennatus</i>	Booted Eagle	
<i>Aquila verreauxii</i>	Verreaux's Eagle	
<i>Buteo rufofuscus</i>	Jackal Buzzard	
<i>Buteo trizonatus</i>	Forest Buzzard	
<i>Buteo vulpinus</i>	Steppe Buzzard	
<i>Circus ranivorus</i>	African Marsh-Harrier	Vulnerable (VU)
<i>Elanus caeruleus</i>	Black-shouldered Kite	
<i>Haliaeetus vocifer</i>	African Fish-Eagle	
<i>Melierax canorus</i>	Southern Pale Chanting Goshawk	
<i>Milvus migrans</i>	Black Kite, Yellow-billed Kite	
<i>Pandion haliaetus</i>	Osprey	
<i>Polyboroides typus</i>	African Harrier-Hawk, Gymnogone	
<i>Alcedo cristata</i>	Malachite Kingfisher	
<i>Alcedo semitorquata</i>	Half-collared Kingfisher	Near Threatened (NT)

<i>Anhinga rufa</i>	African Darter	
<i>Apus affinis</i>	Little Swift	
<i>Apus barbatus</i>	African Black Swift	
<i>Apus caffer</i>	White-rumped Swift	
<i>Tachymarptis melba</i>	Alpine Swift	
<i>Ardea cinerea</i>	Grey Heron	
<i>Ardea goliath</i>	Goliath Heron	
<i>Ardea melanocephala</i>	Black-headed Heron	
<i>Ardea purpurea</i>	Purple Heron	
<i>Ardeola ralloides</i>	Squacco Heron	
<i>Bubulcus ibis</i>	Cattle Egret	
<i>Egretta alba</i>	Great Egret	
<i>Egretta ardesiaca</i>	Black Heron	
<i>Egretta garzetta</i>	Little Egret	
<i>Egretta intermedia</i>	Yellow-billed Egret	
<i>Ixobrychus minutus</i>	Little Bittern	
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	
<i>Caprimulgus pectoralis</i>	Fiery-necked Nightjar	
<i>Centropus burchellii</i>	Burchell's Coucal	
<i>Ceryle rudis</i>	Pied Kingfisher	
<i>Megaceryle maximus</i>	Giant Kingfisher	
<i>Charadrius hiaticula</i>	Common Ringed Plover	
<i>Charadrius leschenaultii</i>	Greater Sand Plover	
<i>Charadrius marginatus</i>	White-fronted Plover	
<i>Charadrius pallidus</i>	Chestnut-banded Plover	Near Threatened (NT)
<i>Charadrius pecuarius</i>	Kittlitz's Plover	

<i>Charadrius tricollaris</i>	Three-banded Plover	
<i>Pluvialis squatarola</i>	Grey Plover	
<i>Vanellus armatus</i>	Blacksmith Lapwing, Blacksmith Plover	
<i>Vanellus coronatus</i>	Crowned Lapwing	
<i>Vanellus senegallus</i>	African Wattled Lapwing	
<i>Burhinus capensis</i>	Spotted Thick-knee, Spotted Dikkop	
<i>Burhinus vermiculatus</i>	Water Thick-knee, Water Dikkop	
<i>Ciconia ciconia</i>	White Stork	
<i>Ciconia nigra</i>	Black Stork	Near Threatened (NT)
<i>Apalis thoracica</i>	Bar-throated Apalis	
<i>Cisticola fulvicapilla</i>	Neddicky	
<i>Cisticola juncidis</i>	Zitting Cisticola	
<i>Cisticola subruficapilla</i>	Grey-backed Cisticola	
<i>Cisticola textrix</i>	Cloud Cisticola	
<i>Cisticola tinniens</i>	Levaillant's Cisticola	
<i>Prinia maculosa</i>	Karoo Prinia	
<i>Colius colius</i>	White-backed Mousebird	
<i>Colius striatus</i>	Speckled Mousebird	
<i>Urocolius indicus</i>	Red-faced Mousebird	
<i>Aplopelia larvata</i>	Lemon Dove	
<i>Columba arquatrix</i>	African Olive-Pigeon	
<i>Columba guinea</i>	Speckled Pigeon	
<i>Columba livia</i>	Feral Pigeon, Rock Dove	
<i>Oena capensis</i>	Namaqua Dove	
<i>Streptopelia capicola</i>	Cape Turtle-Dove	

<i>Streptopelia semitorquata</i>	Red-eyed Dove	
<i>Streptopelia senegalensis</i>	Lag Duifie, Laughing Dove	
<i>Corvus albicollis</i>	White-necked Raven	
<i>Corvus albus</i>	Pied Crow	
<i>Corvus capensis</i>	Cape Crow	
<i>Corvus splendens</i>	Indian House Crow	
<i>Chrysococcyx caprius</i>	Diderick Cuckoo	
<i>Chrysococcyx klaas</i>	Klaas's Cuckoo	
<i>Cuculus solitarius</i>	Red-chested Cuckoo	
<i>Halcyon albiventris</i>	Brown-hooded Kingfisher	
<i>Dendrocygna bicolor</i>	Fulvous Duck	
<i>Dendrocygna viduata</i>	White-faced Duck	
<i>Thalassornis leuconotus</i>	White-backed Duck	
<i>Dicrurus adsimilis</i>	Fork-tailed Drongo	
<i>Coccygia melanotis</i>	Swee Waxbill	
<i>Estrilda astrild</i>	Common Waxbill	
<i>Ortygospiza atricollis</i>	African Quailfinch	
<i>Falco biarmicus</i>	Lanner Falcon	Near Threatened (NT)
<i>Falco naumanni</i>	Lesser Kestrel	Vulnerable (VU)
<i>Falco peregrinus</i>	Peregrine Falcon	Near Threatened (NT)
<i>Falco rupicoloides</i>	Greater Kestrel	
<i>Falco rupicolus</i>	Rock Kestrel	
<i>Fulica cristata</i>	Red-knobbed Coot	
<i>Gallinula chloropus</i>	Common Moorhen	
<i>Porphyrio alleni</i>	Allen's Gallinule	
<i>Porphyrio madagascariensis</i>	African Purple Swamphen	

<i>Delichon urbicum</i>	Common House-Martin	
<i>Hirundo albigularis</i>	White-throated Swallow	
<i>Hirundo cucullata</i>	Greater Striped Swallow	
<i>Hirundo dimidiata</i>	Pearl-breasted Swallow	
<i>Hirundo fuligula</i>	Rock Martin	
<i>Hirundo rustica</i>	Barn Swallow	
<i>Psalidoprocne holomelaena</i>	Black Saw-wing	
<i>Riparia cincta</i>	Banded Martin	
<i>Riparia paludicola</i>	Brown-throated Martin	
<i>Oceanites oceanicus</i>	Wilson's Storm-Petrel	
<i>Indicator minor</i>	Lesser Honeyguide	
<i>Actophilornis africanus</i>	African Jacana	
<i>Lanius collaris</i>	Common Fiscal, Fiscal Shrike	
<i>Anous stolidus</i>	Brown Noddy	
<i>Catharacta antarctica</i>	Subantarctic Skua	
<i>Chlidonias hybrida</i>	Whiskered Tern	
<i>Chlidonias leucopterus</i>	White-winged Tern	
<i>Larus cirrocephalus</i>	Grey-headed Gull	
<i>Larus dominicanus</i>	Kelp Gull	
<i>Larus hartlaubii</i>	Hartlaub's Gull	
<i>Sterna balaenarum</i>	Damara Tern	Near Threatened (NT)
<i>Sterna bergii</i>	Swift Tern	
<i>Sterna caspia</i>	Caspian Tern	Near Threatened (NT)
<i>Sterna hirundo</i>	Common Tern	
<i>Sterna paradisaea</i>	Arctic Tern	
<i>Sterna sandvicensis</i>	Sandwich Tern	

<i>Tricholaema leucomelas</i>	Acacia Pied Barbet	
<i>Merops apiaster</i>	European Bee-eater	
<i>Merops persicus</i>	Blue-cheeked Bee-eater	
<i>Terpsiphone viridis</i>	African Paradise-Flycatcher	
<i>Anthus cinnamomeus</i>	African Pipit	
<i>Macronyx capensis</i>	Cape Longclaw	
<i>Motacilla aguimp</i>	African Pied Wagtail	
<i>Motacilla capensis</i>	Cape Wagtail	
<i>Cercomela schlegelii</i>	Karoo Chat	
<i>Cercotrichas coryphoeus</i>	Karoo Scrub-Robin	
<i>Cossypha caffra</i>	Cape Robin-Chat	
<i>Muscicapa adusta</i>	African Dusky Flycatcher	
<i>Muscicapa striata</i>	Spotted Flycatcher	
<i>Saxicola torquatus</i>	African Stonechat	
<i>Sigelus silens</i>	Fiscal Flycatcher	
<i>Turdus olivaceus</i>	Olive Thrush	
<i>Anthobaphes violacea</i>	Orange-breasted Sunbird	
<i>Cinnyris chalybeus</i>	Southern Double-collared Sunbird	
<i>Nectarinia famosa</i>	Malachite Sunbird	
<i>Passer domesticus</i>	House Sparrow	
<i>Passer melanurus</i>	Cape Sparrow	
<i>Pelecanus onocrotalus</i>	Great White Pelican, Wit Pelikan	Near Threatened (NT)
<i>Pelecanus rufescens</i>	Pink-backed Pelican	
<i>Phalacrocorax africanus</i>	Reed Cormorant	
<i>Phalacrocorax capensis</i>	Cape Cormorant	Near Threatened (NT)

<i>Phalacrocorax lucidus</i>	White-breasted Cormorant	
<i>Coturnix coturnix</i>	Common Quail	
<i>Coturnix delegorguei</i>	Harlequin Quail	
<i>Numida meleagris</i>	Helmeted Guineafowl	
<i>Pternistis capensis</i>	Cape Spurrow	
<i>Scleroptila africanus</i>	Grey-winged Francolin	
<i>Dendropicos fuscescens</i>	Cardinal Woodpecker	
<i>Euplectes capensis</i>	Yellow Bishop	
<i>Euplectes orix</i>	Southern Red Bishop	
<i>Ploceus capensis</i>	Cape Weaver	
<i>Ploceus velatus</i>	Southern Masked-Weaver	
<i>Podiceps cristatus</i>	Great Crested Grebe	
<i>Podiceps nigricollis</i>	Black-necked Grebe	
<i>Tachybaptus ruficollis</i>	Little Grebe	
<i>Pachyptila desolata</i>	Antarctic Prion	
<i>Cinnyris fuscus</i>	Dusky Sunbird	
<i>Promerops cafer</i>	Cape Sugarbird	
<i>Andropadus importunus</i>	Sombre Greenbul	
<i>Pycnonotus capensis</i>	Cape Bulbul	
<i>Amaurornis flavirostris</i>	Black Crake	
<i>Porzana pusilla</i>	Baillon's Crake	
<i>Rallus caerulescens</i>	African Rail	
<i>Sarothrura rufa</i>	Red-chested Flufftail	
<i>Himantopus himantopus</i>	Black-winged Stilt	
<i>Recurvirostra avosetta</i>	Pied Avocet	

<i>Rostratula benghalensis</i>	Greater Painted-snipe	Near Threatened (NT)
<i>Actitis hypoleucos</i>	Common Sandpiper	
<i>Arenaria interpres</i>	Ruddy Turnstone	
<i>Calidris alba</i>	Sanderling	
<i>Calidris alpina</i>	Dunlin	
<i>Calidris canutus</i>	Red Knot	
<i>Calidris ferruginea</i>	Curlew Sandpiper	
<i>Calidris minuta</i>	Little Stint	
<i>Gallinago nigripennis</i>	African Snipe, Ethiopian Snipe	
<i>Limosa lapponica</i>	Bar-tailed Godwit	
<i>Numenius arquata</i>	Eurasian Curlew	
<i>Numenius phaeopus</i>	Common Whimbrel	
<i>Phalaropus lobatus</i>	Red-necked Phalarope	
<i>Philomachus pugnax</i>	Ruff	
<i>Tringa glareola</i>	Wood Sandpiper	
<i>Tringa nebularia</i>	Common Greenshank	
<i>Tringa stagnatilis</i>	Marsh Sandpiper	
<i>Tringa totanus</i>	Common Redshank	
<i>Xenus cinereus</i>	Terek Sandpiper	
<i>Scopus umbretta</i>	Hamerkop	
<i>Asio capensis</i>	Marsh Owl	
<i>Bubo africanus</i>	Spotted Eagle-Owl	
<i>Struthio camelus</i>	Common Ostrich	
<i>Creatophora cinerea</i>	Wattled Starling	
<i>Onychognathus morio</i>	Red-winged Starling	
<i>Spreo bicolor</i>	Pied Starling	

<i>Sturnus vulgaris</i>	Common Starling, European Starling	
<i>Morus capensis</i>	Cape Gannet	Vulnerable (VU)
<i>Acrocephalus baeticatus</i>	African Reed-Warbler	
<i>Acrocephalus gracilirostris</i>	Lesser Swamp-Warbler	
<i>Bradypterus baboecala</i>	Little Rush-Warbler	
<i>Parisoma layardi</i>	Layard's Tit-Babbler	
<i>Parisoma subcaeruleum</i>	Chestnut-vented Tit- Babbler	
<i>Phylloscopus trochilus</i>	Willow Warbler	
<i>Sphenoecus afer</i>	Cape Grassbird	
<i>Stenostira scita</i>	Fairy Flycatcher	
<i>Sylvietta rufescens</i>	Long-billed Crombec	
<i>Bostrychia hagedash</i>	Hadedda Ibis	
<i>Platalea alba</i>	African Spoonbill	
<i>Plegadis falcinellus</i>	Glossy Ibis	
<i>Threskiornis aethiopicus</i>	African Sacred Ibis	
<i>Tyto alba</i>	Barn Owl	
<i>Tyto capensis</i>	African Grass-Owl	Vulnerable (VU)
<i>Upupa africana</i>	African Hoopoe	
<i>Vidua macroura</i>	Pin-tailed Whydah	
<i>Zosterops virens</i>	Cape White-eye	

Strandfontein Birding Area: Bird species list

Species Name	Common Name	Threatened Status
<i>Alopochen aegyptiacus</i>	Egyptian Goose,	

	Kolgans	
<i>Anas capensis</i>	Cape Teal	
<i>Anas erythrorhyncha</i>	Red-billed Teal	
<i>Anas hottentota</i>	Hottentot Teal	
<i>Anas querquedula</i>	Garganey	
<i>Anas smithii</i>	Cape Shoveler	
<i>Anas sparsa</i>	African Black Duck	
<i>Anas undulata</i>	Yellow-billed Duck	
<i>Netta erythrophthalma</i>	Southern Pochard	
<i>Oxyura maccoa</i>	Maccoa Duck	Near Threatened (NT)
<i>Plectropterus gambensis</i>	Spur-winged Goose	
<i>Sarkidiornis melanotos</i>	Comb Duck	
<i>Tadorna cana</i>	South African Shelduck	
<i>Crithagra albogularis</i>	White-throated Canary	
<i>Crithagra flaviventris</i>	Yellow Canary	
<i>Crithagra sulphuratus</i>	Brimstone Canary	
<i>Emberiza capensis</i>	Cape Bunting	
<i>Serinus canicollis</i>	Cape Canary	
<i>Laniarius ferrugineus</i>	Southern Boubou	
<i>Telophorus zeylonus</i>	Bokmakierie	
<i>Phoenicopterus minor</i>	Lesser Flamingo	Near Threatened (NT)
<i>Phoenicopterus ruber</i>	Greater Flamingo	Near Threatened (NT)
<i>Accipiter melanoleucus</i>	Black Sparrowhawk	
<i>Accipiter rufiventris</i>	Rufous-chested	

	Sparrowhawk	
<i>Accipiter tachiro</i>	African Goshawk	
<i>Aquila verreauxii</i>	Verreauxs' Eagle	
<i>Buteo rufofuscus</i>	Jackal Buzzard	
<i>Buteo vulpinus</i>	Steppe Buzzard	
<i>Circus ranivorus</i>	African Marsh-Harrier	Vulnerable (VU)
<i>Elanus caeruleus</i>	Black-shouldered Kite	
<i>Haliaeetus vocifer</i>	African Fish-Eagle	
<i>Calandrella cinerea</i>	Red-capped Lark	
<i>Alcedo cristata</i>	Malachite Kingfisher	
<i>Anhinga rufa</i>	African Darter	
<i>Apus affinis</i>	Little Swift	
<i>Apus barbatus</i>	African Black Swift	
<i>Apus caffer</i>	White-rumped Swift	
<i>Tachymarptis melba</i>	Alpine Swift	
<i>Ardea cinerea</i>	Grey Heron	
<i>Ardea goliath</i>	Goliath Heron	
<i>Ardea melanocephala</i>	Black-headed Heron	
<i>Ardea purpurea</i>	Purple Heron	
<i>Ardeola ralloides</i>	Squacco Heron	
<i>Bubulcus ibis</i>	Cattle Egret	
<i>Egretta alba</i>	Great Egret	
<i>Egretta garzetta</i>	Little Egret	

<i>Egretta intermedia</i>	Yellow-billed Egret	
<i>Ixobrychus minutus</i>	Little Bittern	
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	
<i>Caprimulgus pectoralis</i>	Fiery-necked Nightjar	
<i>Centropus burchellii</i>	Burchell's Coucal	
<i>Ceryle rudis</i>	Pied Kingfisher	
<i>Megaceryle maximus</i>	Giant Kingfisher	
<i>Charadrius hiaticula</i>	Common Ringed Plover	
<i>Charadrius marginatus</i>	White-fronted Plover	
<i>Charadrius pallidus</i>	Chestnut-banded Plover	Near Threatened (NT)
<i>Charadrius pecuarius</i>	Kittlitz's Plover	
<i>Charadrius tricollaris</i>	Three-banded Plover	
<i>Pluvialis squatarola</i>	Grey Plover	
<i>Vanellus armatus</i>	Blacksmith Lapwing, Blacksmith Plover	
<i>Vanellus coronatus</i>	Crowned Lapwing	
<i>Burhinus capensis</i>	Spotted Thick-knee, Spotted Dikkop	
<i>Burhinus vermiculatus</i>	Water Thick-knee, Water Dikkop	
<i>Ciconia ciconia</i>	White Stork	
<i>Apalis thoracica</i>	Bar-throated Apalis	

<i>Cisticola fulvicapilla</i>	Neddicky	
<i>Cisticola juncidis</i>	Zitting Cisticola	
<i>Cisticola subruficapilla</i>	Grey-backed Cisticola	
<i>Cisticola textrix</i>	Cloud Cisticola	
<i>Cisticola tinniens</i>	Levaillant's Cisticola	
<i>Prinia maculosa</i>	Karoo Prinia	
<i>Colius colius</i>	White-backed Mousebird	
<i>Colius striatus</i>	Speckled Mousebird	
<i>Urocolius indicus</i>	Red-faced Mousebird	
<i>Columba arquatrix</i>	African Olive- Pigeon	
<i>Columba guinea</i>	Speckled Pigeon	
<i>Columba livia</i>	Feral Pigeon, Rock Dove	
<i>Oena capensis</i>	Namaqua Dove	
<i>Streptopelia capicola</i>	Cape Turtle-Dove	
<i>Streptopelia semitorquata</i>	Red-eyed Dove	
<i>Streptopelia senegalensis</i>	Lag Duifie, Laughing Dove	
<i>Corvus albicollis</i>	White-necked Raven	
<i>Corvus albus</i>	Pied Crow	
<i>Corvus splendens</i>	Indian House Crow	
<i>Chrysococcyx caprius</i>	Diderick Cuckoo	
<i>Chrysococcyx klaas</i>	Klaas's Cuckoo	

<i>Dendrocygna bicolor</i>	Fulvous Duck	
<i>Dendrocygna viduata</i>	White-faced Duck	
<i>Thalassornis leuconotus</i>	White-backed Duck	
<i>Dicrurus adsimilis</i>	Fork-tailed Drongo	
<i>Estrilda astrild</i>	Common Waxbill	
<i>Falco biarmicus</i>	Lanner Falcon	Near Threatened (NT)
<i>Falco peregrinus</i>	Peregrine Falcon	Near Threatened (NT)
<i>Falco rupicolus</i>	Rock Kestrel	
<i>Haematopus moquini</i>	African Black Oystercatcher	Near Threatened (NT)
<i>Fulica cristata</i>	Red-knobbed Coot	
<i>Gallinula chloropus</i>	Common Moorhen	
<i>Porphyrio madagascariensis</i>	African Purple Swamphen	
<i>Porphyrio martinicus</i>	American Purple Gallinule	
<i>Delichon urbicum</i>	Common House-Martin	
<i>Hirundo albigularis</i>	White-throated Swallow	
<i>Hirundo cucullata</i>	Greater Striped Swallow	
<i>Hirundo fuligula</i>	Rock Martin	
<i>Hirundo rustica</i>	Barn Swallow	
<i>Psalidoprocne holomelaena</i>	Black Saw-wing	
<i>Riparia cincta</i>	Banded Martin	
<i>Riparia paludicola</i>	Brown-throated Martin	
<i>Actophilornis africanus</i>	African Jacana	

<i>Lanius collaris</i>	Common Fiscal, Fiscal Shrike	
<i>Chlidonias hybrida</i>	Whiskered Tern	
<i>Chlidonias leucopterus</i>	White-winged Tern	
<i>Chlidonias niger</i>	Black Tern	
<i>Larus cirrocephalus</i>	Grey-headed Gull	
<i>Larus dominicanus</i>	Kelp Gull	
<i>Larus hartlaubii</i>	Hartlaub's Gull	
<i>Larus pipixcan</i>	Franklin's Gull	
<i>Larus ridibundus</i>	Common Black-headed Gull	
<i>Stercorarius parasiticus</i>	Parasitic Jaeger	
<i>Sterna bergii</i>	Swift Tern	
<i>Sterna caspia</i>	Caspian Tern	Near Threatened (NT)
<i>Sterna elegans</i>	Elegant Tern	
<i>Sterna hirundo</i>	Common Tern	
<i>Sterna sandvicensis</i>	Sandwich Tern	
<i>Tricholaema leucomelas</i>	Acacia Pied Barbet	
<i>Merops persicus</i>	Blue-cheeked Bee-eater	
<i>Terpsiphone viridis</i>	African Paradise-Flycatcher	
<i>Anthus cinnamomeus</i>	African Pipit	
<i>Anthus leucophrys</i>	Plain-backed Pipit	
<i>Macronyx capensis</i>	Cape Longclaw	
<i>Motacilla capensis</i>	Cape Wagtail	
<i>Motacilla flava</i>	Yellow Wagtail	
<i>Cercotrichas coryphoeus</i>	Karoo Scrub-Robin	

<i>Cossypha caffra</i>	Cape Robin-Chat	
<i>Muscicapa adusta</i>	African Dusky Flycatcher	
<i>Saxicola torquatus</i>	African Stonechat	
<i>Sigelus silens</i>	Fiscal Flycatcher	
<i>Turdus olivaceus</i>	Olive Thrush	
<i>Anthobaphes violacea</i>	Orange-breasted Sunbird	
<i>Cinnyris chalybeus</i>	Southern Double-collared Sunbird	
<i>Nectarinia famosa</i>	Malachite Sunbird	
<i>Passer domesticus</i>	House Sparrow	
<i>Passer melanurus</i>	Cape Sparrow	
<i>Pelecanus onocrotalus</i>	Great White Pelican, Wit Pelikan	Near Threatened (NT)
<i>Phalacrocorax africanus</i>	Reed Cormorant	
<i>Phalacrocorax capensis</i>	Cape Cormorant	Near Threatened (NT)
<i>Phalacrocorax coronatus</i>	Crowned Cormorant	Near Threatened (NT)
<i>Phalacrocorax lucidus</i>	White-breasted Cormorant	
<i>Numida meleagris</i>	Helmeted Guineafowl	
<i>Pternistis capensis</i>	Cape Spurfowl	
<i>Scleroptila africanus</i>	Grey-winged Francolin	
<i>Euplectes capensis</i>	Yellow Bishop	
<i>Euplectes orix</i>	Southern Red Bishop	

<i>Ploceus capensis</i>	Cape Weaver	
<i>Ploceus velatus</i>	Southern Masked-Weaver	
<i>Podiceps cristatus</i>	Great Crested Grebe	
<i>Podiceps nigricollis</i>	Black-necked Grebe	
<i>Tachybaptus ruficollis</i>	Little Grebe	
<i>Andropadus importunus</i>	Sombre Greenbul	
<i>Pycnonotus capensis</i>	Cape Bulbul	
<i>Amaurornis flavirostris</i>	Black Crake	
<i>Porzana pusilla</i>	Baillon's Crake	
<i>Rallus caerulescens</i>	African Rail	
<i>Himantopus himantopus</i>	Black-winged Stilt	
<i>Recurvirostra avosetta</i>	Pied Avocet	
<i>Actitis hypoleucos</i>	Common Sandpiper	
<i>Arenaria interpres</i>	Ruddy Turnstone	
<i>Calidris alba</i>	Sanderling	
<i>Calidris canutus</i>	Red Knot	
<i>Calidris ferruginea</i>	Curlew Sandpiper	
<i>Calidris minuta</i>	Little Stint	
<i>Gallinago nigripennis</i>	African Snipe, Ethiopian Snipe	
<i>Limosa lapponica</i>	Bar-tailed Godwit	
<i>Limosa limosa</i>	Black-tailed Godwit	Near Threatened (NT)
<i>Numenius arquata</i>	Eurasian Curlew	
<i>Numenius phaeopus</i>	Common	

	Whimbrel	
<i>Phalaropus lobatus</i>	Red-necked Phalarope	
<i>Philomachus pugnax</i>	Ruff	
<i>Tringa glareola</i>	Wood Sandpiper	
<i>Tringa nebularia</i>	Common Greenshank	
<i>Tringa stagnatilis</i>	Marsh Sandpiper	
<i>Xenus cinereus</i>	Terek Sandpiper	
<i>Scopus umbretta</i>	Hamerkop	
<i>Bubo africanus</i>	Spotted Eagle-Owl	
<i>Bubo capensis</i>	Cape Eagle-Owl	
<i>Struthio camelus</i>	Common Ostrich	
<i>Creatophora cinerea</i>	Wattled Starling	
<i>Onychognathus morio</i>	Red-winged Starling	
<i>Spreo bicolor</i>	Pied Starling	
<i>Sturnus vulgaris</i>	Common Starling, European Starling	
<i>Acrocephalus baeticatus</i>	African Reed-Warbler	
<i>Acrocephalus gracilirostris</i>	Lesser Swamp-Warbler	
<i>Acrocephalus schoenobaenus</i>	Sedge Warbler	
<i>Bradypterus baboecala</i>	Little Rush-Warbler	
<i>Phylloscopus trochilus</i>	Willow Warbler	
<i>Sphenoaacus afer</i>	Cape Grassbird	
<i>Sylvietta rufescens</i>	Long-billed Crombec	

<i>Bostrychia hagedash</i>	Hadedda Ibis	
<i>Platalea alba</i>	African Spoonbill	
<i>Plegadis falcinellus</i>	Glossy Ibis	
<i>Threskiornis aethiopicus</i>	African Sacred Ibis	
<i>Tyto alba</i>	Barn Owl	
<i>Upupa africana</i>	African Hoopoe	
<i>Vidua macroura</i>	Pin-tailed Whydah	
<i>Zosterops virens</i>	Cape White-eye	

Zeekoevlei Section: Bird species list

<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
<i>Alopochen aegyptiacus</i>	Egyptian Goose, Kolgans	
<i>Anas smithii</i>	Cape Shoveler	
<i>Serinus canicollis</i>	Cape Canary	
<i>Laniarius ferrugineus</i>	Southern Boubou	
<i>Phoenicopterus ruber</i>	Greater Flamingo	Near Threatened (NT)
<i>Accipiter rufiventris</i>	Rufous-chested Sparrowhawk	
<i>Circus ranivorus</i>	African Marsh- Harrier	Vulnerable (VU)
<i>Elanus caeruleus</i>	Black-shouldered Kite	
<i>Milvus migrans</i>	Black Kite, Yellow- billed Kite	
<i>Calandrella cinerea</i>	Red-capped Lark	
<i>Alcedo cristata</i>	Malachite	

	Kingfisher	
<i>Anhinga rufa</i>	African Darter	
<i>Apus barbatus</i>	African Black Swift	
<i>Ardea cinerea</i>	Grey Heron	
<i>Ardea goliath</i>	Goliath Heron	
<i>Ardea melanocephala</i>	Black-headed Heron	
<i>Ardea purpurea</i>	Purple Heron	
<i>Caprimulgus pectoralis</i>	Fiery-necked Nightjar	
<i>Centropus burchellii</i>	Burchell's Coucal	
<i>Ceryle rudis</i>	Pied Kingfisher	
<i>Charadrius tricollaris</i>	Three-banded Plover	
<i>Vanellus armatus</i>	Blacksmith Lapwing, Blacksmith Plover	
<i>Burhinus capensis</i>	Spotted Thick-knee, Spotted Dikkop	
<i>Burhinus vermiculatus</i>	Water Thick-knee, Water Dikkop	
<i>Anastomus lamelligerus</i>	African Openbill	
<i>Cisticola juncidis</i>	Zitting Cisticola	
<i>Cisticola subruficapilla</i>	Grey-backed Cisticola	
<i>Cisticola textrix</i>	Cloud Cisticola	
<i>Prinia maculosa</i>	Karoo Prinia	
<i>Columba livia</i>	Feral Pigeon, Rock Dove	

<i>Streptopelia capicola</i>	Cape Turtle-Dove	
<i>Streptopelia semitorquata</i>	Red-eyed Dove	
<i>Streptopelia senegalensis</i>	Lag Duifie, Laughing Dove	
<i>Corvus albus</i>	Pied Crow	
<i>Corvus splendens</i>	Indian House Crow	
<i>Cuculus solitarius</i>	Red-chested Cuckoo	
<i>Dicrurus adsimilis</i>	Fork-tailed Drongo	
<i>Estrilda astrild</i>	Common Waxbill	
<i>Falco peregrinus</i>	Peregrine Falcon	Near Threatened (NT)
<i>Fulica cristata</i>	Red-knobbed Coot	
<i>Gallinula chloropus</i>	Common Moorhen	
<i>Hirundo rustica</i>	Barn Swallow	
<i>Lanius collaris</i>	Common Fiscal, Fiscal Shrike	
<i>Larus dominicanus</i>	Kelp Gull	
<i>Sterna hirundo</i>	Common Tern	
<i>Motacilla capensis</i>	Cape Wagtail	
<i>Cossypha caffra</i>	Cape Robin-Chat	
<i>Passer diffusus</i>	Southern Grey- headed Sparrow	
<i>Pelecanus onocrotalus</i>	Great White Pelican, Wit Pelikan	Near Threatened (NT)
<i>Numida meleagris</i>	Helmeted Guineafowl	
<i>Dendropicos griseocephalus</i>	Olive Woodpecker	
<i>Ploceus capensis</i>	Cape Weaver	
<i>Ploceus velatus</i>	Southern Masked-	

	Weaver	
<i>Tachybaptus ruficollis</i>	Little Grebe	
<i>Pycnonotus capensis</i>	Cape Bulbul	
<i>Himantopus himantopus</i>	Black-winged Stilt	
<i>Recurvirostra avocetta</i>	Pied Avocet	
<i>Bubo africanus</i>	Spotted Eagle-Owl	
<i>Sturnus vulgaris</i>	Common Starling, European Starling	
<i>Morus capensis</i>	Cape Gannet	Vulnerable (VU)
<i>Acrocephalus gracilirostris</i>	Lesser Swamp- Warbler	
<i>Bostrychia hagedash</i>	Hadedda Ibis	
<i>Platalea alba</i>	African Spoonbill	
<i>Threskiornis aethiopicus</i>	African Sacred Ibis	
<i>Tyto alba</i>	Barn Owl	
<i>Zosterops virens</i>	Cape White-eye	



## Appendix C4: Reptile species lists

### Pelican Park Section: Reptile Species list

Species Name	Common Name	Threatened Status
<i>Pachydactylus geitje</i>	Ocellated Thick-toed Gecko, Ocellated Thicktoed Gecko	
<i>Meroles knoxii</i>	Knox's Desert Lizard	
<i>Chersina angulata</i>	Angulate Tortoise	

### Rondevlei Section: Reptile species list

Species Name	Common Name	Threatened Status
<i>Bradypodion pumilum</i>	Cape Dwarf Chameleon	
<i>Amplorhinus multimaculatus</i>	Many-spotted Snake, Manyspotted Snake	
<i>Crotaphopeltis hotamboeia</i>	Herald Snake	
<i>Dasypeltis scabra</i>	Common Eggeater	
<i>Dispholidus typus</i>	Boomslang	
<i>Duberria lutrix lutrix</i>	Common Slugeater	
<i>Lamprophis aurora</i>	Aurora House Snake	
<i>Lamprophis inornatus</i>	Olive House Snake	
<i>Lycodonomorphus rufulus</i>	Common Brown Water Snake	

<i>Psammophis crucifer</i>	Cross-marked Grass Snake, Crossmarked Grass Snake	
<i>Psammophis leightoni</i>	Cape Sand Snake	Data Deficient (DD)
<i>Psammophis notostictus</i>	Karoo Sand Snake	
<i>Psammophylax rhombeatus</i>	Rhombic Skaapsteker	
<i>Pseudaspis cana</i>	Mole Snake	
<i>Homoroselaps lacteus</i>	Spotted Harlequin Snake	
<i>Naja nivea</i>	Cape Cobra	
<i>Trachemys scripta</i>	American Red-eared Terrapin, American Redeared Terrapin	
<i>Afrogecko porphyreus</i>	Marbled Leaf-toed Gecko, Marbled Leaf-toed Gecko	
<i>Tetradactylus seps</i>	Short-legged Seps, Shortlegged Seps	
<i>Meroles knoxii</i>	Knox's Desert Lizard	
<i>Pedioplanis lineocellata</i>	Spotted Sand Lizard	
<i>Leptotyphlops nigricans</i>	Black Thread Snake	
<i>Pelomedusa subrufa</i>	Marsh Terrapin	
<i>Acontias meleagris meleagris</i>	Cape Legless Skink	
<i>Scelotes bipes</i>	Silvery Dwarf Burrowing Skink	
<i>Trachylepis capensis</i>	Cape Skink	
<i>Chersina angulata</i>	Angulate Tortoise	
<i>Homopus areolatus</i>	Parrot-beaked Tortoise, Parrotbeaked Tortoise	
<i>Stigmochelys pardalis pardalis</i>	Leopard Tortoise, Mountain Tortoise	

<i>Rhinotyphlops lalandei</i>	Delalande's Beaked Blind Snake, Delalande's Blind Snake	
<i>Bitis arietans arietans</i>	Puff Adder	

Strandfontein Birding Area: Reptile species list

Species Name	Common Name	Threatened Status
<i>Bradypodion pumilum</i>	Cape Dwarf Chameleon	
<i>Lycodonomorphus rufulus</i>	Common Brown Water Snake	
<i>Pseudaspis cana</i>	Mole Snake	
<i>Naja nivea</i>	Cape Cobra	
<i>Afrogecko porphyreus</i>	Marbled Leaf-toed Gecko, Marbled Leaf-toed Gecko	
<i>Pachydactylus geitje</i>	Ocellated Thick-toed Gecko, Ocellated Thicktoed Gecko	
<i>Meroles knoxii</i>	Knox's Desert Lizard	
<i>Trachylepis capensis</i>	Cape Skink	
<i>Chersina angulata</i>	Angulate Tortoise	

Zeekoevlei Section: Reptile species list

Species Name	Common Name	Threatened Status
<i>Bradypodion pumilum</i>	Cape Dwarf Chameleon	
<i>Dispholidus typus</i>	Boomslang	

<i>Duberria lutrix lutrix</i>	Common Slugeater	
<i>Lamprophis aurora</i>	Aurora House Snake	
<i>Lycodonomorphus rufulus</i>	Common Brown Water Snake	
<i>Psammophis crucifer</i>	Cross-marked Grass Snake, Crossmarked Grass Snake	
<i>Psammophis leightoni</i>	Cape Sand Snake	Data Deficient (DD)
<i>Psammophylax rhombeatus</i>	Rhombic Skaapsteker	
<i>Pseudaspis cana</i>	Mole Snake	
<i>Homoroselaps lacteus</i>	Spotted Harlequin Snake	
<i>Naja nivea</i>	Cape Cobra	
<i>Afrogecko porphyreus</i>	Marbled Leaf-toed Gecko, Marbled Leaf-toed Gecko	
<i>Tetradactylus seps</i>	Short-legged Seps, Shortlegged Seps	
<i>Meroles knoxii</i>	Knox's Desert Lizard	
<i>Pedioplanis lineoocellata</i>	Spotted Sand Lizard	
<i>Leptotyphlops nigricans</i>	Black Thread Snake	
<i>Pelomedusa subrufa</i>	Marsh Terrapin	
<i>Acontias meleagris meleagris</i>	Cape Legless Skink	
<i>Scelotes bipes</i>	Silvery Dwarf Burrowing Skink	
<i>Trachylepis capensis</i>	Cape Skink	
<i>Chersina angulata</i>	Angulate Tortoise	
<i>Bitis arietans arietans</i>	Puff Adder	

**Appendix C5: Amphibian Species lists**

Pelican Park Section: Amphibian species list

<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
<i>Hyperolius horstockii</i>	Arum Lily Frog, Arum Lily Reed Frog	

<i>Xenopus laevis</i>	Common Platanna	
<i>Strongylopus grayii grayii</i>	Clicking Stream Frog	

Rondevlei Section: Amphibian species list

<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
<i>Breviceps gibbosus</i>	Cape Rain Frog	Vulnerable (VU)
<i>Amietophrynus pantherinus</i>	August Toad, Panther Toad, Snoring Toad, Western Leopard Toad	Endangered (EN)
<i>Hyperolius horstockii</i>	Arum Lily Frog, Arum Lily Reed Frog	
<i>Cacosternum platys</i>	Caco sp., Flat Caco	
<i>Strongylopus grayii grayii</i>	Clicking Stream Frog	
<i>Tomopterna delalandii</i>	Cape Sand Frog	

Strandfontein Birding Area: Amphibian species list

<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
<i>Breviceps rosei</i>	Sand Rain Frog	
<i>Hyperolius horstockii</i>	Arum Lily Frog, Arum Lily Reed Frog	
<i>Xenopus laevis</i>	Common Platanna	
<i>Cacosternum platys</i>	Caco sp., Flat Caco	
<i>Strongylopus grayii grayii</i>	Clicking Stream Frog	

Zeekoevlei Section: Amphibian species list

<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
<i>Breviceps rosei</i>	Sand Rain Frog	
<i>Amietophrynus pantherinus</i>	August Toad, Panther Toad, Snoring Toad, Western Leopard Toad	Endangered (EN)
<i>Hyperolius horstockii</i>	Arum Lily Frog, Arum Lily Reed Frog	
<i>Xenopus laevis</i>	Common Platanna	
<i>Strongylopus grayii grayii</i>	Clicking Stream Frog	
<i>Tomopterna delalandii</i>	Cape Sand Frog	



## Appendix C6: Insect species list

### Pelican Park Section: Invertebrate Species List

Family	Species Name	Common Name	Threatened Status
	<i>Anax imperator</i>	Blue Emperor	
Hesperiid	<i>Kedestes babarae bunta</i>	Barber's Ranger	
Hesperiid	<i>Kedestes lenis lenis</i>	Unique Ranger	

### Rondevlei Section: Invertebrate Species List

Family	Species Name	Common Name	Threatened Status
	<i>Dira clytus clytus</i>	Cape Autumn Widow	
	<i>Metisella malgacha malgacha</i>	Grass- veld Sylph	
	<i>Papilio demodocus demodocus</i>	Citrus Swallowtail	
	<i>Pieris brassicae</i>	Cabbage White	
	<i>Pseudonympha magus</i>	Silver- bottom Brown, silver bottomed brown	
	<i>Vanessa cardui</i>	Painted lady	

### Zeekoevlei Section: Invertebrate Species List

<b>Family</b>	<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
	<i>Metisella metis metis</i>	Golden -spotted Sylph	
	<i>Papilio demodocus demodocus</i>	Citrus Swallowtail	

**Appendix C7: Fish species list**

Rondevlei Section: Fish Species List

<b>Family</b>	<b>Species Name</b>	<b>Common Name</b>	<b>Threatened Status</b>
CICHLIDAE	<i>Oreochromis mossambicus</i>	Mozambique tilapia	

CICHLIDAE	<i>Tilapia sparrmanii</i>	Banded Tilapia	
CLARIIDAE	<i>Clarias gariepinus</i>	Sharp-tooth Catfish	
CYPRINIDAE	<i>Cyprinus carpio</i>	Carp	
GALAXIIDAE	<i>Galaxias zebratus</i>	Cape Galaxia	
MUGILIDAE	<i>Liza richardsonii</i>	Southern mullet	
MUGILIDAE	<i>Mugil cephalus</i>	Flathead mullet	
POECILIIDAE	<i>Gambusia affinis</i>	Mosquito Fish	
STOLEPHORIDAE	<i>Gilchristella aestuarius</i>	Estuarine Round-herring	

Strandfontein Birding Area: Fish Species List

Family	Species Name	Common Name	Threatened Status
CYPRINIDAE	<i>Cyprinus carpio</i>	Carp	
CICHLIDAE	<i>Tilapia sparrmanii</i>	Banded Tilapia	

Zeekoevlei Section: Fish Species List

Family	Species Name	Common Name	Threatened Status
CENTRARCHIDAE	<i>Micropterus salmoides</i>	Largemouth Bass	
CICHLIDAE	<i>Oreochromis mossambicus</i>	Mozambique tilapia	
CICHLIDAE	<i>Tilapia sparrmanii</i>	Banded Tilapia	
CLARIIDAE	<i>Clarias gariepinus</i>	Sharp-tooth Catfish	
CYPRINIDAE	<i>Cyprinus carpio</i>	Carp	
MUGILIDAE	<i>Mugil cephalus</i>	Flathead mullet	
POECILIIDAE	<i>Gambusia affinis</i>	Mosquito Fish	

SPARIDAE	<i>Lithognathus lithognathus</i>	White steenbras	
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## **Appendix D: Other Documents**

### **Appendix D1: Sensitivity Analysis**

# **CITY OF CAPE TOWN**

## **BIODIVERSITY MANAGEMENT BRANCH**

### **Executive Brief**

#### **Comprehensive Security Audit of the Biodiversity Management Branch of the City of Cape Town**

**MARCH 2010**



THORN-EX

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- **INTRODUCTION**

The City of Cape Town' Biodiversity Management Branch, in wishing to ensure the safety of visitors and staff, requested assistance on conducting a security audit of all (25) its managed (and envisaged) Nature Reserves.

The need was based on the following assumptions:

- That the areas are poorly managed
- Security Agencies are inefficient in their operations
- The lack of tools to measure management effectiveness
- Safety and security of visitors as well as that of personnel are threatened.

Plan-It, in collaboration with Thorn-Ex and Titan Security, agreed to undertake the project. Owing to the budgetary constraints, it was agreed that the audit would encompass 12 priority Reserves, as selected by the Biodiversity Management Branch.

The following outcomes were proposed and accepted:

- A desktop exercise to evaluate existing information and identify gaps
- A physical Audit of the listed facilities
- Consultation with public user groups
- Recommendations in respect of security technology and infrastructure
- A comprehensive report on all findings
- A basic entry level conservation security training session for staff

The project was to be completed by the end of April 2010.

- **APPROACH**

The focus was to be on the safety and security of staff working in the different reserves, of visitors to these reserves and of the biodiversity within the reserves.

The audit was to involve the reserve managers, site managers and any other staff the Biodiversity Management Branch deemed necessary to provide information for the audit.

The Project commenced with the Branch being approached to supply maps of each reserve with as much information as possible on all types of infrastructure, bio-physiographic information etc e.g. boundaries of reserves and kind of fence along these, access points, roads, tracks, paths, power lines, telephone lines, buildings, cell phone towers, masts, aerials, bridges, streams, rivers, contours, vegetation, adjacent land use, habitation or settlements in close proximity.

Questionnaires were then drawn up and sent to all the Reserve Managers as well as separate questionnaires which were sent to the various public interest groups, via the Reserve Managers.

Upon receipt of the above the project team drafted a preliminary working document to guide and focus the audit.

The audit commenced on the 15<sup>th</sup> of February 2010 with a workshop with the various Managers and a presentation of the findings from the questionnaires to the Biodiversity Branch.

The audits commenced on the 16<sup>th</sup> of February 2010 with a visit to each Reserve..

During each audit the manager and staff were interviewed and a physical inspection of infrastructure was conducted. The audits focused on existing security systems, security infrastructure, activities, incidents, job descriptions, training and manpower

In addition to the audits workshops were scheduled, via the Reserve Manager with relevant external safety and security institutions and public interest groups. The workshops were then held with various District and Reserve-specific public interest groups.

On conclusion of the audit phase, the security technology specialist visited the Reserves to inspect the systems and infrastructure in place at each reserve. Based on and with reference to the initial draft Audit Report, the specialist undertook an assessment of technology short-comings in order to arrive at feasible recommendations for practicable improvements.

The completed report was then circulated to all the Reserve Managers as a Draft Report for comment, prior to the Final Comprehensive Report incorporating such comment being presented to the Branch.

The Project was then concluded with a basic entry level security training session for nominated staff covering aspects such as:

- Information gathering and reporting
- Patrol structuring, planing and safety
- Preparedness and response
- Handling of transgressors (armed or un-armed)
- Incident handling
- Charge office procedures
- Evidence and Statements
- Record keeping and dossier development

- **EXECUTIVE SUMMARY**

A safety and security audit was carried out on twelve Reserves under the jurisdiction of the Biodiversity Branch of the Directorate Environmental Resource Management.

The Audit was aimed at doing a rapid and verifiable analysis of the current security situation, security services, infrastructure, staffing, and social contexts. The information allowed for a “threat” level to be determined for each reserve.

Information acquired through a questionnaire survey with the Reserve Managers, and information provided by the Branch was used as a baseline to guide and provide focus for the individual Reserve audits.

The Audits very quickly revealed that the location of the various reserves with their own unique social contexts primarily dictated the level of threat of each Reserve.

Some Reserves perceived as being “dangerous” were found to be “safe” with very low key incidents actually occurring. Although social ills do tend to spill over into Reserves the occurrence thereof is very localised and relate to prostitution, substance abuse, theft and illegal plant harvesting for the muti trade.

General security observations revealed that any metal infrastructure or equipment and solar panels are at greatest risk and are stolen on a regular basis. Trespassing, vagrants traversing the reserves and the harvesting of plants for the commercial flower industry and commercially driven herbal medicine /”muthi” industry are linked to an associated threat to staff and visitors. However incidents of visitors and staff being accosted by vagrants are rare.

Security activities were generally viewed as an add-on function when incidents are reported, with some Reserve Managers and Field staff trying to fit security patrols and activities into their management work schedule. The Visitor Controller Officers, on the other hand are essentially Access Control Officers who may be called on to perform some Law Enforcement function if their training enables them to do so. However staff does carry out combined operations with Law Enforcement bodies like Marine and Coastal Management, SAPS or City Law Enforcement when activities in the vicinity of the reserves warrant this in the interests of conservation.

One of the most evident security shortcomings found was that Reserves were “abandoned”, for all practical purposes, after hours, on weekends and on public holidays.

The investigation also found that very few Reserves actively patrol the Reserve and fences on a regular basis.

The Findings of each audit, including the responses received from the public interest groups were used to determine the threat level of each Reserve. The threat levels are based on a combination of factors which may affect security to the reserve, its staff and visitors as well as these threats in relation to other reserves.

The threat levels low, medium, and high reflects the safety threat to visitors, staff, and infrastructure. Further to which the threat level provides an indication in respect of intervention priority (staffing, infrastructure, equipment).

The results were as follow:

<b>Reserve</b>	<b>Threat Level</b>	<b>Threat</b>	<b>Primary Cause</b>
Witzands ACA	Medium	Illegal Access / Trespassing	Lack of fencing

Blaauwberg CA	Medium	Illegal Access / Trespassing	Lack of coverage
Rietvlei WR	Low	Illegal Access / Trespassing	Lack of coverage
Durbanville NR	Low	Theft	Lack of presence
Bracken NR	Low	Trespassing	Lack of coverage
Tygerberg NR	High	Trespassing / poaching	Lack coverage
Zandvlei NR	Low	Illegal Access / Trespassing	State of infrastructure
Falls Bay EP	High	Violent crime	Lack of fencing /coverage
Edith Stephens WP	Low	Theft	Lack of fencing
Wolfgat & Macassar NR	Severe	Violent crime	Location & Social
Kogelberg NR	Medium	Illegal Access / Trespassing	Extent / coverage
Helderberg NR	Low	Illegal Access / Trespassing	Lack coverage

Understaffing and poor or non-existent boundaries were found to be the primary cause of compromised Reserve security. The provision of “feet on the ground” or a management presence is therefore viewed as the first step towards improving the current situation.

The Investigation did conclude that technology solution options entailed fairly low key equipment such as Day-Night or Peak Inversion monitoring cameras, basic building alarm systems, external building detection beams, lighting, etc.

Infrastructure requirements were predominantly in respect of fencing.

Fencing is not always the preferred solution for safeguarding and demarcating an urban Reserve. However, it is suggested that failure to demarcate the boundaries of a Reserve compromises the authority’s ability to manage a designated area and severely limits the authority’s ability to prosecute transgressors. Simple in-expensive measures such as signage and markers will greatly aid in addressing these matters.

The relative “newness” of the Branch was found create various generic management challenges which negatively affect the efficiency and effective of Reserve management.

The aforesaid institutional matters included:

- Lack in consistency of staff designations
- Lack of consistency in functional content (job descriptions)
- Lack of career pathing and skills development program
- Lack of measurable performance standards
- Lack of training and capacity building
- Lack of uniform operational procedures and protocols
- Un-clear performance objectives of Advisory Boards

- Jurisdictional uncertainties in respect of cooperation with other environmental law enforcement agencies
- Lack of memorandums of Understanding with Utility Service Branches active in Reserves

The apparent absence of a clear and definitive Branch Policy on Reserve Safety and Security was viewed as a contributing shortcoming. Further to which, no consistency was found in respect of operational procedures or protocols. Some stations had a Management Plan whilst others were still going to develop such plans. Some stations had developed their own safety procedures.

In respect of Procedures and Protocols it is suggested that the Biodiversity branch consider the developing the following procedures and protocols;

- Incident response (poaching, trespassing, theft, fire, attack, medical emergency, land invasion, pollution, un-wanted pets)
- Reserve patrols
- Fence and gate security
- Visitor control

It is suggested that the above procedures and protocols be developed in conjunction with an auditable reserve management system which is linked to the personnel and finance performance requirements. It is also recommended that the Branch conduct an Institutional “Governance Audit” to guide the above protocols, relationships with other government institutions and law enforcement bodies as well as the Branch’s legal obligations.

Consultation with public interest groups and reserve managers highlighted the benefits of “friend” groups. Some stations financial ability and conservation maintenance activities were greatly enhanced by such “friends” groups. Further to which, the social role that urban reserves play as “safe areas” for people to walk their pets, have picnics or conduct social functions was highlighted at several public meetings. It was also mentioned that in some areas where “gang turf” issues were dominant the reserves were viewed as “neutral” territories.

Advisory Boards are a requirement in terms of reserves proclaimed under the Protected Areas Act although no clarity could be defined with respect to the extent, role and responsibilities of the various Reserves Advisory Boards. Some Reserves indicated that they played an active role whilst others were not aware of their existence. The development of clear responsibilities and objectives for each Board is viewed as imperative to contributing to the achievement of the Reserve objectives whilst providing a formal link to neighbouring communities and local government.

Most Reserves have other City Utility Departments executing functions within the Reserve, share boundaries with them, or manage large tracts of land under their jurisdiction. None of the Reserves were aware of any Memorandums of Understanding which clarify joint management matters. This was viewed as institutional shortcoming requiring attention at higher level.

A variety of Security Service providers render various levels of security to Reserves. These services vary from private security firms providing uniformed guards to provide a static or gate control

service to services where such guards are used as Bushrangers. It was the investigation's conclusion that each District or Reserve negotiates their own contract conditions with such service providers, a situation which does not contribute to clear and measurable security service provisioning.

The City Law Enforcement Services and structures were generally viewed as not being able to respond to conservation related incidents. Only a few Reserves reported adequate responses to call-outs or incidents with most Reserves saying they rely on the local SAPS for assistance.

Reserves which have installed alarm systems linked to the City Law Enforcement Control Rooms, reported that in the event of alarm activation the Reserve manager is phoned to investigate. No direct service benefit could be found in respect City Law Enforcement.

What was most evident during the investigation was the risk posed by staff acting outside their areas of jurisdiction. These transgressions are not through ill intent and staff is not necessarily aware that they are exceeding their authority. Urgent attention should be paid to the authority necessary for the role staff plays in enforcing provincial conservation laws, fisheries laws, and National laws. This should be done in cognisance of the criminal Procedures Act. It is further suggested that cooperation agreements and execution delegations be formalised with other environmental and conservation agencies.

Due to several reserves having a coastal boundary and the ever present activities of highly organised and dangerous Abalone poaching gangs the involvement of staff in curbing these activities need to be clearly defined and coordinated. It is suggested that this should be the preserve of a highly trained and well equipped District based Law Enforcement Component conducting their duties in collaboration with other authorities and with the necessary jurisdiction.

It is the opinion of this investigation team that the establishment of a District based Law Enforcement Component will greatly contribute in addressing some of the security shortcomings highlighted. In addition, such a component will also alleviate some of the external enforcement requirements placed on Reserve staff thus allowing them to focus on reserve management and security.

- **CONCLUSION AND GENERIC RECOMENDATIONS**

The audit results correlated closely with the location and management capacity of each Reserve. High concentrations of un-employed people living in dense informal settlements adjacent to reserves do pose a greater risk to the Reserves. Staff was found to be more exposed to violent crimes in such circumstances than those located in rural or medium to high income areas.

Although social ills do tend to spill over into Reserves the occurrence thereof is very localised and relates to prostitution, substance abuse, theft and illegal plant harvesting for the muti trade.

The Findings of each audit, including the responses received from the public interest groups were used to determine the threat level of each Reserve.

The threat levels low, medium, and high reflects the safety threat to visitors, staff, and infrastructure. Further to which the threat level provides an indication in respect intervention priority (staffing, infrastructure, equipment).

The results were as follow:

Reserve	Threat Level	Threat	Primary Cause
Witzands ACA	Medium	Illegal Access / Trespassing	Lack of fencing
Blaauwberg CA	Medium	Illegal Access / Trespassing	Lack of coverage
Rietvlei WR	Low	Illegal Access / Trespassing	Lack of coverage
Durbanville NR	Low	Theft	Lack of presence
Bracken NR	Low	Trespassing	Lack of coverage
Tygerberg NR	High	Trespassing / poaching	Lack coverage
Zandvlei NR	Low	Illegal Access / Trespassing	State of infrastructure
Falls Bay EP	High	Violent crime	Lack of fencing /coverage
Edith Stephens WP	Low	Theft	Lack of fencing
Wolfgat & Macassar NR	Severe	Violent crime	Location & Social
Kogelberg NR	Medium	Illegal Access / Trespassing	Extent
Helderberg NR	Low	Illegal Access / Trespassing	Lack coverage

Understaffing and poor or non-existent boundaries were found to be the primary cause of compromised Reserve security. The provision of “feet on the ground” or a management presence is therefore viewed as the first step towards improving the current situation.

The Investigation did conclude that technology solutions entail fairly low key equipment such as Day-Night or Peak Inversion monitoring cameras, basic building alarm systems, external building detection beams, lighting, etc.

Infrastructure requirements were predominantly in respect of fencing.

Fencing is not always the preferred solution for safeguarding and demarcating an urban Reserve. However, it is suggested that failure to demarcate the boundaries of a Reserve compromises the authority’s ability to manage a designated area and severely limits the authority’s ability to prosecute transgressors. Simple in-expensive measures such as signage and markers will greatly aid in addressing these matters.

In areas where fencing is vandalised on a regular basis the use of electric fencing (long distances, or Diamond Razor Mesh (short distances) is recommended. However it is recommended that spring-steel barb wire be used in all other instances.

The relative “newness” of the Branch was found to create various generic management challenges which negatively affect the efficiency and effective of Reserve management.

The apparent absence of a clear and definitive Branch Policy on Reserve Safety and Security was viewed as a contributing shortcoming.

A great inconsistency was found in staff designations, with some staff fulfilling similar conservation functions being called Conservation Officers whilst other were called Site Managers or Assistant Managers. The same problem was evident within the junior staff ranks. On some stations “labourers” conducted similar duties to those of Bushrangers.

The appointment and use of Contract staff was found to be a management challenge to most Reserves. Contract staff are generally employed by an external service provider whilst The Branch is responsible for the day to day management of said staff including the provision of uniforms and training. The opinion is held that the cost of these services could very well be such that the Branch could employ these contract staff directly to a greater benefit.

Several instances were found of junior staff being employed for several years as “Small Plant operators” or “Foreman” and having developed a keen interest and expertise in various conservation matters. The provision of career pathing opportunities to staff will not only contribute to the goals of the Branch but also provide an incentive to junior staff.

No evidence was found of a clear skills development program for officers and the impression was created that each officer arranges and sees to his or her own training. This was especially evident with some officers having been trained as Peace officers and appointed whilst others had been trained but not appointed and some still needed to be trained. Some Officers were also expressing the need to be appointed as Fisheries Officers whilst other believed they should be trained and appointed as Environmental Inspectors.

Most reserves had Conservation Students and Interns fulfilling a variety of roles and responsibilities, in some instances un-paid. The rotation of Students and interns was thought to be a good means of exposing them to various experiences and opportunities.

The investigation also found that most staff lacked basic equipment such as binoculars, handcuffs, batons or mace thereby limiting their ability to execute their duties.

The apparent lack of a dress code was viewed as a factor which contributed to the public’s sense of security or respect when coming into contact with officers. The wearing of T-shirts, overalls, or golf shirts should not be promoted whilst on duty in the public eye.

No consistency was found in respect of operational procedures or protocols. Some stations had a Management Plan whilst others were still going to develop such plans. Some stations had developed their own safety procedures.

One of the most evident security shortcomings found was that Reserves were “abandoned”, for all practical purposes, after hours, on weekends and on public holidays. It is understood that staff work standard working hours. However, the provision of accommodation, which most Reserves have, to either Site managers or Bushrangers are seen as a simple cost effective measure. Where there are

operational staff resident on the Reserves (mostly students) it acts as a definite deterrent to illegal activities. Staff stationed on Reserves can then work on a “conservation standard” shift schedule of 20 days on 5 days off.

The investigation also found that very few Reserves actively patrol the Reserve and fences on a regular basis. Although staff shortage is a contributing factor, careful planning and allocation of available resources will ensure that Reserves are patrolled on a regular basis. It is further suggested that the sharing of resources between Reserves will allow for more frequent patrols.

With regard to Procedures and Protocols it is suggested that the Biodiversity branch consider developing the following;

- Incident response ( poaching, trespassing, theft, fire, attack, medical emergency, land invasion, pollution, un-wanted pets)
- Reserve patrols
- Fence and gate security
- Visitor control

It is suggested that the above procedures and protocols be developed in conjunction with an auditable Reserve management system which includes a personnel and finance performance aspect.

Consultation with public interest groups and reserve managers highlighted the benefits of “friend” groups. Some stations’ financial ability and conservation maintenance activities were greatly enhanced by such “friends” groups. It is accepted that not all Reserves have the opportunity to have well capacitated “friends”. However, the neighbouring community’s sense of ownership was found to be a primary contributor to a Reserves state of security.

Further to which the social role that urban reserves play as “safe areas” for people to walk their pets, have picnics or conduct social functions was highlighted at several public meetings. It was also mentioned that in some areas where “gang turf” issues was dominant the reserves were viewed as “neutral” territories.

Advisory Boards are a requirement in terms of reserves proclaimed under the Protected Areas Act. The aim of which is to allow participation by interested parties and to ensure their continual engagement. With regard to reserves not yet proclaimed under the Protected Areas Act but which have Advisory Boards their role is much the same with the possible addition of raising and allocation of funds. This investigation could not clearly define the extent, role and responsibilities of the various Reserves Advisory Boards. Some Reserves indicated that they played an active role whilst others were not aware of their existence. The development of a clear responsibilities and objectives for each Board is viewed as imperative to contributing to the achievement of the Reserve objectives whilst providing a formal link to neighbouring communities and local government.

The removal of Spare tyres from Reserve vehicles by the Transport Sections should be halted as it poses a significant risk to staff operating in remote areas or providing law enforcement services.

Most Reserves have other City Utility Departments executing functions within the Reserve, share boundaries with them, or manage large tracts of land under their jurisdiction. None of the Reserves

were aware of any Memorandums of Understanding which clarify joint management matters. This was viewed as institutional shortcoming requiring attention at higher level.

A variety of Security Service providers render various levels of security to Reserves. These services vary from private security firms providing uniformed guards to providing a static or gate control service to services where such guards are used as Bushrangers. It was the investigations conclusion that each District or Reserve negotiates their own contract conditions with such service providers, a situation which does not contribute to clear and measurable security service provisioning.

The City Law Enforcement Services and structures were generally viewed as not being able to respond to conservation related incidents. Only a few Reserves reported adequate responses to call-outs or incidents with most Reserves saying they rely on the local SAPS for assistance.

Reserves which have installed alarm systems linked to the City Law Enforcement Control Rooms, reported that in the event of an alarm activation, the Reserve manager is phoned to investigate. No direct service benefit could be found in respect of City Law Enforcement.

What was most evident during the investigation was the risk posed by staff acting outside their areas of jurisdiction. These transgressions are not through ill intent and staff are not necessarily aware that they are exceeding their authority. Urgent attention should be paid to necessary authority and the role staff play in enforcing provincial conservation laws, fisheries laws, and National laws. This should be done in cognisance of the criminal Procedures Act. It is further suggested that cooperation agreements and execution delegations be formalised with other environmental and conservation agencies.

Due to several reserves having a coastal boundary and the ever present activities of highly organised and dangerous Abalone poaching gangs, the involvement of staff in curbing these activities need to be clearly defined and coordinated. It is the opinion of this team that this should be the preserve of a highly trained and well equipped District based Law Enforcement Component conducting their duties in collaboration with other authorities and with the necessary jurisdiction.

It is the opinion of this investigation team that the establishment of a District based Law Enforcement Component will greatly contribute in addressing some of the security shortcomings highlighted. In addition, such a component will also alleviate some of the external enforcement requirements placed on Reserve staff thus allowing them to focus on reserve management and security. The current practice of Law enforcement staff working a daily night shift is questioned as no evidence could be found on its effectiveness. It is suggested that through information gathering, coordination with other authorities and planning, such nightly activities could take place on a sporadic basis with much greater successes.

The investigation team was also of opinion that the management requirements of the various Reserves need to be included in the Municipal Spatial Development Framework so as to ensure that the Reserve - Neighbourhood interface receive adequate attention.

**SUMMARY OF RECOMMENDATIONS**

<b>INSTITUTIONAL</b>		
<b>Aspect</b>	<b>Issue</b>	<b>Recommendation</b>
<b>Governance</b>	<ol style="list-style-type: none"> <li>1. Relationship with other National &amp; Provincial Conservation/Environmental institutions</li> <li>2. Relationship with other City Institutions</li> <li>3. Obligations in respect of By-laws, Municipal Systems Act (2000) and the Municipal Finance Management Act (2003)</li> <li>4. Working agreements with other Utility Services</li> </ol>	<ol style="list-style-type: none"> <li>1. Conduct Institutional Governance Audit</li> <li>2. Draft MOU's</li> </ol>
<b>Policy &amp; Procedures</b>	<ol style="list-style-type: none"> <li>1. Management Policies, Goals, Objectives</li> <li>2. Operational Procedures &amp; Protocols</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop management Policies Goals &amp; Objectives</li> <li>2. Develop Procedures and Protocols</li> </ol>
<b>Management</b>	<ol style="list-style-type: none"> <li>1. Consistency in personnel designations</li> <li>2. Consistency in personnel functional content</li> <li>3. Career pathing</li> <li>4. Skills development</li> <li>5. Reserve Management Standards</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop consistent Job Descriptions</li> <li>2. Develop Skills Development and career pathing Protocol</li> <li>3. Develop Auditable Reserve Management System linked to Personnel &amp; Financial Performance Management System</li> </ol>

<b>Reserve</b>	<b>Additional Staffing</b>	<b>Security and Equipment</b>	<b>Infrastructure</b>
<b>NORTH</b>			
<b>Witzands</b>	<ol style="list-style-type: none"> <li>1. 3x Bushrangers</li> <li>2. Small labor team</li> <li>3. Staff must be trained in 4 wheel driving</li> <li>4. Officers appointed as Peace Officers</li> </ol>	<ol style="list-style-type: none"> <li>1. Establish a MOU with Bulk Water</li> <li>2. Replace damaged fences</li> <li>3. Monitor Wood cutter activities</li> <li>4. Permits must contain more information</li> <li>5. Reserve map required</li> <li>6. Curb illegal access</li> <li>7. Regular perimeter patrols.</li> </ol>	<ol style="list-style-type: none"> <li>1. 4x4 vehicle in good condition</li> <li>2. Office Trellidor and burglar bars</li> <li>3. Demarcation of boundaries</li> <li>4. Erect signage</li> <li>5. Electric fence along north and north-eastern boundary</li> <li>6. Basic staff equipment</li> </ol>

<b>Blaauwberg</b>	<ol style="list-style-type: none"> <li>6. 6x Bushrangers ( 2 x3-member teams)</li> <li>7. 2 x Permanent Visitor Controller Off's</li> <li>8. Officers appointed as Peace Officers</li> <li>9. Station District Law Enforcement Component</li> </ol>	<ol style="list-style-type: none"> <li>4. Staff be appointed as Peace Officers</li> <li>5. Law Enforcement Component duties expanded to cover "hot spots" in district.</li> <li>6. Daily night shifts limited to conduct patrols across district and do ad hoc night time</li> </ol>	<ol style="list-style-type: none"> <li>1. Link present alarm system to security service provider.</li> <li>2. Mount Day-Night camera to cover main resort area.</li> <li>3. Active Monitor to monitor activities during peak periods.</li> <li>4. Erect signage</li> <li>5. Basic staff equipment</li> </ol>
<b>Rietvlei</b>	<ol style="list-style-type: none"> <li>1. 2 x Bushrangers</li> <li>2. Officers appointed as Peace Officers</li> </ol>	<ol style="list-style-type: none"> <li>1. Regular perimeter patrols</li> <li>2. Co-ordinate with MCM</li> </ol>	<ol style="list-style-type: none"> <li>1. Fence along R27 road.</li> <li>2. Alarm systems at new facilities</li> <li>3. Peak Inversion camera with recording facility for main gate</li> <li>4. Fence open residential property boundaries</li> <li>5. Patrol boat</li> <li>6. Basic staff equipment</li> </ol>
<b>CENTRAL</b>			
<b>Bracken</b>	<ol style="list-style-type: none"> <li>1. 1x EE Officer/Community Officer.</li> <li>2. 1x Labourer</li> </ol>	<ol style="list-style-type: none"> <li>1. Visible patrols</li> <li>2. Liaison with Everite Hostel.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ablutions at gate</li> <li>2. Day-night camera for main access area.</li> <li>3. Removal of derelict buildings</li> <li>4. Guard monitoring</li> <li>5. Clear alien vegetation along fences</li> <li>6. Basic staff equipment</li> </ol>
<b>Durbanville</b>	<ol style="list-style-type: none"> <li>1. 2x Visitor Controller Officers</li> <li>2. Officers appointed as Peace Officers</li> </ol>	<ol style="list-style-type: none"> <li>1. Boundary fence cleared of vegetation</li> <li>2. Erect signage iro handling of unwanted pets</li> </ol>	<ol style="list-style-type: none"> <li>1. Steel gate at offices to be kept locked, and fitted with buzzer and solenoid access control</li> <li>2. Video monitor for door</li> <li>3. Service counter inside front door</li> <li>4. Alarm system to include response</li> </ol>

			<ul style="list-style-type: none"> <li>5. Long-range mobile panic buttons</li> <li>6. Lighting at offices and main gate</li> <li>7. Peak Inversion camera for main gate</li> <li>8. Guard Monitoring system</li> <li>9. Basic staff equipment</li> </ul>
<b>Tygerberg</b>	<ul style="list-style-type: none"> <li>1. Employ current 3 Contract Bushrangers</li> <li>2. 2x Bushrangers</li> <li>3. 1x Site Manager</li> <li>4. 1x Foreman</li> <li>5. 5x Labourers</li> <li>6. 1x Additional EE Officer/Community Liaison</li> <li>7. 2x Visitor Controller Officers</li> <li>8. Officers appointed as Peace Officers</li> <li>9. Station District Law Enforcement Component</li> </ul>	<ul style="list-style-type: none"> <li>1. Attend Community Police Forum and Crime Watch meetings.</li> <li>2. Bushrangers obtain drivers licenses</li> <li>3. Staff presence over week-ends and after hours</li> <li>4. All gate remotes currently issued be recovered immediately and re-issued under a new access signal code</li> <li>5. Keys handed out should be retrieved and locks changed.</li> <li>6. Kanonberg be afforded controlled access in the event of a fire.</li> </ul>	<ul style="list-style-type: none"> <li>1. Replace existing camera at main entrance gate with a Peak Inversion camera with recording facility</li> <li>2. Present cameras be replaced with Day-Night cameras.</li> <li>3. Plattekloof and Quarry area be re-fenced with electric fence</li> <li>4. Perimeter road should be constructed where feasible</li> <li>5. Flatrap razer coils installed on top of all fences and along bottom of select fences</li> <li>6. Accommodation for Bushranger teams</li> <li>7. Installation of trigger operated floodlight in darker area of parking</li> <li>8. Additional mountain bike</li> <li>9. Basic staff equipment</li> </ul>
<b>SOUTH</b>			
<b>Zandvlei</b>	<ul style="list-style-type: none"> <li>1. 3x Visitor Controller Officers</li> <li>2. 3x Bushrangers</li> <li>3. 4x Labourers</li> <li>4. Officers appointed as Peace Officers</li> </ul>	<ul style="list-style-type: none"> <li>1. Cease involvement in public amenity facilities on eastern side</li> <li>2. Formal gate control required during open hours</li> <li>3. Formalise relationship with Mountain Men Security Services</li> <li>4. Evening security at offices by private security service provider</li> <li>5. Introduce ad hoc evening patrols</li> <li>6. Formalise co-operation</li> </ul>	<ul style="list-style-type: none"> <li>1. Northern access well designated and controlled access point</li> <li>2. Signage at the entrance, parking areas &amp; along the water</li> <li>3. Re-fence office area with Diamond Razor Mesh</li> <li>4. Provide appropriate security lighting</li> <li>5. Replaced northern and western fence with Diamond Razor Mesh fence</li> <li>6. New offices need to be</li> </ul>

		with Marine and Coastal Management regarding control at the estuary.	completed & fitted with monitored alarm system and BX Outdoor Beams 7. Guard Monitoring system 8. Motorized boat 9. Basic staff equipment
<b>False Bay</b>	<ol style="list-style-type: none"> <li>1. 9x Bushrangers</li> <li>2. 4x Static Guards</li> <li>3. Officers appointed as Peace Officers</li> <li>4. Station District Law Enforcement Component</li> </ol>	<ol style="list-style-type: none"> <li>1. Regular patrols supported</li> <li>2. Bushrangers and Visitor Control officers should be circulated &amp; deployed to cover peak periods of public use within the Park.</li> <li>3. Change permanent night shift to a planned basis during periods of specific risk or in response to specific incidents</li> <li>4. Co-ordinate night activities with other law enforcement bodies</li> <li>5. Visitor Controller Officers patrol Zeekoevlei picnic area during peak periods.</li> </ol>	<ol style="list-style-type: none"> <li>1. Establish two or three Bushranger bases</li> <li>2. Re-fence southern and eastern boundary electric fence</li> <li>3. Motorised patrol</li> <li>4. 2x Quad</li> <li>5. Install Guard Patrol Monitoring system</li> <li>6. Fence Rondevlei offices and EE Centre with Diamond Razor Mesh Install additional trigger</li> <li>7. Install flood lights at all facilities</li> <li>8. Day-Night camera to Rondevlei Viewing Tower for office and entrance area</li> <li>9. Upgrade all existing cameras to Day-Night cameras with recording</li> <li>10. Additional cameras for Zeekoevlei entrance gate and new office complex</li> <li>11. Buildings should be alarmed with a siren and linked to a security service provider</li> <li>12. Buildings which do not have security staff at night should be fitted with BX80</li> <li>13. Erect signage</li> <li>14. Basic staff equipment</li> </ol>
<b>Edith Stephens</b>	<ol style="list-style-type: none"> <li>1. Replace “small plant operator” with a fence maintenance post.</li> </ol>	<ol style="list-style-type: none"> <li>1. The reserve fence needs to be patrolled daily or at least twice a week</li> <li>2. Walk-in access should be controlled and documented at the gate</li> <li>3. Office gate should remain locked</li> </ol>	<ol style="list-style-type: none"> <li>1. Northern and southern fences must be replaced with Razor Diamond Mesh be considered or electric fence using spring steel wire</li> <li>2. Management track should be created along</li> </ol>

			the fence 3. Basic staff equipment
<b>EAST</b>			
<b>Wolfgat &amp; Macassar</b>	<ol style="list-style-type: none"> <li>1. 8 x Bushrangers.</li> <li>2. 3x District Law Enforcement Officers</li> <li>3. 2 x Community Liaison Officers</li> <li>5. Officers appointed as Peace Officers</li> <li>6. Station District Law Enforcement Component</li> </ol>	<ol style="list-style-type: none"> <li>1. Weltevreedeen office security system should include a response system</li> <li>2. City employed private security with mobile support to patrol coastal road esp. parking areas</li> <li>3. Investigate sand mining permits</li> </ol>	<ol style="list-style-type: none"> <li>1. Demarcate reserve using cement poles</li> <li>2. Erect signage</li> <li>3. Move Macassar Gate</li> <li>4. Basic staff equipment</li> </ol>
<b>Kogelberg</b>	<ol style="list-style-type: none"> <li>1. 1x Visitor Controller Officer</li> <li>2. 3x Bushrangers</li> <li>3. Officers appointed as Peace Officers</li> </ol>	<ol style="list-style-type: none"> <li>1. Improve communication services</li> </ol>	<ol style="list-style-type: none"> <li>1. Construct Bushranger camp</li> <li>2. Erect signage</li> <li>3. Fence Erf 19 and north-west boundary using electric fence</li> <li>4. Install alarm at all buildings</li> <li>5. Install trigger lighting</li> <li>6. Install depot fence at rear</li> <li>7. Install Reed Switches for solar panels</li> <li>8. Peak Inversion Camera for entrance gate to depot</li> <li>9. Basic staff equipment</li> </ol>
<b>Helderberg</b>	<ol style="list-style-type: none"> <li>1. 6 existing Labourers trained to level of Bushrangers</li> <li>2. Officers appointed as Peace Officers</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop system for evening monies</li> <li>2. Regular perimeter patrols</li> </ol>	<ol style="list-style-type: none"> <li>1. Erect signage</li> <li>2. Electric fence be retained</li> <li>3. Peak Inversion camera at main gate</li> <li>4. Day –Night camera to cover parking area</li> <li>5. Basic staff equipment</li> </ol>

- **COSTING**

The equipment costing listed below are based on actual quotes provided.

**Fencing:**

Diamond Razor mesh fencing installed per 100m R 440,00/meter

1,8m, 12 strand electric fencing installed at 100m (Au Alloy wire) R 55,00/meter

12 Joule Nemtek energizer with built in fence monitor R 3400,00 excl

**Alarm Equipment:**

To supply and install an 8-zone alarm Paradox alarm system complete with battery back-up, keypad, 15 watt siren, four internal infra-red passives, two fixed panic buttons and two reed switches. Alarm system can be zone doubled to a 16 zone system.

R 3600,00 excl.

To supply and install one outdoor BX80 beam

R 1500,00 excl.

GSM 4 channel radio, programmed to four cellular phone numbers and linked to fence energizers, Alarm systems, Solar panels and standalone panic systems R 1800,00 excl

Long Range remote panic – one long range remote

R 250,00 excl.

Long Range receiver – installed

R 1100,00 excl.

**Cameras:**

To supply and install one gate camera – Peak inversion camera, auto-iris lens, 40m co-axial cable, power supply, 4-channel embedded digital recorder (250 G) hard drive and one 17 inch monitor. Price includes camera housing and installation

R 11 900,00 excl.

To supply and install one day/night camera – Day/Night camera, auto-iris lens, 40m co-axial cable, power supply, 4-channel embedded digital recorder (250 G) hard drive and one 17 inch colour monitor. Price includes housing and installation

R 12 900,00 excl.



# ***REPORTING PROGRESS IN URBAN PROTECTED AREAS***

*A Site-level rapid assessment tool  
based on the World Bank & WWF's  
"Management Effectiveness Tracking  
Tool"*

*Prepared for the*  
**City of CapeTown**  
*by*  
*Howard Langley & Paul Britton*  
*22 May 2007*





## REPORTING PROGRESS AT PROTECTED AREA SITES: DATA SHEET

Name of protected area	Rondevlei Nature Reserve		
Location of protected area (country and if possible, map reference)	Zeekoevlei, Cape Town, South Africa		
Date of establishment (distinguish between agreed and gazetted)	<i>Agreed</i> 1950	<i>Gazetted</i> 1950	
Ownership details (i.e. owner, tenure rights etc.)	City of cape Town		
Management Authority	City of Cape Town, Biodiversity Management Branch, Nature conservation		
Protected area size (ha)	290 ha (1962: S 13ha/ 1990:S 100ha/ SE 70ha/ 5ha schoolsite102ha with status, 188 with no status)		
Staff numbers	<i>Permanent</i> 9	<i>Temporary</i> 1 student 13 contract staff	
Budget	Capital and operational - shared with Zeekoevlei and Zandvlei		
Designation (ICUN category), World Heritage, Ramsar etc	Local Authority Protected Area		
Reason for designation	1950- Bird sanctuary 1986- Nature Reserve: biodiversity conservation		
Brief detail of World Bank funded project or projects in PA	N/A		
Brief detail of WWF funded project or projects in PA	Hippo reintroduction - 1980's		
Brief detail of other relevant projects in PA			

List two of the primary protected area objectives	
Objective 1	Biodiversity Conservation
Objective 2	Environmental Education
List the top two most important threat to the PA (and indicate reasons why they are selected)	
Threat 1	Urban Edge Impacts
Threat 2	Alien vegetation: large acacia seed bank, vicia, kukuyu, mantoka, weeds
List top two critical management activities	
Activity 1	Rehabilitation and Law Enforcement
Activity 2	Environmental Education
<b>Date assesement carried out:</b>	<b>26th June 2007</b>
<b>Name of assessor:</b>	<b>Penny Glanville</b>



1: Context : Where are we now?	Criteria	Value	Score	Comments	Next steps
<b>1.1 Legal status</b>  <b>Does the PA have secure permanent conservation legal status?</b>	The PA's permanent legal conservation status is not secured by its current legal status eg Public Open Space.	0		The extensions of Rondevlei have not been formally proclaimed - 188 ha	Proclamation of all additional land as Local Authority Nature Reserve
	There is a formal agreement that the PA should be afforded the highest possible legal protection, but the process has not yet begun.	1			
	The PA is in the process of being afforded the highest possible legal protection.	2	2		
	The PA has Local Authority Nature Reserve status, or a higher level of legal protection.	3			
<b>1.2. Protected Area regulations</b>	There are no legal mechanisms for controlling inappropriate land use and activities in the PA	0		Due to an inadequate law enforcement staff component, adequate fencing and urban edge impact, the inappropriate activities are difficult to manage. There are regulations in place but these are not specific to the nature reserve	Adequate fencing is being installed on the western and southern fence line in June 2007, however funding is needed to adequately fence the remaining western, northern and eastern areas
	Legal mechanisms for controlling inappropriate land use activities in the PA exist but are not being implemented.	1			
	Legal mechanisms for controlling inappropriate land use and activities in the PA exist but there are some problems in effectively implementing them	2	2		
	Legal mechanisms for controlling inappropriate land use and activities in the PA exist and are being effectively implemented	3			

<b>1.3. Law enforcement</b>  PA has capacity/resources to enforce regulations & bylaws well enough?	PA has no effective capacity/resources to enforce regulations & bylaws	0	0	There is currently only one official law enforcement officer for the entire south area - this is insufficient to deal with the high levels of inappropriate activity. Fence patrols and patrols of the remote sections of the reserve are insufficient due to lack of human resources and time.	Employment of two or more permanent Law enforcement officers in PA as well as assistance form formal law enforcement officials for random patrols throughout the week and weekend. Motivations have been written to the manager and director of the branch, by the reserve manager
	There are major deficiencies in capacity/resources to enforce regulations & bylaws (e.g. lack of skills, no patrol budget)	1	1		
	PA has acceptable capacity/resources to enforce regulations & bylaws but some deficiencies remain	2			
	PA has excellent capacity/resources to enforce regulations & bylaws	3			
<b>1.4. Protected Area boundary demarcation</b>  Is the boundary known and demarcated?	The boundary of the PA is not known by the management authority or local residents/neighbouring land users	0		However boundaries are not respected by community - need funding for improved north, east and south fencing. Installation of palisade with razor coil begins June 2007. The extension areas must be given status to ensure security of the land.	Budget is needed to adequately fence the entire reserve, put up warning signage and employ adequate law enforcement. Status must be secured for the extension sites by the City.
	The boundary of the PA is known by the management authority but is not known by local residents/neighbouring land users	1			
	The boundary of the PA is known by both the management authority and local residents but is not appropriately demarcated	2	2		
	The boundary of the PA is known by the management authority and local residents and is appropriately demarcated	3			

<b>1.5. Resource inventory</b>  Do you have enough information to manage the area?	There is little or no information available on critical habitats, species and cultural values of the PA	0		However, need updating of management plan and increased monitoring	Biodiversity data base will help to ensure ongoing monitoring - however time needs to be made to accurately collect data on all habitats, species and cultural sites such as middens
	Information on critical habitats, species and cultural values of the PA is not sufficient to support planning and decision making	1			
	Information on critical habitats, species and cultural values of the PA is sufficient for key areas of planning/decision making but the necessary survey work is not being maintained	2	2		
	Information concerning critical habitats, species and cultural values of the PA is sufficient to support planning and decision making and is being maintained	3			
<b>Subtotal: Context</b>		<b>15</b>	<b>9</b>		



2: Planning: Where do we want to be?	Criteria	Value	Score	Comments	Next steps
<b>2.1. Protected area design</b>  Does the protected area need enlarging, corridors etc to meet its objectives?	Inadequacies in design mean achieving the PA's major management objectives is impossible	0		Urban edge surrounds boundaries and corridors need to be formalised and managed- should be linked in with the City's biodiversity network. The reserve should be managed to be part of the concept of the False Bay Ecology Park.	Management and budget for Capricorn Park, Muizenberg, Pelican Park Heights, Philips corridor, M5. The reserve should be managed as an integral part of the concept of the False Bay Ecology Park.
	Inadequacies in design mean that achievement of major objectives are constrained to some extent	1			
	Design is not significantly constraining achievement of major objectives, but could be improved	2	2		
	Reserve design features are particularly aiding achievement of major objectives of the PA	3			
<b>2.2 Management plan</b>  Is there a management plan (compliant with Protected Areas Act) and is it being implemented?	There is no standard Management Plan for the PA	0		No public participation- need standardised management plan across the City. PM updated management plan form 2987 in 2006 - however this has to be adjusted and go out for public participation	City should employ consultant whose sole job is the drawing up[ of management plans with city reserve managers
	A standard Management Plan is being prepared or has been prepared, but is not yet approved.	1	1		
	An approved Management Plan exists and is being implemented, but has not been updated/reviewed during the past five years.	2			
	An approved Management Plan exists, is being implemented and has been updated/reviewed during the past three years	3			
<b>2.3. Conservation</b>	There is no CDF for the PA	0	0	No updated and approved	Formal approved CDF

<b>Development Framework (CDF)</b>  Is there a visitor use zoning system indicating position and nature of operation & visitor infrastructure?	A CDF is being prepared or has been prepared but is not being implemented	1		CDF is in place - informal visitor zoning is in place as is stated in informal management plan	needs to be drawn up - in conjunction with the standardised management plan
	An approved CDF exists but it is only being partially implemented because of funding constraints or other problems	2			
	An approved CDF exists and is being implemented	3			
<b>Supplementary items</b>	The planning process allows adequate opportunity for key stakeholders to influence the management plan	1		Need to increase monitoring, research and evaluation and formalise it in APO- Add to management plan	Standardised management plan to incorporate monitoring etc, linked to APO
	There is an established schedule and process for periodic review and updating of the management plan	1			
	The results of monitoring, research and evaluation are routinely incorporated into planning	1	1		
<b>Subtotal Score: Planning</b>		<b>12</b>	<b>4</b>		



<b>3.1. Research</b>  Is there a programme of management-orientated research work?	Research needs have not been identified nor is any research work taking place in the PA	0		Only third year student and B.Tech research - needs a forum to be published	Goal orientated research needed and should be displayed on the City Biodiversity data base for future reference
	Research needs have been identified, but other than for ad hoc research, no management orientated research is being done.	1	1		
	There is considerable research work but only limited "management" orientated research is being done.	2			
	There is considerable research work being undertaken, which is relevant to management needs	3			
<b>3.2. Human Resource capacity</b>  Does the PA have sufficient HR capacity to manage the protected area?	The PA has no HR capacity	0		Critical posts must be filled - however no funding available	-Law enforcement, Ass. EE officer, - visitor control officer post will be made permanent and shift work by July 2007
	HR capacity is inadequate for critical management activities	1			
	HR capacity is sufficient, but there are deficiencies in necessary skills for critical management activities	2	2		
	HR capacity and expertise is adequate for management needs	3			
<b>3.3. Current budget</b>	There is no dedicated budget for the PA	0		Budget shared with Zeekoevlei and Zandvlei - operational budget	Adequate, workable budget allowing for
	The available budget is inadequate for basic management needs and presents a serious constraint to	1	1		

Is the current budget sufficient?	the capacity to manage			insufficient to meet needs	completion of critical projects- SAP system should be modified to allow managers to see how much spent, available etc.
	The available budget is acceptable, but could be further improved to fully achieve effective management	2			
	The available budget is sufficient and meets the full management needs of the PA	3			
<b>Additional points</b>	The budget is secure/guaranteed for the PA on an annual cycle	1	1	The budget is guaranteed but shared- currently no external funding is used	Either the City needs to allow for adequate budget and staff - or outside funding is needed to complete projects
	The budget is secure/guaranteed on a three year cycle	2	0		
	The PA is not reliant on external funding	2	2		
<b>Subtotal</b>		<b>14</b>	<b>7</b>		



4: Process : How do we go about it?	Criteria	Value	Score	Comments	Next steps
<b>4.1. Annual Plan of Operation (APO)</b>  Is there an annual work plan/APO that is approved by the organisation?	No approved/standardised APO exists	0		Constrained completion of activities due to limited resources - the APO is approved by area manager however logistics do not always allow for completion of tasks. APO should be updated monthly	Adequate staff, budget, etc. Upgraded procurement systems needed - improve SAP system APO should be updated monthly, roll overs and addition projects
	An approved APO exists but activities are not monitored against the plan's targets	1			
	An approved APO exists and actions are monitored against the plan's targets, but many activities are not completed	2	2		
	Actions are monitored against the approved APO's targets and most or all prescribed activities are completed	3			
<b>4.2. Resource management</b>  Is the protected area adequately managed (e.g. for fire, invasive species, poaching)?	Requirements for active management of critical ecosystems, species and cultural values have not been assessed	0		Invasive plant species management is only done for a few weeks of the year - mainly through contracted staff, fire management takes up many hours of summer months restricting ability to fulfill APO, inadequate LE therefore	Need full time alien clearing team through out year, who would then assist with fires and other emergencies in summer. The employment of two more law enforcement officers could be done
	Requirements for active management of critical ecosystems, species and cultural values are known but are not being addressed	1			
	Requirements for active management of critical ecosystems, species and cultural values are only being	2	2		

	partially addressed			flora and fauna suffer many losses	through the City or outside funding
	Requirements for active management of critical ecosystems, species and cultural values are substantially or fully addressed.	3			
<b>4.3. Staff training</b>	Staff are untrained	0		No training was being done due to City insufficient funds, however training has commenced on a small-scale in 2007. Should have 1 year part time Nature Conservation certificate for all labourers to get better understanding of ecology etc	Dalton is designing a SETA approved course for part time NC studies. A list of all training requirement by staff has been issued to Nestus Neethling who deals with training needs for the branch
Is there enough training for staff?	Staff training and skills are low relative to the needs of the PA	1			
	Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management	2	2		
	Staff training and skills are in tune with the management needs of the PA, and with anticipated future needs	3			
<b>4.4. Budget management</b>	Budget management is poor and significantly undermines effectiveness	0		SAP system difficult to work with - need a system whereby budget reflects what is spent - also procurement issues where orders are not processed or systems difficult to navigate	Improved system: perhaps own store for Nature Conservation branch upgrade of current. Urgent need for improved SAP and procurement processes
Is the budget managed to meet critical management needs?	Budget management is poor and constrains effectiveness	1	1		
	Budget management is adequate but could be improved	2			
	Budget management is excellent and aids effectiveness	3			

<b>4.5. Operational equipment &amp; infrastructure</b> (as required for operational management purposes, but excluding tourism/visitor facilities)	There is little or no operational equipment & infrastructure	0		Need to update machinery, upgrade stores, fix roofs, upgrade museum- operational budget too limited	Increase operational budget separate from other reserves. Draw up maintenance plan. Have obtained new chainsaws, brush cutter, however still have some requirements
	There is some equipment & infrastructure but these are wholly inadequate	1			
	There is equipment and infrastructure, but still some major gaps that constrain management	2	2		
	There is adequate operational equipment and infrastructure	3			
<b>4.6 Maintenance of equipment &amp; infrastructure</b> Is equipment & infrastructure (including tourism/visitor facilities) adequately maintained?	There is no approved Maintenance Plan and no maintenance is taking place	0		Need adequate budget and staff in conjunction with maintenance plan: museum, buildings, yard, bird hides etc	Once maintenance plan and APO in place need better communication between management and labour staff. Would be helpful to have team for year that can assist with larger projects
	There is no Maintenance Plan and maintenance is taking place to an unsatisfactory standard.	1			
	There is no Maintenance Plan, but maintenance is taking place to a satisfactory standard.	2	2		
	There is an approved Maintenance Plan that is being fully implemented to a high standard.	3			
<b>4.7. Education and awareness programmes</b> Is there a planned education programme?	There is no education and awareness programme	0		Facilities need upgrading: museum needs complete overall and modernization, lecture room needs minor repairs such as chairs and painting	Maintenance plan and APO will outline all work needed. Programmes themselves are very acceptable
	There is a limited and <i>ad hoc</i> education and awareness programme, but no overall planning for this	1			
	There is a planned education and awareness programme but there are still serious gaps	2			

	There is a planned & effective education & awareness programme fully linked to the objectives and needs of the PA	3	3		
<b>4.8. Government &amp; commercial neighbours</b>  Is there co-operation with adjacent land users?	There is no contact between managers and neighbouring official or corporate land users	0		False Bay Ecology Park (FBEP) steering committee made up of City environmental dept, sewage, storm water, Zeekoevlei yacht club, anglers society, public health, solid waste, metro police, Zandvlei trust etc.  No commercial or corporate facilities exist on the boundaries except a church and cafe, both of which have a good working relationship with reserve management	There is limited communication between the local councilors and reserve management - they are consulted regarding major issues
	There is limited contact between managers and neighbouring official or corporate land users	1			
	There is regular contact between managers and neighbouring official or corporate land users, but only limited co-operation	2	2		
	There is regular contact between managers and neighbouring official or corporate land users, & substantial co-operative management	3			
<b>4.9. Advisory committee/forum</b>  An Advisory Committee of local representatives and specialists advises on PA management & development	There is no Advisory Committee/forum	0	0	FBEP steering committees the only body that is involved in PA - however formal Biodiversity advisory board should be set up including director and manager of branch - they should cover the vision,	Set up Advisory board for City NC branch
	An Advisory Committee/forum is in the process of being established communities	1			
	An Advisory Committee/forum exists, but does not contribute significantly to the management/development of the PA.	2			

issues.	A well represented Advisory Committee/forum contributes significantly to the proper management/development of the PA.	3		implementation of management plan, with objectives set out by council	
<b>4.10. Community partners</b>  Do community partners have input to management decisions via the Advisory Committee?	Community partners have no input into decisions relating to the management of the PA	0		FBEP steering committee, Friends of Rondevlei and Zeekoevlei are only input into PA	Need to set up advisory board
	Community partners have limited input into the PA's management decisions via local governance structures	1	1		
	Community partners contribute to some decisions relating to management via the PA's Advisory Committee	2			
	Community partners are fully representative on the PA's Advisory Committee and directly participate decisions making.	3			
<b>4.11. Commercial tourism</b>  Do commercial tour operators contribute to protected area management?	There is little or no contact between managers and tourism operators using the PA	0		Imvubu Nature Tours operates from Rondevlei - a management agreement exists but many issues have not been dealt with	A meeting between management and Imvubu will be held in early June to set out guidelines
	There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters	1	1		
	There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain conservation values	2			

	There is excellent co-operation between managers and tourism operators to enhance visitor experiences, protect values and resolve conflicts	3			
<b>4.12. Monitoring &amp; evaluation</b>	There is no monitoring and evaluation in the PA	0		A formal monitoring and evaluation plan must be set out in conjunction with the management plan and APO - to be evaluated by the area manager and advisory board	Set up Advisory board for City NC branch and standardised management plan
	There is some <i>ad hoc</i> monitoring & evaluation, but no overall strategy and/ or no regular collection of results	1	1		
	There is an agreed and implemented monitoring & evaluation system but results are not systematically used for management	2			
	A good monitoring & evaluation system exists, is well implemented and used in adaptive management	3			
<b>Supplementary items</b>	There is open communication and trust between local stakeholders and PA managers	1			
<b>Subtotal</b>		<b>37</b>	<b>19</b>		



<b>5: Outputs/Outcomes: What were the results/achievements?</b>	<b>Criteria</b>	<b>Value</b>	<b>Score</b>	<b>Comments</b>	<b>Next steps</b>
<b>5.1. Visitor facilities</b>  Are visitor/tourism facilities good enough and sufficient to prevent damage to the PA?	There are no visitor facilities and services	0		Facilities need an upgrade but are maintained according to limited budget.	Need formal maintenance plan and CDF to be drwn up
	Visitor facilities and services are inappropriate for current levels of visitation or are under construction	1			
	Visitor facilities and services are adequate for current levels of visitation but could be improved	2	2		
	Visitor facilities and services are excellent for current levels of visitation	3			
<b>Supplementary items</b>	There are active programmes for restoration of degraded areas within the PA and/or in associated buffer zone	1	1	Rehabilitation of areas previously disturbed by replanting indigenous veg	Need to be attached to APO
<b>5.2. Ecological &amp; Cultural condition assessment</b>  Is the protected area being managed consistent to its objectives?	Important biodiversity, ecological and cultural values are being severely degraded in the PA	0		Limited law enforcement has led to trespassing, arson, vandalism, theft, pollution impacts, illegal plant harvesting	A pallisade fence on the western and southern fence is being installed in July which will reduce such threats, however northern and south eastern areas still at risk. Budget has been requested to adequately fence the
	Some biodiversity, ecological and cultural values are being severely degraded	1	1		
	Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted	2			
	Biodiversity, ecological and cultural values are	3			

	predominantly intact				area
<b>5.3. Access assessment</b>  Are the available management mechanisms working to control access or use?	Protection systems (patrols, permits etc) are ineffective in controlling access or use of the PA in accordance with designated objectives	0		Inadequate fencing and law enforcement has led to many issues -	Management needs more law enforcement staff, support from metro police, funding for additional fencing etc.
	Protection systems are only partially effective in controlling access or use of the PA in accordance with designated objectives	1	1		
	Protection systems are moderately effective in controlling access or use of the PA in accordance with designated objectives	2			
	Protection systems are largely or wholly effective in controlling access or use of the PA in accordance with designated objectives	3			
<b>5.4. Economic benefit assessment</b>  Is the Protected Area providing economic benefits to local communities?	The existence of the PA has reduced the options for economic development of the local communities	0		Contract workers are only employed for three months of the year to do alien vegetation clearing, Imvubu staff are from local community. Working for wetlands have a facility here that produces plants for the FBEP but not for commercial use	A tearoom is being constructed and this function will be taken over by a member of the local community employing local staff - potentially a retail nurse will rent space at Rondevlei however this is not set
	The existence of the PA has neither damaged nor benefited the economy of the local economy	1			
	There is some flow of economic benefits to local communities from the existence of the PA but this is of minor significance to the regional economy	2	2		
	There is a significant or major flow of economic benefits to local communities from activities in and around the PA (e.g. employment of locals, locally operated	3			

	commercial tours etc)				
<b>5.5. Community benefit assessment</b> (other than economic) e.g. recreation & education facilities, community hall, sport facilities etc.	The existence of the PA has not delivered any direct or indirect community benefits	0		Working for wetlands project, boma for functions, bird hides for recreation, museum for historical aspects, animal displays and aquarium for those unable to afford more expensive facilities, picnic area for recreation, fishing platforms and island etc	Many local residents are not aware of the facilities and benefits of the reserve - perhaps a marketing drive could be established for the 22 nature reserves in the City
	The existence of the PA has delivered some minor short term community benefits	1			
	The PA delivers some quantifiable long term community benefits that make a difference to the lives of local communities	2	2		
	The PA delivers considerable quantifiable long term community benefits that make a real difference to the lives of local communities	3			
<b>Subtotal Score: Outcomes</b>		<b>16</b>	<b>9</b>		

<b>Subtotal</b>	<b>12</b>	<b>4</b>
<b>3: INPUTS</b>		
3.1. Research	3	1
3.2. Staff numbers	3	2
3.3. Current budget	3	1
Supplementary items	5	3
<b>Subtotal</b>	<b>14</b>	<b>7</b>
<b>4: PROCESS</b>		
4.1. Annual Plan of Operation	3	2
4.2. Resource management	3	2
4.3. Staff training	3	2
4.4. Budget management	3	1
4.5. Operational equipment & infrastructure	3	2
4.6. Maintenance of equipment & infrastructure	3	2
4.7. Education & awareness	3	3
4.8. Government & commercial neighbours	3	2
4.9. Advisory committee	3	0
4.10. Community partners	3	1
4.11. Commercial Tourism	3	1
4.12. Monitoring & Evaluation	3	1
Supplementary items	1	0
<b>Subtotal</b>	<b>37</b>	<b>19</b>
<b>5: OUTPUTS/OUTCOMES</b>		
5.1. Visitor facilities	3	2
5.2. Condition assessment	3	1
5.3. Access assessment	3	1
5.4. Economic benefit assessment	3	2
5.5. Community benefit assessment	3	2

Supplementary items	1	1	
<b>Subtotal</b>	<b>16</b>	<b>9</b>	
<b>TOTAL SCORE</b>	<b>94</b>	<b>48</b>	<b>51%</b>

**Summary and comment on score.** The score is indicative of the long standing management of the area. However planning and law enforcement require attention. To ensure effective management an effective monitoring and evaluation process should be put in place. There is concern in respect of the ad hoc nature of constructing new facilities. New facilities should not be built until such time that there is a management plan and a CDF in place. This exercise should view Rondevlei as an integral part of the False Bay Ecology Park. There is room for improvement in law enforcement, fencing, infrastructure, staff, monitoring and research

# ***REPORTING PROGRESS IN URBAN PROTECTED AREAS***

*A Site-level rapid assessment tool  
based on the World Bank & WWF's  
"Management Effectiveness Tracking  
Tool"*

*Prepared for the*  
**City of Cape Town**  
*by*  
*Howard Langley & Paul Britton*  
*22 May 2007*

**Strandfontein  
Birding  
Area**



## REPORTING PROGRESS AT PROTECTED AREA SITES: DATA SHEET

<b>Name of protected area</b>	Strandfontein Birding Area		
<b>Location of protected area (country and if possible, map reference)</b>	Cape Town, South Africa		
<b>Date of establishment (distinguish between agreed and gazetted)</b>	<i>Agreed</i>	<i>Gazetted</i>	N/A
<b>Ownership details (i.e. owner, tenure rights etc.)</b>	City of Cape Town		
<b>Management Authority</b>	City of Cape Town		
<b>Protected area size (ha)</b>			
<b>Staff numbers</b>	<i>Permanent</i>	<i>Temporary</i>	
<b>Budget</b>	No allocated budget. Managed from district budget		
<b>Designation (ICUN category), World Heritage, RAMSAR etc</b>	Not declared		
<b>Reason for designation</b>	Important wetland bird habitat		
<b>Brief detail of World Bank funded project or projects in PA</b>			
<b>Brief detail of WWF funded project or projects in PA</b>			
<b>Brief detail of other relevant projects in PA</b>			
<b>List two of the primary protected area objectives</b>			
<b>Objective 1</b>	Manage area to maintain bird habitat		
<b>Objective 2</b>	Ensure public access in a safe and responsible manner		
<b>List the top two most important threat to the PA (and indicate reasons why they are selected)</b>			
<b>Threat 1</b>	Lack of legal status		
<b>Threat 2</b>	Uncontrolled access and illegal activities		
<b>List top two critical management activities</b>			
<b>Activity 1</b>	Control of invasive species		

<b>Activity 2</b>	Maientenace of wetland habitat
<b>Date assessment carried out:</b>	<b>1st June 2007</b>
<b>Name of assessor:</b>	<b>Morne Carstens</b>

1: Context : Where are we now?	Criteria	Value	Score	Comments	Next steps
<b>1.1 Legal status</b>  <b>Does the PA have secure permanent conservation legal status?</b>	The PA's permanent legal conservation status is not secured by its current legal status eg Public Open Space.	0	0	It is almost impossible to proclaim the area at this moment in time as the area is a Sewage Works.	Continual application for RAMSAR status are to be made.
	There is a formal agreement that the PA should be afforded the highest possible legal protection, but the process has not yet begun.	1			
	The PA is in the process of being afforded the highest possible legal protection.	2			
	The PA has Local Authority Nature Reserve status, or a higher level of legal protection.	3			
<b>1.2. Protected Area regulations</b>	There are no legal mechanisms for controlling inappropriate land use and activities in the PA	0		Municipal by-laws and Industrial zone laws are appropriate but not currently implemented.	Compilation of area specific regulations. Improve capacity enforce existing regulations. Better implementation of laws.
	Legal mechanisms for controlling inappropriate land use activities in the PA exist but are not being implemented.	1	1		
	Legal mechanisms for controlling inappropriate land use and activities in the PA exist but there are some problems in effectively implementing them	2			
	Legal mechanisms for controlling inappropriate land use and activities in the PA exist and are being effectively implemented	3			

<b>1.3. Law enforcement</b>  PA has capacity/resources to enforce regulations & bylaws well enough?	PA has no effective capacity/resources to enforce regulations & bylaws	0			Attempts must be made to source more on the ground staff to solve this problem.
	There are major deficiencies in capacity/resources to enforce regulations & bylaws (e.g. lack of skills, no patrol budget)	1	1		
	PA has acceptable capacity/resources to enforce regulations & bylaws but some deficiencies remain	2			
	PA has excellent capacity/resources to enforce regulations & bylaws	3			
<b>1.4. Protected Area boundary demarcation</b>  Is the boundary known and demarcated?	The boundary of the PA is not known by the management authority or local residents/neighbouring land users	0		Formal demarcation of boundaries is needed	
	The boundary of the PA is known by the management authority but is not known by local residents/neighbouring land users	1	1		
	The boundary of the PA is known by both the management authority and local residents but is not appropriately demarcated	2			
	The boundary of the PA is known by the management authority and local residents and is appropriately demarcated	3			
<b>1.5. Resource inventory</b>	There is little or no information available on critical habitats, species and cultural values of the PA	0		Very little information of this kind currently exist.	Organised data collection exercises will have to be

Do you have enough information to manage the area?	Information on critical habitats, species and cultural values of the PA is not sufficient to support planning and decision making	1	1	More data collection is still needed.	implemented.
	Information on critical habitats, species and cultural values of the PA is sufficient for key areas of planning/decision making but the necessary survey work is not being maintained	2			
	Information concerning critical habitats, species and cultural values of the PA is sufficient to support planning and decision making and is being maintained	3			
<b>Subtotal: Context</b>		<b>15</b>	<b>4</b>		

<b>2: Planning: Where do we want to be?</b>	<b>Criteria</b>	<b>Value</b>	<b>Score</b>	<b>Comments</b>	<b>Next steps</b>
2.1. Protected area design  Does the protected area need enlarging, corridors etc to meet its objectives?	Inadequacies in design mean achieving the PA's major management objectives is impossible	0			Consider the extension of boundaries as part of the greater False Bay Ecology Park initiative.
	Inadequacies in design mean that achievement of major objectives are constrained to some extent	1	1		
	Design is not significantly constraining achievement of major objectives, but could be improved	2			

	Reserve design features are particularly aiding achievement of major objectives of the PA	3			
<b>2.2 Management plan</b>	There is no standard Management Plan for the PA	0	0	A management framework is currently being compiled	Finalising and implementation of management framework.
Is there a management plan (compliant with Protected Areas Act) and is it being implemented?	A standard Management Plan is being prepared or has been prepared, but is not yet approved.	1			
	An approved Management Plan exists and is being implemented, but has not been updated/reviewed during the past five years.	2			
	An approved Management Plan exists, is being implemented and has been updated/reviewed during the past three years	3			
<b>2.3. Conservation Development Framework (CDF)</b>	There is no CDF for the PA	0	0	No Conservation development framework has been compiled for the area.	CDF to be compiled along with management framework and then implemented.
Is there a visitor use zoning system indicating position and nature of operation & visitor infrastructure?	A CDF is being prepared or has been prepared but is not being implemented	1			
	An approved CDF exists but it is only being partially implemented because of funding constraints or other problems	2			
	An approved CDF exists and is being implemented	3			
Supplementary items	The planning process allows adequate opportunity for key stakeholders to influence the management plan	1	0		

	There is an established schedule and process for periodic review and updating of the management plan	1	0	
	The results of monitoring, research and evaluation are routinely incorporated into planning	1	0	
<b>Subtotal Score: Planning</b>		<b>12</b>	<b>1</b>	

3: Inputs: What do we need?	Criteria	Value	Score	Comments	Next steps	
<b>3.1. Research</b>  Is there a programme of management-orientated research work?        <b>3.2. Human Resource capacity</b>  Does the PA have sufficient HR capacity to manage the protected area?	Research needs have not been identified nor is any research work taking place in the PA	0		Research is being conducted by the Percy Fitzpatrick institute	Future staff appointments must be made	
	Research needs have been identified, but other than for ad hoc research, no management orientated research is being done.	1	1			
	There is considerable research work but only limited "management" orientated research is being done.	2				
	There is considerable research work being undertaken, which is relevant to management needs	3				
	The PA has no HR capacity	0		Only 2 staff members currently exist for the protected area.		
	HR capacity is inadequate for critical management activities	1	1			
	HR capacity is sufficient, but there are deficiencies in necessary skills for critical management activities	2				
	HR capacity and expertise is adequate for management needs	3				
<b>3.3. Current budget</b>	There is no dedicated budget for the PA	0		A very small budget currently exists, and this amount of money is not	A larger more secure budget needs to be secured for the area.	
	The available budget is inadequate for basic management needs and presents a serious constraint to	1	1			

Is the current budget sufficient?	the capacity to manage			nearly adequate enough to cater for all reserve needs.
	The available budget is acceptable, but could be further improved to fully achieve effective management	2		
	The available budget is sufficient and meets the full management needs of the PA	3		
<b>Supplementary items</b>	The budget is secure/guaranteed for the PA on an annual cycle	1	0	Some budget comes from Cape Bird Cub, whilst a fixed amount has been allocated to the CBC through a MOU for the next 3 years
	The budget is secure/guaranteed on a three year cycle	2	1	
	The PA is not reliant on external funding	2	1	
<b>Subtotal</b>		<b>14</b>	<b>5</b>	

4: Process : How do we go about it?	Criteria	Value	Score	Comments	Next steps
<b>4.1. Annual Plan of Operation (APO)</b>  Is there an annual work plan/APO that is approved by the organisation?	No approved/standardised APO exists	0			Better measurements of activities are needed
	An approved APO exists but activities are not monitored against the plan's targets	1	1		
	An approved APO exists and actions are monitored against the plan's targets, but many activities are not completed	2			
	Actions are monitored against the approved APO's targets and most or all prescribed activities are completed	3			

<b>4.2. Resource management</b>  Is the protected area adequately managed (e.g. for fire, invasive species, poaching)?	Requirements for active management of critical ecosystems, species and cultural values have not been assessed	0		Most of the area is man made, thus very little natural habitat is left. What is left is managed as far possible.	
	Requirements for active management of critical ecosystems, species and cultural values are known but are not being addressed	1	1		
	Requirements for active management of critical ecosystems, species and cultural values are only being partially addressed	2			
	Requirements for active management of critical ecosystems, species and cultural values are substantially or fully addressed.	3			
<b>4.3. Staff training</b>  Is there enough training for staff?	Staff are untrained	0			
	Staff training and skills are low relative to the needs of the PA	1			
	Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management	2	2		
	Staff training and skills are in tune with the management needs of the PA, and with anticipated future needs	3			
<b>4.4. Budget management</b>	Budget management is poor and significantly	0	0	No formal budget, and	

Is the budget managed to meet critical management needs?	undermines effectiveness			budget is not managed by PA.
	Budget management is poor and constrains effectiveness	1		
	Budget management is adequate but could be improved	2		
	Budget management is excellent and aids effectiveness	3		
<b>4.5. Operational equipment &amp; infrastructure</b> (as required for operational management purposes, but excluding tourism/visitor facilities)	There is little or no operational equipment & infrastructure	0		
	There is some equipment & infrastructure but these are wholly inadequate	1		
	There is equipment and infrastructure, but still some major gaps that constrain management	2	2	
	There is adequate operational equipment and infrastructure	3		
<b>4.6 Maintenance of equipment &amp; infrastructure</b> Is equipment & infrastructure (including tourism/visitor facilities) adequately maintained?	There is no approved Maintenance Plan and no maintenance is taking place	0		
	There is no Maintenance Plan and maintenance is taking place to an unsatisfactory standard.	1		
	There is no Maintenance Plan, but maintenance is taking place to a satisfactory standard.	2	2	

	There is an approved Maintenance Plan that is being fully implemented to a high standard.	3			
<b>4.7. Education and awareness programmels</b> Is there a planned education programme?	There is no education and awareness programme	0		No site EE plan exists, but False Bay Ecology Park includes the area in their activitoies.	
	There is a limited and <i>ad hoc</i> education and awareness programme, but no overall planning for this	1	1		
	There is a planned education and awareness programme but there are still serious gaps	2			
	There is a planned & effective education & awareness programme fully linked to the objectives and needs of the PA	3			
<b>4.8. Government &amp; commercial neighbours</b>  Is there co-operation with adjacent land users?	There is no contact between managers and neighbouring official or corporate land users	0			
	There is limited contact between managers and neighbouring official or corporate land users	1	1		
	There is regular contact between managers and neighbouring official or corporate land users, but only limited co-operation	2			
	There is regular contact between managers and neighbouring official or corporate land users, & substantial co-operative management	3			
<b>4.9. Advisory</b>	There is no Advisory Committee/forum	0			

<b>committee/forum</b>  An Advisory Committee of local representatives and specialists advises on PA management & development issues.	An Advisory Committee/forum is in the process of being established communities	1		
	An Advisory Committee/forum exists, but does not contribute significantly to the management/development of the PA.	2		
	A well represented Advisory Committee/forum contributes significantly to the proper management/development of the PA.	3	3	
<b>4.10. Community partners</b>  Do community partners have input to management decisions via the Advisory Committee?	Community partners have no input into decisions relating to the management of the PA	0		Members of birding community are invited to contribute to the input via the CBC as advisory committee.
	Community partners have limited input into the PA's management decisions via local governance structures	1		
	Community partners contribute to some decisions relating to management via the PA's Advisory Committee	2	2	
	Community partners are fully representative on the PA's Advisory Committee and directly participate decisions making.	3		
<b>4.11. Commercial tourism</b>  Do commercial tour operators contribute to protected area	There is little or no contact between managers and tourism operators using the PA	0		Some tour operators will contact managers to hear where and when what could be seen in the area.
	There is contact between managers and tourism operators but this is largely confined to administrative	1		

management?	or regulatory matters				
	There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain conservation values	2	2		
	There is excellent co-operation between managers and tourism operators to enhance visitor experiences, protect values and resolve conflicts	3			
<b>4.12. Monitoring &amp; evaluation</b>	There is no monitoring and evaluation in the PA	0		Results are included in management activities. Limited evaluation are taking place.	
	There is some <i>ad hoc</i> monitoring & evaluation, but no overall strategy and/ or no regular collection of results	1	1		
	There is an agreed and implemented monitoring & evaluation system but results are not systematically used for management	2			
	A good monitoring & evaluation system exists, is well implemented and used in adaptive management	3			
<b>Supplementary items</b>	There is open communication and trust between local stakeholders and PA managers	1		N/A	
<b>Subtotal</b>		<b>37</b>	<b>18</b>		

5: Outputs/Outcomes: What were the results/achievements?	Criteria	Value	Score	Comments	Next steps
<b>5.1. Visitor facilities</b>  Are visitor/tourism facilities good enough and sufficient to prevent damage to the PA?	There are no visitor facilities and services	0			Compile a CDF to zone for various activities and determine the nature and siting of facilities.
	Visitor facilities and services are inappropriate for current levels of visitation or are under construction	1			
	Visitor facilities and services are adequate for current levels of visitation but could be improved	2	2		
	Visitor facilities and services are excellent for current levels of visitation	3			
Additional points	There are active programmes for restoration of degraded areas within the PA and/or in associated buffer zone	1	1	Restoration is taking place on an ad hoc basis	
<b>5.2. Ecological &amp; Cultural condition assessment</b>  Is the protected area being managed consistent to its objectives?	Important biodiversity, ecological and cultural values are being severely degraded in the PA	0			
	Some biodiversity, ecological and cultural values are being severely degraded	1			
	Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted	2	2		

	Biodiversity, ecological and cultural values are predominantly intact	3			
<b>5.3. Access assessment</b>	Protection systems (patrols, permits etc) are ineffective in controlling access or use of the PA in accordance with designated objectives	0		Some levels of unauthorised access are still taking place, but measures are being put in place to try and solve this problem.	
Are the available management mechanisms working to control access or use?	Protection systems are only partially effective in controlling access or use of the PA in accordance with designated objectives	1	1		
	Protection systems are moderately effective in controlling access or use of the PA in accordance with designated objectives	2			
	Protection systems are largely or wholly effective in controlling access or use of the PA in accordance with designated objectives	3			
<b>5.4. Economic benefit assessment</b>	The existence of the PA has reduced the options for economic development of the local communities	0		Mainly woodcutting and tourism	Better promotion of the area is needed amongst the community.
<b>Is the Protected Area providing economic benefits to local communities?</b>	The existence of the PA has neither damaged nor benefited the economy of the local economy	1			
	There is some flow of economic benefits to local communities from the existence of the PA but this is of minor significance to the regional economy	2	2		

	There is a significant or major flow of economic benefits to local communities from activities in and around the PA (e.g. employment of locals, locally operated commercial tours etc)	3			
<b>5.5. Community benefit assessment</b> (other than economic) e.g. recreation & education facilities, community hall, sport facilities etc.	The existence of the PA has not delivered any direct or indirect community benefits	0			
	The existence of the PA has delivered some minor short term community benefits	1	1		
	The PA delivers some quantifiable long term community benefits that make a difference to the lives of local communities	2			
	The PA delivers considerable quantifiable long term community benefits that make a real difference to the lives of local communities	3			
<b>Subtotal Score: Outcomes</b>		<b>16</b>	<b>9</b>		

<b>1: CONTEXT</b>	<b>VALUE</b>	<b>SCORE</b>
1.1. Legal status	3	0
1.2. Protected Area regulations	3	1
1.3. Law enforcement	3	1
1.4. Protected area demarcation	3	1
1.5. Resource Inventory	3	1
<b>Subtotal</b>	<b>15</b>	<b>4</b>
<b>2: PLANNING</b>		
2.1. Protected area design	3	1
2.2. Management plan	3	0
2.3. Conservation Development Framework	3	0
Supplementary items	3	0
<b>Subtotal</b>	<b>12</b>	<b>1</b>
<b>3: INPUTS</b>		
3.1. Research	3	1
3.2. Staff numbers	3	1
3.3. Current budget	3	1
Supplementary items	5	2
<b>Subtotal</b>	<b>14</b>	<b>5</b>
<b>4: PROCESS</b>		
4.1. Annual Plan of Operation	3	1
4.2. Resource management	3	1
4.3. Staff training	3	2
4.4. Budget management	3	0
4.5. Operational equipment & infrastructure	3	2
4.6. Maintenance of equipment & infrastructure	3	2
4.7. Education & awareness	3	1

4.8. Government & commercial neighbours	3	1	
4.9. Advisory committee	3	3	
4.10. Community partners	3	2	
4.11. Commercial Tourism	3	2	
4.12. Monitoring & Evaluation	3	1	
Supplementary items	1	0	
<b>Subtotal</b>	<b>37</b>	<b>18</b>	
<b>5: OUTPUTS/OUTCOMES</b>			
5.1. Visitor facilities	3	2	
5.2. Condition assessment	3	2	
5.3. Access assessment	3	1	
5.4. Economic benefit assessment	3	2	
5.5. Community benefit assessment	3	1	
Supplementary items	1	1	
<b>Subtotal</b>	<b>16</b>	<b>9</b>	
<b>TOTAL SCORE</b>	<b>94</b>	<b>37</b>	<b>39%</b>

**Summary and comment on score.**

Urgent attention should be given to allocating an appropriate level of legal protection with appropriate regulations to this area which has outstanding biodiversity and recreational values. This should be paralleled with the compilation of a management plan accompanied by a CDF. The planning exercise should examine the area in the context of the False Bay Ecology Park (FBEP) with the possibility of managing the FBEP as a single unit. The capacity to patrol the area to enforce regulations and to ensure visitor safety is also urgently required.

# **REPORTING PROGRESS IN URBAN PROTECTED AREAS**

*A Site-level rapid assessment tool  
based on the World Bank & WWF's  
"Management Effectiveness Tracking  
Tool"*

*Prepared for the*  
**City of CapeTown**  
*by*  
*Howard Langley & Paul Britton*  
*22 May 2007*

**Zeekoevlei  
Nature Reserve**



## REPORTING PROGRESS AT PROTECTED AREA SITES: DATA SHEET

Name of protected area	Zeekoevlei Nature Reserve		
Location of protected area (country and if possible, map reference)	Zeekoevlei, Cape Town, South Africa		
Date of establishment (distinguish between agreed and gazetted)	<i>Agreed</i>	<i>Gazetted</i>	Jun-00
Ownership details (i.e. owner, tenure rights etc.)	City of Cape Town		
Management Authority	Biodiversity Management Branch		
Protected area size (ha)	350Ha		
Staff numbers	<i>Permanent</i>	5	<i>Temporary</i> 6
Budget	Only for permanent staff salaries		
Designation (ICUN category), World Heritage, RAMSAR etc	Local authority Nature Reserve		
Reason for designation	Biodiversity and recreation		
Brief detail of World Bank funded project or projects in PA	N/A		
Brief detail of WWF funded project or projects in PA	N/A		
Brief detail of other relevant projects in PA	Zeekoevlei Nature Reserve forms part of the False Bay Ecology Park		
List two of the primary protected area objectives			
Objective 1	Environmental Education		
Objective 2	Recreation		
List the top two most important threat to the PA (and indicate reasons why they are selected)			
Threat 1	Water Pollution:- Visual impact, health risk to humans, affects the health of the system and its ecological functions. Source is outside of managed area.		
Threat 2	Alien Vegetation:- Predominantly Water Hyacinth which left unmanaged will consume the entire vlei and prevent recreational use of the vlei, which currently is our main		

	draw card.
List top two critical management activities	
Activity 1	Rehabilitation
Activity 2	Environmental Education
<b>Date assessment carried out:</b>	<b>25-May-07</b>
<b>Name of assessor:</b>	<b>Asieff Khan</b>

1: Context : Where are we now?	Criteria	Value	Score	Comments	Next steps
<b>1.1 Legal status</b>  <b>Does the PA have secure permanent conservation legal status?</b>	The PA's permanent legal conservation status is not secured by its current legal status eg Public Open Space.	0		PA was proclaimed in June 2000	To achieve an overlying legal status for the FBEP
	There is a formal agreement that the PA should be afforded the highest possible legal protection, but the process has not yet begun.	1			
	The PA is in the process of being afforded the highest possible legal protection.	2			
	The PA has Local Authority Nature Reserve status, or a higher level of legal protection.	3	3		
<b>1.2. Protected Area regulations</b>	There are no legal mechanisms for controlling inappropriate land use and activities in the PA	0		The PA has 176 residents living on its boundary and it is extremely difficult to know exactly what is happening at those locations	To make contact with all those residents and allow for effective communication and a trust based relationship to be the turn key, however this can only be achieved by having a staff member solely dedicated to this function.
	Legal mechanisms for controlling inappropriate land use activities in the PA exist but are not being implemented.	1			
	Legal mechanisms for controlling inappropriate land use and activities in the PA exist but there are some problems in effectively implementing them	2	2		
	Legal mechanisms for controlling inappropriate land use and activities in the PA exist and are being effectively implemented	3			

<b>1.3. Law enforcement</b>  PA has capacity/resources to enforce regulations & bylaws well enough?	PA has no effective capacity/resources to enforce regulations & bylaws	0		The PA has no dedicated law enforcement staff thus, this function is done on an adhoc basis. Training of current reserve staff as peace officers is also a problem as it is taking to long. Hence we are incabale of having effective measures of control with the few law enforcement incidence we are incountaring.	Employment of permanent law enforcement staff in the PA as well as fast tracting peace officers courses for existing staff as a short term solution.
	There are major deficiencies in capacity/resources to enforce regulations & bylaws (e.g. lack of skills, no patrol budget)	1	1		
	PA has acceptable capacity/resources to enforce regulations & bylaws but some deficiencies remain	2			
	PA has excellent capacity/resources to enforce regulations & bylaws	3			
<b>1.4. Protected Area boundary demarcation</b>  Is the boundary known and demarcated?	The boundary of the PA is not known by the management authority or local residents/neighbouring land users	0	0	Management knows that the boundries on paper but are unable to locate them in the field.	Boundries need to be ground truthed and marked.
	The boundary of the PA is known by the management authority but is not known by local residents/neighbouring land users	1			
	The boundary of the PA is known by both the management authority and local residents but is not appropriately demarcated	2			
	The boundary of the PA is known by the management authority and local residents and is appropriately demarcated	3			

<b>1.5. Resource inventory</b>  Do you have enough information to manage the area?	There is little or no information available on critical habitats, species and cultural values of the PA	0		Only local knowledge exists. No management plan is available.	Compile a management plan
	Information on critical habitats, species and cultural values of the PA is not sufficient to support planning and decision making	1	1		
	Information on critical habitats, species and cultural values of the PA is sufficient for key areas of planning/decision making but the necessary survey work is not being maintained	2			
	Information concerning critical habitats, species and cultural values of the PA is sufficient to support planning and decision making and is being maintained	3			
<b>Subtotal: Context</b>		<b>15</b>	<b>7</b>		

<b>2: Planning: Where do we want to be?</b>	<b>Criteria</b>	<b>Value</b>	<b>Score</b>	<b>Comments</b>	<b>Next steps</b>
Does the protected area need enlarging, corridors etc to meet its objectives?	Inadequacies in design mean achieving the PA's major management objectives is impossible	0		Boundaries of the reserve surrounded by urban edge to the north with no possibility of enlarging. The area to the South is a possible link with Wolfgat Nature reserve. Water	Corridors linking to other sites must be formalised and managed eg. Pelican Park flats to the south east of the PA is of high biodiversity importance and needs to be conserved.
	Inadequacies in design mean that achievement of major objectives are constrained to some extent	1			
	Design is not significantly constraining achievement of	2	2		

	major objectives, but could be improved			quality is heavily influenced by poor quality urban development in the catchment.	Strive for better coordination with other city departments to improve catchment management.
	Reserve design features are particularly aiding achievement of major objectives of the PA	3			
<b>2.2 Management plan</b>	There is no standard Management Plan for the PA	0	0		Need to compile management plan. This should be done with Zeekoevlei as a component of the larger False Bay Ecology Park FBEP).
Is there a management plan (compliant with Protected Areas Act) and is it being implemented?	A standard Management Plan is being prepared or has been prepared, but is not yet approved.	1			
	An approved Management Plan exists and is being implemented, but has not been updated/reviewed during the past five years.	2			
	An approved Management Plan exists, is being implemented and has been updated/reviewed during the past three years	3			
<b>2.3. Conservation Development Framework (CDF)</b>	There is no CDF for the PA	0	0	A zoning schematic exists but not in a standardized management plan	Need to draft management plan and include visitor zoning schematic as part of the broader vision for FBEP.
Is there a visitor use zoning system indicating position and nature of operation & visitor infrastructure?	A CDF is being prepared or has been prepared but is not being implemented	1			
	An approved CDF exists but it is only being partially implemented because of funding constraints or other problems	2			
	An approved CDF exists and is being implemented	3			

<b>Supplementary items</b>	The planning process allows adequate opportunity for key stakeholders to influence the management plan	1	0	All management activities are undertaken on an Ad hoc basis, hence creating ineffective management plan. No long term goals has been set for the PA as there is no set management plan.	Need to compile a management plan
	There is an established schedule and process for periodic review and updating of the management plan	1	0		
	The results of monitoring, research and evaluation are routinely incorporated into planning	1	0		
<b>Subtotal Score: Planning</b>		<b>12</b>	<b>2</b>		

<b>3: Inputs: What do we need?</b>	<b>Criteria</b>	<b>Value</b>	<b>Score</b>	<b>Comments</b>	<b>Next steps</b>
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<b>3.1. Research</b>  Is there a programme of management-orientated research work?	Research needs have not been identified nor is any research work taking place in the PA	0		At present only 3rd year tech student research papers are done.	More goal orientated research needs to be undertaken.
	Research needs have been identified, but other than for ad hoc research, no management orientated research is being done.	1	1		
	There is considerable research work but only limited "management" orientated research is being done.	2			
	There is considerable research work being undertaken, which is relevant to management needs	3			
<b>3.2. Human Resource capacity</b>  Does the PA have sufficient HR capacity to manage the protected area?	The PA has no HR capacity	0		Lack of critical staff affects the management of the PA	Long term the ideal would be to acquire EE officer, permanent law enforcement officers dedicated to the PA and more worker staff
	HR capacity is inadequate for critical management activities	1	1		
	HR capacity is sufficient, but there are deficiencies in necessary skills for critical management activities	2			
	HR capacity and expertise is adequate for management needs	3			
<b>3.3. Current budget</b>  Is the current budget sufficient?	There is no dedicated budget for the PA	0		At present the PA budget is acquired from taking a percentage of two other PA's budget	PA requires its own budget allocation to complete critical projects.
	The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage	1	1		

	The available budget is acceptable, but could be further improved to fully achieve effective management	2		
	The available budget is sufficient and meets the full management needs of the PA	3		
<b>Supplementary items</b>	The budget is secure/guaranteed for the PA on an annual cycle	1		
	The budget is secure/guaranteed on a three year cycle	2		
	The PA is not reliant on external funding	2	2	
<b>Subtotal</b>		<b>14</b>	<b>5</b>	

4: Process : How do we go about it?	Criteria	Value	Score	Comments	Next steps
<b>4.1. Annual Plan of Operation (APO)</b>  Is there an annual work plan/APO that is approved by the organisation?	No approved/standardised APO exists	0		There are major constraints due to limited resources. The process of completing projects is further hindered by an ineffective procurement system	Secure resources for the PA.
	An approved APO exists but activities are not monitored against the plan's targets	1			
	An approved APO exists and actions are monitored against the plan's targets, but many activities are not completed	2	2		
	Actions are monitored against the approved APO's targets and most or all prescribed activities are completed	3			
<b>4.2. Resource management</b>	Requirements for active management of critical ecosystems, species and cultural values have not been	0		Hindered by limited resources and	Secure resources for the PA and have extended

Is the protected area adequately managed (e.g. for fire, invasive species, poaching)?	assessed			procurement policies eg during the Zeekoevlei drawdown a work force team of 22 are employed to remove mixed waste and water hyacinth. However the contract for this team can only run until the end of June which is the councils financial year end. This inhibits us from continuing our clearing and getting a hand on the Hyacinth problem. The draw up takes place end of July which effectively means we lose one month of clearing out of the three months of the drawdown.	contract periods for critical activities.
	Requirements for active management of critical ecosystems, species and cultural values are known but are not being addressed	1	1		
	Requirements for active management of critical ecosystems, species and cultural values are only being partially addressed	2			
	Requirements for active management of critical ecosystems, species and cultural values are substantially or fully addressed.	3			
<b>4.3. Staff training</b>	Staff are untrained	0		Training initiatives have been started however the turn around time for staff training is	Faster turn around time to adequately meet the need of staff.
Is there enough training for	Staff training and skills are low relative to the needs of the PA	1	1		

staff?	Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management	2		inadequate.	
	Staff training and skills are in tune with the management needs of the PA, and with anticipated future needs	3			
<b>4.4. Budget management</b>  Is the budget managed to meet critical management needs?	Budget management is poor and significantly undermines effectiveness	0	0	No control over budget as it is being borrowed from other PA's. This is not an ideal situation as it affects all three PA's and their effective management. No PA should be operated under these conditions.	PA needs its own budget
	Budget management is poor and constrains effectiveness	1			
	Budget management is adequate but could be improved	2			
	Budget management is excellent and aids effectiveness	3			
<b>4.5. Operational equipment &amp; infrastructure</b>  (as required for operational management purposes, but excluding tourism/visitor facilities)	There is little or no operational equipment & infrastructure	0		Plans have been drawn up for the construction of offices, works yard, staff quarters and accommodation ( FBEP Head Quarters).	Need to secure funding for this project
	There is some equipment & infrastructure but these are wholly inadequate	1	1		
	There is equipment and infrastructure, but still some major gaps that constrain management	2			
	There is adequate operational equipment and infrastructure	3			
<b>4.6 Maintenance of equipment &amp; infrastructure</b>	There is no approved Maintenance Plan and no maintenance is taking place	0		Security must be upgraded first before any	Need to secure budget to do this.

Is equipment & infrastructure (including tourism/visitor facilities) adequately maintained?	There is no Maintenance Plan and maintenance is taking place to an unsatisfactory standard.	1	1	facilities can be upgraded and maintained.	
	There is no Maintenance Plan, but maintenance is taking place to a satisfactory standard.	2			
	There is an approved Maintenance Plan that is being fully implemented to a high standard.	3			
<b>4.7. Education and awareness programmels</b> there a planned education programme?	There is no education and awareness programme	0		Education programmes exists but are run by an external organization. No day programmes exists.	Employment of a EE officer to co-ordinate and assist with the management of educational programmes.
	There is a limited and <i>ad hoc</i> education and awareness programme, but no overall planning for this	1			
	There is a planned education and awareness programme but there are still serious gaps	2	2		
	There is a planned & effective education & awareness programme fully linked to the objectives and needs of the PA	3			
<b>4.8. Government &amp; commercial neighbours</b>  Is there co-operation with adjacent land users?	There is no contact between managers and neighbouring official or corporate land users	0		There are ten line functions which co-exists for the functioning of the FBEP	Improve communication between line functions for tangible deliverables.
	There is limited contact between managers and neighbouring official or corporate land users	1			
	There is regular contact between managers and neighbouring official or corporate land users, but only limited co-operation	2	2		

	There is regular contact between managers and neighbouring official or corporate land users, & substantial co-operative management	3			
<b>4.9. Advisory committee/forum</b>  An Advisory Committee of local representatives and specialists advises on PA management & development issues.	There is no Advisory Committee/forum	0	0	PA forms part of the FBEP and they act as an advisory board	Adopt the FBEP steering committee as the official advisory board.
	An Advisory Committee/forum is in the process of being established communities	1			
	An Advisory Committee/forum exists, but does not contribute significantly to the management/development of the PA.	2			
	A well represented Advisory Committee/forum contributes significantly to the proper management/development of the PA.	3			
<b>4.10. Community partners</b>  Do community partners have input to management decisions via the Advisory Committee?	Community partners have no input into decisions relating to the management of the PA	0		The PA has a number of community partners eg Bottom Rd residence and the friends of the vlei however they have limited input on decision making.	Adopt the FBEP steering committee as the official advisory board and use that as a conduit for community partners to be representative in the decision making process
	Community partners have limited input into the PA's management decisions via local governance structures	1	1		
	Community partners contribute to some decisions relating to management via the PA's Advisory Committee	2			
	Community partners are fully representative on the PA's Advisory Committee and directly participate decisions making.	3			

<b>4.11. Commercial tourism</b>  Do commercial tour operators contribute to protected area management?	There is little or no contact between managers and tourism operators using the PA	0	0	Security is still a major issue in the area hence no progress has been made with regards to tourism	
	There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters	1			
	There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain conservation values	2			
	There is excellent co-operation between managers and tourism operators to enhance visitor experiences, protect values and resolve conflicts	3			
<b>4.12. Monitoring &amp; evaluation</b>	There is no monitoring and evaluation in the PA	0		Limited resources available, as most of our current objectives are aimed at law enforcement initiatives.	Appoint more law enforcement staff so that relevant staff could partake in structured monitoring and evaluation programmes.
	There is some <i>ad hoc</i> monitoring & evaluation, but no overall strategy and/ or no regular collection of results	1	1		
	There is an agreed and implemented monitoring & evaluation system but results are not systematically used for management	2			
	A good monitoring & evaluation system exists, is well implemented and used in adaptive management	3			
<b>Supplementary items</b>	There is open communication and trust between local stakeholders and PA managers	1			

		37	12	

5: Outputs/Outcomes: What were the results/achievements?	Criteria	Value	Score	Comments	Next steps
5.1. Visitor facilities	There are no visitor facilities and services	0	0	<i>All visitor facilities have</i>	There is a desperate need

Are visitor/tourism facilities good enough and sufficient to prevent damage to the PA?	Visitor facilities and services are inappropriate for current levels of visitation or are under construction	1		<i>been closed down due to vandalism as well as they have become a danger to the public</i>	for the upgrading of security so that the upgrading of facilities can take place.
	Visitor facilities and services are adequate for current levels of visitation but could be improved	2			
	Visitor facilities and services are excellent for current levels of visitation	3			
Supplementary items	There are active programmes for restoration of degraded areas within the PA and/or in associated buffer zone	1	1	Bottom Rd project	Expand to other areas and introduce the concept to other protected areas
<b>5.2. Ecological &amp; Cultural condition assessment</b>	Important biodiversity, ecological and cultural values are being severely degraded in the PA	0	0	Boundaries are not clearly defined and there is no protection of the PA by physical barriers eg fence.	Security and access control are of high priority.
Is the protected area being managed consistent to its objectives?	Some biodiversity, ecological and cultural values are being severely degraded	1			
	Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted	2			
	Biodiversity, ecological and cultural values are predominantly intact	3			
<b>5.3. Access assessment</b>	Protection systems (patrols, permits etc) are ineffective in controlling access or use of the PA in accordance with designated objectives	0	0	Boundaries are not clearly defined and there is no protection of the PA by	Security and access control are of high priority.
Are the available management					

mechanisms working to control access or use?	Protection systems are only partially effective in controlling access or use of the PA in accordance with designated objectives	1		physical barriers eg fence. Hence no effective control over use.	
	Protection systems are moderately effective in controlling access or use of the PA in accordance with designated objectives	2			
	Protection systems are largely or wholly effective in controlling access or use of the PA in accordance with designated objectives	3			
<b>5.4. Economic benefit assessment</b>	The existence of the PA has reduced the options for economic development of the local communities	0		Local community employment during the Zeekoevlei drawdown on a contractual basis	Looking to provide employment to 10 members of the local community for a three year contract which involves skills development training 2 days out of every month.
<b>Is the Protected Area providing economic benefits to local communities?</b>	The existence of the PA has neither damaged nor benefited the economy of the local economy	1			
	There is some flow of economic benefits to local communities from the existence of the PA but this is of minor significance to the regional economy	2	2		
	There is a significant or major flow of economic benefits to local communities from activities in and around the PA (e.g. employment of locals, locally operated commercial tours etc)	3			
<b>5.5. Community benefit assessment</b> (other than	The existence of the PA has not delivered any direct or indirect community benefits	0		The PA has two environmental educational	All facilities needs an upgrade as well as certain

economic) e.g. recreation & education facilities, community hall, sport facilities etc.	The existence of the PA has delivered some minor short term community benefits	1		facilities, a community civic hall a and a large recreational space with 24 official user groups.	facilities require completion for which funding is required. The PA also requires adequate offices from which all facilities and activities can be managed.
	The PA delivers some quantifiable long term community benefits that make a difference to the lives of local communities	2	2		
	The PA delivers considerable quantifiable long term community benefits that make a real difference to the lives of local communities	3			
<b>Subtotal Score: Outcomes</b>		<b>16</b>	<b>5</b>		

<b>1: CONTEXT</b>	<b>VALUE</b>	<b>SCORE</b>
1.1. Legal status	3	3
1.2. Protected Area regulations	3	2
1.3. Law enforcement	3	1
1.4. Protected area demarcation	3	0
1.5. Resource Inventory	3	1
<b>Subtotal</b>	<b>15</b>	<b>7</b>
<b>2: PLANNING</b>		
2.1. Protected area design	3	2
2.2. Management plan	3	0
2.3. Conservation Development Framework	3	0
Additional Points	3	0
<b>Subtotal</b>	<b>12</b>	<b>2</b>
<b>3: INPUTS</b>		
3.1. Research	3	1
3.2. Staff numbers	3	1
3.3. Current budget	3	1
Additional Points	5	2
<b>Subtotal</b>	<b>14</b>	<b>5</b>
<b>4: PROCESS</b>		
4.1. Annual Plan of Operation	3	2
4.2. Resource management	3	1
4.3. Staff training	3	1
4.4. Budget management	3	0
4.5. Operational equipment & infrastructure	3	1
4.6. Maintenance of equipment & infrastructure	3	1
4.7. Education & awareness	3	2

4.8. Government & commercial neighbours	3	2	
4.9. Advisory committee	3	0	
4.10. Community partners	3	1	
4.11. Commercial Tourism	3	0	
4.12. Monitoring & Evaluation	3	1	
Additional Points	1	0	
<b>Subtotal</b>	<b>37</b>	<b>12</b>	
<b>5: OUTPUTS/OUTCOMES</b>			
5.1. Visitor facilities	3	0	
5.2. Condition assessment	3	0	
5.3. Access assessment	3	0	
5.4. Economic benefit assessment	3	2	
5.5. Community benefit assessment	3	2	
Additional Points	1	1	
<b>Subtotal</b>	<b>16</b>	<b>5</b>	
<b>TOTAL SCORE</b>	<b>94</b>	<b>31</b>	<b>33%</b>

**Summary and comment on score.**

Although a Nature Reserve, Zeekoevlei has little remaining natural biodiversity and is managed primarily for recreation. The water quality is heavily impacted on by the impacts of urban development (largely slums) in the catchment. Extensive work and cooperation with other city departments will be required to manage the problems. There are however opportunities for extensive rehabilitation within the conserved area. An excellent example of restoration is the Bottom road project. Zeekoevlei forms part of the broader vision of the False bay Ecology Park and the management plan and CDF should be compiled within this broader context. Joint management should also be considered.

**Appendix D4: Zeekoevlei eastern shore development plan**



### ANNUAL PLAN OF OPERATION FOR Rondevlei Nature Reserve

CITY OF CAPE TOWN NATURE CONSERVATION

Reporting to: Area Manager South

1 BIODIVERSITY MANAGEMENT													
FREQUENCY	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE	
<b>FLORA MANAGEMENT</b>													
<b>Invasive Species Management</b>													
Mapping													
Initial Clearing - Block 6										Alien clearing team			
Follow up clearing 1 (6 months) - Block (all blocks)										Alien clearing team			
Follow-up clearing 2 (12 months) - Block 1								Staff					
Annual inspection	Once annual									Alien clearing team			
<b>Biological control:</b>													
Release													
Monitor													
<b>Indigenous Species Management</b>													
Monitoring and record keeping									Create monitoring plan: Adele Pretorius				
<b>Rehabilitation:</b>													

Plant propagation:									Neil Major, Geert Sprangers, Brett Thompson					
Seed collection									Staff					
Site preparation												Staff - block 2		
Planting:														
Summer watering														
Monitoring														

**FAUNA MANAGEMENT**

**Invasive Species Management**

Monitor	Weekly	Staff: birds counts												
Eradication of feral dogs	As needed	Staff												
Eradication of feral cats	As needed	Staff												
Eradication of Mallard ducks & guineafowl	As needed	Staff												

**Indigenous Species Management**

Live animal collection - Sebastian	Daily													
Compile/monitor fauna inventory	Weekly													
<b>Translocation</b>														
Hippo capture									Staff					

**Reintroduction:**

Investigate the reintroduction of fauna														
Reintroduction of indigenous species									Duiker & ostrich					

**Monitoring and Record Keeping**

Draw up Bird Count protocol

Bird counts	Weekly, Monthly								Write protocol & add maps					
CWAC counts	Weekly								Write protocol & add maps					
Bird ringing	Monthly	Dieter Oschadleus												
Water bird ringing				Doug Harebottle										
Night drives														
Road mortality diary	Ongoing													

**SOIL MANAGEMENT**

Monitoring - Western fenceline	Weekly													
Erosion management & rehabilitation	As needed													
Soil pH recording														

**WATER MANAGEMENT**

Water pollution action plan - see operational manual														
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Monitoring													
Water quality		Monthly	Scientific services & staff										
Water level		Monthly	Staff										
Rainfall data		Daily	Staff										
Management													
Water level manipulation - clean out weir apron										Cobus van Zyl - pipes depending			
Canal/ litter trap management		Monitored weekly								Wally Walters - labour			
FIRE MANAGEMENT													
Map previous fire history													
Fire Breaks													
Block 4,7,9, 2			Blocks 4,7,9						Block 2				
Controlled Fires													
Burning Permits													
<b>Fire Brush Piles:</b>													
Blocks 6,8 & 9												Block 6,8 & 9	
<b>Block burns:</b>													
Blocks 1& 2												Block 1 & 2	
Uncontrolled Fires													

Fire Action Plan														
Update Fire Map	As needed													

**2 PEOPLE**

**STAFF MANAGEMENT**

**Duty Rosters**

Gate staff		Staff												
Student standby														
Fire standby														
Law enforcement		Kuff's 24 hr standby												

**Health and Safety**

Reserve safety meetings	Bi-monthly													
Branch safety meetings	Bi-monthly													

**Students**

Quarterly Technikon reviews														
Research proposal submitted														
Research presentation														
Open project:														
Research:														
Hand in of student projects & research														

proposal														

**Staff Training**

Student training									Penny Glanville					
EE officer														
ABET - 1 x staff	Weekly	Henry Pheiffer												
Gate staff														
Reserve Manager														

**ENVIRONMENTAL EDUCATION- see attached APO**

**Education Programmes**

Day educational programmes		See Env Ed APO: Bronwen Foster & CETEET & Cape For Kids												
Overnight educational programmes		See Env Ed APO: Bronwen Foster & CETEET												

**Exhibitions and Special events**

Youth Environmental Schools		See Env Ed APO: Bronwen Foster & CETEET & Cape For												
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		<b>Kids</b>												
Educator training														
<b>VISITOR MANAGEMENT</b>														
Vehicle access control	Daily	Gate staff												
Pedestrian access control	Daily	Gate staff												
<b>Law Enforcement</b>														
Fence Patrols (Mon & Fri)	Twice weekly	Staff & Kuff's												
Resource Protection	Daily	Staff & Kuff's												
Permit checking	Ad hoc	Manager												
Response standy-by	Weekly	Stand by roster												
<b>FRIENDS/COMMUNITY GROUPS</b>														
Events & talks	Monthly	Neil Major												
Meets	Monthly	Plant rehab group:												
Training														
<b>VOLUNTEERS</b>														
Events & talks	Ad hoc													
Activities	Ad hoc													
Training														
Accommodation														

<b>COMMUNICATION</b>													
External meetings: Landfill Coastal Park	Quarterly	Manager											
External meetings: Rondevlei housing	Bi monthly	Manager											
Internal meetings: FBEP Steering comm	Quarterly	Manager											
Public liaison													
Tourism liaison (Cafda gateway)	Bi monthly	Manager											
Branch meeting	Quarterly	Manager											
Friends of the Vlei's	Quarterly	Manager											

**3 INFRASTRUCTURE**

**LAND CONSERVATION STATUS**

Reserve conservation status&proclamation	On going	Head Office intern											
Motivate for new land acquisition - Cafda land		Manager											
Motivate for new land acquisition - Rondevlei West wetlands		Manager											
Motivate for new land acquisition - Erf 259		Manager											
Motivate for new land acquisition - Erica field		Manager											
Motivate for new land acquisition - Southern school erf		Manager											

Motivate for new land acquisition - Cafda wetlands			Manager											

**MANAGEMENT PLAN**

Develop a conservation management framework														
Draw up management plan		Ongoing	Louise Satford											
Review management plan			Manager											
Protected Area Review			Manager & Area manager											

**CULTURAL HERITAGE SITE MANAGEMENT**

Identify&map cultural heritage sites(60yrs+)			Manager									Insert on database		
Register cultural heritage site														
Heritage site maintenance														

**INFRASTRUCTURE DEVELOPMENT**

<b>Capital Projects</b>														
Project 1:														
Project 2:														
Project 3:														

**Externally Funded Projects**

Project 1: New weir Martin Thompson?									Manager						
Project 2: Tea room Tourism Joanne									Manager						
Project 3: Picnic umbrella replacement									Manager						
Project 4: Tea room kitchen equipment									Manager						
Project 5: Cafda gate way cabin									Manager						
Project 6: Two bird hides, one tower and a bridge from Cafda									Manager						

**Operationally Funded Projects**

Project 1: Replace student quarters roof and ceiling															
Project 2:															
Project 3: Fuel store metal door															
Project 4: Bird hide repairs - Scotto Hide															
Project 5: Aquarium ceiling glass															
Project 6:															

**REPAIRS AND MAINTENANCE**

Monthly Facility Safety	Monthly	Safety rep													
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Check														
<b>Buildings and Structures</b>														
Museum	As needed													
Garages	As needed													
Rondevlei offices	As needed													
Rondevlei gate house	As needed													
Peninsula Rd house	As needed													
Prince George Drive house	As needed													
South Head Quarter Office	As needed													
Staff quarters	As needed													

<b>Trails, Paths and Roads</b>														
<i>Paths &amp; Trails:</i>														
Maintain all paths (hardened surfaces)	Weekly													
Maintain trails (unmade up surfaces)	Weekly													
<i>Roads:</i>														
Maintenance	Annually													
<b>Fences and Gates:</b>														
Replace														
Repair	Weekly													

Increase height of northern & eastern fence to 2.5m														
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**Signage:**

Maintain visitor signage	Annually													
Maintain road directional signage														

**EQUIPMENT MANAGEMENT**

IT Management - back up computer data														
Vehicle Management Plan														
Small Plant Management Plan														
Tool Inventory Management Plan														
Expendable Material Management Plan														
Fire Extinguisher Servicing														

**ANNUAL PLAN OF OPERATION FOR STRANDFONTEIN BIRDING AREA**  
**CITY OF CAPE TOWN NATURE CONSERVATION 2008/09 Reporting to: Zeekoevlei Reserve Manager**

1 BIODIVERSITY MANAGEMENT												
FREQUENCY	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE
<b>FLORA MANAGEMENT</b>												
<b>Invasive Species Management</b>												
Mapping		management map										
Initial Clearing - Block 4 - 43 Ha												
Follow up clearing 1 (6 months) - Block 3												
Follow-up clearing 2 (12 months)												
Annual inspection Blocks....												
Hyacinth Removal	Smaller P2, P4											
Hyacinth Monitoring												
<b>Biological control:</b>												
Release												
Monitor												

<b>Indigenous Species Management</b>													
Monitoring and record keeping			Add to Biodiversity database										
<b>Rehabilitation:</b>													
Plant propagation			Seedlings from Geert										
Plant propagation						Seedlings from Geert							
Site preparation				S8 Picnic Site									
Planting:													
S8 Site									Kikuyu/spray,burn				
<b>FAUNA MANAGEMENT</b>													
<b>Invasive Species Management</b>													
Monitor													
Eradication of feral dogs													
Eradication of feral cats													
Eradication of Guinea fowl													
Eradication Mallards													
<b>Indigenous Species Management</b>													
Compilation of fauna inventory								Add to Biodiversity database					
<b>Reintroduction:</b>													
Investigate the reintroduction of Hippo				present fencing proposal to FBEP									

Release of two Grysbok (Male & Female)														
<b>Monitoring and Record Keeping</b>														
Bird counts	Twice weekly			Waders and terns S8 and P7, P2										
CWAC counts;once p/month	Monthly	Doug Harebottle												
Bird ringing				Sacred Ibis		Weavers		Swallows, terns						
Night drives	Monthly (middle)													
Road mortality diary	Continous	info to Zeekoevlei NR												
<b>SOIL MANAGEMENT</b>														
Monitoring	Weekly													
Erosion management		Pan Roads												
<b>WATER MANAGEMENT</b>														
Water pollution action plan														
<b>Monitoring</b>														
Water quality	Monthly	Scientific Services												
Water level	Monthly			P2, S8 and S2										
Rainfall data														
Water level manipulation	Weekly			P2, S8,S7										
<b>FIRE MANAGEMENT</b>														
Map fire history														

<b>Fire Breaks</b>													

<b>Controlled Fires</b>													
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<b>Fire Brush Piles:</b>													
Block: old picinc area													

<b>Block burns:</b>													
P2 Reeds around pan													

<b>Uncontrolled Fires</b>													
Fire Action Plan					Response plan								
Update Fire Map	As and when												

<b>2 PEOPLE</b>													
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<b>STAFF MANAGEMENT</b>													
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<b>Duty Rosters</b>													
Gate staff													
Student standby	Monthly												
Fire standby													
Law enforcement													

<b>Health and Safety</b>													
Depot safety meetings	Monthly												

<b>Students</b>													
<b>Student projects:</b>													



Internal Roads - R 300 000	Almost completed												
Bird Info Centre - R 218 676	Completed												

<b>Externally Funded Projects</b>													
Labour staff - ad hoc projects													

<b>Operationally Funded Projects</b>													
New visitor signboards - pan markers													

<b>REPAIRS AND MAINTENANCE</b>													
Monthly Facility Safety Check	Monthly			Set up list									
<b>Buildings and Structures</b>													
Information Centre													

<b>Trails, Paths and Roads</b>													
<i>Paths &amp; Trails:</i>													
Maintain all paths													
<i>Roads:</i>													
Maintain summit road													
<b>Fences and Gates:</b>													
Repair 200m eastern fenceline													
<b>Signage:</b>													
New visitor signs													

EQUIPMENT MANAGEMENT													
IT Management - back up computer data													
Vehicle Management Plan	Dennis Bowden												
Small Plant Management Plan	Dennis Bowden/Birdclub												
Tool Inventory Management Plan	As used												
Expendable Material Management Plan	None												
Fire Extinguisher Servicing	None												

**ANNUAL PLAN OF OPERATION FOR ZEEKOEVLEI NATURE RESERVE**

**CITY OF CAPE TOWN NATURE CONSERVATION - 2008/09 Reporting to: Area manager South**

1 BIODIVERSITY MANAGEMENT													
	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE	
FLORA MANAGEMENT													

Invasive Species Management												
Initial Clearing - Block 9												
Initial Clearing - Block 30,31,32												
Follow up clearing - Blocks 3,4,5,6												
Annual inspection Block 4,9,30.31,32												
Reed clearing				Subject to machine								
Kikuyu grass												
<b>Biological control:</b>												
Release of weevil				Student					Student			
<b>Indigenous Species Management</b>												
Monitoring and record keeping												
<b>Rehabilitation:</b>												
Plant propagation												
Site preparation												
Planting:												
Block bottom rd												
Block heron												
Block vlei rd												
Island Park Block												
14th ave												
Seed collection				collect					dispersal of seed			collect
<b>FAUNA MANAGEMENT</b>												
<b>Invasive Species Management</b>												

Monitor													
Eradication of feral dogs													
Eradication of feral cats													
Eradication of mallards													
Eradication of guinea fowl													
<b>Indigenous Species Management</b>													
Compilation of fauna inventory													
<b>Translocation</b>													
Introduction of bontebok				Certificate received awaiting transport permit									
<b>Monitoring and Record Keeping</b>													
Bird counts													
CWAC counts		15th of every month											
Bird ringing - waterbird ringing				ADU - Doug Harebottle									
Night drives													
Road mortality diary - inc. Peninsula Road													
Fauna mortality diary based at Rondevlei													
<b>SOIL MANAGEMENT</b>													
Monitoring	shoreline erosion during drawdown												
Erosion management - block 31 and 32													
<b>WATER MANAGEMENT</b>													
Water pollution action plan	done in												

		consultation with catchment management											
<b>Monitoring</b>													
Water quality - Scientific Services			Obtained from Scientific Services - attach to monthly report										
Water level -			Installation of water level gauge										
Z/vlei Weir			Installation of mechanical gates										
Water level manipulation		Drawdown	Manipulated through out the year with new mechanical gates										
Litter clean up		Drawdown team											
<b>FIRE MANAGEMENT</b>													
Map fire history			Dalton										
<b>Fire Breaks</b>													
Cut open fire breaks - block 29													
<b>Controlled Fires</b>													
<b>Fire Brush Piles:</b>													
Block 9 -													
Mechanical removal of fire brush piles			Brush removed to soet water										
<b>Uncontrolled Fires</b>													
Fire Action Plan													

Update Fire Map													

**2 PEOPLE**

**STAFF MANAGEMENT**

**Duty Rosters**

Gate staff		Permanent staff and contracted visitor control officers											
Student standby													
Fire standby		Students											
Law enforcement standby		Students											
Uniforms			Edgar at Maitland				Students						
Uniforms	Collect temp clothing												

**Health and Safety**

Depot safety meetings													
Branch safety meetings													

**Students**

<b>Student projects:</b>													
Research proposal submitted		Luqmaan											
Research presentation												Students	
Hand in of projects				Ryan, Luqmaan and Johan									

Staff Training													
Student training													
EE officer													
Reserve staff													
Reserve manager													

**ENVIRONMENTAL EDUCATION**

Insert Marks APO													

**VISITOR MANAGEMENT**

Law Enforcement													
Patrol of Eastern Shore		Mon - Fri											
Patrol boundaries of reserve		Mon, Fri											

**COMMUNICATION**

External meetings - FBEP Steering			Quarterly										
Friend of the Vleis - Rehab group		1st Sat of month											
Internal meetings - Branch Meeting													
Public - Zeekoevlei newsletter		Quarterly					Quarterly						
Friends meeting													

**3 INFRASTRUCTURE**

**INFRASTRUCTURE DEVELOPMENT**

Capital Projects													
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Upgrade of weir bridge				Assisted by workshop team									
Boardwalk Bottom Rd				Apply for funding									
Construction of FBEB HQ					Phase one construction to start Nov 08								
Repair Z/vlei boat			Apply for funding										
<b>Externally Funded Projects</b>													
Mechanical weir gates		Project completed											
Cut of drain		Project completed											
Litter Traps							In consultation with catchment management						
Sludge removal from Zeekoevlei							In consultation with catchment management						
<b>Operationally Funded Projects</b>													
Bush Camp			Project underway										
Tilling at Fbep				To be completed by FBEP skills team									
Construction of Awning at Zeep				To be completed by FBEP skills team									
Installation of Ceiling at FBEP													
<b>REPAIRS AND MAINTENANCE</b>													
Monthly Facility Safety Check		Student and Gary											
<b>Buildings and Structures</b>													
Painting of north facing wall at FBEP													

Cleaning and painting of roof at civic						Roof to be replaced due to Asbestos						
Construction of pathway at Zeep												
Install gutters at Fbep												

**Trails, Paths and Roads**

**Paths & Trails:**

Construction of visitor paths block 3,4,5,6												
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**Roads:**

Close illegal tracts												
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**Fences and Gates:**

Maintain fence line & gates												
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**Signage:**

Public signage on eastern shore	Signage will only be installed if the access and security has been upgrades											
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**EQUIPMENT MANAGEMENT**

Vehicle Management Plan	Natalie & Dennis											
Small Plant Management Plan	Natalie & Dennis											
Tool Inventory Management Plan	Natalie & Dennis											
Expendable Material Management Plan	Natalie & Dennis											
Fire Extinguisher Servicing	Dennis & Ryan											



**Appendix D6: Budget**

<b><u>2011</u></b>	<b><u>FBEP budget 2010 -</u></b>		
		<b>Estimated</b>	<b>Estimated</b>
			<b>Committed</b>
	<b>Total of sub-sections</b>		<b>Net total of main-s</b>
<b>1. Conservation Development Framework</b>			<b>R 613,650.00</b>
Visitor use zonation	R 200,000.00		
Precinct Plan	R 200,000.00		
Master Development Plan	R 200,000.00		
	<b>R 600,000.00</b>		
<b>1.1 Management Plan Review</b>			
5 Year Management Plan review	R 10,800.00		
Public participation plan	R 1,000.00		
	<b>R 11,800.00</b>		
<b>1.2 Operational Plan</b>			
Review site/area Operational Plan	R 1,200.00		
Print and distribute operational plan	R 650.00		
	<b>R 1,850.00</b>		

<b>2. Biodiversity Management</b>		<b>R 2,461,925.00</b>	
<b>2.1 Flora Management</b>			
<b>2.1.1 Invasive species management</b>			
Invasive species management plan updated	R 1,200.00		
Implementation of invasive species management plan	R 2,100,000.00		R 200,000.00
	<b>R2,101,200.00</b>		R 200,000.00
<b>2.1.1.1 Biological control</b>			
Investigate biocontrol	R 5,000.00		
Obtain permits	R 0.00		
Release biocontrol	R 1,200.00		R 1,200.00
Monitor	R 4,000.00		R 1,200.00
	<b>R 10,200.00</b>		
<b>2.1.2 Indigenous Species Management</b>			
Draw up Fine scale vegetation map	R 14,400.00		
Draw up vegetation monitoring programme	R 1,200.00		
Implement monitoring and record keeping	R 4,800.00		
Post Control Fire monitoring	R 4,400.00		

	R <b>24,800.00</b>		
<b>2.1.3 Rehabilitation</b>			
Draw up Rehabilitation Plan	R 5,000.00		
Plant propagation	R 0.00		
Site preparation	R 6,000.00		R 6,000.00
Planting out	R 9,000.00		R 9,000.00
Summer watering	R 2,700.00		R 15,000.00
Monitoring	R 10,800.00		
	R <b>33,500.00</b>		
<b>2.1.4 Sustainable Harvesting of Indigenous Flora</b>			
Investigate feasibility of Plant Utilisation Plan	none		
Draw up Plant Utilisation Plan	none		
Obtain necessary permits	none		
Resource harvesting	none		
Monitoring	none		
<b>2.2 Fauna Management</b>			
<b>2.2.1 Invasive Species Management</b>			
Draw up Invasive Fauna Management Plan	R 40,000.00		

Invasive species management plan updated	R 2,000.00		
Obtain necessary permits	R 1,000.00		R 1,000.00
Eradication of invasive fauna (species: Mallards)	R 1,200.00		R 1,200.00
Eradication of invasive fauna (species: Guinea Fowl)	R 6,000.00		R 1,000.00
Monitoring & record keeping	R 2,000.00		R 2,000.00
	R <b>52,000.00</b>		R 5,200.00
<b>2.2.2 Indigenous Species Management</b>			
Draw up Fauna Management Plan for site	R 3,000.00		
Draw up Captive Animal Collection Management Plan	R 800.00		
Obtain necessary permits	R 5,000.00		
Monitor & record keeping of specific species	R 1,500.00		R 1,500.00
Management of Captive Animal Collection	R 5,000.00		R 1,500.00
Compile fauna inventory of specific species	R 400.00		
	R <b>19,300.00</b>		
<b>2.2.3 Culling</b>			
Investigate culling operation	R 2,000.00		
Obtain necessary permits	R 2,000.00		

Conduct culling operation as per Fauna Management Plan	R 0		
	R 4,000.00		
<b>2.2.4 Translocation</b>			
investigate translocation	R 1,300.00		R 1,300.00
Obtain necessary permits	R 1,500.00		R 1,500.00
Conduct translocation as per Fauna Management Plan	R 8,000.00		R 8,000.00
Document translocation on Biodiversity data base	R 50.00		R 50.00
	R 10,850.00		R 10,850.00
<b>2.2.4.1 Reintroduction</b>			
investigate reintroduction of fauna	R 7,000.00		R 7,000.00
draw up indigenous species reintroduction plan	R 1,000.00		R 1,000.00
Obtain necessary permits	R 2,000.00		R 2,000.00
implement reintroduction of indigenous species	R 10,000.00		R 10,000.00
document reintroduction of indigenous species	R 100.00		R 100.00
document reintroduction of biodiversity database	R 50.00		R 50.00
monitor fauna reintroduction	R 3,000.00		R 3,000.00
	R 23,150.00		R 23,150.00

<b>2.3 Monitoring and Record Keeping</b>			
Draw of Monitor protocols for Fauna Monitoring	R 8,000.00		R 4,000.00
Bird counts	R 4,800.00		R 4,800.00
CWAC counts	R 6,000.00		R 6,000.00
Bird ringing	R 10,000.00		R 10,000.00
Water bird ringing	R 16,000.00		R 342.50
Night drives	R 6,000.00		R 6,000.00
Road mortality diary	R 0.00		R 0.00
Other fauna surveys	R 1,500.00		R 1,500.00
Data quarterly captured on Biodiversity database	R 1,000.00		R 1,000.00
Data sent to external organisation	R 875.00		
	<b>R54,175.00</b>		R33,643.00
<b>2.4 Soil Management</b>			
Inspection & mapping of vulnerable points	R 500.00		
Investigate erosion measures	R 800.00		
Conduct erosion control measures	R 10,000.00		
Soil pH recording	R 1,000.00		
	<b>R 12,300.00</b>		

<b>2.5.1 Water Management</b>			
Draw up water pollution action plan	R 5,000.00		
water level manipulation	R 7,000.00		R 7,000.00
canal/litter trap management	R 12,000.00		R 12,000.00
	R <b>24,000.00</b>		R 19,000.00
<b>2.5.1.1 Water monitoring</b>			
water quality	R 3,000.00		R 3,000.00
water level	R 0.00		R 0.00
rainfall	R 3,500.00		R 3,500.00
	R <b>6,500.00</b>		R 6,500.00
<b>2.6 Fire management</b>			
draw fire management plan	R 200.00		
implement fire management plan	R 8,000.00		
	R <b>8,200.00</b>		
<b>2.6.1 Fire breaks</b>			
layout & map firebreaks	R 500.00		
clear firebreaks	R 10,000.00		R 10,000.00
	R <b>10,500.00</b>		R 10,000.00
<b>2.6.2 Controlled fires</b>			
obtain burning permits	R		R 2,000.00

	2,000.00		
	R 2,000.00		R 2,000.00
<b>2.6.2.1 Brush pile</b>			
conduct brush pile burning	R 2,000.00		
update fire map	R 2,500.00		
submit fire map to Amalia & biodiversity database	R 50.00		
	R 4,450.00		
<b>2.6.2.2 Block burn</b>			
conduct burn	R 50,000.00		R 50,000.00
update fire map	R 200.00		R 50,000.00
submit fire map to Amalia & biodiversity database	R 50.00		
	R 50,250.00		
<b>2.6.3 Uncontrolled fires</b>			
update fire action plan (roster and equip)	R 10,000.00		
update fire map	R 200.00		
submit fire map to Amalia & biodiversity database	R 50.00		
	R 10,250.00		
<b>3. Staff</b>			
<b>3.1 Staff management</b>		R	

		<b>8,557,300.00</b>	
<b>3.1.1 Duty Rosters</b>			
Compile duty roster for FBEP	R 100.00		R 100.00
Compile duty roster for VCO	R 100.00		R 100.00
	<b>R 200.00</b>		R 200.00
<b>3.1.2 Staff Meetings</b>			
Reserve staff meetings	R 2,000.00		R 2,000.00
Area staff meetings	R 5,500.00		R 5,500.00
Regional staff meetings	R 8,000.00		R 8,000.00
Branch meetings	R 20,000.00		R 20,000.00
	<b>R 35,500.00</b>		R 35,500.00
<b>3.1.3 Health and Safety</b>			
Reserve safety meetings	R 500.00		R 500.00
Area safety meetings	R 3,000.00		R 3,000.00
Regional safety meetings	R 4,000.00		R 4,000.00
	<b>R 7,500.00</b>		R 7,500.00
<b>3.1.4 Students</b>			
Student selection	R 2,500.00		R 2,500.00
Quarterly Technikon reviewa - Form "A"'s	R 0.00		R 0.00

Research proposal submitted	R 0.00		R 0.00
Research presentation	R 50.00		R 50.00
Open project	R 500.00		R 500.00
Conduct Research Project	R 4,000.00		R 4,000.00
Hand in of students projects	R 50.00		R 50.00
	R <b>7,100.00</b>		R 7,100.00
<b>3.1.5 Staff</b>			
Staff cost	R 7,206,000.00		R 5,353,800.00
Conduct training needs analysis/skills audit	R 0.00		R 0.00
Conduct mentoring programme	R 0.00		R 0.00
Conduct staff training for FBEP	R 50,000.00		R 39,600.00
	R <b>7,256,000.00</b>		R 5,393,400.00
<b>3.1.6 Exhibitions and Special events</b>			
Conduct event: FBEP	R 16,000.00		
	R <b>16,000.00</b>		
<b>3.2 VISITOR MANAGEMENT</b>			
<b>3.2.1 Visitor Access Control</b>			
Visitor Control Officer roster	R 200.00		R 200.00
Vehicle access control	R 0.00		
Pedestrian acces control	R 0.00		

	R 200.00		
<b>3.2.2 Law Enforcement</b>			
Conduct Patrols	R 50,000.00		R 50,000.00
Conduct Special Operations	R 100,000.00		R 100,000.00
Conduct Special Operation with External Agencies	R 15,000.00		R 15,000.00
	R <b>165,000.00</b>		R 165,000.00
<b>3.3 FRIENDS/ COMMUNITY/STAKEHOLDER GROUPS</b>			
Friends group events & talks	R 10,000.00		R 4,000.00
Friends groups meetings	R 10,000.00		R 4,000.00
Friends group training	R 0.00		R 0.00
Advisory Board meetings (Steering Committee)	R 50,000.00		R 50,000.00
	R <b>70,000.00</b>		R 58,000.00
<b>3.4 VOLUNTEERS</b>			
Events and talks	R 20,000.00		R 20,000.00
Activities	R 5,000.00		R 5,000.00
Training	R 0.00		R 0.00
Volunteer accommodation	R 25,000.00		R 25,000.00
	R <b>50,000.00</b>		<b>R 50,000.00</b>

<b>3.5 TOURISM LIAISON</b>			
Conduct tourism liaison	R 8,000.00		R 8,000.00
Tourism event	R 0.00		R 0.00
	R 8,000.00		R 8,000.00
<b>3.6 COMMUNICATION</b>			
<b>3.6.1 External meetings</b>			
Meeting	R 5,000.00		R 5,000.00
	R 5,000.00		R 5,000.00
<b>3.6.2 Internal meetings( City departmental meeting, etc)</b>			
Participate in Inter- departmental City meetings	R 21,600.00		R 21,600.00
Standing Committee	R 5,400.00		R 5,400.00
	R 27,000.00		R 27,000.00
<b>4. Environmental Education</b>			
<b>4.1 Education Programmes</b>			
Develop env ed resources & programmes	R 10,000.00		R 10,000.00
Conduct Day educational programmes	R 250,000.00		R 250,000.00
Conduct Overnight educational programmes	R 650,000.00		R 650,000.00
	R 910,000.00		R 910,000.00

<b>5.1 INFRASTRUCTURE DEVELOPMENT</b>		<b>R 43,184,147.00</b>	
<b>5.1.1 Capital projects</b>			
HQ Project	R 16,000,000.00		R 12 000 000
Fencing project	R 7,000,000.00		
Eastern shore master plan project	R 15,000,000.00		
moving of Rondevlei weir	R 2,000,000.00		
fish migration strategies	R 2,300,000.00		
Rondevlei NR - Replace old princess Vlei canal bridge	R40,000.00		
Rondevlei NR – new CAFDA entrance (tower, 2 x bird hides, bridge, 400m boardwalk, pathway)	R 1,500,000.00		
Rondevlei NR - 2 new bird hides at the CAFDA entrance	R 200,000.00		
Rondevlei NR – observation tower near CAFDA	R 200,000.00		
Rondevlei NR – CAFDA entrance gate (tourism funded)	R 200,000.00		
Rondevlei NR – upgrade Otter bush camp	R 450,000.00		
Rondevlei NR – Western Wetland, fencing (Cuba Heights)	R 500,000.00		
Rondevlei NR, museum upgrade	R 600,000.00		
Rondevlei NR, staff & standby quarters	R 1,000,000.00		
Rondevlei NR – upgrade security cameras	R 30,000.00		

Rondevlei NR - boardwalk – 1 <sup>st</sup> tower	R 20,000.00		
Rondevlei NR – upgrade entrance	R 14,000.00		
Zeekoevlei NR, False Bay Ecology Park Environmental Education Centre upgrade.	R 400,000.00		
Strandfontein Birding Area, signage – install appropriate tourism signage into the birding area.	R 20,000.00		
Strandfontein Birding Area - Bakkie Sakkie	R 35,000.00		
Strandfontein Birding Area - 2 x 5Hp outboard motors	R 20,000.00		
Strandfontein Birding Area - small portable boat	R 15,000.00		
Strandfontein Birding Area – solar panels	R 30,000.00		R 30,000.00
	<b>R 42,300.00</b>		
<b>5.1.2 Externally funded projects</b>			
tea room projects	R 200,000.00		R 200,000.00
	<b>R 200,000.00</b>		
<b>5.1.3 Operationally funding projects</b>			
Bird info center	R 2,500.00		R 2,500.00
skills development	R 431,647.00		R 431,647.00
draw down	R 250,000.00		R 250,000.00
	<b>R 684,147.00</b>		
<b>5.2 INFRASTRUCTURE REPAIRS AND</b>		<b>R 3,142,880.00</b>	

<b>MAINTENANCE</b>			
<b>5.2.1 Facilities and Safety Checks</b>			
Monthly Visitor Facility Safety Check	R 6,000.00		R 6,000.00
Monthly Work space Health & Safety Check	R 6,000.00		R 6,000.00
	R <b>12,000.00</b>		
<b>5.2.2 Buildings and Structures</b>			
Maintenance of building Bird Info Centre	R 10,000.00		R 2,500.00
Maintenance of building museum	R 10,000.00		R 3,000.00
Maintenance of building EE center	R 10,000.00		R 5,000.00
Maintenance of building Zeep	R 10,000.00		
	R <b>40,000.00</b>		R 10,500.00
<b>5.2.3 Paths, Trails and Roads</b>			
<b>5.2.3.1 Maintain Paths (hardened surfaced)</b>			
foot Paths	R 30,000.00		R 9,637.00
	R <b>30,000.00</b>		R 9,637.00
<b>5.2.3.2 Maintain Roads</b>			
Roads	R 40,000.00		R 10,000.00

	R 40,000.00		R 10,000.00
<b>5.2.3.3 Fences and Gates</b>			
maintain fences	R 1,078,600.00		R 600,000.00
	R 1,078,600.00		R 600,000.00
<b>5.2.3.4 Signage</b>			
Maintain Visitor signage	R 12,000.00		R 2,000.00
Maintain road directional signage	R 5,000.00		R 1,000.00
	R 17,000.00		R 3,000.00
<b>5.3 EQUIPMENT &amp; STORES MANAGEMENT</b>			
<b>5.3.1 IT Management</b>			
Develop a Computer/ Management Plan	R 10,000.00		R 1,000.00
Implement Computer/ Management Plan	R 40,000.00		R 1,000.00
IT Management - backup computer data	R 50,000.00		R 50,000.00
	R 100,000.00		R 52,000.00
<b>5.3.2 Vehicle Management</b>			
Draw Up Vehicle Management Plan	R 3,000.00		R 1,000.00
Implement Vehicle Management Plan	R 4,000.00		R 2,000.00

Vehicle Licences	R 5,000.00		R 5,000.00
Vehicle Services	R 200,000.00		R 200,000.00
	R <b>212,000.00</b>		R 208,000.00
<b>5.3.3 Equipment Management</b>			
<b>5.3.3.1 Small plant management</b>			
develop small plant management plan	R 1,000.00		R 1,000.00
implement small plant management plan	R 2,000.00		R 2,000.00
service of chainsaws	R 7,000.00		R 7,000.00
service of generator	R 7,000.00		R 0.00
	R <b>17,000.00</b>		R 10,000.00
<b>5.3.3.2 Tool Management</b>			
develop tool inventory and management plan	R 500.00		R 500.00
implement tool management plan	R 2,000.00		R 2,000.00
	R <b>2,500.00</b>		R 2,500.00
<b>5.3.3.3 Fire Extinguisher manager plan</b>			
draw up fire extinguisher servicing plan	R 250.00		R 250.00
Implementing fire extinguisher Servicing Plan	R 250.00		R 250.00
	<b>R 500.00</b>		R 500.00

<b>5.3.4 Expendable Materials Management</b>			
Develop Expendable Material Management Plan	R 500.00		R 500.00
Implement stock control of material	R 500.00		R 500.00
Stock Taking	R 500.00		R 500.00
	<b>R1,500.00</b>		R 1,500.00
<b>5.3.5 Uniform Issue</b>			
Uniform Issue - FBEP	R 50,000.00		R 34,000.00
Stock Taking	R 1,000.00		R 1,000.00
	R <b>51,000.00</b>		<b>R 35,000.00</b>
<b>6. CULTURAL HERITAGE SITE MANAGEMENT</b>			
Identify&map cultural heritage sites(65yrs+)	none		
Register cultural heritage site	none		
Heritage site maintenance - Maintain structure XX	none		
Maintain structure YY			
			<b><u>R 20,913,727.00</u></b>