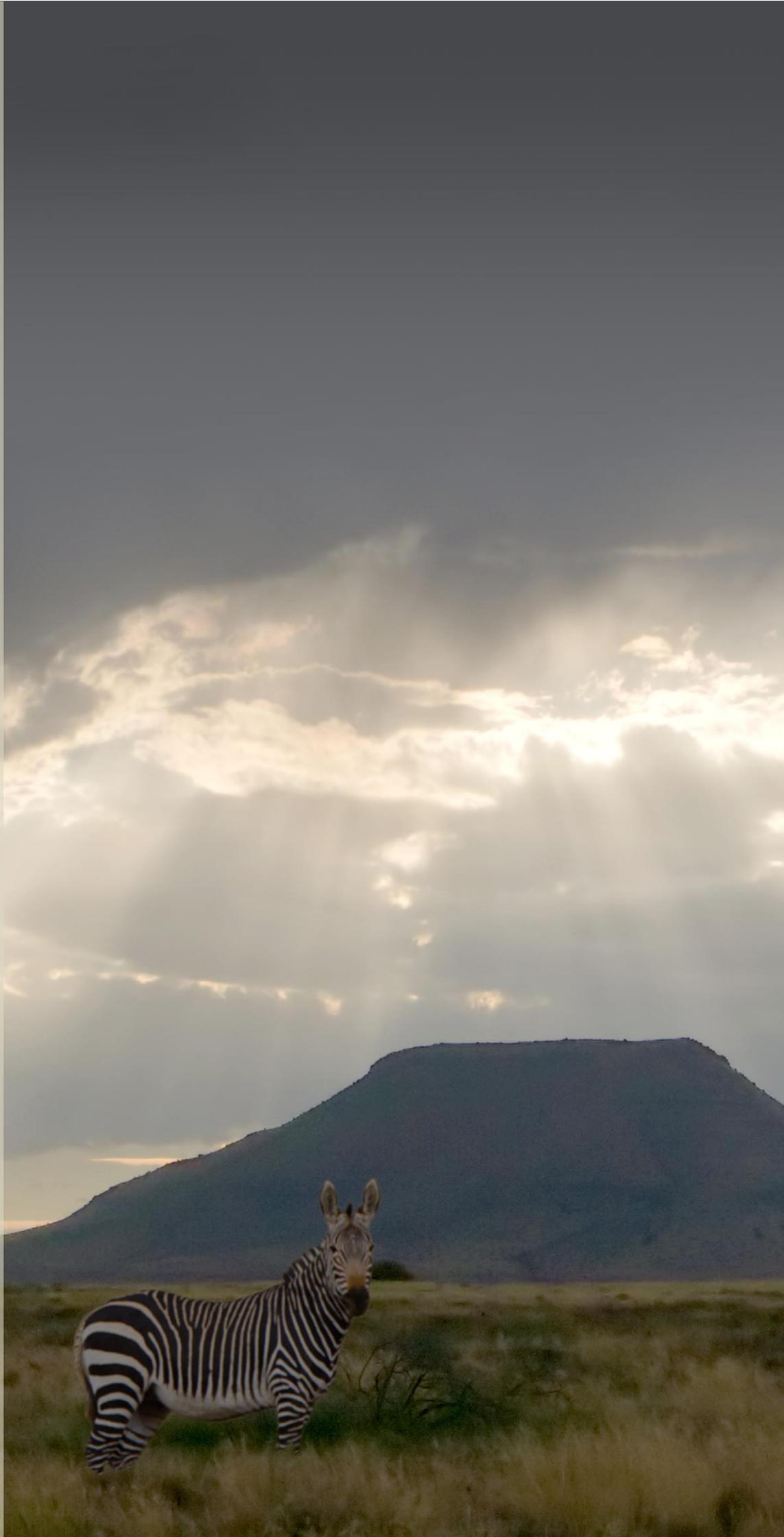




# **Mountain Zebra National Park**

## **Park Management Plan**

**For the period  
2016 - 2026**





## Acknowledgement

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*This plan was prepared by André Spies, with significant input and help from Dr Peter Novellie, Dr Mike Knight, Dr Peter Bradshaw, Dr Sam Ferreira, Dr Izak Smit, Dr Dirk Roux, Dr David Zimmerman, Dr Danny Govender, Dr Hugo Bezuidenhout, Dr Angela Gaylard, Megan Taplin, André Riley, Ernest Daemane, Bruce Taplin, Greg Bond, Karen Waterston, Nicholas Cole, Vuyani Dial, Hendrik Sithole, Mxolisi Fulumente, Temba Simon Mangcaka, Chrispen Chauke, Elizabeth Mhlongo, Dries Engelbrecht and various stakeholders.*

---

## Section 1: Authorisation

This management plan is hereby internally accepted and authorised as required for managing the Mountain Zebra National Park (MZNP) in terms of Sections 39 and 41 of the National Environmental Management: Protected Areas Act No 57 of 2003 (NEM:PAA).



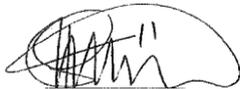
Mrs. M.M. Taplin  
Park Manager: Mountain Zebra National Park

Date: 01 March 2016



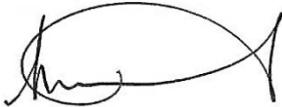
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Date: 24 May 2016

**Approved by the Minister of Environmental Affairs**



Mrs. B.E.E. Molewa, MP  
Minister of Environment Affairs

Date: 27 May 2016



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## Glossary

<b>Aircraft</b>	Means an airborne craft of any type whatsoever, whether self-propelled or not, and includes hovercraft and drones.
<b>Desired state</b>	The park desired state is based on a collectively developed vision and set of objectives of the desired future conditions (that are necessarily varying, across the full V-STEEP range) that stakeholders desire.
<b>Dynamic pricing</b>	Dynamic pricing, also called “real-time” pricing, is a pricing strategy in which businesses set highly flexible prices for products or services based on current market demands. The goal of dynamic pricing is to allow a company that sells goods or services over the Internet to adjust “prices” on the fly “in response to market demands”.
<b>Endemism</b>	Confined to a specific place or area.
<b>Extra-limital</b>	Those species occurring outside their historical distribution.
<b>Feral animal</b>	A feral animal is a domestic animal that has returned to the wild. It is distinguished from a stray cat, which is a pet cat that has been lost or abandoned, while feral cats are born in the wild.
<b>Gross geographic product</b>	Gross geographic product provides a measure of the total and sectoral economic activity happening on an annual basis within the local municipalities of South Africa.
<b>Interpretation</b>	Interpretation is the communication of information about, or the explanation of, the nature, origin, and purpose of historical, natural, or cultural resources, objects, sites and phenomena using personal or non-personal methods.
<b>Metapopulation</b>	A “metapopulation” consists of a group of spatially separated populations of the same species which interact at some level.
<b>MICE</b>	Meetings, Incentives, Conferences and Events. Used to refer to all function types available.
<b>Mission</b>	An articulation of the Vision that describes why the park exists and its overall philosophy on how to achieve its Vision.
<b>Objectives hierarchy</b>	The objectives for a park, with the most important, high level objectives at the top, cascading down to objectives at finer levels of detail, and eventually to operational actions at the lowest level.
<b>Product packaging</b>	A packaged product consists of a variety of different tourism products that are combined in order to generate a sale of more than one product or activity together for financial and/or marketing benefit or may result in a package tour, which combines a variety of products including transport, accommodation and activities at an inclusive price.
<b>Responsible tourism</b>	Tourism that maximises benefits to local communities, minimises negative social or environmental impacts, and helps local people conserve fragile cultures, habitats and species. Or, it is a tourism or leisure activity implementing a practice that is respectful of natural and cultural environment and which contributes, in an ethical manner, to local economic development.



<b>Servitude</b>	A “servitude” shows a registered right that an entity / person has over the immovable property of another. It allows the holder of the servitude to do something with the other person’s property, which may infringe upon the rights of the owner of that property.
<b>Shale gas mining</b>	Shale gas mining is a process that applies the technique of high-volume, horizontal, slick-water fracturing (‘fracking’ or ‘hydraulic fracturing’). It involves pumping water, sand and chemicals into horizontally drilled wells under hydraulic pressure, to fracture the underground shale layers and release gas.
<b>Stakeholder</b>	A person, an organ of state or a community contemplated in section 82(1)(a); or an indigenous community contemplated in section 82(1)(b) of NEM:BA.
<b>Vision</b>	A word ‘picture’ of the future, or what the stakeholders see as the future for the park.
<b>Vital attributes</b>	Unique or special characteristics of the park, the determinants of which management should strive to protect, and the threats towards which management should strive to minimise.
<b>V-STEEP</b>	The values (social, technological, economic, ecological and political), used to understand, with stakeholders, the social, economic and ecological context of the system to be managed, and the principles / values that guide management. These are used to develop a broadly acceptable vision for the future.

## Acronyms and abbreviations

1	AMSL	Above Mean Sea Level
2	AIS	Alien and Invasive Species
3	APO	Annual Plan of Operations
4	BSP	Biodiversity Social Projects
5	CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
6	CBA	Critical Biodiversity Areas
7	CBD	Convention on Biological Diversity
8	CDF	Conservation Development Framework
9	CPF	Coordinated Policy Framework
10	CRAMTOUR	Cradock Middelburg Tourism
11	CRMF	Corporate Risk Management Framework
12	CSD	Conservation Services Division
13	CSIR	Council for Scientific and Industrial Research
15	DEA	Department of Environmental Affairs
16	DEAT	Department of Environment Affairs and Tourism
17	DEDEA	Eastern Cape Department of Economic Development, Environmental Affairs
18	EDRRP	Early detection and rapid repose programme
19	EIA	Environmental impact assessment
20	EMP	Environmental management plan
21	EPWP	Expanded public works programme
22	EVI	Index of Greenness
23	EWT	Endangered Wildlife Trust
24	FEPA	Freshwater Ecosystem Priority Area
25	GEF	Global Environmental Facility
26	GG	Government Gazette
27	GM:ISP	General Manager: Infrastructure and Special Projects
28	GM:VM	General Manager: Visitor Management
29	GN	Government Notice
30	HIL	High Intensity Leisure
31	IDP	Integrated Development Plan
32	IUCN	International Union for Conservation of Nature
33	LFA	Landscape function analysis
34	LIL	Low Intensity Leisure
35	LLP	Lower Level Plan
36	MZNP	Mountain Zebra National Park
37	NEMA	National Environmental Management Act (Act no 107 of 1998)
38	NEM:BA	National Environmental Management: Biodiversity Act (Act no 10 of 2004)
39	NEM:PAA	National Environmental Management: Protected Areas Act (Act no 57 of 2003)
40	NHRA	National Heritage Resources Act (Act no 25 of 1999)
41	NPAES	National protected areas expansion strategy
42	NPTSA	National Parks Trust of South Africa
43	OHS	Occupational Health and Safety
44	PM	Park Management
45	SAHRA	South African Heritage Resources Agency
46	SAM	Strategic Adaptive Management
47	SANBI	South African National Biodiversity Institute
48	SANParks	South African National Parks
49	SAPS	South African Police Service
50	SDF	Spatial Development Framework
51	SHRs	SANParks Honorary Rangers
52	SMF	Science Management Forum
53	SMO	Special Management Overlay
54	SPOT5	Satellite Pour l'Observation de la Terre
55	TPC	Thresholds of potential concern



56	WfW	Working for Water
57	WoL	Working on Land

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- Table 3: Summary of use zone characteristics for the park.
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- Appendix 3: Tourism product development framework
- Appendix 4: Internal rules
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## Executive summary

In compliance with the NEM:PAA, SANParks is required to develop management plans for each of its parks. In developing the management plan for this park, SANParks has attempted to integrate, implement and review the biodiversity conservation, tourism and constituency building components that make up its core business, whilst ensuring continual learning and compliance.

The park is situated in the Eastern Cape, on the northern slopes of the Bankberg mountain range in the Cape Midlands. It was proclaimed in 1937 for the purpose of protecting a remnant population of the Cape mountain zebra *Equus zebra zebra*. As such it has played a principle role in conserving this endangered species, but has now grown beyond a “species park” to focus on conserving the biodiversity of the region. The park is located in a transitional area between four biomes: Grassland, Nama Karoo and Albany Thicket. All of the major vegetation types are currently very poorly conserved elsewhere in South Africa. Being a transition area between biomes allows for an interesting mix of flora and fauna, as well as important ecological and landscape processes. Climate change, development of conflicting land uses, inappropriate management of large herbivores and fire present the biggest threats to the park’s vital attributes.

The desired state of the park is based on a vision, mission, vital attributes and objectives. It is primarily set around the conservation of the unique biodiversity characteristics of the area. A set of appropriate programmes has been set up to achieve the desired state. The strongest emphasis falls on biodiversity and Responsible Tourism management. However, the Responsible Tourism programme, programmes to build co-operation with stakeholders, including environmental education, and to enhance affective park management of which the infrastructural development programs are important, are presented and discussed.

The first management plan for the MZNP was submitted to, and approved in part, by the Department of Environment Affairs and Tourism (DEAT) in 2008. This first review builds on the foundation of the first plan and addresses its inadequacies. The layout of the plan follows the format provided in the Guideline drawn up by the Department of Environmental Affairs (DEA) (Cowan and Mpongoma 2010) while also incorporating the adaptive planning process adopted by SANParks. Local and district municipalities and other organs of state, as well as other stakeholders were consulted as required (Appendix 2). Relevant aspects of local authority plans were considered in the compilation of the plan.

## Introduction

The plan serves as a reference to the management and development of the park in its current and envisaged future form with information on the background, biophysical context, desired state, management and programmes at strategic and operational levels.

This management plan will come into effect following the approval by the Minister in terms of sections 39 and 41 of NEM:PAA. It is intended for a timeframe of 10 years after commencement unless it is replaced earlier by a newly approved plan. SANParks will review this plan no later than ten years after the commencement date.

The plan contains the following sections:

- **Section 1** - provides for the required authorisation;
- **Section 2** - provides a record of the legal status of the park, descriptions of its context as well as relevant local, regional, national and international agreements;
- **Section 3** - sets out the framework of legislation, national policies, SANParks structures, policies, guidelines, practices regarding management;
- **Section 4** - describes the consultation process followed in the preparation of this plan;
- **Section 5** - presents the vision, purpose, values, principles and attributes considered in developing a desired state for the park and provides the high level objectives as basis for the management programmes contained in Section 10 of the plan;
- **Section 6** - outlines the zoning plan;
- **Section 7** - describes access and facilities;
- **Section 8** - summarises the expansion and consolidation strategy;
- **Section 9** - sets out the concept development plan;
- **Section 10** - provides a strategic plan with programmes, objectives and activities with cost estimates. Monitoring and evaluation are integrated into the actions;
- **Section 11** - contains detailed costing of the programmes; and
- **Appendices** to this plan contain further details such as declarations, stakeholder participation report, park development framework, internal rules and maps.



## Section 2: Legal status

### 2.1 Name of the area

Mountain Zebra National Park was initially proclaimed in 1937 (Government Gazette No 112 dated 2 July 1937). A full list of declarations is given in Appendix 1.

### 2.2 Location

Mountain Zebra National Park is situated in the Eastern Cape, on the northern slopes of the Bankberg mountain range in the Cape Midlands (Appendix 5, Map 1). It is situated on the R61 road, 12 km from Cradock on the road to Graaff-Reinet, and is 262 km from Port Elizabeth. It is also 800 km from both Johannesburg and Cape Town.

### 2.3 History of establishment

The park was declared for the purpose of protecting a remnant population of the Cape mountain zebra *Equus zebra zebra*. The species was almost driven to extinction with as few as 100 animals in existence in 1940 (Novellie, Lloyd and Joubert 1992). By 1980 the Cape mountain zebra population in the park had grown to 200, after which the population was maintained at this level through removals until expansion in 1988 allowed the population to increase to 280 animals. The relocated animals were used to start other successful populations in protected areas such as in the Karoo National Park, Camdeboo National Park (CNP), De Hoop Nature Reserve and also on a number of private ranches. By 1998 the world population had grown to 1, 200. Until the late 1990's, the park remained at 6, 536 ha in area. To make it both ecologically and potentially financially more viable, the park was expanded to 28, 386 ha in 1998. A long term plan for the further expansion of the park seeks to unify the park and CNP through innovative land conservation mechanisms. The park has played a principle role in conserving the Cape mountain zebra. It has now grown beyond a "species park" and the focus currently is on conserving the biodiversity of the region.

### 2.4 Contractual agreements

Contractual agreements remain one of the options available for private landowners to become part of the park and improve the ecological representation of the park. In this regard the National Parks Trust of South Africa (NPTSA), has made land acquired by the trust, available for inclusion into the park. As per the notarial agreements, these land parcels are fully managed by SANParks. Table 1 below provides a summary of the privately owned land that was contractually included into the park.

Table 1. Private land included, by declaration, into the park.

Title deed	Farm name	Portion No	Extent (Ha)	Owner	GG	Proclamation date	Period
T78599/1999	Farm 372	0	835.9376	NPTSA	36951	2013/10/25	99 Years
T76133/2004	Toekoms 567	0	2, 300.2175		36951	2013/10/25	
19790/1996	Kaal Plaats 278	6	594.8686		38822	2015/06/05	
T28204/1999	Doornhoek 284	0	1, 801.5648		38822	2015/06/05	
T28204/1999	Doornhoek 284	3	2, 224.6218		38822	2015/06/05	
T46402/1999	Wendover 287	0	1, 800.9891		38822	2015/06/05	

Title deed	Farm name	Portion No	Extent (Ha)	Owner	GG	Proclamation date	Period
T97910/1996	Kaal Plaats 278	2	1, 121.5900	NPTSA	-	Not declared	99 Years
T101467/2000	Farm 413	0	312.0060		-	Not declared	
T101467/2000	Farm 413	1	325.4822		-	Not declared	
T36389/2001	Middel Water 415	0	81.9587		-	Not declared	
T36389/2001	Middel Water 415	1	1, 591.1849		-	Not declared	
T101467/2000	Middel Water 415	3	317.2380		-	Not declared	
T101467/2000	Middel Water 415	4	1, 034.4265		-	Not declared	

## 2.5 Co-management agreements

There are currently no co-management agreements effective.

## 2.6 Total area

The park is currently 28, 386 ha in size of which 20, 243 ha are declared while 8, 143 ha are in the process of being declared (Appendix 5, Map 3).

## 2.7 Highest point

The highest point in the park is 2, 135 m above mean sea level (AMSL), while the highest point in the declared portion of the park is 1, 953 m AMSL. The latter is of note as this determines the park's restricted airspace (2, 500 feet above the highest point, thus 9, 505 feet AMSL) above the park (Appendix 5, Map 2).

## 2.8 Municipalities within which the park falls

The park is situated within the following local and district authority boundaries:

- Inxuba Yethemba local municipality; and
- Chris Hani district municipality.

## 2.9 Land claims

There is currently (2016) no land claim registered against any portion of land within the park. However, the land claims process has been re-opened until 30 June 2019.

## 2.10 International, national and provincial listings

There are no relevant international, national or provincial listings.

## 2.11 Environmental authorisations

There are no authorisations.

## 2.12 Biophysical description

### 2.12.1 Climate

#### 2.12.1.1 Historic

The climate of the park is best described as cool and arid. Mean monthly minimum and maximum temperatures vary from 6°C – 28°C in summer (September to March) and from 0°C - 20°C in winter (April to August) (Brown and Bezuidenhout, 2000). Rainfall averages about 400 mm, with most (70%) falling in the summer months. Average annual rainfall for the period 1963 - 2014 was 405 mm with a distinct summer season peak between October to March (75%). January had the highest average rainfall with 61 mm while June had the lowest with 12 mm. Periodic light snow occurs during the winter months. Frost is common between May and October.



### 2.12.1.2 Future

By 2050, average temperatures in the park are expected to increase by between 1.3 °C and 2.4 °C (DEA, 2013; Driver et al. 2012; Holness & Bradshaw, pers. comm.). Though these changes might sound small, they significantly increase the chance of extreme temperatures which may have negative impacts on plants and animals. Because average temperatures in the park are currently relatively low, it is not thought that tourist discomfort will increase significantly in the near future. Interesting, this was the only park where a decrease was detected in average minimum temperature (1.15 °C in 25 years, detected at the Cradock station, van Wilgen *et al.* 2016). Missing data could however have influenced this trend.

The park is also one of only three parks where no change, or a very slight increase in rainfall (in this case 8 mm) is predicted by the intermediate model of future conditions for 2050, while the wettest scenario would see an increase in rainfall of 117 mm (DEA, 2013; Driver et al. 2012; Holness & Bradshaw, pers. comm.). Under the driest scenario, a decrease of 105 mm is predicted (DEA, 2013; Driver et al. 2012; Holness & Bradshaw, pers. comm.); a reduction of more than one third. Because the park naturally contains elements of a number of biomes, impacts of a changing climate are hard to model, although under future conditions a more savanna-like climate is expected under the intermediate scenario, with a mix of grassland and savanna, while under the hot/dry scenario the park is expected to be entirely dominated by conditions associated with Nama-Karoo at the expense of the grassland. Bush encroachment as a result of higher carbon dioxide levels have however not been included in these predictions.

### 2.12.2 Topography

The park ranges in altitude from 911 m - 2, 135 m. The northern area of the park is located on a relatively undulating section of the plateau inland of the Great Escarpment (which separates the Great Karoo to the south and Upper Karoo to the north), with moderate increases in altitude outwards from the centrally located Wilgerboom River, from 1, 000 m – 1, 300 m AMSL. Salpeterkop is a distinctive butte in the extreme north of the park, rising nearly 500 m above the plains. The altitude and topography of the park increase dramatically to the south, varying between 1, 300 m - 1, 900 m AMSL, with high ridges approaching 2, 000 m AMSL at Bankberg, and a number of deeply incised river valleys (kloofs).

### 2.12.3 Geology and soils

The geological formations in the park consists of sandstone, siltstone and mudstone of the Beaufort Group of the Karoo Supergroup, with dolerite plates and dykes. The mountain highlands rugged landscape is strongly associated with rocky outcrops, which cover 60 % to 80% of the mountainous area. The steep midslopes are the most prominent topographical position in this mountainous landscape, with the dominant soil-rock complex consisting of rock, while the Glenrosa soil form is subdominant. The geology of this landscape consists of dolerite with mudstone, shale and sandstone of the Balfour Formation, Beaufort Group of the Karoo Supergroup. The middle plateau rolling landscape is strongly associated with a soil pattern where duplex soils, such as Swartland and Valsrivier soil forms, are dominant. These plains are dominated by plateau midslopes but also include the steep midslopes and footslopes topographical positions. The geology of this landscape is mudstone, shale and sandstone of the Balfour Formation, Beaufort Group of the Karoo Supergroup. The valley bottomland undulating plains landscape is strongly associated with pedologically young landscapes, which are predominantly rocky and alluvial. It refers to land where lime occurs regularly in upland and valley-bottom soils. Soil forms that epitomise this land type are Glenrosa and Oakleaf. The geology of this landscape consists of mudstone, shale and sandstone of the Beaufort Group of the Karoo Sequence with rare dolerite intrusions. Two topographical positions are prominent in this terraced landscape, namely the valley bottomlands and drainage lines which include the Wilgerboom River (Land Type Survey Staff, 2004).

## 2.12.4 Fresh water ecosystem

### 2.12.4.1 Rivers

The Wilgerboom River is the only significant river and an outstanding freshwater feature of the park. This river originates in the mountainous south of the park and traverses almost the entire length of the park before exiting across the north-eastern boundary. The upper 75% (of a total length of 36.4 km) occurs within the park. Approximately nine km after leaving the park, the Wilgerboom River joins the Great Fish River, which ultimately drains into the Indian Ocean north of Port Alfred.

The Wilgerboom River is impounded by the Doringhoek Dam, situated approximately one third down the river's length and substantially modifying downstream flow and sediment transport regimes as well as aquatic habitat availability. The Doringhoek Dam has introduced new habitats for aquatic and terrestrial species and serves as an attractive viewshed for visitors. This demonstrates the complex tradeoffs that are typical of contemporary conservation in post-natural landscapes.

South Africa has adopted a 20% conservation target for freshwater ecosystems and Freshwater Ecosystem Priority Areas (FEPAs) have been identified to satisfy this national target (Nel *et al.*, 2011). Although protected areas were preferred locations for FEPAs, no river FEPA has been identified within the park. The reason for this is that the rivers of the park are regarded as ecologically too modified to qualify as national conservation priorities. However, these rivers still provide critically important ecological functions and ecosystem services at the local scale and should be managed accordingly.

### 2.12.4.2 Wetlands

Several seep wetlands occur along the mountain slopes in the south of the park. These wetlands receive their water from runoff along natural gradients and / or from groundwater. Some depression wetlands and numerous artificial wetlands (including in-stream and off-stream dams) occur along the dryer and relatively flat central and northern parts of the park.

As with rivers, no wetland in the park has been identified as a national wetland FEPA (Nel *et al.*, 2011). Preliminary fieldwork (March 2015) indicates that this might be an oversight as none of the seeps that occur along the slopes in the south of the park are included on the national-scale FEPA maps. This contradiction (between national-scale data and local reality) highlights the need for field-based mapping of wetlands in the park and for feeding validated wetland information to South African National Biodiversity Institute (SANBI) for refinement of national wetland data. The southern seeps are largely in a good ecological condition and the park potentially makes a significant contribution to the conservation of these wetland ecosystem types at the regional and national scale. In the central and northern parts of the park, modified and artificial wetlands significantly influence the availability of surface water over time and space and this influence should be evaluated in the context of the park's management objectives. Such an evaluation could inform the future management and potential rehabilitation of these wetlands.

## 2.12.5 Terrestrial flora

The classification, description and mapping of plant communities and their associated abiotic features are vital first steps in building a framework to understand, protect, conserve and manage our natural resources. Extensive studies of the vegetation have been conducted by Van der Walt (1980), Novellie (1990a; 1990b) and Novellie and Bezuidenhout (1994) and detailed vegetation and habitat studies were undertaken for the De Rust (Brown and Bezuidenhout 2000), Ebenaezer (De Klerk *et al.*, 2003), Ingleside and Welgedacht (Brown and Bezuidenhout 2005) and Doornhoek (Bezuidenhout and Brown 2008) farms upon declaration. Bezuidenhout *et al.* (2015) has classified, mapped and described 13 plant communities for the park (Appendix 5, Map 8), which are grouped into three main landscapes (Table 2).

Table 2: Landscape and plant communities of the park.

Mountain highlands rugged landscape (B)	Plant communities
B1	<i>Eragrostis lehmanniana</i> - <i>Eragrostis curvula</i> Grassland
B2	<i>Merxmuellera disticha</i> - <i>Euryops annuus</i> Grassland
B3	<i>Merxmuellera disticha</i> - <i>Felicia filifolia</i> Grassland
B4	<i>Searcia lucida</i> - <i>Diospyros lycioides</i> Woodland



Middle plateau rolling landscape (M)	
M1	<i>Carissa macrocarpa</i> - <i>Rhigozum obovatum</i> Shrubland
M2	<i>Pentzia globosa</i> - <i>Searsia longispina</i> Shrubland
M3	<i>Enneapogon scoparius</i> - <i>Vachellia karroo</i> Woodland
M4	<i>Searsia lucida</i> - <i>Buddleja glomerata</i> Shrubland
Valley bottomland undulating plains landscape (V)	
V1	<i>Pentzia incana</i> - <i>Eragrostis lehmanniana</i> Forbland
V2	<i>Sporobolus africanus</i> - <i>Enneapogon scoparius</i> Grassland
V3	<i>Pentzia globosa</i> - <i>Eragrostis obtusa</i> Forbland
V4	<i>Aristida adscensionis</i> - <i>Chloris virgata</i> Grassland
V5	<i>Lycium oxycarpum</i> – <i>Vachellia karroo</i> Woodland

Three biomes namely Grassland, Nama Karoo and Albany Thicket and one azonal vegetation namely Inland Saline Vegetation have been described for the park (Mucina and Rutherford 2006). The park is an important benchmark for these biomes and vegetation types although none are restricted to the park nationally the park is one of the few conservation areas that protect and preserve these vegetation (Bezuidenhout *et al.*, 2015). Six hundred and eighty species, represented by 333 genera and 87 families were identified. One hundred and eighty species belong to the Monocotyledoneae and 479 species to the Dicotyledoneae. By far the largest families are the Asteraceae with 129 and the Poaceae with 82 species. Thirteen Red Data species were recorded. A number of fynbos elements were encountered, the most noteworthy being two families endemic to the Cape Floristic Region, the Penaeaceae and Grubbiaceae. A very high species to square kilometre ratio of 5.05 supports the area's rich floristic composition (Pond *et al.*, 2002).

The mountain highlands rugged landscape is closely associated with the tall (1 m), closed canopy cover grassland and sparsely distributed shrubs. The flat rocky outcrops are also very conspicuous in this landscape. Some rare plant species and fynbos plant species have been discovered on top of the Bankberg area, demonstrating that this grassland has a fynbos biome affinity. The shrub stratum on the steep mid slopes has a higher canopy cover (20% – 35%), and the herbaceous layer also has more dwarf shrubs and forbs than the less steep mountain highlands grasslands. The Rooiplaat and Juriesdam plateaus are the most prominent features of the middle plateau rolling landscape. This landscape is dominated by medium tall (0.3 m – 0.8 m), open to closed canopy cover grassland, while the rocky outcrops are dominated by dwarf shrubs and other woody plant species. The very rocky steep mid slope and foot slope areas in this landscape are dominated by the conspicuous shrub clumps. The valley bottomland plains landscape is closely associated with the Wilgerboom River. This landscape is dominated by relatively tall (3 m - 5 m), closed to open canopy cover woodland. In some areas, however, past agricultural management practices have transformed the structure of the woodland into sparser woody canopy cover and higher herbaceous canopy cover (30% - 50%), dominated by dwarf shrubs and forbs. The grass component is largely dominated by annual grass species, with a low canopy cover (< 35%) and low height (< 0.5 m). Rocky shale and mudstone plains are dominated in some areas of this landscape by sparse canopy cover (35% - 55%), grassland and forbland, with karoid dwarf shrubs and conspicuous forbs.

### 2.12.6 Terrestrial fauna

The park has played an important role in the conservation of the species of Cape mountain zebra and constituted one of the major sources of reintroduction to other areas. A number of plains zebra *Equus quagga* were introduced for morphological traits that resemble the extinct quagga *Equus quagga* (as part of a programme to 'recreate' this subspecies of the plains zebra). This

programme was discontinued in 2013 due to ethical and other constraints of undertaking the required animal husbandry in the wild. During 2014 all plains zebra were removed after it was discovered that they had started hybridizing with the Cape mountain zebra.

The habitats within the park support a variety of other mammalian species, with 16 species of large mammals and a diverse array of small mammal and reptile communities (De Graaff and Nel, 1970; De Graaff, 1974; Grobler and Bronkhorst, 1981,a,b). Although a distinct Karoo fauna is not recognised by zoogeographers (Werger, 1978), there are endemic species in a number of vertebrate taxa, particularly reptiles. Some species were present when the park was proclaimed, while others were reintroduced in accordance with the objectives of restoring the diversity of large herbivores that occurred in historical times (Novellie and Knight, 1994) or in order to restore their predation and scavenging roles. Since declaration, the park has introduced buffalo (1997), plains zebra (1998), black rhino (2002), gemsbok (2004), cheetah *Acinonyx jubatus* (2007) brown hyaena *Hyaena brunnea* (2008) red-billed oxpecker *Buphagus erythrorhynchus* (2010) and lion *Panthera leo* (2013).

There are 275 species of birds in the park with a good representation of raptors. Verreaux eagles *Aquila verreauxi* nest within the park and Cape vultures *Gyps coprotheres* have been recorded more frequently in the past few years (Penzhorn and Bronkhorst 1976, Grobler and Bronkhorst, 1981b). As a result of the ephemeral nature of the rivers there are no indigenous fish species. However, there is a rich, largely undescribed, invertebrate fauna to be found in the region and some species may have a significant impact on the vegetation, notably the Karoo caterpillar *Loxostege frustralis*, the brown locust *Locustana pardalina* and the harvester termite *Hodotermes mossambicus*.

### 2.13 Archaeology and cultural heritage

Thirty archaeological sites were identified in the park during a 1973 survey by Brooker (1977). Twenty-seven of the 30 recorded sites are open sites occurring along the river, especially where the banks are flat (Brooker, 1977). The artefacts at 22 sites are mainly scrapers, an indication of occupation of these sites during the Holocene (Late Stone Age) period. There are three known rock shelters in the park, and two of these (one below a waterfall at Fonteinkloof) have cultural material, a good indication of human occupation. The paintings at Fonteinkloof include depictions of cattle. The third rock shelter in Boesmanskloof does not have cultural material, although it is possible that this could have been washed away. On an overhang at this site, there is a painting of a large antelope, and three paintings of smaller antelope. More paintings at the lower levels depict two human figures, an antelope, a large cat (possibly cheetah or leopard), and three baboons with one carrying a baby on its back.

Since the survey of Brooker, the park has expanded its borders considerably. A number of early farmer and presumably British soldier graves have recently been identified and there are a number of historical farmsteads in the park. One of the farmsteads, Doornhoek, built in 1836 was declared a national monument under the old National Monuments Act of South Africa. More rock paintings and pictographs were discovered around Salpeterkop and just south of the link road in 2012 and 2013. In the Salpeterkop area, there are paintings of hunters and antelope and pictographs of antelope, human figures and a white rhino. Salpeterkop is home to a chessboard carved into a rock, dating back to the period of the Anglo-Boer War. The names and regiments of the British soldiers, who were stationed on Salpeterkop lookout and who played the game by using mirror signals, are carved into the rock around the board.

### 2.14 Socio-economic context

Located about 12 km from the gate of the park, the town of Cradock and associated townships has a population of roughly 65, 560 people (Census 2011), and its economy is based largely on agriculture. The poverty rate is high: 40 % of the adult population in the area is unemployed (Vivier *et al.*, 2009).

The park is bordered on all sides by livestock farmers with mainly sheep and cattle being farmed. There are also a number of game farms, hunting safari operations and private game reserves in the area. The park is a tourism drawcard in the region, the benefit of which still has potential to be fully realised by the tourism and business community of Cradock. The park plays a role in employment and skills development of the local community through permanent employment, casual work and the Biodiversity Social Projects.

The Mountain Zebra – Camdeboo Corridor project was initiated to link Mountain Zebra and Camdeboo National Parks, thereby consolidating and expanding the protected area estate by means of voluntary contractual agreements. The initial two-year Corridor project (2012 - 2014) was managed by the Wilderness Foundation and SANParks, funded by the Critical Ecosystems Partnership Fund. The expected outcome of this initiative is an enlarged and consolidated corridor of formally protected areas made up of a matrix of both privately and SANParks managed land that addresses various conservation challenges such



as natural gas prospecting, poor range management and the protection of endangered species. To date (2016) 67 landowners with land totalling 268, 428 ha signed the intent to declare it as a protected environment.

In September 2012, the moratorium on fracking in South Africa was lifted and various companies published their intent to prospect for shale gas in the Karoo, including the area adjacent to the park. SANParks recognised that this type of industry and other developments such as wind farms, could provide jobs and ultimately contribute to the local, regional and national economy. However, SANParks opposes such applications within the buffer zone of the park and the proposed Mountain Zebra - Camdeboo Protected Environment on the grounds of this activity being incompatible with biodiversity conservation and a threat to environmental health and water conservation.

## 2.15 Tourism

The park is well-established and known for its hospitality, tranquillity, varied and unique landscapes and for the successful conservation of the Cape mountain zebra. In addition to sightings of species such as lion, black rhino, Cape buffalo and elusive species such as aardwolf and black footed cat *Felis nigripes*. It is currently the only national park to offer a popular guided cheetah tracking experience. The park has a rich and varied history relating to the San etchings and rock paintings found throughout the park, the Grootkloof geological rock fall, settler graveyards dating back to the 1800's and as a site where British troops were stationed during the Anglo-Boer War.

Park accommodation includes a total of 20 family cottages, 25 campsites, two mountain cottages and a historic guesthouse. Park facilities include a filling station, small convenience store selling everyday items and curios, a restaurant, two picnic sites and two swimming pools for day and overnight visitors. It has a formal conference venue that can accommodate up to 40 people, can also cater for small weddings at the guesthouse complex and currently hosts a number of birding events or courses annually, which are organised by the SANParks Honorary Rangers (SHR). Popular activities include the two short walking trails situated in the main camp, a variety of guided walks, hikes and game drives and three self-drive 4x4 trails totalling 32 km of the 95 km tourist roads (mostly gravel) in the park.

During the 2014 / 2015 financial year, the park achieved a unit occupancy of 6, 065 (79.1%) which is significantly higher than SANParks' average of 60.5%, and a 2.6 % increase from the previous year. Campsite occupancy achieved was 54.6% which is a 5 % increase. Activities showed significant growth of 11.3 % from the previous year, with a total of 2, 508 activities sold. There were a total of 24, 426 visitors in 2014 / 2015, of whom 11, 165 were day and 13, 261 overnight visitors. Of these, 14.25 % were International visitors, 0.38 % from the Southern African Development Community countries and 85.37% local. Of the South African visitors, most originate from the Eastern Cape, Western Cape and Gauteng. The 3, 573 international visitors were mostly from Germany, the Netherlands, United Kingdom, France and Switzerland.

The park is in a growth phase and will continue expanding its existing product offering.

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## Section 3: Policy framework

### 3.1 Introduction

SANParks, like all protected area management authorities, is subject to the constitution, legislation, international agreements, national policies and government priorities. Section 41 of the NEMA:PAA requires that management plans be located within the context of a coordinated policy framework (CPF). The CPF can be downloaded from the SANParks website using the following link [http://www.sanparks.org/conservation/park\\_man/](http://www.sanparks.org/conservation/park_man/).

The CPF will provide the information required by the DEA guideline for management plans (Cowan and Mpongoma 2010). This document will summarise the institutional, ecological, economic and social environment for park management and includes:

- An introduction to the management plan requirements of the NEM:PAA, what it means for stakeholders, and the corporate provisions SANParks has made to comply with NEM:PAA;
- SANParks as an organisation: including its organisational structure, vision, mission, biodiversity values and performance management system (by means of the balanced scorecard), and its approach to strategic adaptive management; and
- Policies and guiding principles:
  - Finances and commercialisation;
  - Tourism;
  - Zoning system in parks;
  - Stakeholder relationships;
  - Management to maintain biodiversity and ecosystem processes;
  - Risk management;
  - Safety and security;
  - Cultural heritage resources;
  - Resource use; and
  - Research.

SANParks policies are guided by its vision and mission statements. As a public entity, SANParks is committed to act in pursuit of transformation of South Africa's society in support of entrenching South Africa's democracy. And as such, this policy framework is open to public review by stakeholders.

The relationship between the park-specific adaptive management planning cycles and the SANParks CPF is outlined in Figure 1, where the planning cycle for management plans in SANParks is 10 years. The programmes and costing could be revised at shorter time intervals, as required.

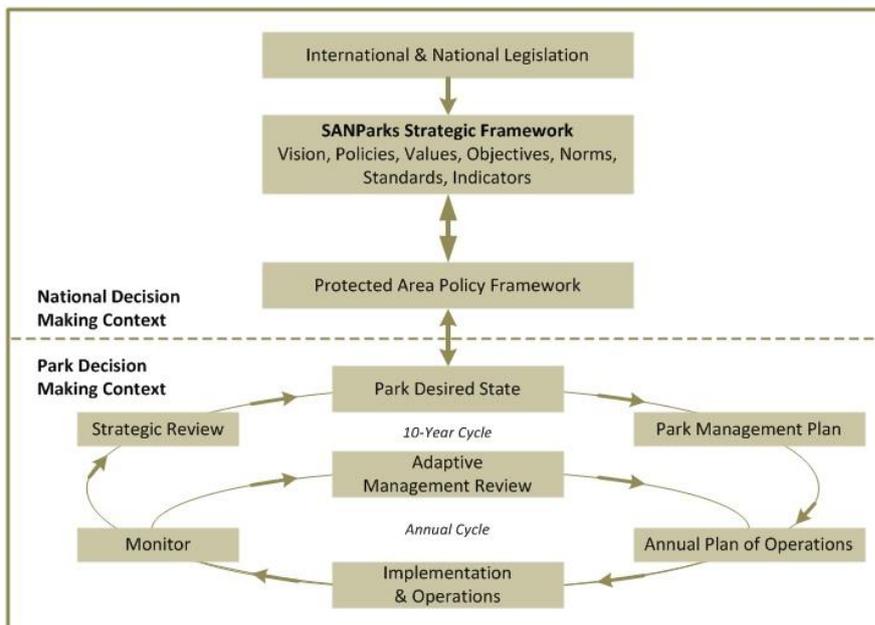


Figure 1. SANParks protected area planning framework.

### 3.2 Strategic adaptive management

Protected areas are increasingly viewed as complex social-ecological systems. The social-ecological coupling acknowledges multiple interactions that take place between people and natural landscapes – even fenced-off protected areas are influenced by external social issues. These systems are regarded as complex because the results of interactions between the social and ecological components, as well as between components within each of these sub-systems, are often unpredictable. A further complication in the management of protected areas is that the suite of stakeholders may have widely varying or even conflicting expectations, based on different world views and values. Under these conditions of divergent stakeholder interests and limited predictability, it might be impossible to agree on an optimal solution and similarly unrealistic to expect certainty in terms of management outcomes. Strategic Adaptive Management (SAM) has emerged as the SANParks approach of choice to deal with the complexity and multi-stakeholder tensions that characterise park management decisions (Figure 2). SAM is designed to be strategic (facilitate action with foresight and purpose), adaptive (facilitate learning whilst we are doing) and participatory (facilitate engagement and co-learning with stakeholders) (Grant *et al.*, 2008).

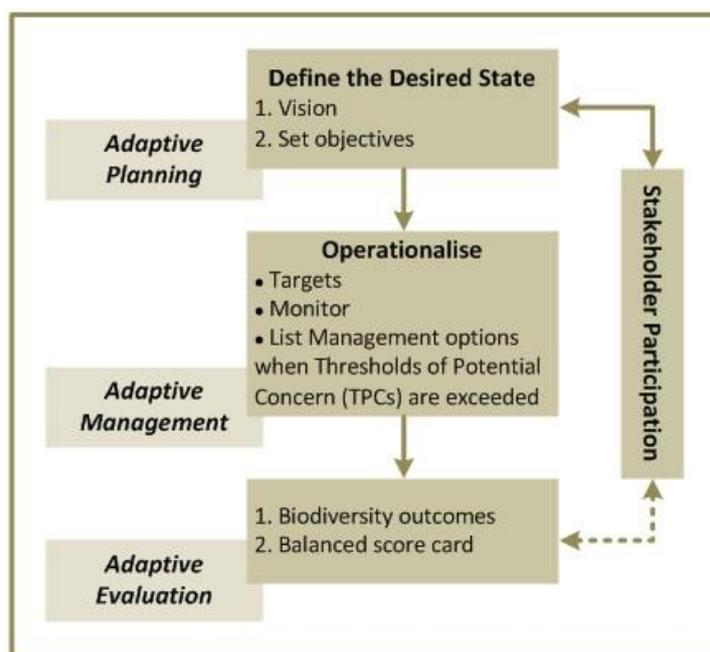


Figure 2. Steps in the adaptive management cycle as used by SANParks.



SAM begins with determining the desired future state of a particular social-ecological system (Figure 3). The aim of this step is to build a sense of common purpose among all relevant stakeholders and to develop a collective roadmap for moving from a current reality to a more desirable social-ecological system. This desired state or vision needs to be described within the context of associated stakeholders and their respective values, as well as social, environmental, ecological, technological, political and economic (V-STEEP) influences. Description of the future state is further enriched by deliberating the distinctive and special features (called vital attributes) of the park.

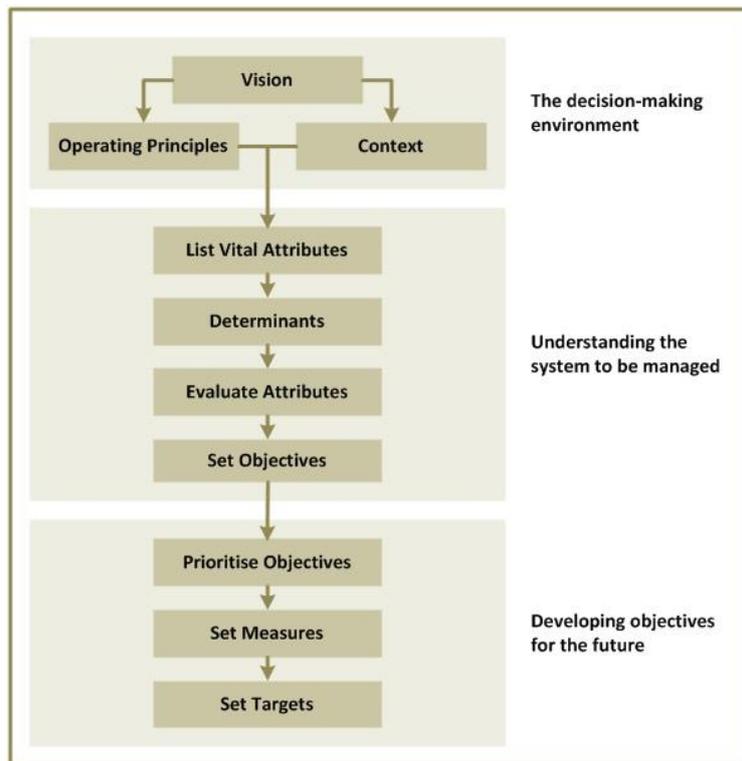


Figure 3. The adaptive planning process as used by SANParks.

The vision, together with the vital attributes of the system to be managed, informs the setting of objectives. A nested hierarchy of objectives starts with high-level objectives that are deconstructed into a series of lower-level objectives and, ultimately, management options for achieving those objectives. Alternative management options are considered by looking at resources, constraints, potential threats and risks associated with a particular management option, while anticipating likely results. From these options the most appropriate is selected, followed by a planning stage and implementation.

A critical component of SAM is to monitor and evaluate the consequences of management decisions. Constant scrutiny of emerging results and evaluation against objectives are essential to allow strategy and methodology to be adjusted as new understanding and knowledge emerges (see section 10.7). Of critical importance is the participation and engagement of all relevant stakeholders.

### 3.3 Park-specific framework

All Park Managers (except for Kruger National Park) report to the Managing Executive: Parks through a Regional General Manager. In the case of MZNP, reporting is via the Regional

General Manager for the Frontier cluster. The park's summarised organogram (Figure 4) sets out the reporting structure in the park.

### 3.4 Park regulations and internal rules

In addition to the regulations for the proper administration of special nature reserves, national parks and world heritage sites, as gazetted on 28 October 2005 in GG 28181, the park has also drafted applicable internal rules in terms of Section 52 of the NEM:PAA, (Appendix 4).

### 3.5 Support to the park

Park management is primarily supported by head office, providing human resource, financial, marketing, review and auditing services. The regional operations office assists the park with line management support. The park also receives support from functions such as park planning and development, veterinary wildlife service, scientific services *etc.*

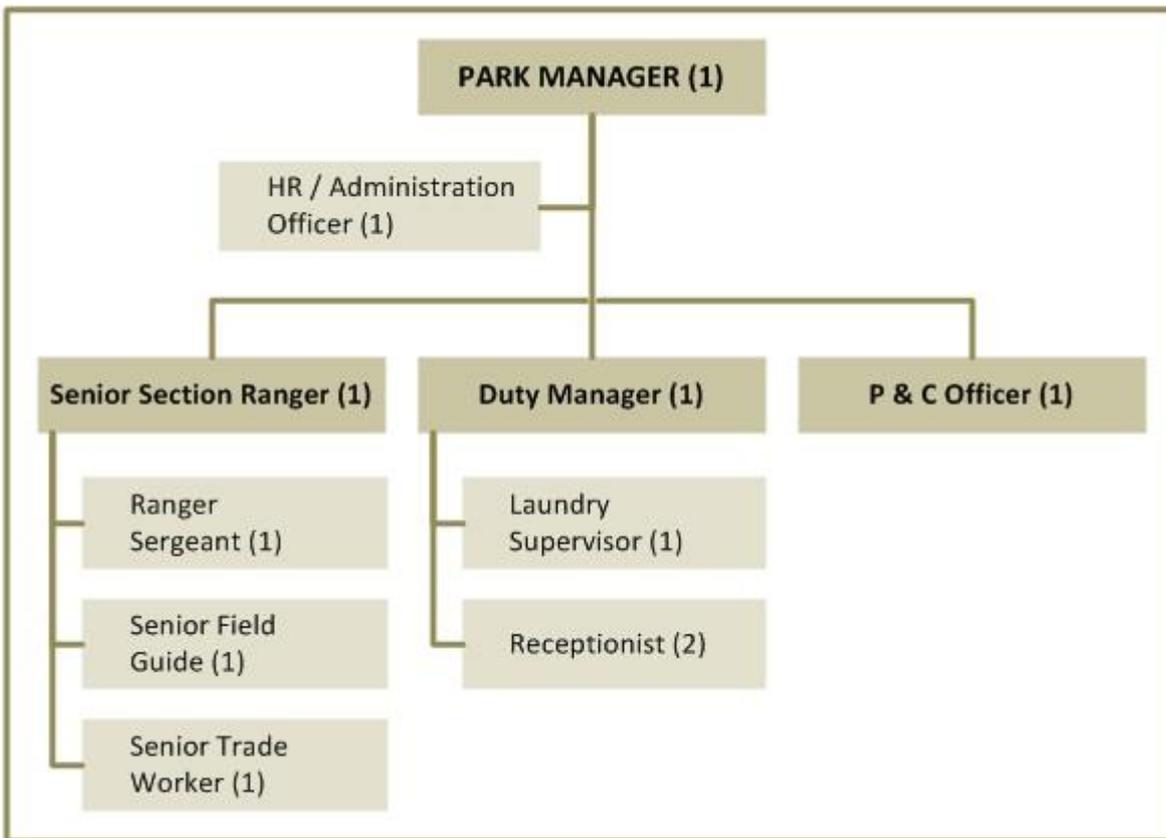


Figure 4. Mountain Zebra National Park organogram.



## Section 4: Consultation

SANParks recognises that parks must serve societal values and that they need to be part of and interrelate with the broader landscape and socio-economic context within which they are situated. The goal of the park within the public participation process is to work directly with stakeholders to ensure that the stakeholder concerns and aspirations are consistently understood and considered. Therefore stakeholders, both interested and affected, were included in the revision process of the park management plan by notifying them of participation processes through mechanisms suitable for the different stakeholder groups. These processes provided the opportunity for input from all stakeholders within reasonable timeframes, with the emphasis on sharing of information and joint learning. Processes also aim to recognise all knowledge, indigenous, ordinary and expert, as well as the diversity of values and opinions that exist between stakeholders. The commitment to the incorporation of public opinion into this plan is rooted in the park's management activities and is therefore geared towards promoting conservation values (and society's connection with those values, as also outlined in the NEM:PAA) and promoting this goal in part, by engaging the broader context in which the park is situated. The adaptive planning process that was followed was designed to (i) help stakeholders express opinions and values in a structured way, (ii) to use the opinions and expressed values to formulate a vision for the park, (iii) to translate the vision into management objectives that reflect the values as expressed by stakeholders and (iv) comment on the draft park management plan.

The objectives of the stakeholder participation process are to:

- Create a channel for the accurate and timely dissemination of information to interested and affected stakeholders;
- Create the opportunity for communication between SANParks and the public;
- Promote opportunities for the building of understanding between parties;
- Provide the opportunity for stakeholders to give meaningful input into the decision-making processes that drive the development of the park management plan.

The approach to the stakeholder participation process is based on the principles embodied in the following legal framework, namely:

- The Constitution of the Republic of South Africa Act No. 108 of 1996;
- The National Environmental Management Act No. 107 of 1998 (NEMA); and
- The National Environmental Management: Protected Areas Act No.57 of 2003 as amended by the National Environmental Management: Protected Areas Act No.21 of 2014.

In addition to the above legal framework, the stakeholder process was developed with the guiding principles for SANParks stakeholder participation in mind. SANParks thus undertakes to:

- Seek to notify stakeholders of participation processes through appropriate mechanisms;
- Ensure that the process provides the opportunity for input from all stakeholders within reasonable timeframes, emphasising the sharing of information, joint-learning and capacity building;
- Promote participation by stakeholders through timeous and full disclosure of all relevant and appropriate information;
- Provide feedback on the outcome of the process to stakeholders and demonstrate how their inputs have been considered in the decision making process;
- Ensure that methodologies accommodate the context of the issue at hand and the availability of resources (people, time, money) and do not conflict with these guiding principles; and
- Give particular attention to ensuring participation by marginalised communities, communities with specific concerns, or communities that have contractual rights in the national park.

Details regarding the stakeholder process that was followed are outlined in Appendix 2.

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## Section 5: Purpose and vision

### 5.1 Purpose of the park

The NEM:PAA requires that the park be managed in accordance with the purpose for which it was declared. The original purpose of the park is not officially specified, neither in the first gazetted declaration nor any subsequent addition. However it is well known that the park was initially declared to preserve the endangered Cape mountain zebra. SANParks will manage the park firstly in accordance with its organisational vision and secondly in accordance with the mission and objectives hierarchy that were derived through consultation with stakeholders, as set out in this section.

### 5.2 Desired state for the park

In order for the current and future extent of the park to be protected and managed effectively, a desired state for the park has been developed through an adaptive planning process to guide park management in its daily operations. To formulate this desired state, focus was placed on the mission, park context, operating principles and, vital attributes that make this park unique, or at least very special in its class. Each attribute was discussed along with important factors determining / strengthening or threatening / eroding these attributes. Using this information helped focus the exact formulation of the park objectives, which must strengthen positive determinants and weaken or remove negative ones so that objectives are appropriate to the uniqueness and special nature of this park. In this way the management plan is customised according to its local context, without detracting from some of its more generic functions along with certain other parks. This framework forms a bridge between the CPF and its vision for the park, and the medium term (five year) priorities to attain the vision and mission in co-operation with its stakeholders.

#### 5.2.1 Vision and mission

The vision is an inspirational statement designed to provide a picture of the envisaged future for the park. It answers the question of 'where do we want to go?'. SANParks' corporate vision, which holds for all national parks including MZNP, is as follows:

#### VISION

*"A sustainable National Park system connecting society"*

The mission defines the fundamental purpose of the park, succinctly describing why it exists and what it does to achieve its vision. The following mission was developed after consultation with stakeholders at a workshop on 20 May 2015:

#### MISSION

*To conserve the plants, animals, ecological processes, landscapes and cultural assets unique to the north-eastern Karoo Grasslands and its interface with Nama-Karoo and Thicket biomes, for the appreciation of all users.*

#### 5.2.2 SANParks corporate vision of the desired state

Examined from the perspective of the entire system of national parks, SANParks has identified a broad vision and strategic direction for each individual park. This corporate strategic direction is intended to complement the role of other parks in adding overall value to South Africa's national park system in terms of biodiversity conservation, recreational opportunities and regional socio-economic contribution.

Thus the following strategic direction for the park has also informed the programmes of implementation (Section 10) of this management plan:

Although the park's overall biodiversity value is rated lower than most other national parks, it makes a major contribution to the international conservation of endangered or threatened species such as cheetah, rhino and Cape mountain zebra. One of its recognised strengths is therefore as a genetic bank of these rare species. In addition, MZNP is the only proclaimed conservation unit in the Eastern Mixed Karooveld vegetation type. Other valued natural assets include the wide open spaces and landscapes typical of the Karoo. Cultural heritage value can improve depending on interpretation capacity. Tourism can be improved through diversifying products. A focus will be on improving the status of the park as a socio-economic catalyst through job creation. The role of the park as an organism bank will be strengthened. There is potential for the park to move to surplus income generation. The greatest potential lies in the development of a major grasslands park through contractual linkages with CANP, although this potential remains to be evaluated. The biodiversity value of the park is anticipated to increase over the next 20 years in the national context, but not in the SANParks context. Risks to biodiversity are generally low.

### 5.2.3 Operating principles or values

SANParks has adopted eleven corporate values which serve as guiding principles around which all employee behaviour and actions are governed and shaped. Stakeholders recognised and endorsed the SANParks corporate and conservation values as outlined in the CPF. These principles or values are:

Corporate values:

- Show **leadership** in all we do.
- Be guided by **environmental ethics** in all we do.
- Promote **transformation** within, and outside of the organisation.
- Strive for **scientific** and **service excellence** at all times.
- Act with **professionalism** at all times.
- Adopt, and encourage **initiative** and innovation by all.
- Treat all our stakeholders with equity and **justice**
- Exercise **discipline** at all times.
- Show **respect** to all.
- Act with **honesty** and **integrity**.
- Strive for **transparency** and open **communication** at all times.

Biodiversity values:

- We adopt a **complex systems view** of the world while striving to ensure the **natural functioning** and **long term persistence** of the **ecosystems** under our care.
- We aim at persistent achievement of **biodiversity representivity** and **complementarity** to promote **resilience** and ensure **ecosystem integrity**.
- We can **intervene in ecosystems responsibly and sustainably**, but we focus management on **complementing natural processes** under a "**minimum interference**" philosophy.
- We accept with humility the **mandate of custodianship** of biodiversity **for future generations** while recognising that both natural and social systems change over time.

### 5.2.4 Park context

The context refers to the current circumstances and the conditions that determine these circumstances. The context is therefore important as a set of agreed-upon realities that will influence the setting of management objectives. The context is summarised under sections 2.1 to 2.15.

### 5.2.5 Vital attributes

The vital attributes of the park are the important characteristics and / or properties of the park that concisely describe the key features of the park. The park identified 12 attributes that are vital to the approach by which it is managed. The key attributes are:

1. The park's biodiversity assets, primarily the ecological gradients, geology, soil and climate that produce the particular drainage lines, catchments and faunal and floral assemblages typical of the north-eastern Karoo-Grassland-Thicket interface;
2. The park is a tourism drawcard in the region;
3. Cultural heritage sites (including San rock paintings and engravings, grave sites, historical buildings etc.);



4. Contribution to local economy (employment and procurement);
5. Well established and growing tourism products;
6. Conservation of important vegetation types and plant communities;
7. The variable landscapes with uninterrupted views, nightscapes, wilderness qualities and tranquil atmosphere within an unpolluted environment;
8. Contribution to metapopulations of Cape mountain zebra, black rhino and cheetah;
9. Hospitality of staff;
10. Conserving species of special concern;
11. Entire catchment of the Wilgerboom River within the park;
12. The park is an outdoor laboratory for learning opportunities.

### 5.2.6 Determinants and risks to the vital attributes

A major component of management's responsibility is to ensure the maintenance of the determinants or strengths of the vital attributes and to limit the influence of threats to the system.

The boxes below reflect the vital attributes, determinants and threats.

<b>1. The park's biodiversity assets, primarily the ecological gradients, geology, soil and climate that produce the particular drainage lines, catchments and faunal and floral assemblages typical of the north-eastern Karoo-Grassland-Thicket interface.</b>	
<b>Determinants:</b> Fire, geomorphology, successful management of herbivory and large mammal predation.	
<b>Threats</b>	
<ul style="list-style-type: none"> <li>• Inappropriate fire management</li> <li>• Climate change</li> <li>• Inbreeding</li> <li>• Hybridization</li> </ul>	<ul style="list-style-type: none"> <li>• Inappropriate development</li> <li>• Diseases</li> <li>• Invasive alien vegetation</li> </ul>
<b>2. The park is a tourism drawcard in the region.</b>	
<b>Determinants:</b> Increased local tourism involvement ( <i>i.e.</i> CRAMTOUR), information flow between the park and CRAMTOUR members, improved marketing (brochures, link with annual events), available products and activities, stop over location.	
<b>Threats</b>	
<ul style="list-style-type: none"> <li>• Social and political climate</li> <li>• Condition of regional road infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Breakdown in communication</li> </ul>
<b>3. Cultural heritage sites (including San rock paintings and engravings, grave sites, historical buildings etc.).</b>	
<b>Determinants:</b> Rich history, cultural heritage site management plans.	
<b>Threats</b>	
<ul style="list-style-type: none"> <li>• Natural weathering of heritage sites</li> <li>• Fire</li> </ul>	<ul style="list-style-type: none"> <li>• Human impact</li> <li>• Incomplete knowledge database</li> </ul>
<b>4. Contribution to local economy (employment and procurement).</b>	
<b>Determinants:</b> Government funding for biodiversity social projects and expanded public works programme, contribution to employment, tourism, park as a tourism draw card	
<b>Threats</b>	
<ul style="list-style-type: none"> <li>• Lack of funding</li> <li>• Global and national economics</li> </ul>	<ul style="list-style-type: none"> <li>• Change in government funding priorities</li> </ul>

<b>5. Well established and growing tourism products.</b>	
<b>Determinants:</b> Marketing of current products and activities, uniqueness of products <i>i.e.</i> predator tracking, diversity of products, rich history of cultural aspects, organisational and park reputation, infrastructure and human capital, biodiversity offering, sightings of elusive species such as aardwolf and black footed cat.	
<b>Threats</b>	
<ul style="list-style-type: none"> <li>• Lack of maintenance</li> <li>• Lack of funding</li> <li>• Not staying competitive</li> <li>• Social and political instability</li> </ul>	<ul style="list-style-type: none"> <li>• Poor visitor experience</li> <li>• Mining within the buffer zone</li> <li>• Inappropriate development</li> </ul>
<b>6. Conservation of important vegetation types and plant communities.</b>	
<b>Determinants:</b> Underrepresented and threatened vegetation types, unique plant communities, park expansion strategy, climate, geomorphology.	
<b>Threats</b>	
<ul style="list-style-type: none"> <li>• Fracking</li> <li>• Climate change</li> </ul>	<ul style="list-style-type: none"> <li>• Inappropriate management practices</li> </ul>
<b>7. The variable landscapes with uninterrupted views, nightscapes, wilderness qualities and tranquil atmosphere within an unpolluted environment.</b>	
<b>Determinants:</b> Limited development in the park and on its boundary, low level of human impact, topography, wide open spaces, remoteness, no light pollution, clear skies.	
<b>Threats</b>	
<ul style="list-style-type: none"> <li>• Inappropriate development</li> <li>• Landuse change along the park boundary</li> <li>• Poor visitor management</li> </ul>	<ul style="list-style-type: none"> <li>• Pollution</li> <li>• Climate change</li> <li>• Excessive development</li> <li>• Lack of equipment / resources</li> </ul>
<b>8. Contribution to metapopulations of Cape mountain zebra, black rhino and cheetah.</b>	
<b>Determinants:</b> Genetic diversity, healthy demographics, preserving the vital ecological processes for these species, intergovernmental / organisational / private co-operation, market value of certain species.	
<b>Threats</b>	
<ul style="list-style-type: none"> <li>• Stochastic events</li> <li>• Poaching</li> <li>• Inbreeding</li> <li>• Disease</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of funding</li> <li>• Breakdown in co-operation between organisations</li> </ul>
<b>9. Hospitality of staff.</b>	
<b>Determinants:</b> Staff well-being, training, management guidance, park culture.	
<b>Threats</b>	
<ul style="list-style-type: none"> <li>• Demotivated staff</li> </ul>	<ul style="list-style-type: none"> <li>• High staff turnover</li> </ul>



**10. Conserving species of special concern.**

**Determinants:** Preserving the vital ecological processes for these species, genetic diversity, healthy demographics.

**Threats**

<ul style="list-style-type: none"> <li>• Stochastic events</li> <li>• Poaching</li> <li>• Inbreeding</li> <li>• Disease</li> <li>• Excessive management</li> <li>• Invasive alien plant species</li> </ul>	<ul style="list-style-type: none"> <li>• Unregulated exploitation of tourism</li> <li>• Poor management of habitats crucial to species</li> <li>• Inappropriate fire management</li> <li>• Incomplete knowledge of species occurrence and management interventions</li> </ul>
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**11. Entire catchment of the Wilgerboom River within the park.**

**Determinants:** Stable park boundary, catchment management.

**Threats**

<ul style="list-style-type: none"> <li>• Climate change</li> <li>• Over abstraction</li> <li>• Pollution</li> <li>• Fracking</li> <li>• Impoundments</li> </ul>	<ul style="list-style-type: none"> <li>• Inappropriate development</li> <li>• Land claims</li> <li>• Ineffective and uninformed freshwater management</li> <li>• Invasive alien plants / animals</li> </ul>
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**12. The park is an outdoor laboratory for learning opportunities.**

**Determinants:** Strong environmental gradients, experiential training for interns / students, a site for baseline fracking research, improved partnerships with local municipality creating opportunities for learning about cultural heritage, informed programmes and interactions, funding, suitably skilled and motivated staff, appropriate communication tools / methods, aligned to school curriculum, predator reintroduction into small reserves, mesopredator management, historical datasets and new experimental approaches (ecological modelling and remote sensing).

**Threats**

<ul style="list-style-type: none"> <li>• Outdated programmes</li> <li>• Lack of funding to develop material</li> <li>• Lack of funding to transport learners</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of suitable infrastructure and facilities to enable programmes</li> <li>• Lack of institutional support</li> </ul>
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### 5.2.7 High level objectives

While the Mission sets out the “Where do we want to go”, high level objectives act as the roadmap to achieve the Mission, these high level objectives tend to flow naturally from the vital attributes. The desired state is achieved by means of a hierarchy of objectives (Figure 5), starting with an overall objective aligned with SANParks’ organisational structure and the park’s Vision and Mission statements, then broad, high level objectives (this Section) and then to more detailed levels, ending with specific operational or management actions (Section 10). Discussions at the stakeholder meeting gave rise to an initial set of high level objectives. These were refined to reflect the following:

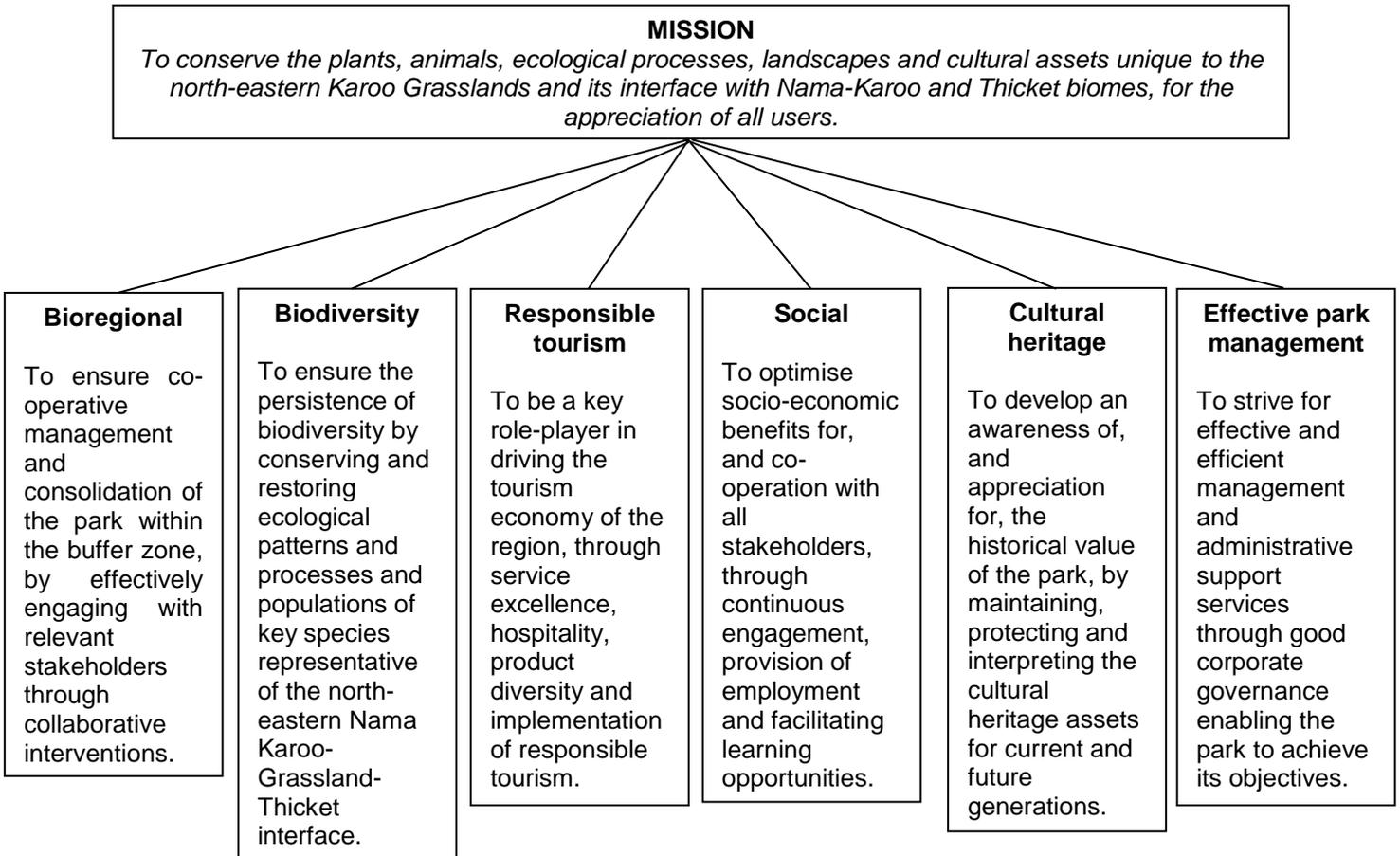


Figure 5: Park high level objectives.



**1. Bioregional high level objective:** To ensure co-operative management and consolidation of the park within the buffer zone, by effectively engaging with relevant stakeholders through collaborative interventions.

**1.1 Mainstreaming biodiversity objective:** To minimise the potential conflicts that arise from different land uses in the park buffer zone through responsible engagements with land owners and local authorities and promoting mitigating options.

**1.2 Park consolidation objective:** To consolidate the ecological representation and resilience of the region through advocating and implementing a variety of conservation friendly initiatives.

Figure 6: Bioregional high level objective and supporting objectives.

**2. Biodiversity high level objective:** To ensure the persistence of biodiversity by conserving and restoring ecological patterns and processes and populations of key species representative of the Nama Karoo-Grassland-Thicket interface.

**2.1 Terrestrial ecosystem objective:** To ensure the persistence of spatial heterogeneity resulting from linkages between diverse topography, soil and vegetation types by maintaining, restoring and mimicking key ecological processes.

**2.2 Freshwater ecosystems objective:** To ensure the functionality and associated ecosystem services of the freshwater systems by maintaining and restoring the hydrological connectivity and variety of aquatic habitats.

**2.3 Species of special concern objective:** To ensure the persistence and viability of key species by contributing to national initiatives and implementing species specific management approaches.

**2.4 Sense of place objective:** To provide a sense of place experience appropriate for a wilderness environment that is unpolluted and has a tranquil ambiance.

Figure 7: Biodiversity high level objective and supporting objectives.

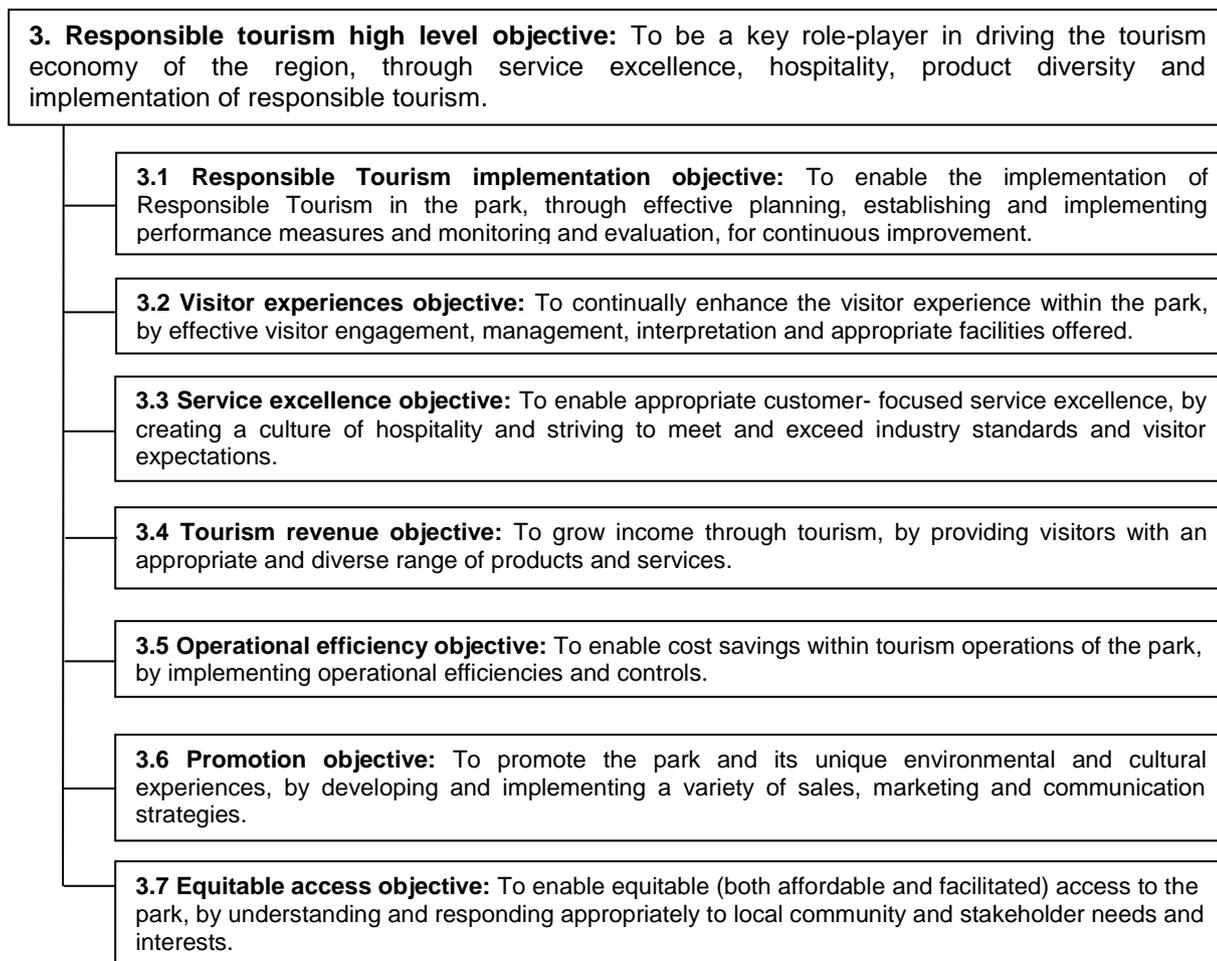


Figure 8: Responsible tourism high level objective and supporting objectives.

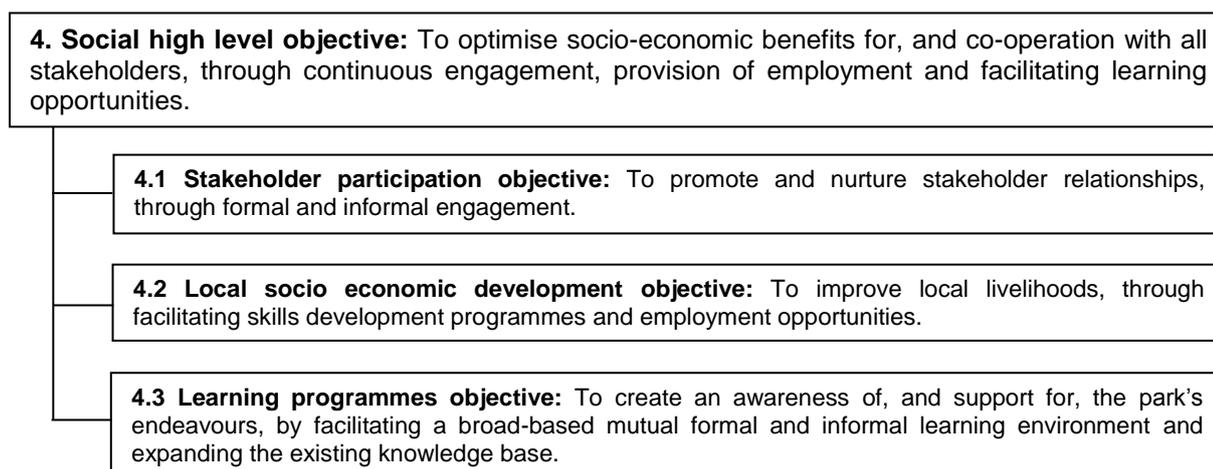


Figure 9: Social high level objective and supporting objectives.



**5. Cultural heritage high level objective:** To develop an awareness of, and appreciation for, the historical value of the park, by protecting, maintaining and interpreting the cultural heritage assets, for current and future generations.

**5.1 Inventorisation objective:** To fully understand the park's cultural heritage value, by compiling and maintaining a comprehensive inventory and record of all cultural heritage assets.

**5.2 Conservation objective:** To preserve the tangible and intangible cultural heritage assets, through effective management and, where relevant, sustainable utilization of these assets.

**5.3 Knowledge management objective:** To enable the interpretation of park and regional cultural heritage, by recording the value, significance and oral history of cultural heritage assets.

**5.4 Communication objective:** To create an awareness of, and appreciation for, park and regional cultural heritage, by developing a variety of mechanisms for interpreting and communicating the history with different audiences.

Figure 10: Cultural heritage high level objective and supporting objectives.

**6. Effective park management high level objective:** To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.

**6.1 Environmental management objective:** To ensure compliance with environmental legislation and best practise principles for all management activities.

**6.2 Risk management objective:** To establish and maintain effective, efficient and transparent systems of risk management.

**6.3 Financial management and administration objective:** To ensure sound financial management and administration.

**6.4 Human capital development objective:** To ensure sufficient and effective staff capacity to achieve management objectives by adhering to corporate human resource policies and guidelines.

**6.5 Information management objective:** To implement best practices in the field of records and information management.

**6.6 Infrastructure objective:** To upgrade and maintain existing infrastructure and develop new infrastructure in support of conservation and tourism in compliance with the zonation.

**6.7 Safety and security objective:** To provide a safe and secure environment for both visitors and SANParks employees and to ensure that the integrity of the natural and cultural resources is secured.

Figure 11: Effective park management high level objective and supporting objectives.

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## Section 6: Zoning

### 6.1 Introduction

The primary objective of a park zonation plan is to establish a coherent spatial framework in and around a park to guide and co-ordinate conservation, tourism and visitor experience initiatives, and minimise conflict between these sometimes antagonistic activities. A zoning plan is also a legislated requirement of the NEM:PAA, which stipulates that the management plan, which is to be approved by the Minister, must contain “a zoning of the area indicating what activities may take place in different sections of the park and the conservation objectives of those sections”.

The zoning of the park was based on an analysis and mapping of the sensitivity and value of the park’s biophysical, heritage and scenic resources (SANParks, 2005a); an assessment of the regional context; and an assessment of the park’s current and planned infrastructure and tourist routes / products – all interpreted in the context of park objectives. This was undertaken in an iterative and consultative process. This section – which is guided by the CDF planning manual (SANParks, 2005b) – sets out the rationale for use zones, describes the zones, and provides management guidelines for each of the zones. The use zoning of the park is shown in Appendix 5, Map 4, and summarised in Table 3.

### 6.2 Synopsis of updates to the 2008 zonation

In general, very few changes were required to the previous zonation scheme. The high intensity leisure zone was expanded slightly to accommodate additional tourist accommodation in the east of the zone, and park staff accommodation in the west, but reduced in the southeast. Low intensity leisure in the central east was reclassified as primitive. Increasing resolution of satellite imagery improved the accuracy of park infrastructure and prompted minor adjustments to zone boundaries to better accommodate this.

### 6.3 Guiding principles underpinning the Conservation Development Framework

The principles underpinning park zonation, as listed below, were informed by the SANParks Conservation Development Framework (CDF) manual, the guidelines for strategic environmental assessment in South Africa, integrated environmental management and the National Environmental Management Act (NEMA). Accordingly the zonation:

- Is the foundation of all planning and development within a park, with the aim of ensuring its long term sustainability;
- Accommodates strategic, flexible and iterative planning procedures;
- Is a “framework for planning” not a “plan for implementation” (*i.e.* implementation is dealt with through lower level plans and programmes);
- Recognises that the mandate of SANParks is to conserve biodiversity and heritage resources of national and international significance, in terms of both the NEM:PAA and the National Heritage Resources Act (NHRA);
- Ensures the integrity of the park’s scenic quality by limiting human intrusions into the landscape;
- Accommodates a wide range of unique opportunities for experiences of solitude and nature based recreation which do not conflict with the desired social and environmental states;
- Confines development within the park to areas that are robust enough to tolerate transformation and without detracting from the “sense of place”;
- Rationalises and channels access into the park and internal movement through it;
- Sets the limits of acceptable change; to minimise the loss of biodiversity and to reduce conflict between different park uses;
- Recognises that park boundaries are not static in time and there are factors beyond the current or future boundaries that can positively or negatively influence the park; and

- Recognises that the park cannot exist in isolation and that planning needs to ensure that the park is integrated with the surrounding landscapes, and economic and social structures at local and regional scales.

#### 6.4 Rationale for use zones

The primary function of a protected area is to conserve biodiversity. Other functions such as the need to ensure that visitors have access to the park, and that adjoining communities and local economies derive benefits from the park, potentially conflict with and compromise this primary function. Use zoning is the primary tool to ensure that visitors can have a wide range of quality experiences without compromising the integrity of the environment.

Furthermore, the expectations and recreational objectives of people that visit the park may differ. Some people are visiting the park purely to see wildlife as well as natural landscapes. Others wish to experience intangible attributes such as solitude, remoteness, wildness, and serenity (which can be grouped as wilderness qualities), while some visit to engage in a range of nature-based recreational activities, or to socialise in a rest camp. Different people have different accommodation requirements ranging from extreme “roughing it up” to luxury catered accommodation. There is often conflict between the requirements of different users and different activities. Appropriate use zoning serves to minimise conflicts between different users of a park by separating potentially conflicting activities – such as game viewing and day-visitor picnic areas – whilst ensuring that activities which do not negatively impact on the park’s vital attributes and objectives (especially the conservation of the protected area’s natural systems and its biodiversity) can continue in appropriate areas. Use zones serve to ensure that high intensity facilities and activities are placed in areas that are robust enough to tolerate intensive use, as well as to protect more sensitive areas of the park from over-utilisation.

#### 6.5 The zoning system

SANParks has adopted a multiple zoning system for its parks. The system comprises of:

- Visitor use zones covering the entire park,
- Special management overlays; and
- A buffer zone surrounding the park.

##### 6.5.1 The zoning process and its linkage to the underlying environmental analysis

The zoning for the park was underpinned by an analysis and mapping of the sensitivity and value of a park’s biophysical, heritage and scenic resources. This analysis examined the biophysical characteristics of the park including: habitat value (in particular the contribution to national conservation objectives) and vegetation vulnerability to physical disturbance; special habitat value (the value of the area based on rare and endangered species); hydrological sensitivity (areas vulnerable to disruption of hydrological processes such as floodplains and wetlands); topographic sensitivity (steep slopes); and soil sensitivity (soils that are vulnerable to erosion). In addition, the heritage value and sensitivity of sites was examined (mostly archaeological and cultural aspects). The visual sensitivity of the landscape was also examined in order to identify sites where infrastructure development could have a strong aesthetic impact. This analysis was used to inform the appropriate use of different areas of the park, as well as to help define the boundaries between zones. The zoning was also informed by the park’s current infrastructure and tourism products, as well as the regional context (especially linkages to neighbouring areas and impacts from activities outside the park). Planned infrastructure and tourism products were also accommodated where these were compatible with the environmental informants. These were all interpreted in the context of the park objectives and undertaken in an iterative and consultative process.

Table 3. Use zones and use zone characteristics for park.

Zone	General Characteristics	Experiential Qualities	Interaction between Users	Type of Access	Type of activities	Type of Facilities	Limits of acceptable change: Biophysical	Limits of acceptable change: Aesthetics and recreational	Guidelines for operational infrastructure
REMOTE	Retains an intrinsically wild appearance and character (essentially no infrastructure), or capable of being restored to such.	Solitude and awe inspiring natural characteristics	None to very low	<b>Controlled access, non-motorised</b>	Hiking in small groups. Possibly mountain biking or horse riding.	Established to o paths where erosion may be a problem. <b>Essentially undeveloped</b> and roads	Deviation from a natural/pristine state should be minimized, and existing impacts should be reduced	Activities which impact on the intrinsically wild appearance and character of the area will not be tolerated.	Ideally there should be no management infrastructure, but temporary infrastructure may be present only to limit biodiversity loss
PRIMITIVE	Generally retains wilderness qualities, but with <b>basic self-catering facilities. Access is controlled, or limited to 4x4 vehicles.</b> Provides access to the Remote Zone, and can serve as a buffer.	Experience wilderness qualities	Low	<b>Controlled access. Accompanied, Unaccompanied, Foot, 4x4 vehicles</b>	Hiking, 4x4 drives, game viewing; possibly horse riding	Small, basic, self-catering, distributed to avoid contact between users; or limited concessions with limited numbers; 4x4 trails; hiking trails	Deviation from a natural/pristine state should be small and limited to restricted impact footprints. Existing impacts should be reduced.	Activities which impact on the intrinsically wild appearance and character of the area should be restricted, and impacts limited to the site of the facility.	Small, isolated permanent but low speed (usually dirt road) infrastructure may be present. This may be to help manage biodiversity, or service to tourist facilities
QUIET	This zone allows <b>unaccompanied non-motorised access</b> to areas which generally retain a natural appearance and character. Access is not specifically controlled.	Wide range of activities; relaxation in a natural environment	Frequent	Unaccompanied non-motorised access. Mainly on foot, non-motorised access to specific facilities.	Hiking, walking, bird watching, mountain biking; possibly horse riding and non-motorised water based activities.	Hiking trails; footpaths; management tracks; bird hides. Abution facilities may be provided in high use areas. Heritage structures may be used for recreation. <b>No accommodation, and no tourist access by vehicle.</b>	Some deviation from a natural/pristine state is allowed, but care should be taken to restrict the development footprint. Infrastructure, especially paths and viewpoints should be designed to limit the impacts of large numbers of visitors on the biophysical environment	Activities which impact on the relatively natural appearance and character of the area should be restricted, though the presence of larger numbers of visitors and the facilities they require, may impact on the feeling of wilderness found in this zone	Management infrastructure might be more sophisticated and abundant here, to service tourist infrastructure. Care should be taken that management activities do not impact on tourism products.
LOW INTENSITY LESURE	The underlying characteristic of this zone is <b>motorised self-drive access with basic self-catering facilities.</b> The numbers of visitors are higher than in the Remote and Primitive Zones. Camps are without large commercial facilities such as shops and restaurants.	Comfortable facilities in a relatively natural environment.	Moderate to high	<b>Motorised self-drive access</b>	Motorised self-drive game viewing, picnicking, walking, hiking, cycling; adventure activities.	Facilities limited to <b>basic self-catering picnic sites; abution facilities; information/education centres; parking areas. Small self-catering (incl. camping) rest camps with abution facilities.</b> May contain small or seasonal convenience stores or tea gardens. Low spec access roads to provide a more wild experience.	Deviation from a natural/pristine state should be minimized and limited to restricted impact footprints as far as possible. However, it is accepted that some damage to the biophysical environment associated with tourist activities and facilities will be inevitable	Although it is inevitable that activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area, these should be managed and limited to ensure that the area still provides a relatively natural outdoor experience	Where this is the highest usage zone anticipated in a Park, management infrastructure should be concentrated here as far as is feasible, allowing management to efficiently make use of existing high volume infrastructure. To limit impacts, management infrastructure should be placed close to the park boundary.
HIGH INTENSITY LESURE	The main characteristic is that of <b>high density tourist development mode, with commercial amenities,</b> where more concentrated human activities are allowed.	Comfortable and sophisticated facilities while retaining a natural ambience	High	Accessible by motorised transport (cars/buses) on <b>high volume transport routes, including delivery vehicles.</b>	As above. Additional sophisticated infrastructure. Larger, organised adventure activities. Dining at restaurants.	High density/tourist camps with commercial amenities. Footpaths, transport systems, <b>accommodation, restaurants, cuido and refreshment stalls; information/education centres.</b> High volume roads.	The greatest level of deviation from a natural/pristine state is allowed in this zone, and it is accepted that damage to the biophysical environment associated with tourist activities and facilities will be inevitable.	Although it is inevitable that the high visitor numbers, activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area, these should be managed and limited to ensure that the area generally still provides a relatively natural outdoor experience appropriate to a national park.	Where this is the highest usage zone in a Park, management infrastructure should be concentrated here as far as is feasible, allowing management to efficiently make use of existing high volume infrastructure. To limit impacts, management infrastructure should be placed close to the park boundary.



Map 5 in Appendix 5, shows the relationship between the use zoning and the summary of the biodiversity and landscape sensitivity-value analysis. This indicates that in general it was possible to include most of the environmentally sensitive and valuable areas into zones that are strongly orientated towards conservation rather than tourist use. Further, in many cases the boundaries between zones are based on changes in environmental sensitivity. Table 4 below, summarises the percentage area of the park covered by each zone, as well as the percentage of the highly environmentally sensitive and valuable areas (defined as areas with values in the top quartile of the sensitivity value analysis) that are in each zone. This indicates that nearly 78% of the park is covered by zones that are strongly conservation orientated in terms of their objectives (*i.e.* remote and primitive). Further, the table shows a good correlation between spatial distribution of environmentally sensitive areas and the conservation orientated zones, with 95% of highly sensitive areas in the conservation orientated zones. Further, the most conservation orientated remote zone only covers about 15% of the park yet contains 58% of the highly valuable and sensitive areas. Conversely, the tourist orientated low intensity leisure zone covers nearly 22% of the park yet contains only around 3% of sensitive areas.

Table 4: Summary of the percentage area of the park covered by each zone, as well as the percentage of the highly environmentally sensitive and valuable areas (defined as areas with values in the top quartile of the sensitivity value analysis) that are in each zone.

Zone emphasis	Use zone	Zone as a % of park area	% of highly sensitive areas that are in a zone
Conservation orientated	Remote	14.9	58.3
	Primitive	62.6	37.1
Tourism orientated	Quiet	0.3	0.6
	Low intensity leisure	21.8	3.4
	High intensity leisure	0.4	0.6

### 6.5.2 Remote zone

#### Objective

The objective of this conservation-orientated zone is to protect sensitive environments from almost all development impacts and tourism pressures.

#### Characteristics

This is an area retaining an intrinsically wild appearance and character, or capable of being restored to such a state, and which is essentially undeveloped and roadless. There are no permanent improvements or any form of human habitation. It provides outstanding opportunities for solitude with awe inspiring natural characteristics. Sight and sound of human habitation and activities are barely discernible and at a far distance.

#### Visitor activities and experience

Activities: Access is strictly controlled and non-motorised. Groups must be small, and can either be accompanied by a guide or unaccompanied, depending on the presence of dangerous animals. Several groups may be in an area at the same time, but if necessary densities and routes should be defined so that groups are unaware of each other. The principle of “Pack it in Pack it out” must be applied. Specially arranged once-off events such as an adventure race may involve higher visitor numbers for a brief limited period, but these events are not the norm.

Interaction with other users: There is no interaction between groups. The number of groups within the area will be determined by the ability to ensure that there is no interaction between groups.

#### Limits of acceptable change

Biophysical environment: Deviation from a natural / pristine state should be avoided, else minimised where unavoidable, and existing impacts should be reduced.



Aesthetics and recreational environment: Activities which impact on the intrinsically wild appearance and character of the area, or which impact on the wilderness characteristics of the area (solitude, remoteness, wildness, serenity, peace, *etc.*) will not be allowed.

### **Facilities**

Type and size: No facilities are provided. Should overnight facilities be required to serve this zone, these should be placed in the adjoining zones.

Sophistication of facilities: Permitted visitor/s are allowed to make use of self-carried tents. Guidelines for washing, ablution and cooking must be defined according to the “Pack it in Pack it out” principle.

Audible equipment and communication structures: None.

Access and roads: Public access is non-motorised. Vehicular access and parking is provided in the adjoining zone. Established footpaths may be provided where erosion risks occur, or to direct usage away from more sensitive or dangerous areas.

Location in park: Remote areas were designated in the high altitude mountainous areas of the park, especially in the south, and on Salpeterkop in the north. The zone was designated to maximise the inclusion of areas with high environmental sensitivity and value.

### **Guidelines on management infrastructure and utilisation**

Ideally there should be no management infrastructure, and natural processes should be allowed to function without management intervention. However, in reality, most parks are too small to allow ecological processes (fire, fecundity – particularly of large predators) to continue without management intervention, which would eventually impact biodiversity negatively. Further, in young or expanding parks, farm management infrastructure might still be apparent. For this reason, concessions are made on management infrastructure in this zone, principally to prevent loss of biodiversity or restoration. Infrastructure might include footpaths where erosion might be a problem, or identified (barely) traversable management 4x4 routes for fire management or securing area integrity. Temporary management infrastructure, as might be used for game capture or anti-poaching activities, such as temporary bomas or helicopter landing sites would be permissible, as would vehicular access by staff for specific management interventions, although this should be exercised circumspectly.

#### **6.5.3 Primitive zone**

##### **Objectives**

The objective of this conservation-orientated zone is to protect sensitive environments from development impacts by limiting the size, number and sophistication of infrastructure, and by reducing tourism pressure through controlling access and visitor numbers.

##### **Characteristics**

The primary characteristic of this zone is the experience of wilderness qualities with the emphasis on controlled access. Access is controlled in terms of numbers, frequency and size of groups. The zone shares the wilderness qualities of wilderness areas and the remote zone, but with the provision of small basic self-catering facilities with controlled access. It also provides access to areas zoned as remote or wilderness. Views of human activities and development outside of the park may be visible from this zone.

This zone serves to protect sensitive environments from high levels of development, and act as a buffer between conservation-orientated and tourist-orientated zones, e.g. remote (or wilderness areas) and low intensity leisure respectively. The primitive zone may contain concession sites and other facilities where impacts are managed through strict control of the movement and numbers of tourists, for example if all tourists are in concession safari vehicles.

### **Visitor activities and experience**

Activities: Access is controlled in terms of the number, frequency and size of groups. Activities include hiking, 4x4 drives and game viewing. In the park, access control is mostly passive, with 4x4 trails marked as restricted to 4x4 vehicles only, thus limiting visitor numbers on these routes. Access may also be controlled either through only allowing access to those with bookings for specific facilities, or alternatively through a specific booking or permit for a particular hiking trail or 4x4 route in more sensitive areas. Several groups may be in the area at the same time, but access should be managed to minimise interaction between groups if necessary.

Interaction with other users: Interaction between groups of users is low, and care must be taken in determining the number and nature of facilities located in the area in order to minimise these interactions.

### **Limits of acceptable change**

Biophysical environment: Deviation from a natural / pristine state should be small and limited to restricted impact footprints. Existing impacts should be reduced. Any facilities constructed in these areas, and activities undertaken here, should be done in a way that limits environmental impacts. Road and infrastructure specifications should be designed to limit impacts.

Aesthetics and recreational environment: Activities which impact on the intrinsically wild appearance and character of the area, or which impact on the wilderness characteristics of the area (solitude, remoteness, wildness, serenity, peace, etc.) should be restricted and impacts limited to the site of the facility. Ideally visitors should only be aware of the facility or infrastructure that they are using, and this infrastructure / facility should be designed to fit in with the environment within which it is located in order to avoid aesthetic impacts.

### **Facilities**

Type and size: Facilities are small, often very basic, and are distributed to avoid contact between users. To achieve this, camp development should be limited to 15 beds, alternatively facilities can be designed for high levels of luxury, but with limited visitor numbers (e.g. controlled access camps or concession sites).

Sophistication of facilities: Generally facilities are small, basic and self-catering, though concession facilities may be significantly more sophisticated.

Audible equipment and communication structures: None.

Access and roads: Vehicular access to facilities are mostly limited to low-spec roads, often 4x4 only. Tourist and game viewing roads are usually 4x4. Established footpaths are provided to avoid erosion and braiding.

### **Location in park**

Primitive areas were designated to buffer remote areas from higher use areas, as well as to protect most of the remaining sensitive areas (such as the Wilgerboom Valley and most escarpment slopes) from high levels of tourist activity. Primitive areas were also designated in valleys with low and intermediate environmental sensitivity to allow access to remote areas as well as to accommodate the infrastructure required for management and tourist activity in these areas (e.g. Mountain Cottages and their access roads). The two satellite sections of the park were designated primitive pending their declaration and full consolidation into the park.

### **Guidelines on management infrastructure and utilisation**

Permanent management infrastructure is permissible in this zone, but these should be relatively small and isolated. Park operations staff may need to service tourist facilities in this zone. Examples may include “twee spoor” management tracks, permanent bomas for wildlife, ranger camps and outposts, and possibly even permanent helipads. The onus is on park management to coordinate the tourist road network usage in



such a way that tourists do not encounter management infrastructure in this zone, such as by using of no entry signs. Low volume access gates or entrances to access 4x4 routes could be accommodated in this zone.

#### **6.5.4 Quiet zone**

##### **Objective**

The main objective of this tourist-orientated zone is to provide non-motorised medium to high volume visitor access to areas whilst limiting impacts by not providing infrastructure for motorised access and not providing accommodation facilities.

##### **Characteristics**

This zone is characterised by unaccompanied non-motorised access without specific access control and permits. Visitors are allowed unaccompanied (or accompanied) access, mainly on foot, for a wide range of experiences. A larger number of visitors are allowed here than in the primitive zone and contact between visitors is more frequent. The main accent is on unaccompanied non-motorised access. Within this zone, more sensitive areas should be protected by precinct level planning, which should direct development and utilisation to more robust areas. This zone can also provide non-motorised access within low and high intensity leisure zones away from vehicular access roads.

##### **Visitor activities and experience**

Activities: Walking / hiking, rock climbing, bird watching, self-guided constructed trails and walks, potentially horse riding and mountain biking.

Interaction with other users: Interaction between groups of users is frequent.

##### **Limits of acceptable change**

Biophysical environment: Some deviation from a natural / pristine state is allowed, but care should be taken to restrict the development footprint. Infrastructure, especially paths and viewpoints should be designed to limit the impacts of large numbers of visitors on the biophysical environment.

Aesthetics and recreational environment: Activities which impact on the relatively natural appearance and character of the area should be restricted, though the presence of larger numbers of visitors and the facilities they require may impact on the feeling of “wildness” experienced in this zone.

##### **Facilities**

Type and size: Walking / hiking trails, footpaths, bird hides, basic information displays. No accommodation. Ablution facilities may be provided in high use areas. Heritage structures may be used for recreation purposes.

Sophistication of facilities: Where provided these should be basic.

Audible equipment and communication structures: Allowed, but should be managed to retain a relative level of solitude.

Access and roads: Essentially pedestrian access, but horse and mountain bike activities could be accommodated. Although hard surfaces (paved or tar roads) may be provided for tourist movement, there is no access for tourists by motorised vehicle.

## Location in park

Quiet areas were designated immediately adjacent to the main rest camp on the eastern side, to allow visitors unaccompanied foot access to and on the walking trail.

## Guidelines on management infrastructure and utilisation

Permanent management infrastructure is permissible in this zone, but operational driving access should be minimised as far as possible in keeping with the pedestrian nature of the zone. Given the potentially high volume tourist usage of the zone, park operations staff may need to service tourist facilities in this zone. Infrastructure may include hard surfaces (paved or tarred roads) as long as vehicle usage is restricted to operational staff. If possible, efforts should be made to reduce noise and air pollution from operational vehicles in this zone during tourist usage, so as not to impact too negatively on visitor experiences. Measures could include restricting operational usage to off-peak periods, or using electric vehicles.

### 6.5.5 Low intensity leisure zone

#### Objectives

The objective of this tourist-orientated zone is to provide infrastructure for day and overnight visitors in a natural environment. While large game viewing areas may be zoned low intensity leisure (LIL) to allow for flexibility of the game viewing road network, in reality, development footprints should be localised, with some areas having more of a primitive or even remote zone “feel”. Impacts should be mitigated by using infrastructure to direct and manage the movement of park visitors away from the more sensitive areas that may occur within this zone.

#### Characteristics

The underlying characteristic of this zone is motorised self-drive access, with basic self-catering facilities. Small or seasonal commercial or catered facilities could be accommodated; however, these should be small and still align with the general ambiance of the zone. Numbers of visitors are higher than in the remote and primitive zones. Relatively comfortable facilities are positioned in the landscape retaining an inherent natural and visual quality which enhances the visitor experience of a more natural and mostly self-providing experience. Access roads are low key, preferably gravel roads and / or tracks to provide a more natural experience, however higher volume roads may be tar. Facilities along roads are generally limited to basic self-catering picnic sites with toilet facilities. Large busses and open safari vehicles may be permitted subject to certain restrictions.

#### Visitor activities and experience

Activities: Self-drive motorised game viewing, guided game drives, picnicking, walking, cycling, rock climbing, hiking, adventure activities.

Interaction with other users: Moderate to high

#### Limits of acceptable change

Biophysical environment: Deviation from a natural / pristine state should be minimised and limited to restricted impact footprints as far as possible. However, it is accepted that some damage to the biophysical environment associated with tourist activities and facilities will be inevitable.

Aesthetics and recreational environment: Although it is inevitable that activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area (solitude, remoteness, wildness, *etc.*), these should be managed and limited to ensure that the area still provides a relatively natural outdoor experience.

#### Facilities

Type and size: Picnic sites, view sites, information centres, ablution facilities, parking areas, education centres *etc.* Small self-catering camps (including camping and caravanning) of low to medium density



(up to 50 beds). Additional facilities could include swimming pools. Trails for 4x4 vehicles can also be provided. Small or seasonal (facilities are only open as required or during peak season) commercial facilities could be provided; such as kiosks, small tourist convenience stores, or tea gardens. However, these should still fall within the general ambiance of the zone– and as such may make use of converted or restored farm houses.

Larger commercial facilities and larger concessional operators (e.g. Cattle Barons, Mug-and-Bean), should be placed in the high intensity leisure (HIL) zone. Day visitor sites are not placed within the camps, and must be compliant with the general self-catering or smaller-scale catered characteristics of the zone.

Sophistication of facilities: Mostly self-contained self-catering accommodation units with bathroom facilities. Camp sites mostly include ablution and kitchen facilities. Tourist facilities may include modern commercial facilities such as shops, kiosks, tea gardens and small tourist convenience stores, as long as these are small.

Audible equipment and communication structures: Cell phone coverage in vicinity of camps. Code of use for cell phones and radios required to retain relative level of solitude.

Access and roads: Motorised self-drive sedan car access (traditional game viewing) on designated routes which are preferably gravel roads. Large busses and open safari vehicles are restricted to high volume roads designed to accommodate them, and indicated as such. Roads may be tarred, secondary gravel tourist roads, or minor game viewing roads.

### **Location in park**

Low intensity leisure areas were designated in the current game viewing areas (Rooiplaat, Kranskop, the Wilgerboom loop, and the northern plains areas), as well as additional potential game viewing plateau and plains areas where these did not conflict with the underlying landscape sensitivity and value analysis.

### **Guidelines on management infrastructure and utilisation**

The placement of permanent management infrastructure is encouraged in this zone, particularly when this is the highest level use zone in the park. In parks where HIL already exists, such as in MZNP, attempts should be made to concentrate the development of park management and operational infrastructure in the highest usage zone of the park, where feasible, and especially when this is situated close to the boundary of the park. Where it may be preferable to include non-industrial components of management infrastructure on the periphery of the park, these could be accommodated in LIL. Examples may include moderate to high volume access or main entrance gates, park reception, or park management / administration offices (which may wish to be close to park reception facilities). This would allow management and operations to make use of high volume access routes, which would be built to accommodate high traffic volume, and if positioned close to the boundary of the park, would involve shorter commuting distances, limiting disturbance to both wildlife and tourists, and limiting wear and tear to roads.

### **6.5.6 High intensity leisure zone**

#### **Objective**

The main objective of this tourist-orientated zone is the concentration and containment of commercial, tourism, managerial, operational and industrial park activities in a restricted and designated area, which is robust enough to tolerate development, and where these diverse activities can share multi-use infrastructure (roads, plumbing, power), thus reducing their overall footprint. As impacts and particularly cumulative impacts are higher, where possible the HIL

zone should be placed in areas that have low sensitivity values and are robust enough to tolerate development, and ideally be near the periphery of the park. Staff not directly associated with tourism facilities should be accommodated outside of the park if possible. When inside a park, all industrial type facilities such as laundries, abattoirs, maintenance depots and workshops, should ideally be located close to the park boundary or, if possible, outside of the park within municipally suitably zoned adjoining urban or rural areas.

### **Characteristics**

The main characteristic is that of a high density tourist development node with modern commercial amenities such as restaurants and shops. This is the zone where more concentrated human activities are allowed. High intensity leisure is accessible by motorised transport (car / bus) on high volume transport routes. More concentrated and commercialised (concessional) activities occur here than in than LIL areas.

### **Visitor activities and experience**

Activities: Traditional game viewing routes with associated more sophisticated infrastructure, sightseeing at tourist destinations, picnicking, walking, cycling, rock climbing, hiking and activities associated with amenities such as dining in larger or concessional restaurants.

Interaction with other users: High

### **Limits of acceptable change**

Biophysical environment: The greatest level of deviation from a natural / pristine state is allowed in this zone, and it is accepted that damage to the biophysical environment associated with tourist activities and facilities will be inevitable. However, care must be taken to ensure that the zone still retains a level of ecological integrity consistent with a protected area.

Aesthetics and recreational environment: Although it is inevitable that the high visitor numbers, activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area (solitude, remoteness, wildness, *etc.*), these should be managed and limited to ensure that the area generally still provides a relatively natural outdoor experience.

### **Facilities**

Type and size: High density camps providing tourist accommodation with diverse modern amenities. Restaurants, shops, education / information centres, view sights, ablution facilities, parking areas, botanical gardens. Day visitor sites are provided outside of rest camps. Day visitor sites or picnic sites may provide catered facilities and kiosks. Where it may be necessary to provide high density recreational sites with a wide range of intensive activities, an attempt should be made to concentrate these sites close to the periphery of the park. Staff villages and administrative centres should be restricted to core staff. Non-essential staff housing, administration and industrial infrastructure should be positioned outside of or close to the periphery of the park where possible.

Sophistication of facilities: Moderate to high density facilities. Self-catering and catered. Camps often have diverse modern facilities such as shops and restaurants, which may be concessional.

Audible equipment and communication structures: Cell phone coverage in vicinity of camps. Code of use for cell phones and radios required to retain relative level of solitude.

Access and roads: The zone is highly motorised, including busses and delivery vehicles on designated routes which are often tarred. Care must be taken to distinguish between roads that serve as high access delivery routes to camps, link roads between camps, and game viewing roads, to minimise conflict between users.

### **Location in park**

High intensity leisure areas were restricted to the current Mountain Zebra restcamp and management areas, which are no longer near the periphery of the park due to park expansion.



## **Guidelines on management infrastructure and utilisation**

Management guidelines that apply to LIL apply to HIL as well. Generally, the presence of HIL in a park indicates higher or more intense utilisation or development, with a higher diversity and concentration of facilities, and thus may require additional management or operational facilities. As HIL is by definition a high use area, and should be located in an area of low sensitivity, the development of management and operations infrastructure in this zone should be favoured. In the park, most operations and administration infrastructure are situated in the existing and well established HIL tourist node at the rest camp.

### **6.6 Overview of the special management overlays**

Special management overlays (SMO) which designate specific areas of the park that require special management interventions were not required for the park.

### **6.7 The park buffer zone**

The buffer zone shows areas outside the park within which land use changes could affect the park. Purely for SANParks' administrative and operational purposes, the buffer zone is divided into CNP and MZNP sectors, which align with rural division boundaries. The buffer zone, in combination with guidelines, will serve as a basis for: (i) identifying the focus areas in which park management and scientists should respond to Environmental Impacts Assessment's (EIAs), (ii) helping to identify the types of impacts that would be important at a particular site, and most importantly (iii) integrating long term protection of the park into the Spatial Development Frameworks (SDFs) of municipalities and other local authorities. To this end, the park will endeavour to forge closer collaborative relationships with its neighbouring land owners, including (but not limited to) the towns of Pearston in the Blue Crane Route Local Municipality, and Cradock in the Inxuba Yethemba Local Municipality. The park will interact with all spheres of government, whether local, provincial, or national, as required, to achieve a positive conservation outcome in the buffer zone. In terms of EIA responses, the buffer zone serves largely to raise red-flags and does not remove the need for carefully considering the exact impact of a proposed development. In particular, it does not address activities with broad regional aesthetic or biodiversity impacts e.g. renewable energy development projects.

In the park, there are two categories within the park buffer zone, the priority natural area and the viewshed protection area (Appendix 5 Map 6).

#### **6.7.1 Priority natural areas**

This category aims to ensure the long-term persistence of biodiversity, within and around the park, by identifying the key areas on which the long-term survival of the park depends. This includes areas important to both biodiversity pattern (especially reasonably intact high priority natural habitats) and processes (ecological linkages, catchments, intact hydrological systems, etc.). This does not imply any loss of existing rights (e.g. current agricultural activities or legal extractive biodiversity use such as fishing), but rather aims to ensure the park's survival in a living landscape.

Priority natural areas include areas identified for future protected area expansion as well as reasonably natural areas of high biodiversity value which are critical for the long-term persistence of biodiversity within the park. These include adjacent natural areas (especially high priority habitats) which function as an ecologically integrated unit with the park, as well as areas critical for maintaining ecological links and connectivity with the broader landscape.

Development guidelines: Inappropriate developments and negative land use changes (such as additional ploughing permits for natural veld, development beyond existing transformation footprints, urban expansion, intensification of land use through golf estates etc.) should be

opposed within this area. Developments with site-specific impacts should be viewed favourably if they contribute to ensuring conservation-friendly land use within a broader area (e.g. a lodge on a game farm). Guidelines applicable to the catchment protection category also apply to priority natural areas.

### **6.7.2 Catchment protection**

Although catchment protection areas were not specifically identified for the park, the principles of this component of the buffer zone apply to priority natural areas as well, and the section is retained for reference purposes. Catchment protection areas are important for maintaining key hydrological processes (surface and groundwater) within the park.

Development guidelines: Within these areas, inappropriate development such as dam construction, loss of riparian vegetation and excessive aquifer exploitation should be opposed. In addition, the control of alien vegetation, soil erosion and appropriate land care (e.g. appropriate stocking rates) should be promoted.

### **6.7.3 Viewshed protection**

These are areas outside the park where developments could impact on the aesthetic quality of a visitor's experience in the park. This category is particularly concerned with visual impacts (both day and night), but could also include sound pollution.

Development guidelines: Within these areas, development proposals should be carefully screened to ensure that they do not impact excessively on the aesthetics of the park. The areas identified are only broadly indicative of sensitive areas, as at a fine scale many areas within this category would be perfectly suited for development. Further, very obtrusive developments outside this zone may also have to be considered, as they may impact on the park e.g. renewal energy development zones.

### **6.8 Future improvements**

The buffer zone might undergo modification pending developments in the Mountain Zebra - Camdeboo Protected Environment.



## Section 7: Access and facilities

### 7.1 Public access and control

The park can be accessed from all major hubs, with the nearest significant town and airport being Port Elizabeth which is 273 km away. Approximate travel times by road to the park are as follows:

- 3 hours from Port Elizabeth (via N10, R61)
- 9 hours from Cape Town (N1, R61)
- 9 hours from Johannesburg (N1, N10, R61)
- 4 hours from Bloemfontein (N1, N10, R61)
- 9 hours from Durban (N2, R61)

The park has one entrance gate, which is located on the R61 between Cradock and Graaff-Reinet. It is situated approximately 12 km from Cradock, which is accessed via the N10 highway. The park includes approximately 102 km of tourist roads and 269 km of management roads.

### 7.2 Areas with restricted access

The park only has one tourist access gate which is manned by SANParks officials during park opening hours. The gate opening hours are as follows:

- 01 October to 31 March: 07:00 - 19:00; and
- 01 April to 30 September: 07:00 - 18:00

The Mountain Zebra restcamp and Weltevrede and Fonteinkloof picnic sites are surrounded by electric fencing and are access controlled. Access from the outside of the park is restricted by a 72 km predator-proof boundary fencing.

### 7.3 Airfields and flight corridors

There are no airfields in the park. If required, for operational purposes, existing roads can be used as a temporary landing strip. No need has been identified to establish flight corridors through the park's airspace as allowed for in section 47 of NEM:PAA.

### 7.4 Administration and other facilities

The facilities listed below in Table 5 are utilised for operational purposes enabling the park in fulfilling its' legal mandate. Map 7 in Appendix 5 shows all the infrastructure in the park.

Table 5. Current administrative infrastructure in the park.

Infrastructure	Current status	Zone	Proposed role by 2026
Main gate complex	Operational	LIL	Possible consideration for upgrade.
Administration complex	Operational	HIL	No plans for development.
Staff housing	Operational	LIL	Ten units to be added for critical staff.
Community hall in staff village	Operational	LIL	Needs to be upgraded.
Reception block (including conference room, restaurant, retail shop, office, laundry, storerooms, ablutions)	Operational	HIL	Planned re-design to separate functions of reception and restaurant and retail. Enlarge conference centre. Add universal access ablutions.

Infrastructure	Current status	Zone	Proposed role by 2026
Storage sheds	Operational	LIL	No plans for development.
Workshop	Operational	LIL	No plans for development.
Welgedacht Ranger outpost	Operational	Primitive	No plans for development.
Welgedacht dog kennels	Operational	Primitive	No plans for development.
Welgedacht environmental monitor house	Operational	Primitive	No plans for development.
Doornhoek Ranger outpost	Operational	LIL	No plans for development.
Doornhoek old Michau house	Undeveloped	LIL	Possibly demolish building.
Ebenaezer Ranger outpost	Operational	LIL	No plans for development.
Duty Manager's house	Operational	HIL	No plans for development.
Babylonstoren house	Operational	LIL	No plans for development.
Babylonstoren storeroom	Operational	LIL	No plans for development.
Old gate students accommodation	Operational	LIL	No plans for development.
Helipad	Operational	LIL	No plans for development.
House, outbuildings, shed, shearing shed at Rockdale farm	Leased	LIL	No plans for development
House, outbuildings, shed at Evendale farm	Leased	LIL	No plans for development
House, outbuildings, shed at Groenfontein farm	Leased	LIL	No plans for development
House, shearing shed, kraal, dipping tank at Stapelbergskraal farm	Leased	LIL	No plans for development
Weather station	Operational	HIL	No plans for change
Rhino / Buffalo bomas	Operational	LIL	No plans for change
Predator bomas	Operational	LIL	Possible upgrade
Boreholes (33)	Boreholes, 11 operational, 22 not operational.	Various	Possible change – dependant on biodiversity programmes requirements.
Quarries (5)	Two operational, three rehabilitated.	Various	Use of quarries depends on needs for road maintenance.
Reservoirs (20)	Concrete reservoirs, nine operational and 11 not operational.	Various	No plans for additional reservoirs, repair of one reservoir planned, plan to remove 11 non-operational reservoirs.

## 7.5 Visitor facilities

Visitor facilities including all non-commercial facilities and points of interest available to visitors, these are set out in Table 6 below.



Table 6. Visitor facilities and points of interest in the park.

Infrastructure / visitor sites	Current status	Zone	Proposed role by 2026
Fonteinkloof picnic site, swimming pool and ablutions	Operational	LIL	No development plans
Weltevrede picnic site and ablutions	Operational	LIL	Add an open-air lapa / boma for groups, including braai site, simple kitchen facilities and possibly extra ablutions. Add interpretive centre / day visitor centre for school groups. Add overnight camping area for rooftop tented vehicles and ground tents (no additional facilities required).
Main camp swimming pool and ablutions	Operational	HIL	Add shade covers.
Black Eagle 1 km hiking trail	Operational	Quiet	Develop interpretive signage. Possibly convert a section to be universally accessible.
Imbila 2.5 km hiking trail	Operational	Quiet	Develop interpretive signage.

## 7.6 Commercial activities

For the purposes of this management plan, commercial activities include all income-generating facilities, products and services offered, and are divided into those operated by the park and those operated by third parties, for example concession lodges.

### 7.6.1 Accommodation

Accommodation facilities in the park are currently limited, with much potential for expansion. Existing facilities include those listed in Table 7, below.

Table 7. Accommodation facilities available in the park.

Infrastructure	No of units	Current status	Zone	Proposed role by 2026
Family cottages	20	Self-catering – serviced - economy accommodation.	HIL	Same as at present. Possibly more privacy for braai area. Renovate interiors.
Mountain cottages	2	Self-catering - serviced - economy accommodation.	LIL	Same as at present. Addition of ablution facilities and an additional bedroom.
Doornhoek guesthouse	1	Self-catering – serviced (premium). Declared national monument	LIL	Same as at present.
Small guesthouse	1	Self-catering - serviced - economy accommodation - historic building.	LIL	Currently used for overbookings only. Possible upgrade for tourist use.
Campsites and communal facilities	25	Camping - budget accommodation - power / no power.	HIL	Same as at present.

### 7.6.2 Concessions

There are no concessions in the park.

### 7.6.3 Retail and other facilities

The current retail facilities include:

- The park convenience store and restaurant, which are operated by a management agreement; and
- The filling station infrastructure, owned by Total South Africa and operated by the park.

### 7.6.4 Activities

There are a number of income generating activities available in the park, and these are listed below:

- Guided game drives (morning, sunset and evening);
- Cheetah tracking;
- Guided morning walks;
- Self-drive 4x4 trails (Sonnenrust – 14.2 km, Juriesdam – 10 km, Umngeni – 8 km);
- Self-guided walking trails (Imbila – 1 km, Black Eagle – 2.5 km);
- Annual birding weekend;
- Annual birding identification course;
- Holiday programmes.

### 7.7 Cultural heritage sites

A number of sites, as listed in Table 8 below, are accessible to visitors.

Table 8. Cultural heritage sites available in the park with tourism potential.

Sites	Current status	Zone	Proposed role by 2026
Salpeterkop chessboard	Guided walk	Remote	Unchanged
Boesmanskloof rock paintings	Guided walk	Various	To be determined.
Grave sites (various locations)	Guided visitation	Various	To be determined.

### 7.8 Community use

Communities are given access to grave sites or cultural sites for ritual purposes by appointment. They will be accompanied by a ranger for safety reasons. There are currently no community resource use projects future applications will be evaluated according to the SANParks resource use policy.

### 7.9 Mining

Other than gravel pits used for maintenance purposes, there is currently no commercial mining taking place in the park. No mining rights / permits have been issued on park property.

### 7.10 Servitudes

The following servitude are registered in the park:

- Eskom: Two powerlines traverse the park in the north-east.



## Section 8: Consolidation and expansion

The expansion and consolidation of the park remains a national priority for SANParks given its internationally recognised biodiversity, its landscape interface and its regional social-economic importance. The expansion programme is informed by SANParks policy regarding land inclusion (SANParks 2006b; Knight *et al.*, 2009), and the National Protected Areas Expansion Strategy (DEAT 2008), as well as the 3-year rolling land acquisition plan. It is important to note that this 3-year plan can change due to the availability of funds, willing-buyer-willing-seller concept and the negotiation process. The expansion of the park also addresses national objectives, namely:

- Strategic objective 3 of a coordinated approach to the management of terrestrial and aquatic ecosystems; and
- Strategic objective 5 of expanding the national protected area system towards 12% of the terrestrial area.

The park expansion programme aims to contribute to the National Protected Area Expansion Strategy (NPAES) that recommends expansion towards 12% of the terrestrial area and 25% of the marine inshore. Effectively engaging with relevant stakeholders through collaborative interventions would contribute towards achieving co-operative management within the park's buffer zone. Expansion of the park can be achieved through direct acquisition by means of own (SANParks) funding, government funding or donation from a private or Non-Governmental Organisation donor. In the case of SANParks or state funding the acquired land becomes state land and is declared as national park (Clause 20 (2) of the NEM:PAA and its Amendment No 31 of 2004). In some cases a private entity may acquire the land for national park purposes, but retains ownership (such as World Wide Fund for Nature; National Parks Trust of South Africa) with the land declared Clause 20 (3) of the NEM:PAA. Land can also be included via contractual park agreements which refer to cases where private or communal land is incorporated into the park (and declared under the same Clause 20 (3) of NEM:PAA) under agreement between the parties but they retain ownership.

Although the park is not situated within an identified priority habitat by the South African National Biodiversity Conservation Assessment (Driver *et al.* 2005), it does however reside in the Albany - Pondoland hotspot and is one (Camdeboo Escarpment) of the 42 identified focus areas in the NPAES (DEAT 2008). The park currently has three vegetation types represented, namely the Karoo Escarpment Grassland, Eastern Upper Karoo, and the Eastern Cape Escarpment Thicket, making up 59%, 30% and 11%, respectively of the 28, 386 ha park. Although relatively small this includes representation from a mix of Thicket, Nama-Karoo and Grassland biomes (Mucina and Rutherford 2006).

Moreover, the expansion and consolidation of the park westwards towards CNP remains an important focus of SANParks in its attempt to establish a large protected area representative of the Thicket – Nama-Karoo – Grassland Biome interface landscape (Holness *et al.*, 2003), as reflected in the declaration of the Mountain Zebra - Camdeboo corridor project (RSA 2014) on 01 April 2016. The protected environment would seek the unification of the Camdeboo and Mountain Zebra National Parks as its western and eastern holding points into a mega reserve arrangement of ~1 million ha. The MZNP side (~487,152 ha) of this larger buffer includes 12 vegetation types, with the Tarkastad Montane Grassland, Lower Karoo Gwarrieveld, Eastern Temperate Freshwater Wetlands, Great Fish Thicket, Sundays Noorsveld and Sundays Thicket unique to this side of the buffer. It would have representation of Thicket (17%), Grassland (42%), Nama-Karoo (35%) biomes and the azonal Wetlands (6%) vegetation types (Mucina and Rutherford 2006) making it a relatively biodiverse rich park.

Although the park's current three vegetation types are classified as least threatened they are all either hardly (0 - 5% of conservation target) to poorly (5 - 50% of conservation target) protected within formal conservation areas (Mucina and Rutherford 2006). As such the planned protected environment would play an important role towards meeting these targets. In addition, with the larger protected area envisaged including 50% of under conserved grassland vegetation types it would also play a fundamental role towards increasing the national representation of this

threatened biome.

The approach that SANParks will follow can be found in section 10.2.2 on page 62.



## Section 9: Concept development plan

### 9.1 Long term development plan

Development is only carried out in order to fulfil a real operational need or tourism opportunity. The park is relatively small and is not yet fully sustainable, however it has growth potential and runs at good occupancies.

Various opportunities have been identified for expansion, with the priority area being within the Mountain Zebra restcamp at present, including the addition of new units and campsites. Development will also focus on expansion of the potential activities offered in the park, including the addition of a bird hide with overnight facilities. A luxury campsite and wilderness camp will be added, the existing Mountain cottages will be enhanced and a second historic guesthouse will be developed within the Doornhoek guesthouse complex.

Caution should be exercised when considering any tourism development. The zonation of the park will dictate the placement of any development and it is important to note that the implementation of identified projects is dependent on the availability of funds.

### 9.2 Development nodes

The primary development node remains the Mountain Zebra restcamp, with limited expansion in a number of other areas.

### 9.3 Communication routes

Communication needs to be improved in the park, including telephone, data network, free and metered wifi and cellular access.

### 9.4 Service supply routes

Existing supply routes will be used, existing bulk services must be upgraded (including water, sewer and power supply) to cater for accommodation expansion.

### 9.5 Infrastructure development proposals

All infrastructure development proposals, including activity development, are presented in Tables 9 - 13 below.

#### 9.5.1 Administration and other facilities

The facilities set out in Table 9 below will be utilised for operational purposes.

Table 9. Proposed administrative infrastructure development in the park.

Infrastructure / Visitor sites	Current status	Zone	Proposed role by 2026	Probability
Main building (reception, restaurant, shop)	In operation	HIL	Re-design to separate functions of reception and retail.	High
Staff accommodation	In operation	HIL	Continue	High
Bulk services (water, electricity, sewage)	In operation	HIL	Continue and expand upon	High

Infrastructure / Visitor sites	Current status	Zone	Proposed role by 2026	Probability
Tar road portion on main entrance road (5 km)	In use	LIL	Continue	High
Main gate	In use	LIL	Continue	Medium
Administration complex	In operation	HIL	Addition of Technical Services Office	Low
Eskom electricity line	In operation	LIL	Reroute or move underground to improve visitor experience (aesthetic)	Low
Unsurfaced portion of entrance road (8.8 km)	In use	LIL	Surface to improve visitor experience, quality and environmental impact	Low

### 9.5.2 Visitor facilities

Visitor facilities include all non-commercial facilities and points of interest available to visitors are set out in Table 10 below.

Table 10. Proposed visitor facility development in the park.

Infrastructure / visitor sites	Current status	Zone	Proposed role by 2026	Probability
Bird hide	Non existent	LIL	Develop one hide with overnight facility (5 - 6 beds) on the Ubejane loop	High
Lapa / boma for groups	Non existent	LIL	Consider at Weltevrede picnic site – could be combined with Day centre below	High
Interpretive centre / day centre for school	Non existent	LIL	Likely development within 12-18 months pending funding	High
Play park / activities for children	Non existent	HIL	Develop within main camp	High

### 9.5.3 Commercial facilities and activities

A number of commercial activities could be developed in the park, in order to expand the tourism product. All proposed activities will be individually investigated and their priority determined based on feasibility and income potential. Following these studies, some potential activities may be excluded from potential development. In addition, there is a large number of activities for development that are excluded as they are considered unlikely to be developed within the term of this plan. However, should the market change or a third party supplier present an opportunity, products may be considered based on the agreed terms and locations, as per the park product development framework (Appendix 4).

#### 9.5.3.1 Accommodation

The new accommodation infrastructure that is envisaged for the park is set out in Table 11 below.

Table 11. Proposed accommodation development in the park.

Infrastructure / visitor sites	Current status	Zone	Proposed role by 2026	Probability
Family cottages	Operational	HIL	Upgrade interiors of existing family cottages.	High
New units: rock chalets and single-bedroom cottages	Planned for construction in 2016	HIL	Part of accommodation offering.	High



Infrastructure / visitor sites	Current status	Zone	Proposed role by 2026	Probability
Doornhoek small guest house	Currently used for staff or overbookings	LIL	Upgrade of historic small guesthouse to incorporate standard of Doornhoek complex.	Medium
Mountain cottages	Operational	LIL	Incorporation of ablution facilities and additional bedroom.	High
Additional mountain cottages	Non existent	LIL	Develop 2 additional units.	Medium
Wilderness camp	Non existent	Primitive or LIL	Proposed addition of 5 units in remote area of park.	Medium
Luxury camp site	Non existent	LIL	Proposed addition of 10 luxury campsites.	Medium

### 9.5.3.2 Concessions

No concession development is planned at this time. The current restaurant and retail model which operates under an outsourced management agreement will be re-evaluated in 2016 to determine if it should be extended or if a concession should be offered instead.

### 9.5.3.3 Retail and other facilities

The current shop and conference facilities may be considered for upgrade during this management plan cycle.

### 9.5.3.4 Activities

Leisure activities provide a mechanism for income generation, with the potential for community development and without the high capital investment required for accommodation. Key challenges regarding provision of leisure activities in future will be diversity of offering, customer demand and increasing the 'adventure' element of activities in order to engage the younger markets and markets with a high disposable income. Activity development will need to take the visual impact of each activity into account, in order to ensure the unique selling proposition of remoteness of the park is maintained. Certain activities will also need to cater for different product grades and visitor experience levels.

Table 12. Proposed activity development in the park.

Activities	Current status	Zone	Proposed role by 2026	Probability
Star gazing	Not currently offered	LIL	Opportunity for star-gazing product.	Medium
Group guided drives	Limited capacity, 10 seater vehicle only	LIL	Expand current operations will require an additional vehicle and guide, as capacity is limited to one 10-seater vehicle at present.	High

Activities	Current status	Zone	Proposed role by 2026	Probability
Bush braais and breakfast	Not currently offered	LIL, Quiet or Remote	Opportunity for development for groups, conferences and international visitors.	High
Volunteer programme	Not currently offered	HIL, LIL	Opportunity to offer conservation volunteer programme. Would need some associated accommodation to be developed.	Low

#### 9.5.4 Cultural heritage sites

There is a need to enhance the interpretation of the cultural heritage sites in the park. Additional sites have been identified (Table 13) for possible interpretation.

Table 13. Proposed cultural heritage product development in the park.

Sites	Current status	Zone	Proposed role by 2026	Probability
Salpeterkop rock paintings	Undeveloped	Remote	To be determined.	To be determined (medium)
Salpeterkop rock etchings	Undeveloped	Remote	To be determined.	To be determined (medium)
Watervalkloof rock paintings	Undeveloped	LIL	To be determined.	To be determined (high)
Link road rock paintings	Undeveloped	LIL	To be determined.	To be determined (low)
Juriesdam house (ruin)	Undeveloped	LIL	To be determined.	To be determine (medium)
Wendover house (ruin)	Undeveloped	LIL	To be determined.	To be determined (medium)



## Section 10: Strategic plan

### 10.1 Introduction

Sections 3, 4 and 5 of this plan outlined the policy framework, the consultation process and vision, mission and high level objectives for the park. In this section the higher level objectives of the park are developed into lower level objectives and sub-objectives and finally into operational actions. In this way decision-making, even at the operational level, can be traced all the way back to the core values and inputs from stakeholders on which they have been based. This approach conforms to the requirements of the NEM:PAA and the National Environmental Management: Biodiversity Act No 10 of 2004 (NEM:BA), SANParks policy and ratified international conventions.

Programmes of implementation, developed as outlined above, form the strategic plan for this planning cycle, are arranged under the following headings:

- Bioregional;
- Biodiversity;
- Tourism;
- People and Conservation; and
- Effective park management.

Each programme is presented as follows:

- **Programme name:** A name describing the programme.
- **Background:** Overview of intent, guiding principles, description, outcome, research and monitoring and risk (all where applicable);
- **Tables:** Outline of objectives, initiatives and management actions within the scope of the objective with an indication if the programme is once off, continuing or conditional on the availability of resources. These tables have the following headings:
  - **Objectives** The various objectives derived from the hierarchy of higher level objectives, which make up each programme;
  - **Actions:** The actions necessary to achieve the objective;
  - **Responsibility:** The SANParks person, section, department, division or unit responsible for implementing the action;
  - **Indicator:** A measure whereby the achievement of the objective can be evaluated;
  - **Timeframe:** An indication of when the action is likely to be completed (indicated by year in the planning cycle); and
  - **References:** References to relevant programmes, lower level plans (LLP's) or other documents.

The commitments outlined in the various programmes under section 10 are aligned with the performance management system of the operational staff. This is revised annually to ensure all the actions will be implemented.

## 10.2 Bioregional

The purpose of the bioregional objective is to conserve systems and processes within and around the park to ensure a positive conservation outcome in the park and buffer zone, by influencing developmental processes in the buffer zone and by adding sufficient land to protected area real-estate. The park recognises that partnerships could be developed with other like-minded organisations to maintain the faunal and floral assemblages and ecological processes representative of the area for the long-term beneficiation of the region and country. It aims to collaborate with relevant international, national, provincial and local government structures; non-governmental organisations (NGOs) and landowner groups. The park is an important driver of the regional economy, through tourism as well as direct and indirect employment opportunities.

### 10.2.1 Mainstreaming biodiversity programme

The purpose of this programme is to ensure that biodiversity considerations are taken into account in all development decisions by engaging and interacting with local and district municipalities, non-governmental organisations, neighbours, surrounding communities *etc.* bordering the park.

The park has a number of land uses occurring on its borders, but traditional farming, often rangeland grazing, is the most dominant. Other activities include private game farms and industrialisation close to the town of Cradock. Beef and sheep ranching is widespread and an important economic agricultural industry in the area. This type of agricultural activity is not mutually incompatible with a wildlife product, and many farmers in the area have expressed interest, and signed up for participation in the Mountain Zebra - Camdeboo Protected Environment.

Currently, there are no renewable energy developments in the immediate vicinity of the park, although there are solar energy proposals on the periphery of the buffer zone. The buffer zone should be monitored for further renewable energy developments. Of more immediate concern is the potential for shale gas mining or fracking. Of particular concern is the amount of water required for fracking, in an already water-stressed environment, as well as the potential contamination of ground and surface water from mining activities. This would not only impact negatively on the park, but also on the largely agricultural landscape. In light of these potential threats, SANParks is proposing to use the park as a natural laboratory, to conduct baseline studies of water availability and water quality. All of these activities, if left unchecked and uninformed, can negatively affect the natural systems in the park and hence its potential to conserve biodiversity. The park aims to oppose or minimise the negative impacts of poor conservation strategies and development along its borders, through the proactive engagement with surrounding land owners, regional planners and scientists. The primary mechanism to address these concerns is through the park's buffer zone (Appendix 5, Map 6), in accordance with the gazetted DEA strategy on buffer zones. The buffer zone serves as a guide to indicate areas within which landuse changes could affect the park, and where park management and scientists should assess and, where required, respond to EIAs as an interested and affected party (IAP). SANParks may also respond to developments with broader regional impacts, even if these occur outside the buffer zone, but are deemed to have an impact on the park. Ultimately, the park and its buffer zone should be integrated into the integrated development plans (IDPs) and SDFs of the local and district municipalities.

The achievement of the park's objectives depends on understanding the relationships and inter-dependencies between various strategic planning processes and partnerships in the region. The park will cooperate with the relevant national, provincial and local government structures insofar as these affect the park, and keep track of issues affecting the park and region to ensure that functional ecosystems are protected. Through education about the importance of biodiversity, the park intends to raise awareness of people and communities in the buffer zone, to the importance of conservation in the region. Building positive relationships with landowners and providing a central point for conservation ideas and examples, will contribute to the achievement of the objective of this programme.

This programme links with high level objective 1 and objective 1.1 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.



### MAINSTREAMING BIODIVERSITY PROGRAMME

**High level objective:** To ensure co-operative management and consolidation of the park within the buffer zone, by effectively engaging with relevant stakeholders through collaborative interventions.

**Objective:** To minimise the potential conflicts that arise from different land uses in the park buffer zone through responsible engagements with land owners and local authorities and promoting mitigating options.

Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To minimise potential conflicts that arise from the differing objectives of non-aligned land-uses in the park buffer zone through responsible engagement with land owners and local authorities and development of conservation options.	Identify land use and transformation trends in park buffer zone, and how these may affect the park.	PM, CSD	Report	Year 2	
	Update landuse planning databases for landuse assessment, sector plans, CBA data, SPOT5 imagery <i>etc.</i>	CSD	Data bases	Year 2	
	Identify possible external threats from development.	CSD, PM	List of threats	Ongoing	
	Establish institutional collaboration to use the park to establish water quality baselines.	CSD	Research contracts	Year 1	
	Participate in IDP and SDF processes to influence decisions.	PM	Minutes of meetings	Annually	
	Respond to EIAs, scoping reports <i>etc.</i>	PM, CSD	Scoping, EIA reports	As required	
	Engage with identified landowners to achieve common conservation goals.	PM, CSD	Minutes of meetings	Ongoing	

#### 10.2.2 Park consolidation and expansion programme

The purpose of this programme is to achieve the SANParks goal of conserving ecological patterns and processes typical of the region by acquiring conservation-worthy land through purchase or by other means in line with SANParks land acquisition framework. The rationale for this programme can be found in section 8 on page 54.

The specific expansion plan for the park has a northern and western focus. The small but important northern area of about 660 ha has been identified for inclusion mainly to align the park boundary on the provincial road and facilitate placing the entrance gate on the main feeder road. Ideally this should be included via acquisition. It is expected to cost about R3 million at 2016 prices.

The western focal area includes two sub-components. A higher priority acquisition of about 8, 300 ha on the south western boundary of the park would link the park with the currently isolated Rockdale section and consolidate the watershed of this catchment. With these farms focused on livestock production, acquisition would be the preferred option and would be expected to cost about R39 million at 2016 prices. Directly to the north of these properties and on the park's north western boundary lies another cluster of productive low lying lands (3, 600 ha) that would further consolidate the catchment of the river valley and provide a productive extension to the Rooiplaat section of the park. This acquisition would cost about R17 million. Together, the above expansions would add a further ~13, 200 ha to the park for a total cost of ~R59 million.

The Mountain Zebra to Camdeboo protected environment forms part of the buffer zones of the Mountain Zebra and Camdeboo National Parks and this application will greatly enhance the conservation integrity of the region. This protected environment will make a significant contribution to meeting national habitat protection targets. The 268, 000 ha Mountain Zebra-Camdeboo Protected Environment will provide the foundation for this greater protected area. However, with limited national land acquisition funds available and relatively small donor support,

no large scale land purchases are contemplated in the foreseeable future. As opportunities periodically arise, it will be important to remain flexible in re-allocating the limited resources to possible acquisitions in this footprint. In addition, a second phase funded by the Global Environmental Facility (GEF) has a target to declare another 45, 000 ha as part of this propose Protected Environment.

A Memorandum of Understanding between SANParks and the Land Owners Association, regulates the relationship between the two entities and sets out responsibilities. In terms of this agreement the Association will be the management authority for the protected environment. SANParks will assist the Association with compiling the management plan and will be responsible to monitor progress of the protected environment against its management plan. In addition, SANParks will also provide technical support and advice when required.

This programme links with high level objective 1 and objective 1.2 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

PARK CONSOLIDATION PROGRAMME					
<b>High level objective:</b> To ensure co-operative management and consolidation of the park within the buffer zone, by effectively engaging with relevant stakeholders through collaborative interventions.					
<b>Objective:</b> To consolidate the ecological representation and resilience of the region through advocating and implementing a variety of conservation-friendly initiatives over the next 10 years.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To acquire strategically identified properties of conservation-important land to consolidate the park.	Update the conservation expansion plan as per section 8 of this document.	CSD, PM	Plan	Ongoing	
	Motivate and prioritise acquisitions.	CSD, PM	Priority list	Year 1	
	Obtain and allocate required funding.	CSD	SANParks expansion plan	Annually	
	Target the acquisition of ~9, 000 ha over 10 years.	CSD, PM	Purchase agreements	Year 10	
	Review conservation expansion plan.	CSD, PM	Annual report	Year 3, ongoing	
To establish the Mountain Zebra-Camdeboo Protected Environment through establishing ecological linkages across the landscape.	Ongoing engagement with Landowner Association.	CSD, PM	Annual report, minutes	Annually	
	Assist with the development of the management plan for the Protected Environment.	PM	Completed plan	12 Months after declaration	
	Provide technical support and advice.	PM	Monthly report	As required	
	Assist the Landowners Association to measure compliance against the management plan.	PM	Annual report to DEA	Annually	

### 10.3 Biodiversity

Biodiversity management is a core mandate of the park, along with responsible tourism and maintaining stakeholder relationships. The park’s approach to biodiversity is necessarily in line with SANParks policies and the principles of strategic adaptive management. The primary biodiversity objective is: To ensure the persistence of biodiversity by conserving and restoring ecological patterns and processes and populations of key species representative of the north-eastern Nama Karoo-Grassland-Thicket interface.

As such, a number of biodiversity management programmes were developed to effectively manage the diversity, patterns and processes of the bioregions and landscapes represented in the park. The key management strategies listed below cover the next planning cycle (or longer), in order to advance towards the park’s desired state in terms of biodiversity management, and represent the sub-objectives of the biodiversity programme:

- To ensure the persistence of spatial heterogeneity resulting from linkages between diverse topography, soil and vegetation types by maintaining, restoring and mimicking key ecological processes;



- To ensure the functionality and associated ecosystem services of the freshwater systems by maintaining and restoring the hydrological connectivity and variety of aquatic habitats;
- To ensure the persistence and viability of key species by contributing to national initiatives and implementing species specific management approaches
- To provide a sense of wildness and tranquil atmosphere in an unpolluted environment, by maintaining and restoring the variable landscapes and mitigating adverse impacts.
- To ensure the achievement of biodiversity outcomes by minimising the impacts of other competing objectives through robust planning and evaluation.

### 10.3.1 Terrestrial ecosystem programme

The purpose of this programme is to ensure the persistence of spatial and temporal heterogeneity resulting from linkages between diverse topography, soil and vegetation types, by maintaining, restoring or mimicking key ecological processes. As such, this objective is made up of sub-objectives involving habitat and vegetation, restoration (including soil erosion, invasive alien vegetation and alien or extralimital fauna), fire, herbivory, predation and disease management.

#### 10.3.1.1 Habitat and vegetation programme

The purpose of this programme is to understand and track potential changes of key habitats and plant communities, and the consequences for abiotic and biotic ecological processes, through regular monitoring, data analysis and evaluation within an adaptive management system.

The heterogeneous vegetation known as the Eastern Mixed Karooveld is typical of an overall co-dominance of grasses and karoo dwarf shrubs (van der Walt, 1980). The vegetation is subjected to continuous climatic pressure due to the influence of an arid climate in the west and a moderate climate in the east. The park is the only proclaimed protected area in the Eastern Mixed Karooveld and thus represents a unique reference site to monitor the changes in this dynamic vegetation.

Fences prevent the large-scale migration of ungulates, and the recently introduced predators are not yet able to keep the herbivore numbers in check. Therefore, in a relatively small park such as MZNP, which carries localised high densities of grazing ungulates, biodiversity could be lost if large herbivore populations are not actively managed. Some of these herbivores strongly favour grazing lawns, which are patches of heavily grazed grasses that are maintained in this state through continuous grazing by short-grass grazers. It has been demonstrated that grazing lawns do not derive solely from existing matrices of abiotic factors, such as soil heterogeneity (although their distribution may be influenced by such factors), but are largely animal driven. Consequently, they can increase or decrease depending on fire, rainfall and grazing regime (Novellie and Gaylard 2013). In the absence of population control, grazing lawns may proliferate to the extent that the veld loses patch diversity. This would be particularly undesirable because the threatened Cape mountain zebra population would be disadvantaged.

Annual monitoring, together with exclosure studies, have indicated that rainfall and grazing by large herbivores induce a successional sequence in plant species composition that is consistent with Vorster's (1982) veld condition model (Novellie and Bezuidenhout 1994). However, the nature of the succession may vary between different plant communities and soil types (Novellie and Bezuidenhout 1994). The different ungulate species favour different stages of the successional sequence. Black wildebeest *Connocheates gnou*, blesbok *Damaliscus dorcas* and springbok *Antidorcas marsupialis* favour veld dominated by 'Increaser' species, and the patch selective grazing pressure of these species appears to create and maintain this type of veld. Cape mountain zebra and hartebeest favour 'Decreaser' dominated veld (Novellie 1990a). Thus there is no single ideal veld condition type. Instead, the maintenance of a diversity of large

herbivore species requires a range of veld condition types. The management regime followed in the park for decades - maintaining fairly regular annual offtake of large herbivores - appears to have maintained a high degree spatial heterogeneity and resilience. Localized grazing pressure in grazing lawns appears to have supplemented the high diversity of vegetation types and microhabitats characteristic of the park (Brown and Bezuidenhout 2005), to produce a mosaic of habitat types varying in species composition, as well as sward structure and height. This mosaic was sufficiently diverse to provide for the habitat requirements of the range of grazing ungulates present in the park (Novellie 1990a).

Hence this programme is very closely linked to the Herbivory Management Programme, which aims to maintain patchy herbivore impacts across the park. Vegetation monitoring, together with analysis of vegetation greenness and cover from satellite images, will form the basis of the monitoring for these two linked programmes.

This programme links with high level objective 2 and objective 2.1 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

HABITAT AND VEGETATION PROGRAMME					
<b>Objective:</b> To ensure the persistence of spatial heterogeneity resulting from linkages between diverse topography, soil and vegetation types by maintaining, restoring and mimicking key ecological processes.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To determine potential change of key habitats and plant communities and its consequences to the abiotic and biotic ecological processes by monitoring, data analysis and evaluating results.	Collate all old and current vegetation research.	CSD	Documentation and GIS layers.	Year 1	LLP's for Degradation and Restoration, Fire, Fresh Water Ecosystem Management, Species of special concern.
	Implement monitoring projects to assess the vegetation.	CSD, PM	In house research projects and facilitation of external research projects. Status and monitoring reports.	Annually or biennially	LLP's for Degradation and Restoration, Fire, Fresh Water Ecosystem Management, Species of special concern.
	Implement monitoring projects to assess alternative methods for assessing the veld condition such as the MODIS satellite imagery.	CSD, PM	In house research projects and facilitation of external research projects. Status and monitoring reports.	Annually or biennially	LLP's for Degradation and Restoration, Fire, Fresh Water Ecosystem Management, Species of special concern.

### 10.3.1.2 Degradation and rehabilitation programme

The purpose of this programme is to assess the habitat degradation status and implement mitigation measures needed to facilitate the improvement of ecological processes and enhancement of ecosystem functioning in affected areas.

The national policy on the conservation and sustainable use of South Africa's biodiversity, produced by DEA calls for the identification of key sites for rehabilitation based upon biological and socio-economic criteria, and the development and implementation of rehabilitation plans for identified sites. Similarly, the Convention on Biological Diversity lists rehabilitation as an important tool for promoting the conservation of biodiversity.



Most degradation types in the park are human-induced mainly due to past agricultural practices. Soil erosion is dominant in old cultivated lands, along drainage lines and in some wetland systems where erosion head-cuts result in transformation or desiccation of the wetlands. Often degradation is accompanied by loss of ecosystem functioning such that the extent of transformation or change in some areas cannot undergo passive rehabilitation without mitigation measures to facilitate recovery. In areas affected by past or current herbivore management practices, removal of basal vegetation cover and associated soil capping are evident, leading to soil degradation such as sheet, rill and gully erosion. As in old cultivated lands, the natural ecological processes (e.g. nutrient recycling, infiltration) have been lost or degraded and need to be restored to facilitate the return of natural vegetation patterns and processes. Vegetation degradation includes change of vegetation community in terms of richness, abundance, diversity and structure. Many of these degraded landscapes have taken new trajectories such that changes may not be naturally reversible, or often recovery does not take place within time periods acceptable to conservation management. Apart from human-induced activities, degradation can be caused by natural disturbances (*i.e.* floods, droughts) that are too frequent or severe to allow natural ecosystem recovery in a reasonable period of time. Degradation resulting from various factors, including climate perturbations and extreme events, inappropriate fire or herbivory regimes, alien species invasion, as well as human activities, generally reduces flows of ecosystem goods and services. Although some of these are natural processes, intervention may be required to aid recovery in protected areas where natural recovery processes are retarded or prohibited as a result of fragmented habitat surrounded by alternative land use. Except for some chaotic or gradual natural events leading to land degradation, the phenomenon is mainly due to the interaction of the users with the land. Water runoff is also accelerated by road infrastructure in areas of high tourism intensities. Degradation therefore affects the capacity of the habitat to support life, thereby contributing to an unsustainable ecological system.

Vegetation assessments are undertaken at selected sites in the park to determine the variation in succession rate and factors influencing those differences. New sites undergoing rehabilitation and those serving as reference sites are included annually to allow comparative studies. Satellite images with a high temporal resolution are also used to monitor vegetation change over a given period of time. The Landscape Function Analysis (LFA) technique (Tongway and Hindley 2004) uses soil stability, infiltration / runoff and nutrient cycling as indicators to measure soil degradation. LFA surveys are undertaken in order to assess the ecological functioning of the landscape, specifically of the soil components that form the template for other ecosystem patterns and processes. Rehabilitation in areas affected by soil degradation includes gully control methods such as resloping, silt fencing, brush packing and gabions construction (Coetzee 2005). Where sheet erosion was identified as a major degradation concern, a combination of soil ponding and brush packing is undertaken to break capped soils and facilitate sediment and seeds capture.

An initial wetland assessment, which includes mapping and verification has been completed. A follow-up survey to classify all wetlands into degradation types and severity still need to be undertaken for rehabilitation prioritisation. If rehabilitation does not receive attention, the park runs the risk of allowing further degradation which consequently has negative impacts on biodiversity. The risks involved include increased hectares of land invaded by alien species, erosion, loss of biodiversity and reduced forage to support herbivores.

A detailed lower level plan outlining the rationale and operational approach is available. Many of the degraded areas have also been invaded by invasive alien plants. Invasive alien clearing will be addressed in programme 10.3.1.2 below. This programme links with high level objective 2 and objective 2.1 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

DEGRADATION AND REHABILITATION PROGRAMME					
<b>Objective:</b> To restore the structure and function of degraded land by addressing the threats posed by soil erosion and invasive alien biota.					
<b>Sub-objective:</b> To restore the soil functioning and associated vegetation patterns of land degraded by erosion.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To restore the structure and function of degraded land by addressing the threats posed by soil erosion and invasive alien biota.	Rehabilitation of areas affected by alien clearing and soil erosion.	BSP	Ha of land rehabilitated	Ongoing	
	Rehabilitation of degraded wetlands.	BSP	Ha of land rehabilitated	Year 3 to 5	
	Monitoring recovery in areas undergoing rehabilitation.	BSP, CSD	Number of monitoring sites established	Ongoing	

### 10.3.1.3 Alien and invasive species programme

The purpose of this programme is to prevent entry and control invasive alien species in order to reduce their distribution, abundance and impacts, thereby maintaining the integrity of the indigenous biodiversity of the park. There are sixteen national acts, provincial ordinances and municipal by-laws that govern the management of alien and invasive species (AIS). Of these, the most immediately relevant are the NEM:BA and the Conservation of Agricultural Resources Act (No. 43 of 1983) [CARA] and regulations made under these acts. A small number of alien or extralimital animal species are found in the park, or occasionally enter the park from neighbouring properties. It is SANParks's policy that no species that were not historically present in the area are allowed to persist in a park. Consequently, all extralimital or alien animal species must be removed from the park as soon as is practically possible.

CARA requires the management of listed alien invasive plants. There are three categories of plants, each with its own management and control regulations. NEM:BA provides for the protection of South Africa's biodiversity within the framework of the National Environmental Management Act (Act No. 107 of 1998) [NEMA]. This act puts in place a framework for the management of AIS, regulations governing the management of AIS was published in July 2013 (Government Gazette No. R. 506). Many international conventions call for the management of invasive alien species (e.g. the Convention on Biodiversity). In South Africa, the management of AIS is mandatory under the NEM:BA. The CARA provides additional guidance for the management of AIS plants. The AIS management framework for SANParks (Hendricks and Symonds 2009) provides the context within which all management of AIS is implemented.

Alien and invasive species are accepted to be one of the largest, and fastest growing threats to biodiversity and the ecosystem services they support. These species can transform the structure and species composition of ecosystems by replacing indigenous species, either directly by out-competing them for resources or by changing the way nutrients are cycled through the ecosystem. They also increase biomass which in turn changes fire regimes and fire intensity (McNeely *et.al.*, 2001). Foxcroft *et.al.* (2013) identified biological invasions as one of the greatest threats to Protected Areas. The development of robust decision-making tools that are based on both invasive species traits as well as ecological principles, along with effective implementation, is key to the success of invasive species management programmes. The likelihood of protecting the park from the threats of AIS is dependent on sound management strategies, adequate resources and effective engagement with key stakeholders, effective legislation and policing of legislation. The likelihood of eradication or maintenance control varies considerably with species and terrain invaded. Rapid response is required to remove species before being allowed to build up large populations.

#### List of invasive species occurring in the park

Eighty seven alien plant taxa have been recorded for the park. In addition to the plant species there is one extra-limital mammal and two fish species, and are listed in Table 14 below.



Table 14. List of alien and invasive plant and animal species recorded in the park.

Taxonomic group	Scientific name	Common name	NEM:BA category	Current perceived level of threat
Fish	<i>Clarias gariepinus</i>	African sharp tooth catfish		Low
	<i>Cyprinus carpio</i>	Common carp	1b	Low
Mammal	<i>Phacochoerus africanus</i>	Warthog		Low
Plant	<i>Agave sisalana</i>	Sisal	2	Low
	<i>Alternanthera pungens</i>	Shell ginger, Skulpgemmer	3	Low
	<i>Ammi majus</i>	Shell ginger, Skulpgemmer	3	Low
	<i>Anthemis cotula</i>	Stinking Camomile	1b	High
	<i>Argemone ochroleuca</i>	White-flowered Mexican poppy	1b	Medium
	<i>Arundo donax</i>	Giant Reed, Spanish Reed	1b	Low
	<i>Atriplex semibaccata</i>	Old man saltbush	2	Medium
	<i>Austrocylindropuntia cylindrical</i>	Coral Cactus	2	Medium
	<i>Azolla filiculoides</i>	Red water fern	2	Low
	<i>Bidens pilosa</i>	Black Jack	1b/3	Medium
	<i>Briza maxima</i>	Big Quaking grass	1b/3	Low
	<i>Bromus catharticus</i>	Grazing broom	1b/3	Low
	<i>Bromus pectinatus</i>	Harvegras	1b/3	Low
	<i>Capsella bursa-pastoris</i>	Shepherds - Purse	1b	Low
	<i>Catarantius roseius</i>	Madagascar periwinkle	2	Low
	<i>Cereus jamacaru</i>	Cardeiro	1b	Low
	<i>Chenopodium mucronatum</i>	Goose Foot	0	Low
	<i>Chenopodium murale</i>	Australian spinach	0	Low
	<i>Cirsium vulgare</i>	Scotch thistle	1b	High
	<i>Cortaderia selloana</i>	Pampas grass	1b	Medium
	<i>Cuscuta campestris</i>	large-seeded alfalfa dodder	1b	Medium
	<i>Cyclospermum leptophyllum</i>	Marsh Parsley	1b	Low
	<i>Cylindropuntia imbricata</i>	Imbricate Cactus	1b	Medium
	<i>Cyperus rotundus</i>	Java grass	1b	Low
	<i>Datura ferox</i>	Long spined thorn apple	1b	Medium
	<i>Datura stramonium</i>	Devils snare	1b	Medium
	<i>Descurainia sophia</i>	Flix weed	1b	Low
	<i>Dysphania schraderiana</i>		3/2	
	<i>Echinopsis spachiana</i>	Torch Cactus	3/2	Medium
	<i>Eleusine coracana</i>	Finger millet	1b	Low
	<i>Eragrostis barraelieri</i>	Mediterranean Love grass	1b	Low
	<i>Eucalyptus globulus</i>	Blue gum	1b	Low
	<i>Eucalyptus camaldulensis</i>	Red river gum	2	Low
	<i>Glandularia aristigera</i>	Mock verbena	1a	Low
<i>Grevillia robusta</i>	Silky Oak	1b	Low	
<i>Hordeum stenostachys</i>	Bleeding-heart tree	1b	Low	
<i>Jacaranda mimosifolia</i>	Jacaranda	1b	Low	

Taxonomic group	Scientific name	Common name	NEM:BA category	Current perceived level of threat
Plant	<i>Lantana camara</i>	Lantana	1b	Medium
	<i>Lepidium draba</i>	Hoary cardaria	1b	Low
	<i>Malva neglecta</i>	Tree mallow	1b	Low
	<i>Malva parviflora</i>	Cheese wees	1b	Low
	<i>Melia azedarach</i>	Seringa	1b	Low
	<i>Morus rubra</i>	White mulberry, Common mulberry	3	Low
	<i>Nasella trichotoma</i>	Nasella tussock	1b	High
	<i>Nicotiana glauca</i>	Wild tobacco	1b	Medium
	<i>Opuntia aurantiaca</i>	Jointed cactus	1b	High
	<i>Opuntia ficus-indica</i>	Mission prickly pear, Sweet prickly pear	1b	Medium
	<i>Opuntia imbricata</i>	Tree chola	0	Medium
	<i>Paspalum dilatatum</i>	Dallis grass	1b	Low
	<i>Pennisetum clandestinum</i>	Kikuyu grass	1b	Medium
	<i>Pennisetum setaceum</i>	Fountain grass	1b	Medium
	<i>Pinus pinaster</i>	Cluster pine	2/1b	Low
	<i>Plantago major</i>	Broad-leafed Plantain grass	1b	Low
	<i>Poa annua</i>	Annual Meadow grass		Low
	<i>Polygonum aviculare</i>	Common Knot grass		Low
	<i>Polypogon monspeliensis</i>	Annual beard grass		Low
	<i>Populus canescens</i>	White poplar, Grey poplar	2	Medium
	<i>Populus nigra</i>	Black Poplar	2	Medium
	<i>Prosopis glandulosa</i>	Honey mesquite	1b/3	Medium
	<i>Prunus domestica</i>	Wild Plum	1b/3	Low
	<i>Prunus persica</i>	Peach	1b/3	Low
	<i>Pyrus communis</i>	European Pear	1b	Low
	<i>Ricinus communis</i>	Castor-oil plant	2	Medium
	<i>Rubus cunifolia</i>	American Bramble	1b	Medium
	<i>Salix babylonica</i>	Weeping Willow		Low
	<i>Salsola kali</i>	Russian Thisle		Medium
	<i>Schinus molle</i>	American Pepper		Medium
	<i>Schkuhria pinnata</i>	Sunflower family	1b/3	Low
	<i>Sisymbrium orientale</i>	Indian Hedgemustard	1b	Low
	<i>Solanum elaeagnifolium</i>	Silver-leaf bitter apple, Satansbos	1b	High
	<i>Stellaria media</i>	Chickweed	1b/3	Low
	<i>Tagetes minuta</i>	Southern cone marigold		Low
	<i>Urtica dioica</i>	Stinging nettle	1b	Low
	<i>Urtica urens</i>	Dwarf nettle	1b	Low
	<i>Verbesina encelioides</i>	Crown beard	1b	Low
	<i>Vulpia myuros</i>	Rats-tail fescue	1b	Low
	<i>Xanthium spinosum</i>	Spiny cocklebur	1b	Medium

### Description of the land infested and assessment of the extent of infestation

The park is infested by various AIS plants which occur at different densities of infestation (detail below). The Biodiversity Social Projects (BSP) programme have also estimated 1, 283, 588 ha within the Broader Alien Plant Footprint (BAPF) associated with the park, where alien plants may have a negative influence on the park achieving its' biodiversity objectives. Mitigation measures will be implemented to facilitate the improvement of ecological patterns and processes by the enhancement of ecosystem functioning in affected areas through the passive control and aggressive irradiation of alien and invasive plant species.



Three management units have been identified by the BSP programme, these management units are as follows; (1) the park itself, (2) the cadastral areas immediately adjacent to the park and (3) the broader alien plant footprint which includes the proposed Mountain Zebra - Camdeboo Protected Environment. Within these management units, various zones have been identified. These are:

- Disturbed lands (dams, old farms lands and roads).  
These are primarily infested with annuals that take opportunity through continual disturbance (fluctuating water levels, high herbivory and drought). The dominant annuals occurring here are *Argemone ochroleuca*, *Bidens pilosa*, *Cirsium vulgare*, *Datura stramonium*, *Ricinus communis*, *Solanum elaeagnifolium*, *Xanthium spinosum* and *Xanthium strumarium*. The densities range from between 0.5 % – 55 % depending on the area and the level of disturbance. *Azolla filiculoides* has been known to infest the dams when water levels are high, however these infestations are regulated by the fluctuation in water level. Other aliens species such as *Opuntia aurantiaca* and *Opuntia ficus-indica*, are also represented in these areas, densities are however relatively low and range between 0.2 % and 3 %.
- *Vachellia* thicket.  
The *Vachellia* thicket is dominated by higher infestations of *O. aurantiaca*. This species makes use of the benefit of the being protected by the thorny acacias and thrives in the micro climate provided by the *Vachellia* and *Lycium* component. Coupled to this, herbivores frequent this area for the palatable herbaceous layer. Climate protection and available water contributes to the spreading of this species.
- Riverine thicket.  
The riverine thicket is very similar to that of the Acacia thicket with the same dominant species present (*O. aurantiaca*), except that this zone is more susceptible to infestation by annuals due to the non-perennial water courses flowing within these areas. The disturbance generated by flash flooding and rainfall events provides a suitable environment. Commonly found annuals include but are not limited to *A. ochroleuca*, *B. pilosa*, *C. vulgare*, *D. stramonium*, *R. communis*, *S. elaeagnifolium*, *X. spinosum* and *X. strumarium*.
- Nama Karoo Scrubland  
This area, having different patterns and processes at play, is dominated by different alien plants. This zone is generally more open, disturbed, adjacent to the *Acacia* thicket zone and has a higher herbivore presence. As a result *O. aurantiaca* is the dominant species present and has an average approximate density of between 0.5 % - 3 % in the zone. Annual species such as *A. ochroleuca*, *B. pilosa*, *C. vulgare*, *D. stramonium*, *R. communis*, *S. elaeagnifolium*, *X. spinosum* and *X. strumarium* are also present in the area and occur at varying densities depending on disturbance, seasonality and climatic conditions.
- Grasslands  
This zone is located between the Nama Karoo scrubland and the Mountain grassland zones and *O. ficus-indica* is the dominant alien species, although it occurs at a very low density of <0.5 %.
- Mountain grassland  
Due to the soil composition and patterns and processes associated with this zone, different dominant alien invasive species are present. *O. ficus-indica* dominates the high lying areas associated with the cliffs, while *C. vulgare* dominates the disturbed wetland areas. Although not totally excluded *O. aurantiaca* seems to disappear between the ecotones of the Nama Karoo Scrubland, Grassland and Mountain

grassland.

- Cadastral areas immediately adjacent the park  
This zone has been identified in line with the South African National Biodiversity Institute's (SANBI) national vegetation layer and is critically important in preventing AIS entering the park. This area will be evaluated during 2016 / 2017 for attribute data. Post this process, prioritisation for treatment will be undertaken. Approximately 51, 487 ha is associated with this area.
- Broader alien plant footprint.  
The area is very expansive and at this stage simply outlines the areas with the potential to negatively affect protected area integrity. An inventory of this area will be undertaken post the cadastral buffer area evaluation and will be prioritised accordingly. An estimated 1, 283, 588 ha is associated with this area.

### **Status report on the efficacy of past control measures**

The Working for Water program has been active in the park since 2002. During this period R 11, 779, 729 has been invested into the control and eradication of AIS. The program has utilised 88, 422 person days and cleared an estimated 20, 627 initial ha and further 118, 461 ha follow-up. During this period, initial clearing primarily involved the mechanical and chemical control of the following species: *Populus canescens*, *Populus nigra*, *Schinus molle*, *O. aurantiaca*, *O. ficus-indica*, *Cylindropuntia tunicate*. While treatments of *P. canescens*, *P. nigra*, and *S. molle* have been very effective and required little follow-up work. *O. aurantiaca* and *O. ficus-indica* have provided a challenge and require extensive follow-up treatment, with densities of these species remaining relatively constant despite continued treatment over the years.

There are many factors that make these species difficult to control or eradicate. With reference to *O. aurantiaca*, a spiny, much branched, succulent shrublet with underground tubers which is actively spread by animal movement within the park; it also makes use of micro climates available within the Thicket areas of the park where animals seek refuge from adverse weather and to source water. Due to its much branched structure, cladodes are readily dispersed from non-treated areas into treated areas by animals, thus continued infestation persists. With reference to *O. ficus-indica*, this species occurs throughout the park, however treatment on the lower-lying Nama Karoo areas has been relatively successful. Higher altitude areas of the park remain a challenge due to accessibility as well as a continuous cycle of seed dispersal by birds, monkeys and baboons that readily feed on the fruit the plant provides in abundance. Follow up treatment continues on annuals such as *A. ochroleuca*, *B. pilosa*, *C. vulgare*, *D. stramonium*, *R. communis*, *S. elaeagnifolium*, *X. spinosum* and *X. strumarium*. These annuals fluctuate depending on climate and disturbance within the park such as road grading, burying of redundant structures, erosion and fire.

### **Current measures to monitor, control and eradicate alien invasive species**

The SANParks alien invasive species framework provides an integrated approach to alien and invasive species management, with the primary objective of meeting the biodiversity objectives of the park's management plan. The framework includes five vital components:

- Assessment and risk analysis;
- Priority setting;
- Early detection and rapid response;
- Control; and
- Restoration.

The spread of AIS into the park from the broader alien plant footprint and cadastral areas are a high risk. These areas will be monitored, assessed for risk of pathway movement into the park, prioritised in terms of eradication and treated accordingly. A full assessment and risk analysis of AIS in the park will enable priority setting. Prioritisation will then allow for available resources to be directed into ecologically sensitive and economically feasible areas. A generic set of criteria has been developed to prioritise areas and species. Once species and associated areas have been prioritised for treatment, this will be feed into an annual plan of operation (APO), which will form the basis of the motivation for funding annually. The APO will set out clearing schedules for each site, personnel requirements and costing. A long term strategy will be developed for the areas within the park and adjacent buffers, which will assist in compiling an inventory, priority listing and allocation of resources over a five to ten year time frame. This long term strategy will inform funding motivation and operations on an annual basis. Working with the SANBI Early Detection and Rapid Response Programme (EDRRP) the park will aim to identify pathways into the park, so that new AIS



introductions may be prevented and to enable a rapid response to eradicate or contain infestation. Even though a new invasion may seem insignificant, it must be evaluated for risk and potentially prioritised for treatment to ensure the threat does not spread, which could potentially require exponentially more effort and resources to clear at a later stage.

Control methods, or an integrated combination thereof are designed to suit the target species and environment in which they occur. The following methods could be used within the park, cadastral and broad alien plant footprint boundaries:

1. Initial treatment (mechanical, chemical and biological).
  - Chainsaw – fell, debranch and stack;
  - Foliar spray – application of herbicide; and
  - Biocontrol release - collection of clean cladodes, propagation of biocontrol and deployment of agent.
2. Follow up treatment (manual, chemical and biological).
  - Loppers and hand saws;
  - Foliar spray – application of herbicide; and
  - Biocontrol release - collection of clean cladodes, propagation of biocontrol and deployment of agent.
3. Integrated combination of methods.

The following species have been identified as a priority for control:

- *Opuntia aurantiaca*
- *Opuntia ficus-indica*
- *Populus canescens*,
- *Populus nigra*
- *Schinus molle*
- *Argemone ochroleuca*
- *Bidens pilosa*
- *Cirsium vulgare*
- *Datura stramonium*
- *Ricinus communis*
- *Solanum elaeagnifolium*
- *Xanthium spinosum*
- *Xanthium strumarium*

#### **Indicators of progress and success, indications of when the programme is to be completed**

The success of the control programme will be determined by the results furnished out of the extensive monitoring programme. These results will highlight status of alien plant infestation, densities and rate of spread. These in turn, will direct operational investment and the longevity of the programme in the park.

The park has two species of concern, namely *O. aurantiaca* and *O. ficus-indica*, these have shown minimum signs of reduction in cover and density over the last 13 years of control. A change of strategy regarding the treatment method is currently being explored. A biocontrol initiative was launched in the park during 2015. A rearing station was constructed for the propagation of the biocontrol agent *Dactylopius austrinus*, commonly referred to as cochineal to target *O. aurantiaca* and *O. ficus-indica*. This approach will hopefully deliver longer term benefits

and should be a sustainable solution. Should this strategy prove more viable than the current methodology of chemical foliar application, then broad scale biocontrol would be phased in as a holistically sustainable control measure, with the possibility of phasing out herbicides. Furthermore, the effectiveness of another biocontrol agent, Texas false potato beetle *Leptinotarsa texana*, will also be evaluated as a means of control for *S. elaeagnifolium*, in the park.

With reference to the other two management areas associated with the park, namely the cadastral area and the broader alien plant footprint, an extensive monitoring program will highlight the presence of AIS, classification thereof, density of occurrence, person day investment required as well as costing. The cadastral area bordering the park is to be evaluated during the remainder of the 2015 / 2016 financial period and will provide insight into scale and longevity of further investment required, while the broader alien plant footprint will be evaluated over a longer period depending on biodiversity threats and priorities. The projected resources required over the next ten years is estimated at R 14, 450, 392, to clear 9, 159 initial ha and a further 103, 135 follow-up ha within the park.

It is unlikely that AIS control will ever be completed within the three management areas identified and associated with the park, due to the extreme complexity of natural systems and the dispersive agents present in the environment. Therefore continuous effort consisting of monitoring, risk assessment and control will have to be undertaken into the foreseeable future. A detailed lower level plan outlining the rationale and operational approach is available.

This programme links with high level objective 2 and objective 2.1 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

ALIEN AND INVASIVE SPECIES PROGRAMME					
<b>Objective:</b> To restore the structure and function of degraded land by addressing the threats posed by soil erosion and alien and invasive vegetation.					
<b>Sub-objective:</b> To control and, where possible, eliminate alien vegetation.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To systematically survey and list alien species in and around the park.	Survey the park and cadastral area, in order to determine alien species (fauna and flora) abundance and distribution, and maintain updated species lists.	PM, BSP, CSD	Survey report, annual reports	Annually for park, Year 2 for cadastral area	
	Secure resources to evaluate the broader alien plant footprint to determine alien species (flora) abundance and distribution.	BSP	Funding allocated	Year 3	
To prevent, where possible, the introduction of alien species.	Prohibit and where present remove alien species (fauna and flora) from staff quarters and tourism accommodation.	PM	Monthly report	Ongoing	
	Monitor, and / or where necessary, manage previously degraded areas within the park and adjacent to the park in order to reduce the risk of invasion or post clearing reinvasion.	PM, BSP	Monitoring results	Ongoing	
To ensure the effective and timely development and implementation of integrated control strategies, in such a manner that rapid response and long-term maintenance goals are met.	Introduce biological control agents and / or other appropriate and novel methods (subject to risk-benefit evaluation) where appropriate and necessary.	BSP, PM	APO	Annually	
	Eradicate, where possible, all new incursions of alien species (fauna and flora) and monitor the efficiency of the eradication programme.	PM	Monthly report	Ongoing	



### 10.3.2 Freshwater ecosystem programme

The purpose of the freshwater ecosystem programme is to ensure the functionality and associated ecosystem services of the freshwater systems of the park by maintaining and restoring (where feasible) the hydrological connectivity and variety of aquatic habitats.

South Africa is a signatory to the Convention on Biological Diversity (CBD). Therefore, SANParks' strategic plan, management plans and conservation policies are informed by the CBD's Programme of Action on Protected Areas. In 2010, CBD member nations agreed to 20 Aichi Targets to stop loss of biodiversity by 2020. Target 11 states that, "by 2020, at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape". South Africa was pro-active in adopting a freshwater conservation target.

This target emerged from a series of participative workshops involving several government departments and national agencies [SANParks, Council for Scientific and Industrial Research (CSIR) and SANBI], and stated that at least 20% of each inland water ecosystem type should be conserved (Roux *et al.*, 2006). The endorsement of a quantitative target was followed by a national planning exercise to identify strategic spatial priority areas for satisfying the 20% target. The resulting conservation priorities, known as Freshwater Ecosystem Priority Areas (FEPA's), comprise 22% of South Africa's river length and 38% of wetland area (Nel *et al.*, 2011). An important step is to acknowledge freshwater ecosystems as biodiversity features in their own right that are central to a protected area's conservation mandate. Even in protected areas such as national parks, freshwater ecosystems are often appreciated only for their functional utility such as game watering or providing attractive locations for tourist lodges, rest camps, lookout points and game drives. In the park, biodiversity associated with riverine habitats is driven by three main factors: (i) the climate and nature of the landscapes (e.g. temperature and underlying geology) that rivers drain; (ii) the flow characteristics of rivers (e.g. perennial, intermittent or ephemeral flows); and the geomorphological zone or slope of a river (e.g. mountain headwater stream, foothills or lowland river). Accordingly, conservation of rivers also depends on the conservation of their surrounding terrestrial landscapes, their natural hydrological regimes (including the magnitude, frequency, duration, timing, and rate of change in water flow) and their longitudinal connectivity between different zones.

Also at local scales, freshwater ecosystems are highly connected systems. Hydrological connectivity mediates the transfer of matter, energy and organisms via water within and between elements of the water cycle. Connectivity can be viewed along three gradients: longitudinal, lateral and vertical. Longitudinal connectivity refers to the pathway across the entire length of a stream or river. Lateral connectivity refers to the links between a water body and the adjacent land. Vertical connectivity refers to the connections between surface and groundwater. In the park we should strive to maintain, and restore where necessary, the natural connectivity associated with freshwater ecosystems. In particular we should allow the natural and free flow (timing and magnitude) of water and sediment down river courses, protect riparian zones against development and guard against overuse of groundwater resources.

Although the freshwater ecosystems programme deals primarily with surface water, it cannot be seen in isolation of groundwater resources. Groundwater feeds many wetlands as well as rivers and is particularly important in arid systems and for seasonal or ephemeral rivers. In the park, groundwater is also the main source of drinking water and as such it relates to the objective of effective park management. The park has inherited largely modified freshwater ecosystems, for example a dammed river, modified wetlands and manmade dams. Moreover, even in national parks freshwater ecosystems are often seen for their utility, such as game watering or providing attractive viewpoints or locations for tourist lodges, rather than their biodiversity value.

A detailed lower level plan outlining the rationale and operational approach is available. This programme links with high level objective 2 and objective 2.2 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

FRESHWATER ECOSYSTEM PROGRAMME					
Objective: To ensure the functionality and associated ecosystem services of the freshwater systems by maintaining and restoring the hydrological connectivity and variety of aquatic habitats.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To maintain or restore hydrological connectivity by understanding the longitudinal connectivity of the main rivers in the park and developing guidelines for restoration.	Hold a targeted SMF to unpack drivers of river connectivity.	CSD, PM	Mechanism diagram	Year 1	
	Solicit research on the main rivers of the park.	CSD	Registered research projects	Year 1	
To maintain or restore the variety of aquatic habitats in the park by identifying these habitats, understanding the threats to these systems and developing an integrated aquatic management plan.	Institute monitoring for rivers, wetlands and groundwater.	CSD, PM	Freshwater monitoring protocol	Year 1, ongoing	
	Develop an inventory of wetlands including classification and spatial mapping.	CSD, PM, BSP	Wetland map	Year 2	
	Assess the ecological condition and functionality of wetlands as well as rehabilitation potential and priorities.	CSD	State of freshwater ecosystems report	Year 3	

### 10.3.3 Species of special concern programme

The purpose of this programme is to ensure the persistence and viability of key species by contributing to national initiatives and implementing species-specific management interventions.

SANParks' biodiversity values stipulate that, except in crucial instances for the survival of globally critically endangered species, management for system integrity and biodiversity must take precedence over species management. However, SANParks will strive to prevent extinction, within National Parks, of species on the International Union for the Conservation of Nature (IUCN) global critically endangered or endangered lists, and will work with other conservation initiatives to secure and strengthen the future of such species over their historic distribution ranges. In addition, certain species are important for generating revenue through game sales, e.g. disease-free Cape buffalo.

Within this context, there are currently four mammal species that may require additional management considerations. One of these, the Cape mountain zebra, is the reason for the establishment of the park, and the management objectives for this species have been highlighted previously (Novellie 1989). Conservation measures for Cape mountain zebra are formulated in collaboration with relevant provincial conservation authorities (Novellie *et al.*, 2002). The other three are the south-western ecotype of the black rhinoceros, the Cape buffalo and the cheetah. The Cape mountain zebra is the primary species of special concern in the park, since the aim of the park has been "To preserve a viable, genetically uncontaminated population of the Cape mountain zebras from which individuals can be drawn for reestablishment in other parts of the historical range of the subspecies, or in zoological gardens". Cape mountain zebras are dependent on habitat with good cover of moderately tall, tufted grasses (Grobler 1983; Novellie and Winkler 1993). Grazing by antelope species that favour short grass (for example, springbok, blesbok, black wildebeest) may transform the habitat into a condition that is not optimal for zebras. As noted elsewhere in this management plan, it is necessary from the point of view of maintaining biodiversity to allow the natural development of a mosaic of grazing lawns together with patches of taller grasses. The diversity of patch types is the key to maintaining the full spectrum of indigenous herbivores. However, excessive impact by short grass grazers may lead to proliferation of grazing lawns which, if allowed to proceed to extremes, would be both undesirable from the point of view of patch diversity and also deleterious for the zebra. It is therefore necessary to monitor Thresholds of Potential Concern (TPC) relevant to the condition of mountain zebra habitat (Novellie 1994). The threat of hybridization with plains zebra was recently identified in the park. All plains zebra have subsequently been removed, but it will be necessary to test all Cape mountain zebra for genetic purity prior to offtakes or sales.



The black rhinoceros is represented by a small population in the park, but is managed as part of a larger metapopulation across other national parks, primarily within the Frontier region. As such, it is critically important to maintain an up-to-date database of individual sightings, births and deaths, as well as to track the lineages of any new calves. This necessitates individual recognition through ear-notch patterns, and therefore the maintenance of, and funding for, an ongoing ear notching programme. Similarly, the small cheetah population in the park is managed as part of a nationwide metapopulation programme to ensure adequate genetic diversity and contribute towards national initiatives to conserve the species. The principles for managing cheetah in the park are outlined in the Frontier carnivore management programme, and monitoring is similarly required to track individual cheetah and record any births or deaths. The Cape buffalo, while not endangered, is a species of special concern in the park due to its high economic value. As such, the species is harvested from time to time to contribute towards revenue generation for the organisation. Finally, there are a number of plant species of special concern that occur in the park that will require dedicated inventorisation, prioritisation and monitoring.

This programme links with high level objective 2 and objective 2.3 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

SPECIES OF SPECIAL CONCERN PROGRAMME					
<b>Objective:</b> To ensure the persistence and viability of key species by contributing to national initiatives and implementing species specific management approaches.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To align with international and national initiatives for conserving key species, by establishing and maintaining co-operative relationships with other established organisations.	Participate in national and region-wide workshops for black rhino, cheetah, Cape mountain zebra and identified plant species.	PM, CSD	Minutes of workshops and policies	Ongoing	
	Continue to actively participate in the EWT cheetah meta-population programme.	PM, CSD	Record of translocations	As per carnivore LLP	Carnivore LLP
To establish and implement species-specific management plans for the key species in the park.	Hold a targeted SMF to develop a dedicated cheetah monitoring programme.	CSD, PM	Monitoring programme	Year 1	
	Implement black rhino monitoring protocol.	PM, CSD	Monthly reports	Monthly	
	Solicit experts to inventorise and map plant species of special concern based on red data lists and IUCN criteria.	CSD	Inventories, distribution maps	Year 2	
	Hold a targeted SMF to rank species of special concern.	CSD, PM	Monitoring and TPCs	Year 3	
	Develop species-specific management plans, including monitoring and TPCs for the top 10 species.	CSD, PM	Management plans	Year 5	
	Identify and prioritise research needs for the top 10 species.	CSD, PM	SMF minutes	Year 1	
	Solicit research according to the prioritising.	CSD	Correspondence with academic institutions	Year 1, ongoing	

### 10.3.4 Ecological processes

The key terrestrial ecological processes identified within the park are predation, herbivory and fire. The aim is to conserve the full complement of compositional, structural and functional biodiversity by maintaining, restoring or mimicking key ecosystem processes associated with the park's terrestrial and aquatic diversity. The wildlife management requirements of SANParks are complex, and constrained by limited resources and capacity. In smaller parks, small population effects can cause great fluctuations in herbivore numbers. Consequently there is a risk of large reductions or increases in wildlife numbers that are logistically difficult to manage if left for several years. Longer term (e.g. five years) strategies are helpful in improving predictability and enabling long-term planning of capture logistics. This is necessary in view of the challenge of resource constraints, and entails setting a regime of annual offtakes, as determined by population models, satellite images of vegetation condition, and field surveys. Predation is managed by keeping predator-prey dynamics stable, primarily through mimicking the natural limitations of predator population growth and social factors. The ecological role of fire needs to be determined, and an integrated fire management plan developed. Disease does not play a major role in the park, but constant surveillance is required to manage any exotic disease enters the park.

#### 10.3.4.1 Carnivore management programme

The purpose of this programme is to establish and maintain large mammal predator-prey relationships and associated processes. The restoration and maintenance of predation is a key objective for SANParks in achieving ecosystem objectives. The management of carnivores in the park is guided by park-specific objectives primarily aimed at the conservation and promotion of the unique landscapes. For the purpose of this plan, carnivores refer primarily to meso (e.g. black-backed jackal *Canis mesomelas* and caracal *Caracal caracal*) and large mammalian predators and scavengers (brown hyaena *Hyaena brunnea*, cheetah and lion).

In this instance, park management wishes to restore / maintain the ecological role of large carnivores as apex predators in the terrestrial ecosystem. The park requires restoration of large carnivore social units and subsequent management of these that carries specific challenges. A key constraint, however, is the size of the park. This carries several consequences. It reduces habitat diversity and suitability, and hence species diversity of prey and predators. Fences limit dispersal and movement opportunities that often lead to inflated abundances of predators that pose risks to local persistence of prey species (Hayward and Kerley 2009). Such spatial constraints reduce the likelihood that dynamic predator-prey relationships will be established and increase the likelihood that siblings can breed with each other.

In addition, the larger mammalian herbivores influence plant community structure and function in ecosystems (Gordon *et al.*, 2004). The park also seek to restore these disturbance regimes through herbivory, trampling and nutrient cycling at various spatio-temporal scales across landscapes. This implies top-down regulation of plant community structure and function. However, it is likely that both top-down, through predation, and bottom-up, through nutrient quality of vegetation, may regulate herbivore dynamics. The absence of large predators may thus pose some constraints on conservationists wishing to restore key ecological processes associated with herbivory and how predation influences herbivory. The challenges of maintaining ecological processes that involve large carnivores are further complicated by expectations and attitudes of stakeholders (Kerley *et al.*, 2003). These range from positive such as a general assumption that the presence of large carnivores enhances a tourism experience, to negative (Treves and Karanth 2003) such as those brought about by livestock losses as a result of carnivores spilling over into landscapes neighbouring the park.

Black-backed jackal and caracal can reach high densities, resulting in high levels of predation on the smaller prey species in the park. SANParks' approach to managing these mesopredators is to restore or mimic the factors that regulate mesopredator-prey dynamics. Management interventions depend on the suite of factors that exist in the particular section of the park, such as predator-proof fencing (that prevents mesopredator dispersal) and other large carnivores (that provide carrion). Culling is only carried out if there is evidence from prey demographic profiles and mesopredator surveys that there is a risk of mesopredator prey dynamics collapsing. Brown hyaenas currently provide the main scavenging role in the park, but these animals can also behave as predators. Therefore their role in predation must be incorporated into predation management in the park.

Carnivore management in the park thus encapsulates four key management aspects. Firstly, to restore the ecological processes driven and influenced by large carnivores. Secondly, restricted size and fragmentation of the park may accentuate localised carnivore impacts on prey as well as reduced genetic integrity of individuals living in here. Thirdly, restricted park size may also accentuate predator-conflicts with neighbours. Given that the park is a key wildlife viewing attraction apparently enhanced by large



carnivores, a fourth aspect thus relates to how the absence or inconspicuousness of certain species may influence the park's capability of generating revenue through tourist experiences and expectations.

A detailed lower level plan outlining the rationale and operational approach is available. This programme links with high level objective 2 and objective 2.1 on page 34.

CARNIVORE MANAGEMENT PROGRAMME					
<b>Objective:</b> To ensure the persistence of spatial heterogeneity resulting from linkages between diverse topography, soil and vegetation types by maintaining, restoring and mimicking key ecological processes.					
<b>Carnivore management objective:</b> To sustain viable populations of both predator and prey species by mimicking the natural regulating mechanisms of predator populations.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To maintain sustainable predator-prey relations.	Mimic changes in carnivore survival associated with social stress and prey biomass limitations.	CSD, PM	Carnivore plan	Ongoing	
	Mimic changes in carnivore fecundity by increasing the age of first reproduction and/or interval between births.	CSD, PM	Carnivore plan	Ongoing	
	Incorporate meso-predators and scavengers into the Frontier carnivore management plan	CSD, PM	Carnivore plan	Year 1	
To maintain genetic integrity by inducing social limitations.	Identify and extract life-history characteristics of carnivore species.	CSD	Science report	Year 2	
	Mimic male and female dispersals and male dominance changes.	PM, VWS	Annual report	Ongoing	
To manage carnivore impact on stakeholders.	Identify the profile of potential human-carnivore conflict.	CSD, PM	Reports	Year 1	
	Engage stakeholders on the development of problem animal management strategies and plans.	CSD, PM	Meeting minutes	Ongoing	
	Maintain perimeter fence to a standard adequate to secure both the safety of the large carnivores, adjacent local communities and park visitors.	CSD, PM	Report	Ongoing	
	Ensure that existing co-management agreements are aligned with the carnivore management programme and implement these.	CSD, PM	Agreements	Ongoing	
	Update carnivore LLP according to knowledge gained through feedback.	CSD, PM	Plan	Year 5	
To conduct collaborative research and monitoring to inform carnivore management.	Develop an integrated research and monitoring programme which addresses carnivore demography, impact on prey species, conflict and consequences for stakeholders.	CSD, PM	Science report	Year 3	
	Implement an integrated research and monitoring programme.	CSD, PM	Science report	Year 4, ongoing	
	Update carnivore plan according to knowledge gained through feedback.	PM, CSD	Carnivore LLP	5-yearly	

#### 10.3.4.2 Herbivory management programme

The purpose of this programme is to understand and manage herbivory as a modifier of biodiversity at various spatial and temporal scales, by ensuring patchy use of the landscape by different species of herbivores. It will focus specifically on the process of herbivory carried out by the large herbivores present in the park.

In a relatively small park like MZNP, inappropriate management of large herbivore impacts can potentially cause loss of biodiversity. Past programmes for monitoring of the vegetation and herbivore populations are described in Novellie and Strydom (1987); Novellie (1989), Novellie (1990a) and Novellie (1994). These monitoring programmes focused on patches that were known to be favoured by the different species of large herbivores in the park, including grazing lawns maintained by springbok, blesbok and black wildebeest, as well as longer grass habitat favoured by Cape mountain zebra and red hartebeest *Alcelaphus buselaphus*. The ultimate objective was to understand the long term dynamics of patch use by the large herbivores, and the way this should be managed to maintain the diversity of the system.

Other than the few pools of surface water in the Wilgerboom River, there are no permanent natural water sources in the park. For this reason, water is provided for wildlife at a number of sites. The impact that this artificial provision of water has on the distribution of wildlife needs to be considered. A number of impoundments along the primary river drainage line exist in the park while there are also a number of depressions that hold water periodically after rains. Provision of water will be kept to a minimum and explicitly related to vegetation impacts and minimum viable population sizes of species of special concern such as Cape mountain zebra and black rhino.

SANParks's herbivore population management follows a flux paradigm that seeks to maintain heterogeneity across space and time, thereby favouring biodiversity and ecosystem resilience. All landscapes do not carry the same herbivore densities as anticipated by traditional carrying capacity approaches. Much of the desire to make use of the carrying capacity approach to conservation stems from historical restrictions on the landscape. Traditional landscape interventions include: (1) those that affect dispersal such as fences and water provision, (2) those that affect herbivore survival such as culling, removals and water provision, and (3) those that affect fecundity such as contraception and culling to reduce herbivore densities. Large herbivore management can be embedded in the flux paradigm in this way, allowing populations to evolve and develop as naturally as possible. When landscape interventions have removed the mechanisms limiting or regulating large herbivores, their population abundances may increase. Where the restoration of these processes is not possible, particularly in small parks, SANParks wishes to mimic natural outcomes. Responding to such excesses provides the focus for herbivore management in many of the small parks, and in some instances can simultaneously provide for economic gain through game sales.

Resource availability is a key driver of herbivore space use, with surface water being a primary resource required by large herbivores. It is therefore expected that water-dependent herbivores will concentrate their feeding closer to water, thereby localizing over-utilisation, which may have its own inherent biodiversity value. By restricting water as a critical resource, water-dependent species' birth rates are also expected to decline, or at least approximate more natural landscapes where these processes are intact. However, the potential adverse consequences that minimal water resources may have for species of special concern (e.g. black rhino) needs better understanding.

The herbivory management programme will be considered successful if vegetation utilization by herbivores in the park is patchily distributed rather than homogenous. This should be measured using an index of greenness (EVI) derived from satellite imagery, measured spatially over the entire park, as well as over time (the MODIS satellite from which the EVI is derived provides images for the park every 8 days). Tracking trends in EVI both over space and time will provide context for temporal dips in vegetation condition that may otherwise be seen as requiring immediate intervention. Ideally, the extent of grazing lawns on the plains areas should be monitored for signs that these locally heavily grazed patches are beginning to coalesce. Therefore dedicated vegetation monitoring for changes in species composition or dominance of particular types of grasses should be undertaken. The influence of predation on the proportional representation of herbivore species in different feeding guilds should be closely monitored, and therefore represents a cross-link with the Predation Management Programme (below). In particular, the population growth rates of large herbivores in the park must be monitored, by means of annual aerial surveys and ideally supplemented with demographic surveys.

Very little is known about the role of small antelope species in the park. Given that these species are particularly vulnerable to mesopredators, it will be particularly important to gain an understanding of their abundance and role in herbivory.



A detailed lower level plan outlining the rationale and operational approach is available. This programme links with high level objective 2 and objective 2.1 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

HERBIVORY MANAGEMENT PROGRAMME					
<b>Objective:</b> To ensure the persistence of spatial heterogeneity resulting from linkages between diverse topography, soil and vegetation types by maintaining, restoring and mimicking key ecological processes.					
<b>Herbivore management objective:</b> To understand and manage herbivory as a modifier of biodiversity at various spatial and temporal scales, by ensuring patchy use of the landscape by different species of herbivores.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To minimise the homogenising effect of extensive surface water provision.	Establish water persistence monitoring programme.	PM	Monthly reports	Year 1	
	Evaluate trends in the availability of surface water.	CSD	Monthly reports	Year 1	
	Develop a water provision strategy and implementation plan.	CSD, PM	Water provision strategy	Year 2	
To ensure the persistence of suitable habitats for the range of herbivores present.	Monitor trends in EVI over space and time.	CSD	Results	Annually	
	Undertake annual vegetation surveys of species composition.	CSD	Results	Annually	
	Undertake annual aerial surveys of herbivores.	CSD	Report	Annually	
	Evaluate EVI trends and recommend herbivore offtakes.	CSD, PM	Report	Annually	
	Develop a small herbivore monitoring protocol and undertake regular surveys.	CSD	Monitoring protocol	Annually	
	Solicit research to understand the role and dynamics of grazing lawns in maintaining vegetation heterogeneity.	CSD	Registered research projects	Year 1	

#### 10.3.4.3 Fire management programme

The purpose of this programme is to re-establish the function of fire as an ecological driver, while minimising threats to infrastructure, by developing and implementing an integrated fire management plan. According to the National Veld and Forest Fire Act, No 101 of 1998, SANParks is obliged to be a member of the local fire protection association (FPA) to gain full legal benefit thereof and stakeholder support.

Almost all vegetation types within the park are potentially fire prone. As is characteristic of vegetation of the Grassland Biome, lightning fires tend to occur particularly in the Karoo Escarpment Grassland. On private farms in the Karoo and Cape Midlands this vegetation type is regularly burnt to stimulate grazing (Roux and Smart 1979). In the other vegetation units of the park fires are much less frequent, but nevertheless can occur in years when the grass biomass is high. It is noteworthy that Low and Rebelo (1996) regarded the Eastern Mixed Nama Karoo (redefined as Eastern Upper Karoo by Driver *et al.*, 2005) as being the only vegetation type of the Nama Karoo Biome in which fire can be important in shaping communities. Fire is thus clearly a natural feature of the Karoo Escarpment Grassland and it probably occurred fairly regularly in historical times. For other vegetation types of the park fire is likely to have been rare rather than regular, but could nevertheless have had a major impact on plant communities. During much of the history of the park the practice was to put out lightning fires as soon as they were observed. Long absence of fire from the Karoo Escarpment Grassland led firstly to

abnormal accumulation of dry material that made accidental fires difficult to control and secondly to a low level of utilisation of the grazing by large herbivores (Novellie 1990b). On the basis of current evidence, it appears desirable for management to promote as far as possible the natural occurrence of fire. To achieve this it is desirable to allow lightning fires to burn to their natural extent rather than to put them out as quickly as possible. This needs to be reconciled with the issue of fire security.

This programme links with high level objective 2 and objective 2.1 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

FIRE MANAGEMENT PROGRAMME					
<b>Objective:</b> To ensure the persistence of spatial heterogeneity resulting from linkages between diverse topography, soil and vegetation types by maintaining, restoring and mimicking key ecological processes.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To re-establish the function of fire as an ecological driver, minimising threats to infrastructure, by developing and implementing an integrated fire management plan.	Develop an ecologically appropriate fire management plan, including monitoring.	CSD, PM	Document	Year 1	
	Implement the fire management plan.	PM	Monthly reports	Year 2 and ongoing	
	Establish and maintain spatial records of fires inside and adjacent to the park.	PM, CSD	GIS database, maps	Year 1 and ongoing	
	Participate in the Middelburg Karoo Fire Protection Association.	PM	Minutes of meetings	Ongoing	
	Solicit research on the ecological role of fire in Karoo grasslands.	CSD	Registered research projects	Year 1	

#### 10.3.4.4 Disease management programme

The purpose of the disease management plan is to acknowledge indigenous diseases as a component of biodiversity within the park, while limiting the introduction or impact of alien diseases, and minimising the spread of disease from the park.

SANParks acknowledges its legal responsibilities with regard to managing diseases, especially controlled diseases, in the light of the requirements as set out in the Animal Diseases Act No 35 of 1984. Due to the dynamic nature of disease and the continuous improvement of diagnostic tests, disease management depends on making the best decisions with the data available at the time.

Equine sarcoid (the most common cutaneous neoplasm of Equids) is a widespread disease of Equids that has also been detected in Cape mountain zebra. The odd case has been reported in the park. Since then active management of lesional animals in the park has reduced the prevalence considerably. Though the disease seems complex in its etiology, host susceptibility, vector prevalence and genetics all being implicated, one study found that the worst affected populations were highly inbred (Sasidharan 2006). Isolation of small populations may therefore lead to increased susceptibility to disease by inbreeding. Monitoring is essential for early detection, so that management can be applied to prevent progression of lesions and spread to other animals. Treatment has however had mixed success and is not widely applicable to free-ranging large populations.

In August 2013, an acute, spatially clustered outbreak of disease in jackal was detected. It occurred at a time when jackal densities in the park were relatively high. Dead jackals were in poor condition and seemed to be hyper-salivating before death. Samples analyzed from dead jackals were negative for rabies, but were unsuitable for canine distemper virus (CDV) testing. It is however suspected that these animals died of CDV as an outbreak was reported in the Cradock area in the month preceding the incident and no other carnivores seemed affected. The disease incident highlights the intense interface for potential disease transfer between wild and domestic animals around the park.

Although mange is reported in the park from time to time on various species, it is considered an endemic disease, usually indicating broader environmental stress, including water, nutrition and social. The disease, itself is therefore not actively managed.”



This programme links with high level objective 2 and objective 2.1 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

DISEASE MANAGEMENT PROGRAMME					
<b>Objective:</b> To ensure the persistence of spatial heterogeneity resulting from linkages between diverse topography, soil and vegetation types by maintaining, restoring and mimicking key ecological processes.					
<b>Disease management objective:</b> To acknowledge indigenous diseases as a component of biodiversity within the park, while limiting the introduction or impact of alien diseases, and minimising the spread of disease from the park.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To set up an adequate surveillance system for dead, dying and culled animals as well as introductions and translocation.	Conduct a training course to equip and train park conservation staff to conduct basic post mortem investigation, and collect and store appropriate samples.	CSD, local state vet	Training register	Years 1 - 5	
	Develop park-specific Cybertracker sequence for disease syndromes likely to be encountered.	CSD	Park-specific disease sequence in use.	Year 1	
	Develop a reporting structure for disease incidence that allows for close interaction between local state vet, park staff, biotechnician and Scientific Services.	CSD, PM, local state vet	Local state vet and SANParks reports.	Year 1	
	Develop a quantitative risk assessment and associated disease mitigation actions for all animal introductions or translocations.	CSD, PM	Completed risk assessment	Year 5	
	Ensure blood, tissues and associated materials are banked whenever an animal is handled / captured / culled for translocation and veterinary or research purposes.	CSD	Biological samples	As required	

### 10.3.5 Sense of place programme

The purpose of this programme is to understand human experience in relation to a particular piece of land. The sense of place programme has been placed in the biodiversity component of the park management plan because sense of place is created by the biodiversity assets of the park. However, it has strong crosslinks with the mainstreaming biodiversity programme, zonation, responsible tourism programme, and stakeholder engagement programme. This programme is a novel programme within the SANParks estate, and has been included in the higher level objectives because of the strong emphasis on sense of place that emerged from the stakeholder participation process.

The concept 'Sense of Place' is used for framing the meanings and values that people attached to places (Williams and Stewart, 1998; Larson *et al.*, 2013). Such meanings and values are typically rich and varied (Williams and Stewart, 1998), commonly based on a mix of cultural and natural features in a landscape (Larson *et al.*, 2013). At a sensory level, what people feel (*e.g.* grass under their feet or warmth of the sun), hear (*e.g.* the sound of birds or the wind in the trees) and see (*e.g.* a seascape or forest) will contribute to their experiences in relation to a place. Such experiences are likely to change over time (*e.g.* different seasons) and space (*e.g.* vantage points) and to be mediated by memory of previous such experiences.

Two prominent dimensions of sense of place are visual and auditory experiences – based on what we hear and what we see. What we hear can be described as a soundscape, which is a sound or combination of sounds that forms or arises from your audible environment. What we see can be described as a viewshed, defined as the field of vision witnessed by onlookers. Viewsheds include mountains, valleys, rivers and the sea. The park has a rich variety of natural viewsheds, due to the intersection of a variety of landscapes and vegetation types present in the park. Viewsheds may reflect different degrees of naturalness, which could impact on the experiences of visitors. A natural forest and a plantation consisting of non-indigenous trees may trigger different viewshed experiences.

Sense of Place experiences are likely to differ across national parks as well as among individuals visiting the same park. It is therefore difficult to capture Sense of Place experiences associated with a particular park in a concise statement but at the same time important to understand how Sense of Place contributes to park differentiation and visitor offerings. For MZNP, visitors' Sense of Place experiences often relate to: seeing a diversity of landscape features in a relatively small park; feeling the warmth of a fireplace on a cold night; hearing jackal calls in the evening; experiencing good light contrast for landscape photography; and enjoying a sense of tranquillity / connection with nature thanks to low density of visitors on the roads.

The park strives to provide 'Sense of Place' experiences as a special visitor offering. This will be achieved through protection of viewsheds representative of the natural diversity in the park; stipulation of limits of acceptable change in terms of aesthetics and recreational activities, including consideration of facilities and infrastructure development, and visitor numbers; and mitigation of adverse impacts. Apart from power lines and roads, the viewsheds within the park and its immediate surroundings are relatively free from close-by and high-intensity developments.

This programme links with high level objective 2 and objective 2.4 on page 34. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

SENSE OF PLACE PROGRAMME					
<b>Objective:</b> To provide a sense of wildness and tranquil atmosphere in an unpolluted environment, by maintaining and restoring the variable landscapes and mitigating adverse impacts.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To ensure the maintenance of unobstructed viewsheds and soundscapes within the park and buffer zone, by understanding visitor perceptions of sense of place and lobbying against adverse impacts.	Solicit research and evaluation of the park's sense of place.	CSD	Research contract	Year 1	
	Collate feedback from visitors' sensory, visual and auditory experiences to inform sense of place management.	PM	Visitor feedback summarised in monthly reports	Year 4, ongoing	
	Implement recommendations where applicable.	PM, CSD	Monthly report	As required	
	Monitor the outcome of recommendations to be implemented.	PM	Monthly report	As required	
	Map representative (and unmodified) viewsheds and associated vantage points.	CSD	Map	Year 2	
	Based on the map mentioned above and feedback received, stipulate limits of acceptable change in terms of aesthetics and recreational activities, including consideration of facilities and infrastructure development, and visitor numbers.	CSD, PM	TPCs	Year 3	

#### 10.4 Responsible tourism programme

The purpose of the responsible tourism programme is to act as an enabler for conservation through enhancement of the financial sustainability of the park with optimal benefit to the local communities.

SANParks' has adopted the national Responsible Tourism Standard, SANS1162:2011. The Responsible Tourism programme thus looks at all aspects of the current and potential tourism product and service offering in order to ensure that the park meets the required standards for environmental and financial



sustainability, local community beneficiation and customer service excellence, and this starts by establishing the parks responsible tourism baseline.

The focus during 2014 has been to create this baseline, and the process is ongoing, in order to identify a clear point of departure from which to work. A measure for customer service excellence is measuring the customer feedback, tourism quality standards, universal access standards, and then evaluating the visitor management aspects relating to the park, for example gate efficiency. Implementation of Responsible Tourism enables operational efficiency and thus creates the environment for new product development, packaging and dynamic pricing in order to maximise yield, though dependencies such as the availability of advanced technologies do exist.

The park is considered to have a high scenic value with medium biodiversity value. It has revenue generating potential and shows steady growth. Currently, the majority of tourism income is generated by accommodation offered within the park, activities and the conservation fees charged for park access.

Whilst the park is not a key driver of tourism income generation for SANParks, it is a growing park that presents opportunities for the expansion of the tourism product. A greater contribution can be achieved with extensive and effective tourism planning, and reviewing and adapting to the constantly changing environment.

A detailed lower level plan supports this programme. This programme links with high level objective 3 and objectives 3.1 – 3.7 on page 35.

RESPONSIBLE TOURISM PROGRAMME					
<b>High Level Objective:</b> To be a leading role-player in driving the tourism economy of the region, through service excellence, hospitality, product diversity and implementation of Responsible Tourism.					
<b>Responsible Tourism implementation objective –</b> To enable the implementation of Responsible Tourism in the park, through effective planning, establishing and implementing performance measures and monitoring and evaluation, for continuous improvement.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To communicate 2022 Responsible Tourism Strategy to all park stakeholders.	Educate and motivate staff in the responsible tourism principles and enhance tourism capacity and skills base.	PM	Monthly report	Year 1	Responsible Tourism Policy 2012-2022 Responsible Tourism Strategy
	Inform the stakeholders of the SANParks 2022 Responsible Tourism Strategy and potential impact on the park.	PM	Park Forum meeting minutes	Year 1	
To ensure milestone delivery on Tourism Plan actions within the required timeframes.	Monitor and report progress iro implementation of the actions identified in the Tourism plan.	PM	Monthly report	Monthly	
	Communicate progress and prioritisation to stakeholders and public.	PM	Park Forum meeting minutes	Ongoing	
To enable continuous improvement of Responsible Tourism performance.	Conduct and establish a baseline (gap analysis) to identify current performance iro the Responsible Tourism Standard, SANS1162:2011.	Tourism Standards	Baseline report	Year 1	SANS1162 Responsible Tourism Strategy

RESPONSIBLE TOURISM PROGRAMME					
<b>High Level Objective:</b> To be a leading role-player in driving the tourism economy of the region, through service excellence, hospitality, product diversity and implementation of Responsible Tourism.					
<b>Responsible Tourism implementation objective –</b> To enable the implementation of Responsible Tourism in the park, through effective planning, establishing and implementing performance measures and monitoring and evaluation, for continuous improvement.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To enable continuous improvement of Responsible Tourism performance.	Create targets for continuous improvement in relation to sustainable operations management, socio-cultural, environmental and economic responsibility, as per SANS1162:2011.	Tourism Standards	Baseline report	Annually	SANS1162
	Engage in Responsible Tourism assessment, in order to measure performance improvement in relation to set Responsible Tourism targets.	Tourism Standards	Responsible Tourism assessment / audit report	Annually	SANS1162
	Assess, manage, monitor and mitigate impacts of visitor and recreational user activities on biodiversity and heritage resources.	PM, CSD	Monthly reports	Ongoing	EMPs
	Renovate, upgrade or adapt existing infrastructure as part of the infrastructure plan, to ensure responsible tourism practices are effectively implemented.	PM	Infrastructure plan	Annually	Infrastructure programme
<b>Visitor experiences objective -</b> To continually enhance the visitor experience within the Park, by effective visitor engagement, management, interpretation and appropriate facilities offered.					
To ensure effective visitor management in the park.	Develop a park visitor management (VM) plan, including priorities for implementation.	GM:VM	Visitor management plan	Year 1	Visitor management protocol
	Effectively manage visitor numbers through seasonal peaks.	PM	Visitor feedback	Ongoing	
<b>Service excellence objective -</b> To enable appropriate customer- focused service excellence, by creating a culture of hospitality and striving to meet and exceed industry standards and visitor expectations.					
To enable a quality visitor experience through dynamic interpretation of biodiversity, cultural and heritage value of the park.	Develop a park interpretation plan, taking existing interpretation into account, and including priorities for implementation.	GM:VM	Interpretation plan	Year 1	Interpretation Protocol
	Implement the interpretation plan actions according to the prioritised list.	PM	Monthly reports	Ongoing	Interpretation Protocol
	Prioritise the sustainable upgrade and maintenance of the existing road network within the infrastructure plan.	PM	Infrastructure Plan	Ongoing	
	Upgrade existing or add additional picnic sites at strategic locations.	PM	New picnic site	Ongoing	
	Improve the standard of visitor information centre facilities.	PM	New building	Ongoing	
	Identify mechanisms for improving the parks Universal Access (UA) facilities and services, with reference to existing facilities for persons with mobility impairments and access for the aged.	Tourism Standards	Universal access plan	Annually	Universal Access protocol
To ensure adequate, effective and accurate visitor communication within and on approach to the park.	Complete the implementation of and maintain signage requirements.	PM	Monthly reports	Annually	
	Incorporate Cultural Heritage information in park interpretation.	PM, CSD	Monthly report	Annually	
	Ensure clear and accurate communication of park rules, rates and facilities on all platforms, including within the park, on correspondence, and on the website.	PM	Updated Park website, correspondence, marketing collateral	Ongoing	



### RESPONSIBLE TOURISM PROGRAMME

**High Level Objective:** To be a leading role-player in driving the tourism economy of the region, through service excellence, hospitality, product diversity and implementation of Responsible Tourism.

**Service excellence objective:** To enable appropriate customer- focused service excellence, by creating a culture of hospitality and striving to meet and exceed industry standards and visitor expectations.

Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
Enhance park accessibility.	Improve efficiency of access at key and specifically high-volume visitor sites.	PM	Visitor feedback	Ongoing	Tourism Plan
<b>Service excellence objective:</b> To enable appropriate customer- focused service excellence, by creating a culture of hospitality and striving to meet and exceed industry standards and visitor expectations.					
To continually enhance customer service standards applicable to all visitors and other travellers.	Engage in regular staff training to ensure current high standards in customer service are maintained.	PM	Customer feedback received	Ongoing	Online feedback
	Manage and resolve feedback received from the public (all sources) visiting or having visited the park.	PM	Customer feedback received	Ongoing	Online feedback, park visitor book, emails
	Regularly assess facilities to ensure operational procedures are carried out and facilities re maintained to SANParks' standards.	PM	Unit inspection checklist	Weekly	SOPs
	Sell loyalty initiatives and / or membership to visitors.	PM	Wild Card membership sales	Ongoing	Wild Card sales
To grow loyalty of all visitors and other travellers.	Identify opportunities for growing loyalty amongst existing park visitors and communicate these to Wild Card Management	PM	Increased Wild Card Sales at Park	Ongoing	
<b>Grow tourism revenue objective:</b> To grow income through tourism, by providing visitors with an appropriate and diverse range of products and services.					
To ensure appropriate and optimal pricing of tourism products and services.	Provide input into the annual pricing of tourism products and services, in order to optimise financial returns without eroding the conservation values.	PM	Annual price updates	Annual	Annual tariff review
	Implement yield management for high-demand products.	Yield Manager	Annual price updates	Annual	Annual tariff review
To ensure optimal development and maintenance priorities to enable revenue optimisation.	Identify all possible activities and facilities that may be considered for development within the park.	PM	Product development framework	10 Years	Park management plan
	Conduct a feasibility study of priority opportunities in order of perceived value added and income generated.	Product Development Steering Committee	Site specific feasibility study	As required	Product development guideline
	Regular review of maintenance and replacement/refurbishment priorities	PM	Maintenance and refurbishment plans updated	Annually	Tourism maintenance protocol
	Control the implementation of identified development projects	PM	Tourism development plan	Ongoing	

RESPONSIBLE TOURISM PROGRAMME					
<b>High Level Objective:</b> To be a leading role-player in driving the tourism economy of the region, through service excellence, hospitality, product diversity and implementation of Responsible Tourism.					
<b>Grow tourism revenue objective:</b> To grow income through tourism, by providing visitors with an appropriate and diverse range of products and services.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To ensure optimal returns from commercial operations.	Maximise profits from retail and restaurant finding opportunities for moving the convenience store to a more significant income earner.	PM	Retail income	Ongoing	
	Optimise efficiencies on retail and food and beverage.	PM	Retail income	Ongoing	
To identify alternative tourism income generating opportunities.	Identify packaging opportunities of existing and/or 3rd party packaging opportunities, and implement where appropriate.	PM	Sales and marketing plan Increase Tourism Income	Quarterly	
	Analyse, and where necessary test, opportunities, in order to identify most lucrative and manageable opportunities for implementation.	Product development steering committee	Packaging matrix	Ongoing	
To optimise tourism operations expenditure.	Aspire to a cashless environment where appropriate and feasible, at key attractions.	PM, Strategic tourism services	Reduced cash handling at gates Improved gate efficiency	Year 5, ongoing	
<b>Operational efficiency objective:</b> To enable cost savings within tourism operations of the Park, by implementing operational efficiencies and controls.					
To optimise use of tourism human resources.	Analyse staff and management complement ensuring the right number of resources, with the right skills, available at the right time, within the constantly changing tourism environment.	PM	Human Resources Management Plan updated	Annually	
To optimise use of tourism human resources.	Provide regular staff training in operational procedures and customer service.	PM	Monthly Reporting on staff training conducted	Quarterly	
<b>Promotion objective:</b> To promote the Park and its unique environmental and cultural experiences, by developing and implementing a variety of sales, marketing and communication strategies.					
To market the park to SANParks and park specific target markets.	Create opportunities to market the park to black middle class (BMI) and previously disadvantaged individuals (PDI) markets, with specific focus on local communities	GM: Sales and Marketing	Sales and marketing plan	Ongoing	Sales and marketing strategy
	Identify park specific markets, and devise strategies for expanding on these markets, where not included in the strategic and focus markets for SANParks	GM: Sales and Marketing	Sales and marketing plan	Ongoing	Sales and marketing strategy
	Investigate opportunities for joining or creating tourist routes.	Regional Marketing Manager, PM	Park specific sales and marketing plan	Year 2	Sales and marketing strategy
	Maintain marketing collateral for the Park	GM: Sales and Marketing	Sales and marketing plan	Ongoing	Sales and marketing strategy



RESPONSIBLE TOURISM PROGRAMME					
<b>High level objective:</b> To be a leading role-player in driving the tourism economy of the region, through service excellence, hospitality, product diversity and implementation of Responsible Tourism.					
<b>Promotion objective:</b> To promote the Park and its unique environmental and cultural experiences, by developing and implementing a variety of sales, marketing and communication strategies.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To market the park to SANParks and park specific target markets.	Identify park specific markets, and devise strategies for expanding on these markets, where not included in the strategic and focus markets for SANParks	GM: Sales and Marketing	Sales and marketing plan	Ongoing	Sales and marketing strategy
	Maintain marketing collateral for the Park	GM: Sales and Marketing	Sales and marketing plan	Ongoing	Sales and marketing strategy
Explore opportunities for promoting the park attractions in conjunction with tourism partners.	Enable packaging and selling of key attractions and facilities in the region.	GM: Sales and Marketing	Sales and marketing plan	Ongoing	
<b>Equitable access objective:</b> To enable equitable (both affordable and facilitated) access to the Park, by understanding and responding appropriately to local community and stakeholder needs and interests.					
To understand the desired community interaction with the park in order to encourage community visitation and interaction with the park.	Ensure maintenance of open communication channels with existing stakeholder forums.	PM	Minutes	Quarterly	Park Forum
	Using the park forum create opportunities for enhancing the community interaction with the park.	PM	Park Forum Meeting Minutes	Ongoing	

## 10.5 Constituency building and benefit sharing

The People and Conservation (P&C) department in SANParks was established to build constituencies among people in support of the conservation of the natural and cultural heritage assets within national parks. This is achieved through strengthening relationships with neighbouring communities, contributing to local socio-economic development through job creation and skills development, cultural resource and indigenous knowledge management, environmental education programmes, awareness and interpretation programmes, social science research, and youth outreach. Stakeholders are engaged on different levels and in diverse ways according to their needs. It is of vital importance to the existence, development and expansion of the park to maintain good relations with these stakeholders.

### 10.5.1 Stakeholder relationship programme

The purpose of this programme is to establish and maintain meaningful and beneficial relationships with a wide range of stakeholders supporting SANParks core business of biodiversity conservation and tourism. The stakeholder programme is a key strategy to achieve the overall desired state of the park.

The park aims to enhance biodiversity conservation through the promotion of a conservation ethic and developing healthy community custodianship for the park. Co-operative, collaborative and mutually beneficial relationships are essential to reach park objectives and ultimately to ensure the sustainability of the park. Both formal and informal partnerships are initiated, maintained and nurtured with Government, conservation entities, business partners,

communities, various non-governmental organisations (NGOs), community based organisations (CBOs), the media, customers and employees.

The Park Forum has been constituted and is functioning as an advisory body. It is a means of providing a legitimate platform to communicate park / SANParks matters to ensure participation by all stakeholders on matters of mutual relevance affecting the park. It is expected that the Park Forum will facilitate constructive interaction between the Park and surrounding communities / stakeholders and to build constituencies in support of natural and cultural heritage conservation goals of the park.

The park has a close working relationship with the SHRs. They contribute both in cash and in kind to park programmes. Their vast expertise is used by the park to fulfil its vision and mission. They contribute in the following ways, to name but a few:

- Support and assist in environmental education and community outreach programmes;
- Fundraising;
- Participate in park operations during weekends when requested; and
- Participate and assist with holiday programmes.

A detailed lower level plan outlining the rationale and operational approach is available. This programme links with high level objective 4 and objective 4.1 on page 35.

STAKEHOLDER RELATIONSHIP PROGRAMME					
<b>High level objective:</b> To optimise socio-economic benefits for, and co-operation with all stakeholders, through continuous engagement, provision of employment and facilitating learning opportunities.					
<b>Objective:</b> To promote and nurture stakeholder relationships, through formal and informal engagement.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To improve co-operation and build sound stakeholder relationships.	Coordinate and support quarterly Park Forum meetings.	PM	Minutes	Year 1 and quarterly	
	Engage with government structures on issues of mutual interest.	PM	Minutes of meetings	As required	
	Collaborate and engage with conservation entities (such as EWT, SANBI, and Universities).	PM	Research reports, Minutes of meetings and workshops	As required	
	Meet regularly with restaurant operator to discuss operational issues and identify new business opportunities as they arise.	PM	Meeting minutes, Product Development Strategy	Ongoing	
	Promote and engage in mutually-beneficial relations with local communities.	PM	Minutes of stakeholder meetings, joint events	Monthly or quarterly	SANParks Guidelines for Stakeholder Participation
	Maintain good visitor relations through customer service and provision of opportunities for educational engagement.	PM	Visitor book analysis, Customer care logs, customer care performance	Ongoing	
	Maintain good media relations through media releases as well as active participation on social media sites	PM, Corporate and Regional Communications	Media release, social media posts	As required	SANParks Communications Protocol and Media Policy and Procedures



STAKEHOLDER RELATIONSHIP PROGRAMME					
<b>High level objective:</b> To optimise socio-economic benefits for, and co-operation with all stakeholders, through continuous engagement, provision of employment and facilitating learning opportunities.					
<b>Objective:</b> To promote and nurture stakeholder relationships, through formal and informal engagement.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To improve co-operation and build sound stakeholder relationships.	Maintain liaison with SHRs, including identification of park requirements and needs.	PM	Minutes of Honorary Ranger meetings, Annual Wish List	Quarterly	
To plan, develop and present informal education programmes for the broader stakeholder group of the park.	Arrange and facilitate community awareness programme initiatives targeting specific stakeholders on conservation issues.	PM	Programme reports, monthly reports	Year 1, ongoing	
	Facilitate presentations and talks for special interest groups.	PM	Programme reports, monthly reports	As required	
	Review and update current materials (programmes and activities).	PM	Programmes	Year 1	

### 10.5.2 Local socio-economic development programme

The purpose of this programme is to play a significant, targeted and effective role in contributing to local economic development, economic empowerment and social development in communities and neighbouring areas. This will be achieved by partnering with local government through the Integrated Development Plans (IDPs), participating in government programmes such as the Expanded Public Works Programme (EPWP), beneficiation and local and regional procurement.

SANParks has established a Socio- Economic Development programme. This programme is aligned to Government's National Development Plan and the DEA objectives to enhance fair and equitable sharing of benefits from biological resources and to improve the socio- economic benefit flow from biodiversity conservation. A number of programmes are being implemented to contribute to the development of local communities, including, the wildlife economy, blue economy, waste management, social legacy, Expanded Public Works Programme, and Environmental Protection and Infrastructure Development. The sourcing of goods and services from the local communities is also promoted through the identification and ring fencing of opportunities for the benefit of the local enterprises. The wildlife economy initiative, being one of the key programmes of the socio- economic development strategy, contributes to the participation of local communities in the wildlife industry value chain. It is centered on game farming activities that relate to the stocking, trading, breeding of game as well as enhancing the tourism experience. The establishment of viable ecotourism enterprises for the economic benefit of the local communities is another key area for the programme.

The EPWP remains a significant focus area of the organisation to effectively contribute to local socio-economic development. The park currently manages various programmes namely Working for Water (WfW), Working on Land (WoL), WfEcosystem and environmental monitors. These programmes focus on poverty alleviation and are labour intensive projects that create temporary jobs in the short term while simultaneously achieving biodiversity objectives. In 2015, 275 jobs were created and since inception the EPWP programmes has spent a total R18, 476, 880 on operations and the management of these programmes. Skills development and capacity building is regarded as a cornerstone to enable economic activity. Great emphasis is placed on skills development in the above programmes. The park will continue to facilitate and encourage skills development through learnership and internship programmes in a broad range

of fields (i.e. reception, field guiding experiential training for students).

The park continues to support and develop local initiatives or small businesses that provide services that are required during specific events or functions. Where possible, local small, medium and micro-sized enterprises, especially previously disadvantaged individuals are favoured when sourcing contractors, provided that all procurement conditions as stated in SANParks procurement policy are adhered to.

The park continues to promote environmental education in the community, and enhance economic upliftment and conservation awareness of all stakeholders. A science laboratory was built for the J.A Calata High School in Cradock as part of the social legacy programme. The lab will contribute towards quality learning and development of learners. The annual recruitment of female students for the South African Tourism College in Graaff-Reinet, in partnership with the park, also supports job creation in the communities.

A detailed lower level plan outlining the rationale and operational approach is available. This programme links with high level objective 4 and objective 4.2 on page 35.

LOCAL SOCIO-ECONOMIC DEVELOPMENT PROGRAMME					
<b>High level objective:</b> To optimise socio-economic benefits for, and co-operation with all stakeholders, through continuous engagement, provision of employment and facilitating learning opportunities.					
<b>Objective:</b> To improve local livelihoods, through facilitating skills development programmes and employment opportunities.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To maintain and strengthen relationships with local government.	Ensure projects and plans are incorporated into the municipal IDP.	PM	Inxuba Yethemba and Chris Hani municipal IDP	Annually	
	Collaborate with local government departments on socio-economic programmes.	PM	Events, minutes of meetings	As required	
To provide employment, skills development and business opportunities for local residents, entrepreneurs and business.	Identify additional opportunities for implementation of the EPWP programmes.	BSP, PM	Feasibility study and business plan	Annually	
	Identify opportunities to contribute to local economic benefit through wildlife economy projects or contributions.	PM	Report	Ongoing	
	Provide employment and skills development through the implementation of the EPWP programmes.	BSP, PM	Monthly report	Annually	
	Employ permanent and temporary staff for park operations and recruit staff locally if possible when vacancies arise	PM	Establishment table	As required	SANParks Recruitment Policy
	Provide skills development opportunities for staff	PM	Annual Training plan, Individual Development Plans	Annually	SANParks Learning and Development Strategy
	Procure goods and services locally, providing preference to local BBBEE-accredited suppliers	PM	BBBEE Procurement Report	As required	SANParks Commercialisation Strategy, SANParks Supply Chain Policy
To demonstrate the impact of the park on local socio-economic upliftment.	Commission research on the socio-economic benefit of the park.	CSD, PM	Research contract	Year 2	



### 10.5.3 Environmental education and interpretation programme

The purpose of this programme is to build constituencies amongst people in support of the park's conservation endeavours by playing a significant, targeted and effective role in promoting a variety of educational opportunities and initiatives.

An integrated approach to environmental education and interpretation has been adopted in SANParks. A broad stakeholder base is targeted and relevant programmes addressing a variety of issues are presented. The current beneficiaries of this program are mainly school and youth groups and special interest groups. The approach takes the form of organised, high quality and interactive activities which are categorised into:

- **Formal programmes:**  
These programmes target the formal education sector and are directed at school groups visiting the park and, through outreach programmes, at communities adjacent to the park. The programmes are aligned with the school curriculum assessment policy statement (CAPS). Examples of these formal programmes are the rhino awareness campaigns, calendar days and the planned junior ranger programme.
- **Informal programmes:**  
The informal programmes are aimed at park visitors and community-oriented initiatives targeting specific stakeholders such as the broader community and especially women, youth and people living with disabilities. The content of the programmes is conservation issue-specific. Examples of these informal programmes are interpretive leaflets and signage and information sharing between communities and the park. Interpretation is provided to visitors in the form of information leaflets such as species lists and visitor maps. Interpretative signage is currently limited and there is a need to develop appropriate informative signage.

The park intends to develop a day environmental education centre that will also serve as an interpretive centre, however, funding must still be secured. Educational programmes can be provided in this centre according to specific needs. The building will house interpretative displays and posters which will allow the building to serve as an interpretive centre for visitors when not in use by school groups.

A detailed lower level plan outlining the rationale and operational approach is available. This programme links with high level objective 4 and objective 4.3 on page 35. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

ENVIRONMENTAL EDUCATION AND INTERPRETATION PROGRAMME					
<b>High level objective:</b> To optimize socio-economic benefits for and co-operation with all stakeholders, through continuous engagement, provision of employment and facilitating learning opportunities.					
<b>Objective:</b> To create an awareness of, and support for, the park's endeavours, by facilitating a broad-based mutual formal and informal learning environment and expanding the existing knowledge base.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To plan, develop and present formal education programmes for organised school and other youth groups.	Develop an environmental education plan and update annually.	PM	Plan	Year 1 and ongoing	CAPS
	Organise and conduct environmental education programmes for schools including the special funded programmes Junior Rangers, and calendar days.	PM	Programme reports, monthly reports	Ongoing	EE Plan

ENVIRONMENTAL EDUCATION AND INTERPRETATION PROGRAMME					
<b>High level objective:</b> To optimize socio-economic benefits for and co-operation with all stakeholders, through continuous engagement, provision of employment and facilitating learning opportunities.					
<b>Objective:</b> To create an awareness of, and support for, the Park's endeavours, by facilitating a broad-based mutual formal and informal learning environment and expanding the existing knowledge base.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To plan, develop and present formal education programmes for organised school and other youth groups.	Organise and conduct applicable youth development programmes that will benefit the community of Cradock and beyond.	PM	Programme reports, monthly reports	Ongoing	
	Organise and conduct outreach programmes in the communities surrounding the Park namely Lingelihle, Michausdal, Hillside and Cradock.	PM	Programme reports, monthly reports	Ongoing	
	Offer holiday programmes to visitors.	PM	Programme reports, monthly reports	Biannually	
To plan, develop and present informal education programmes for the broader stakeholder group of the park.	Develop new and update existing programme information.	PM	Documents (worksheets, presentations, etc.)	Annually	CAPS
	Arrange and facilitate community awareness programme initiatives targeting specific stakeholders on conservation issues.	PM	Programme reports, monthly reports	Year 1, ongoing	EE Plan
	Facilitate presentations and talks for special interest groups.	PM	Programme reports, monthly reports	As required	
	Review and update current materials (programmes and activities).	PM	Programmes	Annually	EE Plan
To expand upon and improve the interpretation techniques to ensure a quality experience.	Provide relevant information to visitors for interpretation	PM	Leaflets, signboards, display posters	Year 1 and ongoing	
	Provide interpretive services to visitors through guided activities	PM	Guided activities	Ongoing	
	Develop an interpretive facility for use by visitors and other stakeholder groups	PM	Facility with interpretive displays	Year 5	

#### 10.5.4 Cultural heritage programme

The purpose of this programme is to consolidate, sustain, manage and present the significance, authenticity and integrity of tangible and intangible cultural heritage resources.

The management of the cultural heritage resources will be guided by a number of national legislations, policies and procedures within SANParks. The National Heritage Resources Act (NHRA) No 25 of 1999 provides the framework for the maintenance and conservation of heritage resources in accordance with the standards and procedures set out by the South African Heritage Resources Agency (SAHRA). There are also SANParks policies such as the Cultural Heritage Policy (2011), the Heritage Objects Collections Management Policy (2011), and Guidelines for Burials and Scattering of Ashes (2010) and the Development and Maintenance of Heritage Sites (2011).

The park incorporates various cultural heritage sites. Whilst some sites are not well known, others are threatened by possible inappropriate development and impact from tourists. All the known sites need to be managed and protected. The process of identification of cultural heritage sites (cultural mapping) and development of site management plans will be conducted in conjunction with local community members and the organisations representing community interests, as well as relevant academic institutions and



researchers. Access by visitors and local communities, interpretation, risk mitigation and monitoring of the sites are important components for the management of the sites. In order to fully comply with all management requirements for cultural heritage resources in the park a number of initiatives have been planned and are being implemented.

A broader-based cultural heritage resources programme that will include oral history and the documentation of indigenous knowledge as well as tangible heritage in the form of sites and objects is therefore required to investigate areas that have not yet been surveyed and assess the condition of, and threats to, all sites managed by the park. The results of this work should be entered into a geographic information system (GIS) database to facilitate monitoring and management. The oral history collection project aims to build a relationship between the park and communities by recovering and interpreting information relating to cultural heritage, specifically related to the areas incorporated within the park.

This programme links with high level objective 5 and objectives 5.1 - 5.4 on page 36. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

CULTURAL HERITAGE PROGRAMME					
<b>High level objective:</b> To develop an awareness of, and appreciation for, the historical value of the park, by protecting, maintaining and interpreting the cultural heritage assets, for current and future generations.					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To fully understand the park's cultural heritage value, by compiling and maintaining a comprehensive inventory and record of all cultural heritage assets.	Carry out a full survey of the park to identify sites.	CSD	Reports	Year 3	
	Create and update a full inventory of cultural resources.	CSD	Database	Year 3	NHRA
	Record the oral history of the park.	PM, CSD	Database	Year 3	
	Develop a cultural heritage management plan.	CSD	Document	Year 5	
	Support ongoing cultural heritage research.	PM	Registered research projects	Ongoing	
To preserve the tangible and intangible cultural heritage assets, through effective management and, where relevant, sustainable utilization of these assets.	Develop an inspection schedule, and monitor and report on resources accordingly.	CSD	Schedule, reports	Ongoing	
	Develop and review site specific plans for selected sites.	CSD	Documents	Years 5	
	Implement the cultural heritage resources management plan.	PM	Monthly reports	Ongoing	
To enable the interpretation of park and regional cultural heritage, by recording the value, significance and oral history of cultural heritage assets.	Identify and develop sites that are suitable for tourism.	PM	Inventory list	Year 2	
To enable the interpretation of park and regional cultural heritage, by recording the value, significance and oral history of cultural heritage assets.	Develop an interpretation plan as part of each site management plan.	CSD, PM	Plan	Year 3	
	Develop a guideline document for community access and benefit opportunities.	CSD, PM	Guideline and access stats	Year 2	NHRA, SANParks guidelines

CULTURAL HERITAGE PROGRAMME					
<b>High level objective:</b> To develop an awareness of, and appreciation for, the historical value of the park, by protecting, maintaining and interpreting the cultural heritage assets, for current and future generations.					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To create an awareness of, and appreciation for, park and regional cultural heritage, by developing a variety of mechanisms for interpreting and communicating the history with different audiences.	Incorporate cultural heritage component into environmental education and interpretation programmes.	PM, CSD	Implementation plans	Ongoing	
	Provide visitor access to selected sites as a guided activity.	PM	Monthly reports	Ongoing	

## 10.6 Effective park management

Effective park management programmes (including daily, weekly, monthly quarterly and annual actions, reports and reviews) are geared to ensuring that the values and objectives of the park are maintained. These programmes put in place the systems and processes that enable proactive management of the park's objectives. This section outlines the management programmes, objective and actions that assist in effective park management such as environmental management, financial management (e.g. procurement, reporting), budgeting, maintenance planning, and monitoring compliance.

### 10.6.1 Environmental management programme

The purpose of this program is to minimise negative operational impacts on the park and set clear guidelines for the management of environmental impacts.

The Minister of the Department Environmental Affairs has, in terms of section 24(2) of the National Environmental Management Act, 107 of 1998 (NEMA), identified activities that may not commence without authorisation from the competent authority. NEMA is of general application throughout South Africa and relevant provisions therefore apply to the park.

Given the national importance of the park, it is vital to manage this park to required standards. Proper management of new developments and operational activities within the park can only be achieved through appropriate planning and effective controls. A number of management tools are being used to develop and manage the park in a manner consistent with the relevant legislation and SANParks policy framework. These key tools and controls used by the park form the basis of an environmental management framework.

Further to the provisions of NEMA, the park will implement best practice to guide all operational activities that may have an impact on the environment. These activities will cover any new infrastructure development that is not listed under NEMA; as well as general maintenance. The development of best practice operating procedures will be guided by the precautionary principal. The precautionary principal states that if an action might cause harm to the environment, in the absence of a scientific consensus that harm would not ensue, the burden of proof falls on those who would advocate taking the action.

This programme links with high level objective 6 and objective 6.1 on page 36. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

ENVIRONMENTAL MANAGEMENT PROGRAMME					
<b>High level objective:</b> To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
<b>Objective:</b> To ensure compliance with environmental legislation and best practise principles for all management activities.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To manage and reduce the impacts of park activities on the vital attributes.	Make all environmental legislation available to relevant staff.	PM	Electronic / hard copy of applicable legislation	Ongoing	
	Ensure that EIAs and heritage impact assessments are completed for listed activities.	PM	Documents / reports	As required	



ENVIRONMENTAL MANAGEMENT PROGRAMME					
<b>High level objective:</b> To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
<b>Objective:</b> To ensure compliance with environmental legislation and best practise principles for all management activities.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To manage and reduce the impacts of park activities on the vital attributes.	Conduct internal scoping for all activities / developments that may potentially impact on the environment.	PM	Documents / reports	As required	
	Provide an environmental management plan (EMP) to contractors / service providers when operating in the park.	PM	Document	As required	
	Enforce the obligations set out in the EMP.	PM	Inspections	As required	
	Develop and implement a set of best practice procedures for the identified activities.	PM	Standard operating procedures	Year 2	
	Develop and implement emergency response plan/s for identified activities.	PM	Plans	Year 2	
	Implement the water and electricity savings programme.	PM	Report	Year 3	

### 10.6.2 Risk management programme

The purpose of the programme is to update and maintain the park's risk profile and to manage risks accordingly. The management of business risks is regarded by SANParks as an integral part of management across all operations.

In line with corporate governance best practices and as per PFMA requirements, the Board of SANParks has formalised the risk management processes by adopting a Corporate Risk Management Framework (CRMF). As its foundation, the risk management framework follows an enterprise-wide risk identification and assessment process, based on thorough understanding of the environment in which the organisation operates and the strategic corporate objectives it intends to deliver on.

The main aim of the CRMF is to instil a culture of corporate risk management awareness and risk ownership being practised as the responsibility of all. This will provide SANParks with a comprehensive understanding of all identified risks and their potential impact on the achievement of objectives, thereby creating a good basis for the effective management of all risks to remain within the risk appetite of the organisation.

Acknowledging that all activities occurring at different levels within the organisation are exposed to the various types of risks, the focus of this framework is to shift the attention of this organisation towards a philosophy of optimising the balance between potential risks and the potential rewards that may emanate from both pro-active and conscious risk oriented actions. As such, SANParks maintains a corporate profile of the identified key strategic challenges the organisation faces. This profile is communicated to the Board and is reviewed on an on-going basis. The risk profile reflects among others the risks identified as well as how each is addressed and or monitored.

At individual park level, the park manager is responsible for risk management. Being the link between the operational activities and its environment on the one hand, and the corporate support and management structure on the other, the park manager is in many instances,

responsible for implementation of corporate initiatives, programmes, management plans and others that form part of the SANParks strategy to address or mitigate issues of risk. Examples are the implementation and roll-out of a safety and security plan, implementing and maintaining ecological monitoring systems to identify and assess the impact of environmental change, and complying with financial and cash-flow directives especially in economic depressed times.

Similarly, the park manager needs to ensure that emerging issues of risk, that can jeopardise achievement of park (and SANParks corporate) objectives, are timely identified and assessed in terms of possible severity. In consultation with the corporate support structure such issues are either assessed to be within the management capacity of the park and its existing resources, or the matter is elevated to a corporate level, where a specific risk management strategy is agreed upon, resources allocated where applicable, and a risk management or monitoring plan is implemented.

This programme links with high level objective 6 and objective 6.2 on page 36. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

RISK MANAGEMENT PROGRAMME					
<b>High level objective:</b> To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
Objective	Actions	Responsibility	Indicators	Timeframe	Reference
To establish and maintain effective, efficient and transparent systems of risk management.	To identify and assess risks for all operations in the park.	PM	Risk register	Quarterly	CRMF
	To develop responses to address and prevent or mitigate issues of risk.	PM	Risk response plan	Annually	PFMA, OHS Act, NEM:PAA, NHBRC regulations
	To monitor effectiveness in terms of the risk response plan and improve as needed.	PM	Report	Quarterly	Park risk profile

### 10.6.3 Financial management and administration programme

The purpose of the programme is to ensure sound financial management and administration. As a public entity, SANParks manages the public funds entrusted to the organisation in accordance with the Public Finance Management Act, Act 1 of 1999 (as amended by Act 29 of 1999), and it is listed as Schedule 3 Part A: 25 public entity. Financial management and administration encompasses the following, trade income, reconciliations, creditors, financial administration and supply chain management. Support is also provided by the regional financial and administration manager, trade officer, reconciliation officer and the regional supply chain management practitioner that's based in Addo Elephant National Park. Without incisive financial management of the park, there can be no realistic conservation effort.

Trade income manages all income received by the park which includes monthly billing of trade debtors, restaurant and retail, fuel station and confirming payments received. The reconciliation unit will verify and ensure that all transactions captured in the financial system correspond with the income received and expenditure incurred.

Creditor management ensures payment of all suppliers and service providers and the follow up of outstanding invoices and queries received from suppliers. The park manager and human resource and administration officer are responsible to supervise, guide and provide the necessary assistance with the budget process, asset management and related administration. SANParks budget policy dictates a zero-based approach, which implies that every category must be critically assessed, evaluated and supported by an approved business plan. Annual budgets should be compiled in accordance with budget guidelines and instructions issued by the Corporate Finance Division. The Park Manager, in collaboration with middle management will ensure sound and proper budget management.

Middle management is responsible for procuring goods and services, as well as ensuring compliance and managing contracts with the assistance of the human resources and administration officer and the regional supply chain management practitioner. Middle management, with the support of the Human Resources and Administration Officer are responsible for asset control and manage a wide range of assets in support of the park.



The park will ensure that all park operations and park projects are cost-effective and financially sound. In addition, particular attention will be given to developing a diverse income base and proactive financial networking to maintain and improve the financial sustainability of the park.

This programme links with high level objective 6 and objective 6.3 on page 36. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

FINANCIAL MANAGEMENT AND ADMINISTRATION PROGRAMME					
<b>High level objective:</b> To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
<b>Objective:</b> To ensure sound financial management and administration.					
Sub-objective	Actions	Responsibility	Indicators	Timeframe	Reference
To attain effective financial management.	Ensure less than 1% variance on cost of operations.	PM	Statements with <1% variance	Ongoing	
	Ensure sound financial management of special projects - WWF, WoE.	BSP	Budget targets achieved	Ongoing	
	Participate in the independent audit of financial records.	PM	Audit report	When required	
	Address audit findings.	PM	Audit findings report	When required	
To grow revenue (Including alternative sources of revenue).	Identify new and align existing business opportunities within the commercialisation programme of SANParks.	PM	Opportunities identified in line with policy.	Ongoing	
	Identify possible external funding to supplement current income streams.	PM	Funding proposals submitted	Year 1, ongoing	
To improve the management of financial resources.	Prepare accurate and realistic annual budgets in consultation with management team that are in line with the sound management plan objectives.	PM	Annual budgets prepared	Annually	
	Provide monthly financial reports timeously by cost centre.	PM	Financial reports	Monthly	
To ensure proper asset and supply chain management (SCM).	Verify and manage assets registers.	PM	Asset register	Bi-annually	
	Assist with the procurement of goods and services.	PM	Monthly reports	Ongoing	
	Manage and maintain existing contracts for the supply of goods and services.	PM	Contract register	Ongoing	
	Ensure sound management of vehicle fleet ( <i>i.e.</i> logbooks, services, licencing, fuel management).	PM	Logbooks, service records, fuel card statements	Monthly	

### 10.6.4 Human capital development programme

The purpose of the human capital development programme is to ensure that the park has an adequate human resources function to render effective conservation, visitor and supporting services. SANParks has developed corporate human resources policies, guidelines and procedures to guide the park and its workforce in an effectively organised structure while delivering the outputs of the management plan.

By adhering to these policies, guidelines and procedures the park will ensure that competent staff is appointed, and that current staff will be managed in an effective manner to keep them positive, proactive and committed to their tasks and responsibilities. This will also ensure that human resource management will comply with the relevant national legislation.

Park human resource capacity is not only defined by development of current staff, but requires the holistic management of the appropriate human capital. This includes the creation of a learning environment, developing leadership skills, sharing of knowledge and experiences as well as making staff wellness programmes available to employees and their families. This will assist staff in dealing with the negative effects of lifestyle diseases and other lifestyle challenges (*i.e.* financial planning). The human resources and administration officer must report on new appointments, resignations, attendance registers, overtime claims, leave *etc.* A salary instruction is prepared from this for processing and preparation of monthly salaries. The park reviews training needs on an annual basis and submits the training need analysis and requirements for approval to Head Office. Compilation of training needs starts off with the Individual Development Plans for each staff member and is then followed by training, skills development and performance appraisals. Park management encourages all staff to improve their levels of skills and qualifications in their relevant field of expertise through study bursaries and training on an on-going basis.

The park currently (2016) has 30 permanent positions, 239 contract positions (including internships, temporary workers, BSP and EPWP workers). Additional management functions and infrastructure, especially in tourism and conservation departments as outlined in this plan, will make it necessary to grow the staff establishment.

This programme links with high level objective 6 and objective 6.4 on page 36. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

HUMAN CAPITAL DEVELOPMENT PROGRAMME					
<b>High level objective:</b> To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
<b>Objective:</b> To ensure sufficient and effective staff capacity to achieve management objectives by adhering to corporate human resource policies and guidelines.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To ensure the park attracts and retains the most suitable human capital	Preparation and processing of monthly salaries and employee benefits and leave management.	PM	Salary instructions	Ongoing	
	Ensure implementation of the prescribed disciplinary code and procedures.	PM	Reports	As required	
	Conduct regular employment equity and skills development forum meetings.	PM	Minutes of meeting	Quarterly	EE report submitted
	Fill vacancies as per employment equity targets.	PM	EE statistics	Ongoing	
To implement plans and skills development strategies to meet the strategic goals of the organisation.	Identify training needs and conduct training interventions within budget allocation.	PM	Training plan in place, % of employees trained, and of budget spent on training	Annually	



HUMAN CAPITAL DEVELOPMENT PROGRAMME					
<b>High level objective:</b> To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
<b>Objective:</b> To ensure sufficient and effective staff capacity to achieve management objectives by adhering to corporate human resource policies and guidelines.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To ensure the park attracts and retains the most suitable human capital	Develop human capital in the fields of tourism, conservation and administration through the internship programme.	PM, HOD:HR	Implementation of internship programme	Annually	
	Develop human capital in the field of people and conservation and ecotourism by introducing tourism and conservation experiences to learners and community groups.	PM	Learner and community groups addressed	Annually	
To implement workplace wellness programmes.	Conduct wellness awareness workshops.	HOD:HR, PM	Workshops	Annually	Wellness policy
	Provide private facilities within the park to enable employee's access to health risk management programme.	PM	Facilities	Ongoing	Wellness policy
	Identify and refer employees that require assistance through the employee assistance programme.	PM	Number of referrals	As required	Wellness policy
	Invite professionals to the park to promote awareness on OHS and health issues.	PM	Attendance registers	Ongoing	OHS Act
	Commemorate events related to wellness (e.g. AIDS day, world blood donor day, days of activism on non-violence against women).	PM	Attendance registers	Annually	Wellness policy
	Administer injury on duty cases.	PM	Injury on duty report	As required	OHS Act

### 10.6.5 Information management programme

The purpose of the programme is to establish and maintain a database of park information.

Management of the park requires that appropriate data and information is collected, maintained and made readily accessible to staff responsible for all aspects of management. Data is not only essential for formulating effective long-term management objectives, plans, programs and systems, but also for educating and informing residents, associations, user groups, local authorities, provincial and national decision and policy makers, international organisations and aid / donor agencies.

This programme links with high level objective 6 and objective 6.5 on page 36. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

INFORMATION MANAGEMENT PROGRAMME					
<b>High level objective:</b> To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
<b>Objective:</b> To implement best practices in the field of records and information management.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To develop and implement a records management and file plan for the park in accordance with SANParks policies and procedures.	Review the existing records management and file plan of the park, and implement a single file plan.	PM	File plan	Year 2	National Archives and Records Services of SA Act
	Implement the records management and file plan.	PM	Records and documents filed	Ongoing	Corporate file plan and policy
	Ensure appropriate access to park files and records in accordance to corporate records management policy and guidelines.	PM	Access procedures recorded and implemented	Ongoing	Corporate file plan and records management policy

### 10.6.6 Infrastructure programme

The purpose of this programme is to provide guidance for the upgrading and maintenance (day-to-day and scheduled) of infrastructure. This is primarily to ensure that the park's infrastructure (buildings, roads, fences *etc.*) and services infrastructure (provision of water, electricity and waste management) is well maintained and its capacity is periodically improved in order to provide safe, reliable and affordable products to its clients and visitors. The technical department's key responsibility is the delivery and implementation of departmental programmes and to ensure the realisation of set goals regarding the above.

Infrastructure in the park consists of facilities in support of conservation (such as management roads and tracks, office facilities, staff housing, fences, bulk services, workshops and stores) and tourism (such as tourist roads and tracks, walking trails, office facilities, staff housing, bulk services, public viewing points, bird hide, picnic sites, tourist accommodation and swimming pools). These facilities enable staff to execute their respective duties towards achieving the park's objectives and providing a tourism product at the best possible standard.

Management policies and procedures ensure that infrastructure is maintained, renovated, upgraded and replaced at the required intervals and specifies design norms and standards, including national construction regulations, "green building" and "touch the earth lightly" principles and water saving measures and minimising waste. The five year rolling maintenance plan addresses issues related to securing funding for upgrading, renovation / maintenance and replacement. The technical department continues to periodically review and assess performance in an attempt to align activities and allocate resources.

This programme links with high level objective 6 and objective 6.6 on page 36. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

INFRASTRUCTURE PROGRAMME					
<b>High level objective:</b> To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
<b>Objective:</b> To upgrade and maintain existing infrastructure and develop new infrastructure in support of conservation and tourism in compliance with the zonation.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To ensure that infrastructure in the park is maintained to a desired state.	Compile an inventory of all infrastructure in the park, assess construction types and determine extent of maintenance needed.	GM:ISP, PM	Inventory	Year 1	



INFRASTRUCTURE PROGRAMME					
<b>High level objective:</b> To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
<b>Objective:</b> To upgrade and maintain existing infrastructure and develop new infrastructure in support of conservation and tourism in compliance with the zonation.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To ensure that infrastructure in the park is maintained to a desired state.	Document the scope of maintenance needs in accordance with relevant specifications.	GM:ISP, PM	Reports	Year 1	Building and Electrical regulations
	Prioritise maintenance needs and develop a 5 year rolling maintenance plan for the park.	GM:ISP, PM	Maintenance plan and schedules	Year 1	
	Implement the 5 year rolling maintenance plan according to the annual maintenance schedules.	PM	Monthly and annual reports	Annually	
	Assess progress, revise annual maintenance schedules and evaluate standard of work.	PM	Annual report	Annually	
	Appoint contractors as needed to provide maintenance support.	GM:ISP, PM	Scope of work or contract	As required	
To ensure that all mechanical and electrical equipment is maintained to a desirable state.	Compile an inventory of all mechanical and electrical equipment in the park, determine maintenance schedules of each and list service providers.	GM:ISP, PM	Inventory	Year 1	
	Develop and implement annual maintenance schedule for all equipment.	GM:ISP, PM	Schedule	Annually	OHS Act, Electrical regulations
To regulate all unwanted structures and facilities.	Identify and list all such structures etc.	PM	List	Year 1	
	Regulate or remove relevant structures.	PM	Reports, Notices	Year 5	

### 10.6.7 Safety and security programme

The purpose of this programme is to provide a safe and secure environment for both visitors and SANParks employees and to ensure area integrity.

National Parks implement and enforce the requirements contained in legislation and organisational policies. The primary legislation and organisational policies include, amongst other:

- NEMA;
- NEM:PAA and regulations;
- SANParks Code of Conduct;
- Park rules.

The overall perceived poaching risk is relatively low. However, the security of the park's rhinos is at risk due to the nationwide rhino poaching epidemic. A rhino protection plan has been

developed that addresses the specific security needs in order to safeguard the park’s rhino population. Certain plant species known for their medicinal qualities could also be at risk. Any compromise with regards to safety and area integrity would negatively impact on tourism, biodiversity conservation and SANParks reputation.

The safety and security plan comprehensively addresses both the strategic and operational aspects of visitor and staff safety as well as area integrity. A SWOT analysis of issues affecting safety and security in the park has been developed and the resulting strengths, weaknesses, opportunities and threats have been converted into achievable objectives and actions. Proactive consideration is given to issues such as working hours, law and order, high risk areas, personnel, infrastructure, resources, equipment, staff training, reporting, data capture, record keeping, monitoring, information and intelligence. In addition to this a number of reactive measures have been developed, including immediate action drills, emergency procedures and evacuation plans. All staff must be familiar with the above procedures and will receive regular relevant training.

A detailed lower level plan supports this programme. This programme links with high level objective 6 and objective 6.7 on page 36. To achieve the purpose of this programme, the actions listed in the table below will be implemented.

SAFETY AND SECURITY PROGRAMME					
<b>High level objective:</b> To strive for effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.					
<b>Objective:</b> To provide a safe and secure environment for both visitors and SANParks employees and to ensure that the integrity of the natural and cultural resources and assets is secured.					
Sub-objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To provide a high level of safety and security for visitors, SANParks employees, natural and cultural resources and assets.	Review the safety and security plan and relevant emergency action drills.	PM	Review safety and security plan and SoAIM audit	Annually	Safety and security plan
	Conduct regular interventions <i>i.e.</i> patrols to ensure that area integrity is maintained.	PM	Monthly reports	Ongoing	
	Implement the rhino protection plan.	PM	Monthly reports	Ongoing	Rhino protection plan
	Train staff in area integrity management, conservation guardianship and readiness to react to emergency situations.	PM	Training plan	Ongoing	
	Assess readiness of staff and functionality of equipment.	PM	SoAIM audits	Annually	
	Properly equip staff to effectively carry out their safety and security functions.	PM	New equipment purchased	As required	
To improve overall park safety through interactions with external role players.	Align safety and security activities to accommodate collaborative operations with external partners, <i>e.g.</i> SAPS, DEDEA, neighbouring landowners.	PM	Safety and security plan	Ongoing	
	To participate in external safety and security forums.	PM	Minutes of meetings	Quarterly	



## 10.7 Evaluation and learning

### 10.7.1 Introduction

Section 5 has dealt with the jointly-agreed desired state, and section 10 with all the specific programmes which are necessary to achieve this. However, the desired state cannot be effectively maintained without explicit attention being given to prioritisation, integration, operationalisation, and above all, reflection and adaptation according to the principles in the SANParks biodiversity custodianship framework (Rogers 2003).

The need for reflection and adaptation (*i.e.* adaptive learning) comes from acknowledging that the world of conservation is complex and that the existing knowledge base is imperfect. Complexity implies that feedbacks between components of the conservation system are likely to change in unpredictable ways and the only way to stay abreast of such changes is through ongoing learning and adaptation. Lack of effective feedback and reflection is the commonest underlying cause of failure of strategic adaptive management, and hence of reaching the desired outcomes of the park. Evaluation should furthermore test the appropriateness of an intervention and monitoring, the predictive capacity, societal acceptability and accomplishment of broad goals (Kingsford & Biggs 2012; Figure 12).

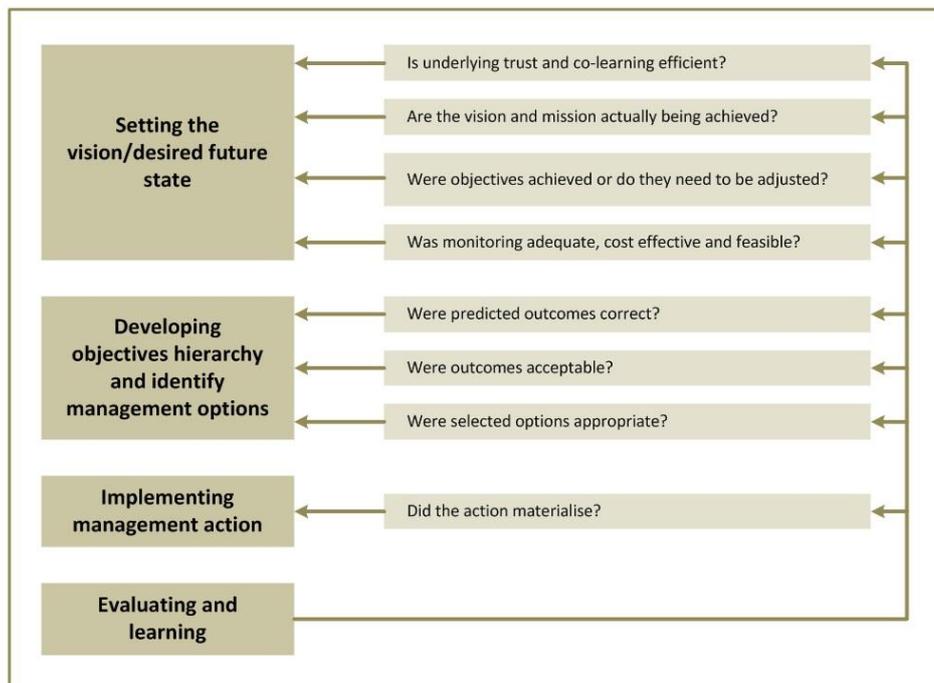


Figure 12. Feedback questions essential for adaptive learning (from Kingsford and Biggs, 2012).

### 10.7.2 Operationalisation

Given the desired state, and the programmes outlined in Section 10, specific action and operational plans need to inform the Key Performance Areas (KPA's) of staff members (applicable personnel working in the Parks, CSD and Tourism Divisions) to ensure that the outcomes are achieved. In addition, explicit reflection and co-learning opportunities need to be maintained and honoured to facilitate an adaptable, learning approach that can cope with unexpected events or surprises. An example are those opportunities provided by the science-management forum engagements at park or regional level.

A critical component of strategic adaptive management is to monitor and evaluate the consequences of management decisions and actions. This involves assessment of the outcome of management interventions, but also frequent evaluation of early warning signals (referred to in SANParks as Thresholds of Potential Concern, or TPCs) of whether the intervention is on an appropriate trajectory for achieving the particular objective. Ongoing evaluation of emerging results against objectives is essential to allow strategy and methodology to be adjusted as new understanding and knowledge emerges. Continuous evaluation and learning is facilitated by making time for reflecting on the following questions (Roux and Foxcroft, 2011):

- Has the intended plan of operation materialised?
- Were the selected options appropriate?
- Were the predicted consequences correct and, if not, why?
- Is the monitoring adequate, cost effective and feasible?
- Were the consequences actually acceptable?
- Even if the predicted consequences were correct and are acceptable, are the objectives and vision being met?

Science-Management Forum discussions are aimed at ensuring that feedbacks take place, best available knowledge and understanding is incorporated into decision-making and Thresholds of Potential Concern are timeously flagged and considered. In addition, annual reflection workshops involving managers and scientists will evaluate what has been learnt in each programme, and what should be adjusted.

If this process is effectively honoured, it is believed that the park will be practicing strategic adaptive management, and in accordance with our overarching values around complex systems, will have the best chance of achieving the desired state in a sustainable way.



## Section 11: Costing

### 11.1 Introduction

In line with the legal requirement, the programmes of implementation to achieve the desired state have been costed below.

The park will adhere to the guiding principles listed below:

- Responsibly manage the allocation of budget, revenue raising activities and expenditure;
- Ensure solid financial management support the achievement of the objectives of this plan;
- Compliance to the Public Finance Management Act as well as SANParks financial policy and procedures.

Using the zero based budgeting approach a funding estimate was derived based upon the activities in this management plan. When estimating the costing the following items were considered:

- Those costs and associated resources which could be allocated to specific activities and which were of a recurring nature;
- Those costs and associated resources which could be allocated to specific activities but which were of a once-off nature;
- Unallocated fixed costs (water, electricity, phones, bank fees *etc.*);
- Maintenance of infrastructure;
- Provision for replacement of minor assets, (furniture, electronic equipment, vehicles, *etc.*).

### 11.2 Income

SANParks manages a number of national parks as part of the national park system, currently twenty in total. Not all of these parks are financially viable, currently only five national parks *i.e.* Addo Elephant National Park, Augrabies Falls National Park, Kalahari Gemsbok National Park, Kruger National Park and Table Mountain National Park make a surplus. SANParks receives an annual grant from the DEA to carry out its mandate, but this is not sufficient to cover the management costs. The organisation utilises its own revenue derived from commercial activities to subsidise the shortfall. The surplus generated by the aforementioned parks is used to fund management costs across all national parks. An organisation of this magnitude also has overhead costs relating to support services such as human resources, tourism and marketing, finance, conservation support *etc.* which is not allocated to individual parks and must also be funded by the revenue generated in financially viable parks. Total income for 2016 / 2017 is budgeted at -R 10, 037, 525, increasing to -R 12, 710, 018 in 2020 / 2021. A summary is presented in Table 15.

Table 15. A summary of the total income for the park management plan over the next five years.

	2016 / 2017	2017 / 2018	2018 / 2019	2019 / 2020	2020 / 2021
<b>Total income</b>	-R 10 067 525	-R 10 671 576	-R 11 311 871	-R 11 990 583	-R 12 710 018

## 11.3 Expenditure

### 11.3.1 Recurring costs

The annual directly allocated cost (includes staff, travel and supplies and tools) is estimated at R 19, 909, 871 for 2016 / 2017. These ongoing costs are split according to the programmes listed in Table 16.

Table 16. The estimated annual operational costs for the park for 2016 / 2017.

Programme	Amount	Percentage of total
Degradation and rehabilitation programme	R 4, 765 902	23.94%
Alien invasive species programme	R 4, 086 658	20.53%
Responsible Tourism programme	R 3, 824 350	19.21%
Infrastructure programme	R 2, 160 753	10.85%
Safety and security programme	R 1, 730 047	8.69%
Carnivore management programme	R 744, 310	3.74%
Human resources programme	R 498, 029	2.50%
Species of special concern programme	R 490, 790	2.47%
Herbivore management programme	R 445, 056	2.24%
Financial management and administration	R 316, 571	1.59%
Fire management programme	R 195, 101	0.98%
Environmental education programme	R 143, 673	0.72%
Stakeholder relationship programme	R 86, 641	0.44%
Fresh water programme	R 75, 691	0.38%
Local socio-economic development programme	R 63, 702	0.32%
Disease management programme	R 57, 859	0.29%
Cultural heritage programme	R 57, 097	0.29%
Information management programme	R 35, 366	0.18%
Bioregional programme	R 32, 967	0.17%
Risk management programme	R 30, 833	0.15%
Park expansion and consolidation programme	R 28, 126	0.14%
Environmental management programme	R 25, 447	0.13%
Sense of place programme	R 14, 905	0.07%
<b>Total</b>	<b>R 19, 909, 871</b>	<b>100%</b>

### 11.3.2 Once off costs

In addition to the above there is a further once-off cost estimated at R 120, 134, 700 over the period 2016 / 2017 – 2020 / 2021 as can be seen in Table 17.

Table 17. The estimated once off cost of the various programmes.

Programme	Estimated budget
New infrastructure	R 60 689 700
Park consolidation	R 59, 000, 000
Fire management	R 305, 000
All terrain vehicle	R 140, 000
<b>Total</b>	<b>R 120, 134, 700</b>



### 11.3.3 Unallocated fixed costs

The unallocated fixed costs for 2016 / 2017 amounts to R 1, 895, 483.

### 11.3.4 Maintenance

A breakdown of the infrastructure, both existing and new with their replacement value and an estimate of the ongoing annual maintenance for 2016 / 2017 is provided in Table 18. The projected maintenance for existing infrastructure is estimated at R 2, 562, 534 in 2016 / 2017. If the new planned infrastructure is developed it will add a further R 876, 870 (at 2016 / 2017 rates) onto this annual maintenance budget, increasing it to R 3, 439, 404. The maintenance requirement was calculated as a percentage of the replacement value.

Table 18. The estimated replacement value of the existing infrastructure and any new infrastructure required with the estimated annual maintenance budget for the existing and new infrastructure in the park.

	Estimated replacement value			Estimated maintenance		
	Existing (R)	New (R)	Total (R)	Existing (R)	New (R)	Total (R)
Buildings	44, 781, 531	25, 150, 000	69, 931, 531	644, 854	362, 160	1, 007, 014
Roads and tracks	92, 230, 400	16, 038, 200	108, 268, 600	1, 744, 350	230, 950	1, 975, 300
Trails	35, 000	0	35, 000	50, 400	1, 000	51, 400
Fencing	7, 602, 000	2, 950, 000	10, 552, 000	111, 720	42, 480	154, 200
Water system	325, 000	2, 435, 000	2, 760, 000	4, 680	35, 260	39, 940
Electricity	0	12, 100, 000	12, 100, 000	0	174, 240	174, 240
Sewerage	90, 000	2, 000, 000	2, 090, 000	1, 830	28, 800	30, 630
Other	47, 000	16, 500	63, 500	4, 700	1, 650	6, 350
<b>Total</b>	<b>145, 110, 931</b>	<b>60, 689, 700</b>	<b>205, 800, 631</b>	<b>2, 562, 534</b>	<b>876, 870</b>	<b>3, 439, 404</b>

### 11.3.5 Replacement of minor assets

With many of the vehicles being leased along with the computers, this will significantly reduce this requirement as these items are expensive and require frequent replacement. To calculate the replacement provision, the cost price of the assets was divided by the estimated useful life. SANParks applies certain standards in this regard. The estimated asset value for various categories based on their original purchase price and the estimated budget required annually to make provision for their replacement. Management should make provision for about R 467, 700 in 2016 / 2017, this figure is presented in Table 19.

Table 19. The total value various categories of minor assets and replacement thereof (based on the original purchase price).

Asset type	Asset value	Provision for replacement
Air conditioners	R 102, 156	R 14, 594
Computer equipment	R 246, 131	R 82, 044
Firearms	R 39, 539	R 3, 954
Furniture	R 600, 341	R 85, 763
Mechanical equipment	R 1, 261, 503	R 180, 215
Office equipment	R 92, 312	R 13, 187

Vehicles and trailers	R 79, 950	R 11, 421
White goods	R 533, 323	R 76, 189
<b>Total</b>	<b>R 2, 956, 255</b>	<b>R 467, 700</b>

#### 11.4 Summary

It is estimated that the park will require an annual operating budget of R 25, 946, 884 for 2016 / 2017, increasing to R 32, 757, 343 in 2020 / 2021. In addition to this amount the park will also require R 120, 134, 700 over the next five year period for once off costs. A summary is presented in Table 20.

Table 20. A summary of the annual and once off costs that is required to fully implement the activities in the management plan over the next five years.

	2016 / 2017	2017 / 2018	2018 / 2019	2019 / 2020	2020 / 2021
<b>Annual operational costs</b>	<b>R 25, 946, 884</b>	<b>R 27, 503, 697</b>	<b>R 29, 153, 919</b>	<b>R 30, 903, 154</b>	<b>R 32, 757, 343</b>
<b>Once off costs over five years</b>	<b>R 120, 134, 700</b>				
<b>SANParks budget for MZNP</b>	<b>R 22, 255, 705</b>	<b>R 23, 500, 948</b>	<b>R 24, 911, 005</b>	<b>R 26, 405, 665</b>	<b>R 27, 990, 005</b>
<b>Shortfall</b>	<b>R 3, 691, 179</b>				

The shortfall can be broken down as follows:

- An additional amount of R 2, 571, 529 is required to cover the current maintenance shortfall;
- An additional amount of R 530, 000 is required for additional tourism staff and OPEX to service the additional units that will be added in the rest camp;
- An additional amount of R 350, 000 is required for the replacement of assets;
- An additional amount of R126, 000 is required for an additional vehicle for the dog handler; and
- An additional amount of R 113, 650 is required for an additional administration clerk.

#### 11.5 Implications

Should the park be unsuccessful in securing the shortfall amount of R 3, 691, 179 then the following programmes will be affected;

- Infrastructure programme: The park will be unable to maintain the current infrastructure to a high standard;
- Responsible tourism programme: The park will be unable to service the new units and therefore adversely affect service delivery and income;
- Assets: The park will be unable to replace assets that have reached the end of their life span, operations will be adversely affected.
- Safety and security programme: The park will be unable to roll out the full anti-poaching initiative; and
- Human resource programme: The financial control will be less sufficient.

The park will submit motivations to donors and SANParks Head Office for additional funding, to cover the shortfall.



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## Appendix 1: Declarations

**Government Notice 112 / Government Gazette 2452 of 02 July 1937 declared the following land as the Mountain Zebra National Park in terms of the National Parks Act (Act No. 56 of 1926)**

1. The farm Babylons Toren, formerly known as Doornhoek, in extent of 1,675 morgen, 559 square roods, Division of Cradock, transferred to the Government of the Union of South Africa by Deed of Transfer No. 3112, dated 31 March, 1937.

The above description includes the properties currently described as:

- i. Remainder of the farm Babylons Toren 288, in extent of 15.5789 ha, situated in the division of Cradock, held by Deed of Transfer No. T3112/1937;
- ii. Portion 1 of the farm Babylons Toren 288, in extent of 368.8998 ha, situated in the division of Cradock, held by Deed of Transfer No. T3112/1937;
- iii. The remainder of the farm 375, in extent of 53.4433 ha, situated in the division of Cradock, held by Deed of Transfer No. T3112/1937;
- iv. The remainder of the farm 376, in extent of 370.6328 ha, situated in the division of Cradock, held by Deed of Transfer No. T3112/1937;
- v. The remainder of the farm Adjoining Waterval 377, in extent of 60.3683 ha, situated in the division of Cradock, held by Deed of Transfer No. T3112/1937;
- vi. The remainder of the farm De Waterval 378, in extent of 182.0902 ha, situated in the division of Cradock, held by Deed of Transfer No. T3112/1937;
- vii. The remainder of the farm Welbedacht 379, in extent of 373.9591 ha, situated in the division of Cradock, held by Deed of Transfer No. T3112/1937; and
- viii. Portion 1 of the farm Sneeuwberg 465, in extent of 10.5168 ha, situated in the division of Cradock, held by Deed of Transfer No. T3112/1937.

**Government Notice 242 / Government Gazette 4878 of 24 October 1975 declared the following land as the Mountain Zebra National Park in terms of the National Parks Act (Act No. 42 of 1962)**

1. Portion 1 of the farm Doornhoek 284, in extent of 1,304.6733 ha, situated in the division of Cradock, held by Deed of Transfer No. T11300/1964;
2. Remainder of the farm Rondekop 466, in extent of 606.8558 ha, situated in the division of Cradock, held by Deed of Transfer No. T1486/1964;
3. Remainder of the farm Rondekop 468, in extent of 328.9426 ha, situated in the division of Cradock, held by Deed of Transfer No. T1486/1964;
4. Portion 1 of the farm Waterval 378, in extent of 36.3141 ha, situated in the division of Cradock, held by Deed of Transfer No. T1486/1964;
5. The remainder of the farm Pretorius Kraal 456, in extent of 1338.8280 ha, situated in the division of Cradock, held by Deed of Transfer No. T3787/1964;
6. Portion 3 (a portion of Portion 1) of the farm Rondekop 465, in extent of 26.0657 ha, situated in the division of Cradock, held by Deed of Transfer No. T3787/1964;
7. Portion 2 (Het Kamp) of the farm Babylons Toren 288, in extent of 266.5086 ha, situated in the division of Cradock, held by Deed of Transfer No. T3787/1964;
8. Remainder of the farm Zebra Hoek 467, in extent of 652.2923 ha, situated in the division of Cradock, held by Deed of Transfer No. T23930/1964;
9. Remainder of the farm Pretorius Kraal 462, in extent of 391.3937 ha, situated in the division of Cradock, held by Deed of Transfer No. T23930/1964; and
10. Remainder of the farm Doornhoek 465, in extent of 349.6421 ha, situated in the division of Cradock, held by Deed of Transfer No. T23930/1964.

**Government Notice 809 / Government Gazette 36951 of 25 October 2013 declared the following land as the Mountain Zebra National Park in terms of the National Environmental Management: Protected Areas Act (Act No. 57 of 2003)**

1. The farm 372, in extent of 935.9376 ha, situated in the division of Cradock held by Deed of Transfer No. T78599/1999; and
2. The farm Toekoms 567, in extent of 2, 300.2175 ha, situated in the division of Cradock held by Deed of Transfer No. T76133/2004.

**Government Notice 477 / Government Gazette 38822 of 29 May 2015 declared the following land as the Mountain Zebra National Park in terms of the National Environmental Management: Protected Areas Act (Act No. 57 of 2003)**

1. Portion 6 of the farm Kaal Pleat No. 278, in extent of 594.8686 ha, situated in the division of Cradock held by Deed of Transfer No. 197910/1996;
2. Farm No. 593, in extent of 1, 164.0039 ha, situated in the division of Cradock, held by Deed of Transfer No. T29619/1999;
3. The farm Wendover No. 287, in extent of 1, 800.9891 ha, situated in the division of Cradock, held by Deed of Transfer No. T46504/1999;
4. The Remaining extent of the farm Doornhoek No. 284, in extent of 1, 801.5648 ha, situated in the division of Cradock, held by Deed of Transfer No. T28204/1999;
5. Portion 3 of the farm Doornhoek No. 284, in extent of 2, 224.6218 ha, situated in the division of Cradock, held by Deed of Transfer No. T28204/1999;
6. Portion 1 of the farm No. 595, in extent of 223.2069 ha, situated in the division of Cradock, held by Deed of Transfer No. T75513/2000;
7. Farm No. 596, in extent of 2, 224.6218 ha, situated in the division of Cradock, held by Deed of Transfer No. T775513/2000;
8. Portion 1 of the farm No. 376, in extent of 25.9087 ha, situated in the division of Cradock, held by Deed of Transfer No. T66528/2005;
9. The remainder of the farm No. 374, in extent of 199.9874 ha, situated in the division of Cradock, held by Deed of Transfer No. T66528/2005;
10. The remainder of the farm Juriesdam Zyn Platen No. 373, in extent of 1, 076.8245 ha, situated in the division of Cradock, held by Deed of Transfer No. T66528/2005;
11. The remaining extent of the farm Ingleside No. 215, in extent of 430.3617 ha, situated in the division of Cradock, held by Deed of Transfer No. T51469/2000; and
12. Portion 3 of the farm Ingleside No. 215, in extent of 11.1045 ha, situated in the division of Cradock, held by Deed of Transfer No. T67907/2000.



## Appendix 2: Stakeholder participation report

### STAKEHOLDER EVENTS AND ACTIVITIES

#### Stakeholder consultation

This table reflects the various organisations that were identified to participate in the park management plan process. The government departments are at national, provincial and local level. The intention is to show that, in terms of the spirit of co-operative governance SANParks has approached these parties.

Local government	Inxuba Yethemba Local Municipality, Chris Hani District Municipality
Provincial government	Eastern Cape Province – Departments of Economic Development, Environmental Affairs and Tourism, Education, Social Development, Rural Development and Agrarian Reform
National Government	Departments of Correctional Services, Labour and Water and Sanitation South African Police Service
Park forum	Mountain Zebra National Park
Local residents / neighbours	Mountain Zebra – Camdeboo corridor landowners association
Community organisations	Samenkomst Farmers union, Swaershoek Farmers Union, Central District Farmers Union, Fish River Farmers Union
Business associations	Cradock Business Forum
Research	Rhodes University, Nelson Mandela Metropolitan University, UNISA, North West University
Conservation organisations	South African Heritage Resources Agency, Wilderness Foundation, Endangered Wildlife Trust
Tourist associations	CRAMTOUR
Honorary Rangers	Mountain Zebra Honorary Rangers

#### Desired state workshop

A range of key stakeholders and SANParks specialists participated in the development of the desired state which entails developing a vision for the park supported by higher level objectives which forms the basis of the management plan.

Activities	Description
<b>Invitations</b>	Park management, certain SANParks specialists and key stakeholders were invited.
<b>Desired state workshop</b>	The workshop took place on 12 May 2015 at the Vusubuntu Lodge and Cultural Village in Cradock.
<b>Attendance:</b>	23 Participants (9 stakeholders and 14 SANParks staff members) partook, representing the following constituencies: <ul style="list-style-type: none"> <li>• Private B&amp;B establishment;</li> <li>• Eastern Cape Province: Department of Social Development;</li> <li>• Inxuba Yethemba Local Municipality;</li> <li>• Eastern Cape Province: Department of Education;</li> <li>• South African Police Service;</li> <li>• Fish River Farmers Association;</li> <li>• Park Forum; and</li> <li>• SANParks.</li> </ul>

## Registration as an interested and affected party

Stakeholders had the following opportunities to register as interested and affected parties.

Mechanism to register	Description
Media advertisements	<p>Advertisements to inform interested and affected parties of the public days and request to register to participate was placed in the following National newspapers on 17 January 2016:</p> <ul style="list-style-type: none"> <li>• Sunday Times;</li> <li>• Rapport.</li> </ul> <p>Advertisements to inform interested and affected parties of the public days and request to register to participate was placed in the following local newspapers:</p> <ul style="list-style-type: none"> <li>• Cradock courant – 21 January 2016</li> <li>• Graaff-Reinet Advertiser - 22 January 2016;</li> <li>• .</li> </ul>
Registration at meetings	<p>Participants were also able to register at the following meetings:</p> <ul style="list-style-type: none"> <li>• Desired state workshop on 12 May 2015;</li> <li>• Public meeting on 02 February 2016 in Middleburg;</li> <li>• Public meeting on 02 February 2016 in Cradock;</li> <li>• Public meeting on 03 February 2016 in Pearston; and</li> <li>• Public meeting on 03 February 2016 in Graaff-Reinet.</li> </ul>

## Public days to allow comment on the draft management plan

Four public day meetings were held.

Venue	Date	Number of stakeholders that attended
Middleburg Community Hall	02 February 2016	6
Cradock Community Hall	02 February 2016	7
Pearston Community Hall	03 February 2016	0
Graaff-Reinet Community Hall	03 February 2016	0

## Dissemination of documentation and feedback to stakeholders

Item	Action
Dissemination of comment and response document	The document will be available on the SANParks website, or emailed, mailed, faxed or delivered by hand where no contact details were supplied.
Dissemination of approved park management plan	The plan will be available on the SANParks website once approved by the Minister.

## Appendix 3: Tourism product development framework

The product development framework provides park management with a guideline in order to inform the development potential of the park. Identified opportunities remain subject to comprehensive feasibility study prior to implementation, thus listing an activity does not automatically result in development.

Similarly, whilst specific products or activities may be developed within the park, they will be restricted to specific areas within the park or on the periphery (buffer zone), and may be further restricted to guided activities or events only.. The park is zoned into various visitor use zones, based on its environmental sensitivity, as described in the legend below, and products are applicable to the various use zones accordingly.

### LEGEND

No.	Visitor use zones	Description
1	Wilderness / remote	Pristine natural environment, essentially undeveloped and roadless. Controlled non-motorised access - usually on foot visitors. Could have paths where erosion is a problem or for safety
2	Primitive	Almost completely natural state to be maintained. Development footprints absolute minimum. Controlled access - 4x4's horse-riding. Small basic overnight facilities.
3	Quiet	General natural state to be maintained. Only non-motorised access. Access not specifically controlled. Ablution facilities can be allowed.
4	Low intensity leisure	Motorised self-drive with basic facilities. Small - medium sized camps. Infrastructure should be minimised in order to maintain natural state.
5	High intensity leisure	High density tourism development node with concentrated human activities. High volume roads, high density camps with modern amenities.
6	Buffer / adjoining	Land in the buffer zone or adjacent to national parks. Products indicated are those with which SANParks is comfortable to be associated with.

For the purposes of this management plan, the focus of the framework listed in Table 21 is to indicate which products already exist, which new products may be allowed, and in which visitor use zones these may occur.

Table 21: Tourism product development framework for the park.

PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE						
		YES	NO	YES	NO	Within boundaries of national- / contractual park					Buffer / adjoining	
						1	2	3	4	5	6	
Over-night facilities	Self-catering - limited service (serviced prior to arrival and after departure only)	Accommodation (budget)		√	√					√	√	√
		Accommodation (economy)	√		√			√		√	√	√
		Accommodation (premium) / guest house		√	√					√	√	√
		Accommodation backpacking / youth hostels		√	√					√	√	√
		Dormitories / school groups / educational facilities		√	√					√	√	√
		Game / bird hide	√		√					√	√	√
		Military bunker / fort / gun sites		√		√					√	√
		Tree houses / platforms		√	√			√		√	√	√
	Self-catering - serviced (serviced daily)	Fly camp / platform / sleep out		√	√			√	√	√	√	√
		Accommodation (budget)	√		√					√	√	√
		Accommodation (economy)	√		√					√	√	√
		Accommodation (premium) / guest house	√		√					√	√	√
		Accommodation backpacking / youth hostels		√	√					√	√	√
		Dormitories / school groups / educational facilities		√	√					√	√	√
		Houseboat (economy)		√		√					√	√
		Houseboat (premium)		√		√					√	√
Camping	Camping (budget facilities) (power / no power)	√		√					√	√	√	
	Camping (premium facilities) (power / no power)		√	√					√	√	√	
	Camping bush rustic (protected) (budget facilities)		√	√			√		√	√	√	
	Camping bush rustic (protected) (premium facilities / self-sufficient)		√	√			√		√	√	√	

PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE						
		YES	NO	YES	NO	Within boundaries of national-/ contractual park					Buffer / adjoining	
						1	2	3	4	5	6	
Over-night facilities	Camping		√	√		√	√		√	√	√	
	Full service (generally some/all meals and activities included)	Game / bush / safari / boutique lodge - under 20 beds		√		√	√			√	√	√
		Game / bush / safari / boutique lodge - 20 beds plus		√		√	√			√	√	√
		Conference lodge / hotel - 21 - 50 beds		√		√	√			√	√	√
		Conference lodge / hotel - 50 beds plus		√		√	√			√	√	√
		Houseboat		√		√	√			√	√	√
		Luxury tented safaris		√	√		√	√		√	√	√
		Remote camp / fly camp / platform / sleep Out		√	√		√	√		√	√	√
		Overnight train rides		√		√	√			√	√	√
		Additional services	Cook and guide provided		√	√		√	√	√	√	√
	Cook, guide and OSV provided			√	√		√	√	√	√	√	√
	Meal packages e.g. breakfast, half board or full board			√	√		√	√	√	√	√	√
	Leisure / recreational	4x4 Eco-trails (multi-day, self-drive, basic facilities)		√	√		√	√		√	√	√
4x4 Eco-trails (multi-day, self-drive, no facilities)			√	√		√	√		√	√	√	
4x4 trails (full-day / half-day / guided or unguided)		√		√		√	√		√	√	√	
Abseiling / rappelling			√	√		√	√		√	√	√	
Animal interaction activities (limited)			√		√	√			√	√	√	
Animal tracking activities		√		√		√	√	√	√	√	√	
Archery			√	√		√	√		√	√	√	
Base jumping			√		√	√			√	√	√	
Bird watching		√		√		√	√		√	√	√	
Boat cruises			√		√	√			√	√	√	
Boat cruise - birding			√		√	√			√	√	√	
Boat cruises - sunset			√		√	√			√	√	√	
Botanical sightseeing		√		√		√	√		√	√	√	
Bouldering			√	√		√	√		√	√	√	
Bungee / bungee jumping			√		√	√			√	√	√	
Cableway			√		√	√			√	√	√	
Canoe trails (Varying facilities)			√		√	√			√	√	√	
Canoeing			√		√	√			√	√	√	
Canopy tour (acrobranch)			√		√	√			√	√	√	
Canopy tour (boardwalk)			√		√	√			√	√	√	
Canopy tour / flying fox (tree top / cliff to cliff)			√		√	√			√	√	√	
Caving / spelunking/ potholing			√		√	√			√	√	√	
Clay-pigeon / clay target shooting			√	√		√	√		√	√	√	
Coasteering			√		√	√			√	√	√	
Cruise - birding			√		√	√			√	√	√	
Cycling			√	√		√	√		√	√	√	
Cycling (downhill cycling)			√	√		√	√		√	√	√	
Cycling (BMX track area)			√	√		√	√		√	√	√	
Diving (scuba)			√		√	√			√	√	√	
Dog walking			√	√		√	√		√	√	√	
Elephant backed rides / safaris			√		√	√			√	√	√	
Fishing (catch and release)			√		√	√			√	√	√	
Funicular		√		√	√			√	√	√		

PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
		YES	NO	YES	NO	Within boundaries of national-/ contractual park					Buffer / adjoining
						1	2	3	4	5	6
Leisure / recreational	Game drives - night drive	√		√		√	√		√	√	√
	Game drives - night drive (Night Vision aided)		√	√		√	√		√	√	√
	Game drives - premium	√		√		√	√		√	√	√
	Game drives - standard	√		√		√	√		√	√	√
	Game drives - universal access		√	√		√	√		√	√	√
	Games facilities (e.g. table tennis, pool, etc.)	√		√		√	√		√	√	√
	Geocaching	√		√		√	√		√	√	√
	Golf		√		√		√	√		√	√
	Golf club membership		√		√		√	√		√	√
	Green hunting / darting safaris		√		√		√	√		√	√
	Hang gliding		√	√		√	√	√	√	√	√
	Hiking	√		√		√	√	√	√	√	√
	Hiking trails - Wilderness (full service)		√	√		√	√	√	√	√	√
	Hiking trails - Wilderness (no facilities) (backpack)		√	√		√	√	√	√	√	√
	Hiking trails (budget)	√		√		√	√	√	√	√	√
	Hiking trails (premium)		√	√		√	√	√	√	√	√
	Horse riding		√		√		√	√		√	√
	Horse riding trails (varying facilities)		√	√		√	√	√	√	√	√
	Jet skiing		√		√		√	√		√	√
	Jogging / running		√	√		√	√		√	√	√
	Kayaking / paddling		√		√		√	√		√	√
	Kayaking / paddling trails		√		√		√	√		√	√
	Kitesurfing / kiteboarding / fly surfing		√		√		√	√		√	√
	Kloofing (guided)		√		√		√	√		√	√
	Mini golf / putt-putt		√	√		√	√		√	√	√
	Model aircraft flying		√		√		√	√		√	√
	Motorcycle trails (varying facilities)		√		√		√	√		√	√
	Motorcycling		√		√		√	√		√	√
	Motorcycling - off-road		√		√		√	√		√	√
	Motorised boating		√		√		√	√		√	√
	Mountain bike trails (varying facilities)		√		√		√	√		√	√
	Mountain biking		√	√		√	√	√	√	√	√
	Mountain biking - unicycling		√		√		√	√		√	√
	Mountaineering		√		√		√	√		√	√
	Paddle boards		√		√		√	√		√	√
	Paddle boats		√		√		√	√		√	√
	Paddle skiing		√		√		√	√		√	√
	Paragliding		√	√		√	√		√	√	√
	Parasailing		√		√		√	√		√	√
	Park and ride		√	√		√	√		√	√	√
Photography	√		√		√	√	√	√	√	√	
Picnicking (basic facilities)	√		√		√	√		√	√	√	
Picnicking (full facilities)		√	√		√	√		√	√	√	
Picnicking (no facilities)		√	√		√	√		√	√	√	
Quad biking		√		√		√	√		√	√	



PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under develop-ment?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
		YES	NO	YES	NO	Within boundaries of national-/ contractual park					Buffer / adjoining
						1	2	3	4	5	6
Interpretive	Trail - mobility impaired		√	√					√	√	√
	Trails - brail		√	√					√	√	√
	Trails - sensory		√	√					√	√	√
Cultural / historical	Cleansing ceremonies (including baptism)		√	√				√	√	√	√
	Cultural dances	√		√					√	√	√
	Cultural points of interest	√		√				√	√	√	√
	Cultural village		√		√						√
	Gold panning (recreational)		√		√						√
	Historical points of interest	√		√					√	√	√
	Mountain worship		√	√					√	√	√
	Museums		√	√					√	√	√
	Religious facilities (prayer or otherwise)		√	√					√	√	√
	Storytelling		√	√					√	√	√
	Tours - battlefield / military		√	√					√	√	√
	Tours - cultural		√	√					√	√	√
	Tours - historical		√	√					√	√	√
	Tours - medicinal plants		√	√					√	√	√
	Tours - rock art	√		√					√	√	√
	Tours - South african struggle		√	√							√
	Medical / health	Health spa		√	√					√	√
Gymnasium			√	√					√	√	√
Wellness centres			√		√						√
Developmental	Astronomy training		√	√					√	√	√
	Birding course	√		√					√	√	√
	Botany course		√	√					√	√	√
	Bush homeopathy		√	√					√	√	√
	Bush skills		√	√					√	√	√
	Field guide training	√		√					√	√	√
	Firearm skills		√	√							√
	First aid		√	√					√	√	√
	Game capture training		√	√					√	√	√
	Nature / wildlife photography course		√	√					√	√	√
	Nature based hospitality training	√		√					√	√	√
	Off-road driving skills training		√		√						√
	Orienteering		√	√					√	√	√
	Rope skills course		√	√					√	√	√
	Scuba diving Skills		√		√						√
	Specialised training / courses		√	√					√	√	√
	Survey and mapping skills		√	√					√	√	√
	Survival skills		√	√					√	√	√
	Tracking skills		√	√					√	√	√
	Training - ranger	√		√					√	√	√
Volunteering		√	√					√	√	√	
Wilderness search and rescue		√	√					√	√	√	
Children / youth	Babysitting		√	√					√	√	√

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		YES	NO	YES	NO	Within boundaries of national-/ contractual park					Buffer / adjoining	
						1	2	3	4	5	6	
Children / youth	Child care centres in camps		√		√							√
	Children activity centres (jungle gym)		√	√					√	√		√
	Children encounter zone		√		√							√
	Children game drives	√		√					√	√		√
	Children holiday programmes in camps	√		√					√	√		√
	Children trails	√		√					√	√		√
	Learner programmes	√		√					√	√		√
	Paint ball		√	√					√	√		√
	Youth camps (KampKwena, "summer" camps)		√	√					√	√		√
Business tourism and events	Events - any		√	√					√	√		√
	Events - adventure		√	√					√	√		√
	Festivals		√	√					√	√		√
	Fundraising events e.g. WWF Swim for Nature		√	√					√	√		√
	Lapas / bomas (to rent)		√	√					√	√		√
	MICE (Meetings, Incentives, Conventions and Exhibitions)	√		√					√	√		√
	Musical concerts		√	√					√	√		√
	Photographic shoots and filming		√	√					√	√		√
	Product launches		√	√					√	√		√
	Races / competitions - marathons / trail running		√	√					√	√		√
	Races / competitions - mountain-biking		√	√					√	√		√
	Races / competitions - other		√	√					√	√		√
	Races / competitions - adventure / expedition racing		√	√					√	√		√
	Scientific conferences		√	√					√	√		√
	Team building		√	√					√	√		√
Weddings	√		√					√	√		√	
Retail / services	Apparel outlets		√		√							√
	Airport / aerodrome / airstrip		√		√							√
	Banking - Bank or ATM		√	√					√	√		√
	Rental - bicycle		√		√							√
	Camping equipment rental		√	√					√	√		√
	Rental - car		√		√							√
	Car wash		√	√					√	√		√
	Casinos		√		√							√
	Clinics / Doctor/ first aid		√		√							√
	Outlets - community curios		√	√					√	√		√
	Outlets - curios	√		√					√	√		√
	Essential commodities in camps (ice, wood, etc.)	√		√					√	√		√
	Fast moving consumer goods (FMCG) outlets		√	√					√	√		√
	Fuel stations	√		√					√	√		√
	Gas equipment hire		√	√					√	√		√
	Hop-on guides		√	√					√	√		√
	Internet café / Wi-Fi hotspot		√	√					√	√		√
	Laundromats and laundry service	√		√					√	√		√
	Pharmacies		√	√					√	√		√
	Photo booth		√	√					√	√		√

PRODUCT CATEGORY	PRODUCT OR SERVICE	Is Product currently AVAILABLE or under development?		Is Product APPROPRIATE for the applicable National Park?		ZONING FOR WHICH PRODUCT IS APPROPRIATE					
		YES	NO	YES	NO	Within boundaries of national-/ contractual park					Buffer / adjoining
						1	2	3	4	5	6
	Pop-up retail		√	√					√	√	√
	Postal services	√		√					√	√	√
	Proshop		√		√						√
	Road emergency services		√	√					√	√	√
	Shuttle services		√	√					√	√	√
	Vending machines		√	√					√	√	√
	Vendors		√	√					√	√	√
	Wi-Fi facilities (free service)		√	√					√	√	√
Food and beverage	Bars	√		√					√	√	√
	Boma / lapa meals		√	√					√	√	√
	Bush meals		√	√					√	√	√
	Coffee shops / tea rooms	√		√					√	√	√
	Fast-food outlets	√		√					√	√	√
	Game drives picnic baskets		√	√					√	√	√
	Local cuisine	√		√					√	√	√
	MICE catering	√		√					√	√	√
	Picnic baskets	√		√					√	√	√
	Pop-up food, retail		√		√						√
	Restaurants	√		√					√	√	√
	Room service	√		√					√	√	√
	Sports bar		√		√						√
<b>Non tourism related activities</b>											
Mining/ Exploratory	Prospecting		√		√						√
	Mining		√		√						√
Consumptive / Subsistence	Fishing (non release)		√	√			√	√	√	√	√
	Hunting (lethal)		√	√							√
	Sustainable harvesting of resources		√	√			√	√	√	√	√

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## Appendix 4: Internal rules

The following internal rules are applicable to all visitors in terms of Section 52 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).

### General

1. Declare firearms at gate. Unsealed firearms are strictly prohibited in the park;
2. Remain in your vehicle at all times, unless in designated areas or lookout points; Exiting your vehicle at designated areas and lookout points is done so at your own risk;
3. Remain on designated visitor roads. Do not enter a road that has a No Entry sign.
4. The speed limit is strictly 40 km/h;
5. Unmanned aircraft / drones are strictly prohibited;
6. No animals, domestic or otherwise, and plant material (other than firewood), may be brought into the park;
7. Do not disturb, feed, remove, pick, destroy, deface or cause damage to any animal, plant or object in the Park. No firewood or kindling may be collected from any area within the park;
8. Do not litter, including cigarette in the park;
9. Fires are only allowed in designated places;
10. No music or noise is allowed in the park, rest camp, picnic sites or at swimming pools;
11. Do not drive or park in such a manner that it is a nuisance, disturbance or an inconvenience to any other person or animal;
12. Only designated accommodation areas may be used. You may not stay overnight in the park without the knowledge of Park Management;
13. Travel in the park may only occur during stipulated times during the following months: 1 April to 30 September from 7am - 6pm and 1 October to 31 March from 6am - 7pm;
14. The main entrance gate opens at 7 am throughout the year. The main entrance gate closes at 7pm from 1 October to 31 March and closes at 6pm from 1 April to 30 September. The rest camp gate opens at 6 am and closes at 7 pm from 1 October to 31 March and opens at 7 am and closes at 6 pm from 1 April to 30 September. Visitors must ensure that they have exited or entered the gates before gate closing times;
15. An exit permit is required to exit the park. Exit permits are obtainable from reception. Late exits are subject to a R500 penalty;
16. All visitors to the park are required to fill in their Identity numbers or Passport numbers on the SANParks indemnity forms when entering the park;
17. Only valid Drivers' licence holders may drive in the park;
18. Only 4x4 vehicles may be used on the designated 4x4 Loop roads;
19. Only visitors with high clearance vehicles with diff-lock can access the mountain cottages;
20. Terms and conditions apply to guided activities; and
21. No person shall fail to comply with lawful instructions issued by park officials.

### Terms and conditions applicable to activities

1. Visitors taking part in guided activities must sign an indemnity form before undertaking the activity;
2. Children younger than 6 years old may not take part in guided game drives or guided trip to Bushman paintings;
3. Children younger than 12 years old may not take part in guided walks, Cheetah tracking or Salpeterkop hike;

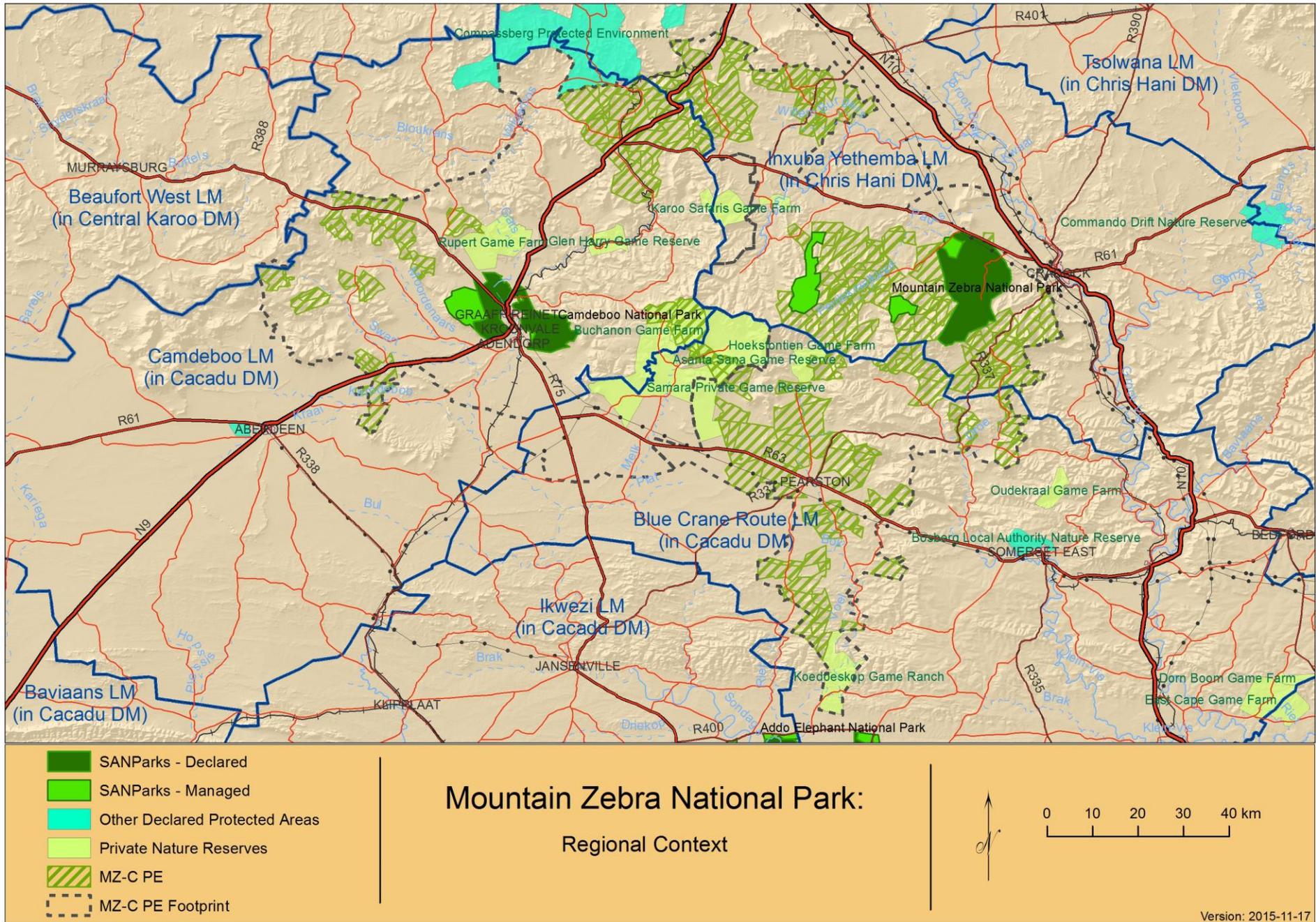
4. Adults older than 65 years may not take part in guided walks, cheetah tracking or Salpeterkop hike without a doctor's certificate stating the person is medically fit to undertake such a hike in rugged terrain.
5. Visitors undertaking the following guided activities: guided walk, cheetah tracking, Salpeterkop Hike and 3-day guided hike must have a reasonable level of fitness and must inform the guide of any medical conditions before taking part in the activity. The guide has the right to refuse to include any person on a guided activity if there is a doubt as to whether the person is physically able to complete the activity.

Non adherence to these rules and regulations constitutes an offence, and offenders will be liable to a fine or prosecution.

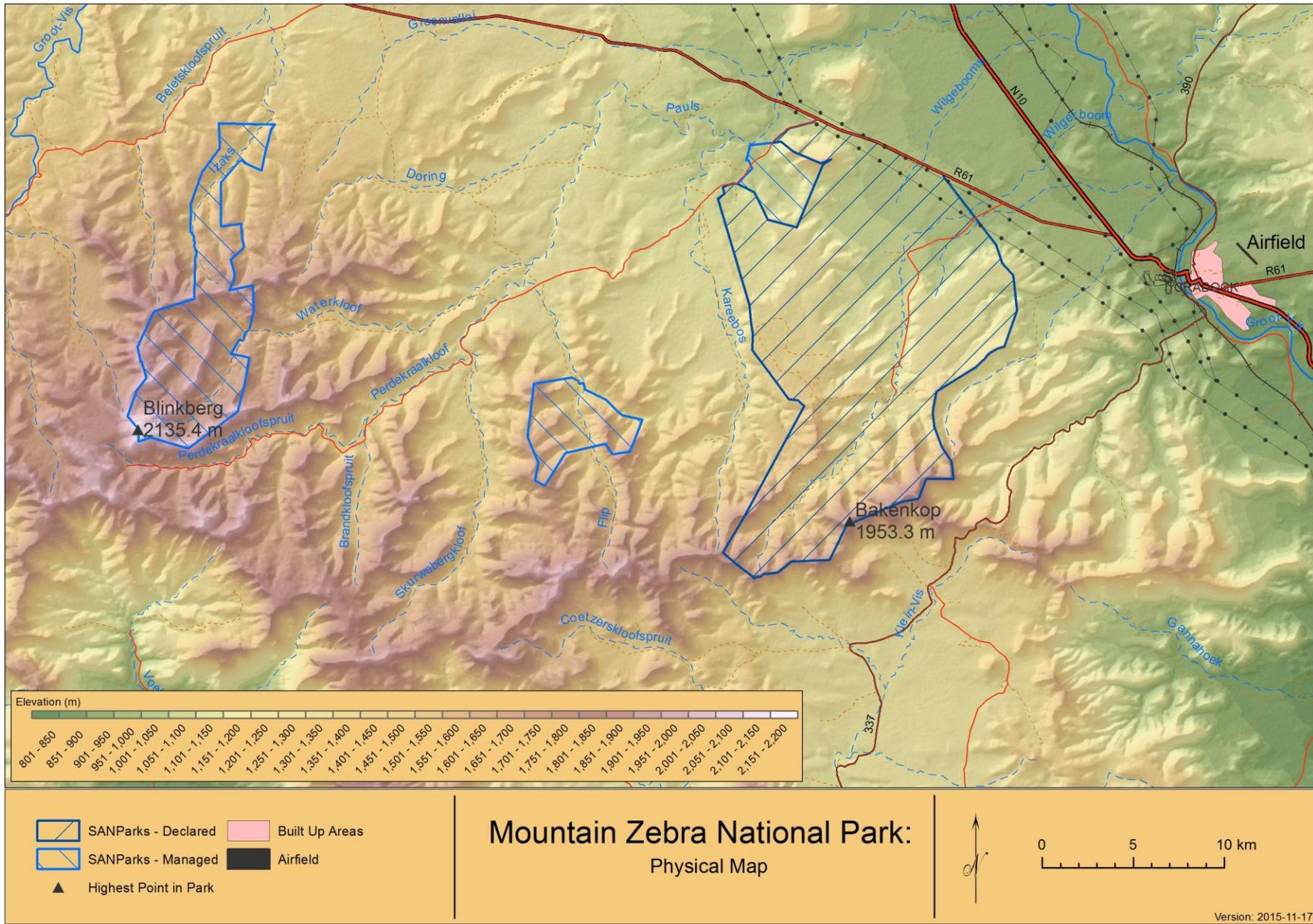


## Appendix 5: Maps

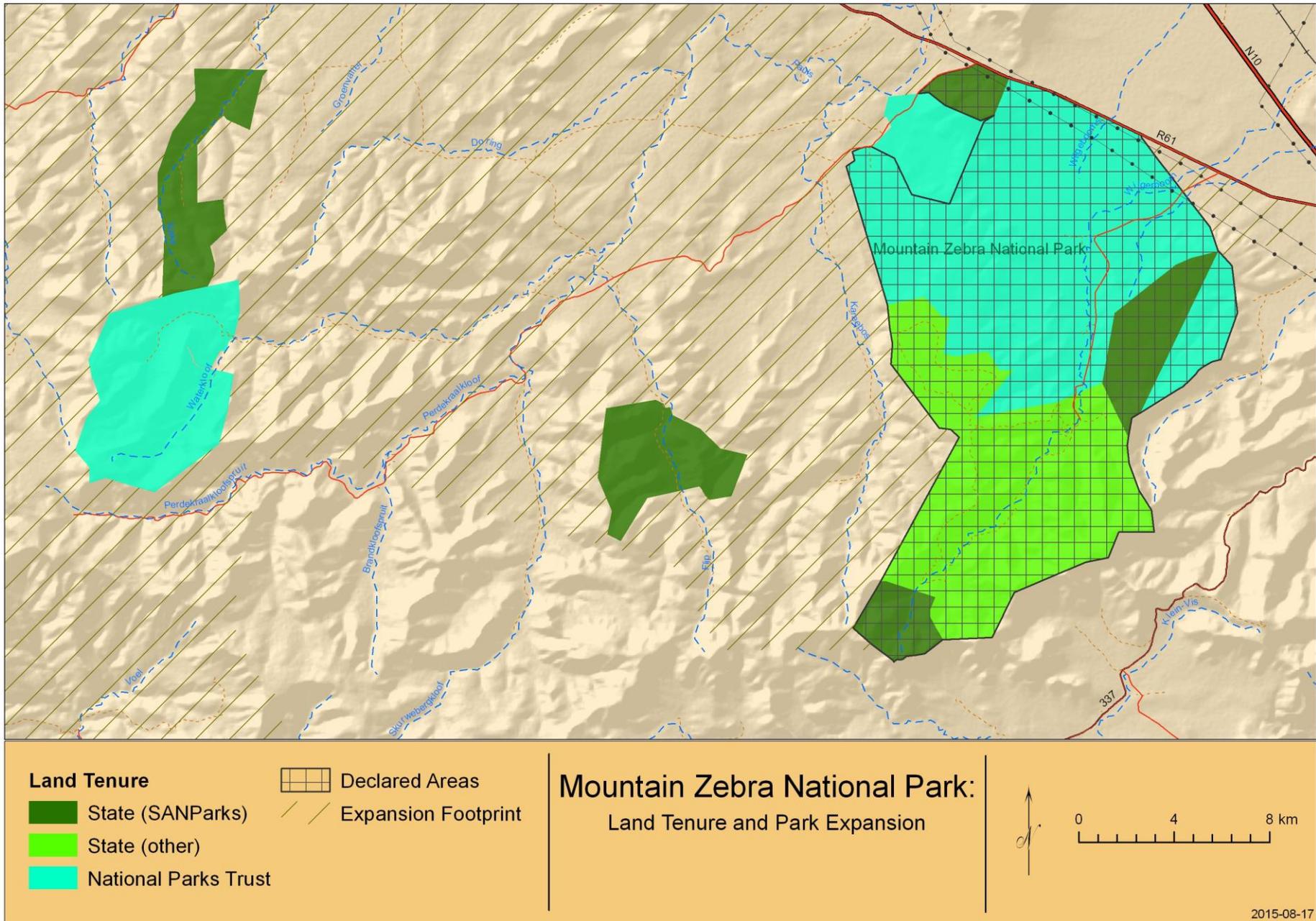
- Map 1: Regional context
- Map 2: Physical features
- Map 3: Land tenure and park expansion
- Map 4: Zoning
- Map 5: Zoning with sensitivity value
- Map 6: Buffer areas
- Map 7: Infrastructure and development
- Map 8: Vegetation



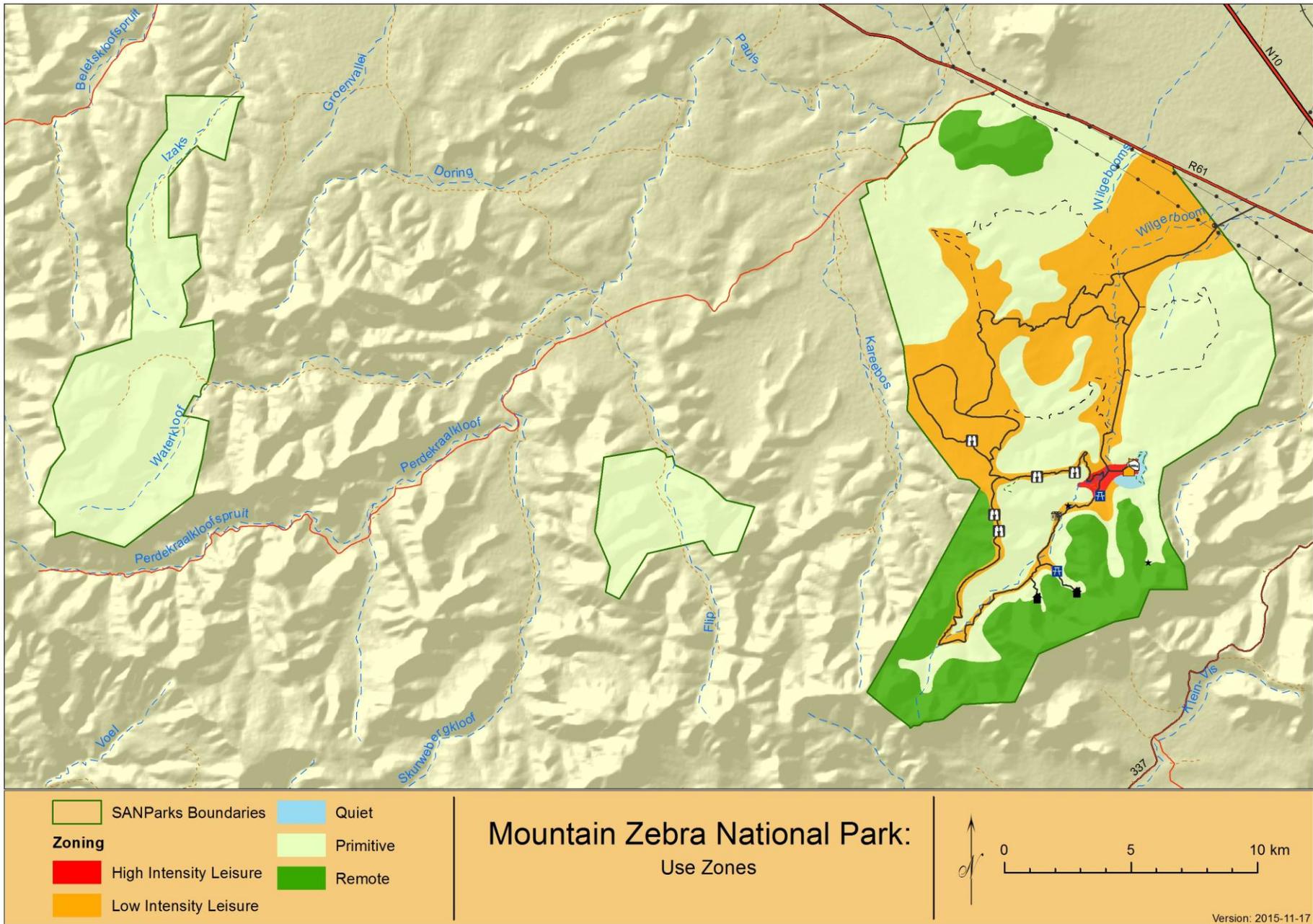
Map 1: Regional context



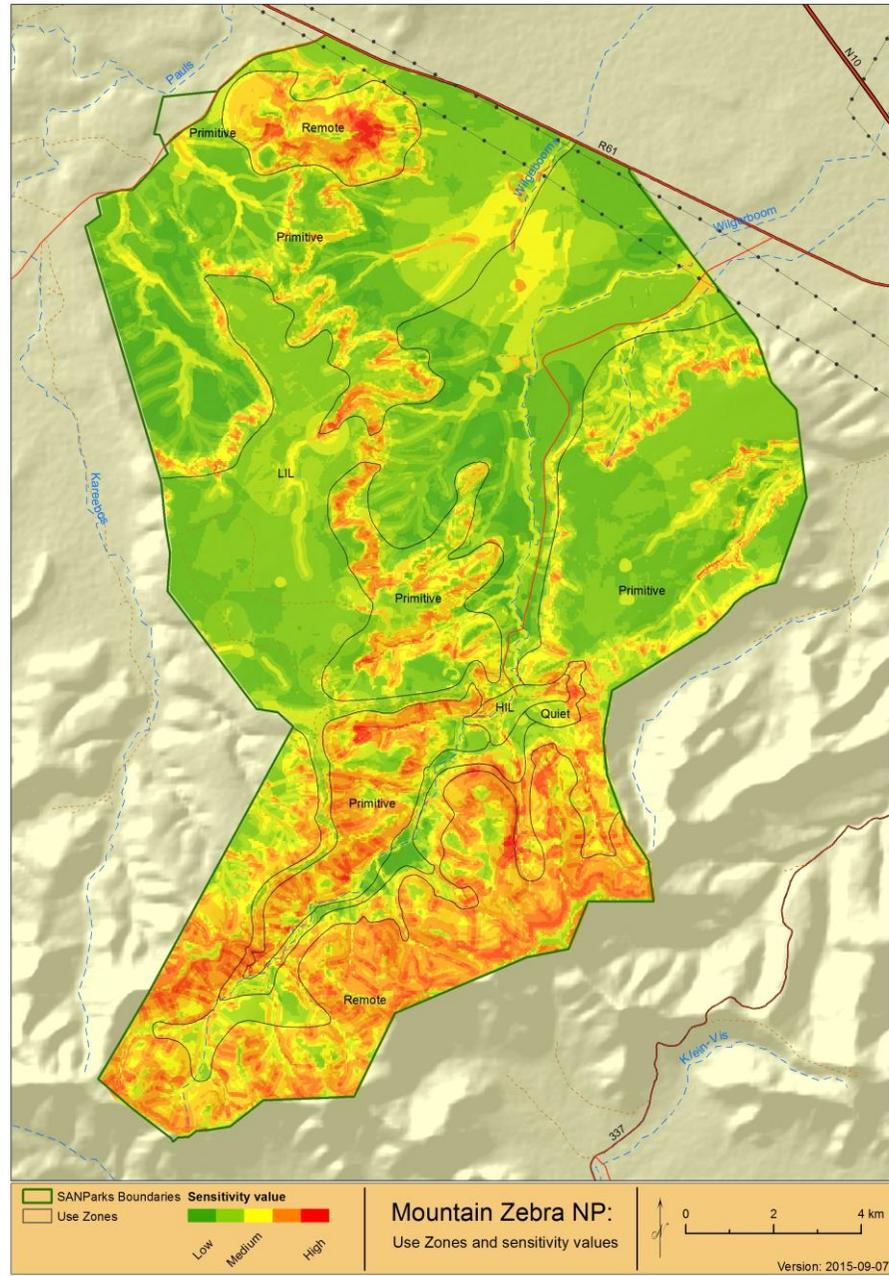
Map 2: Physical features



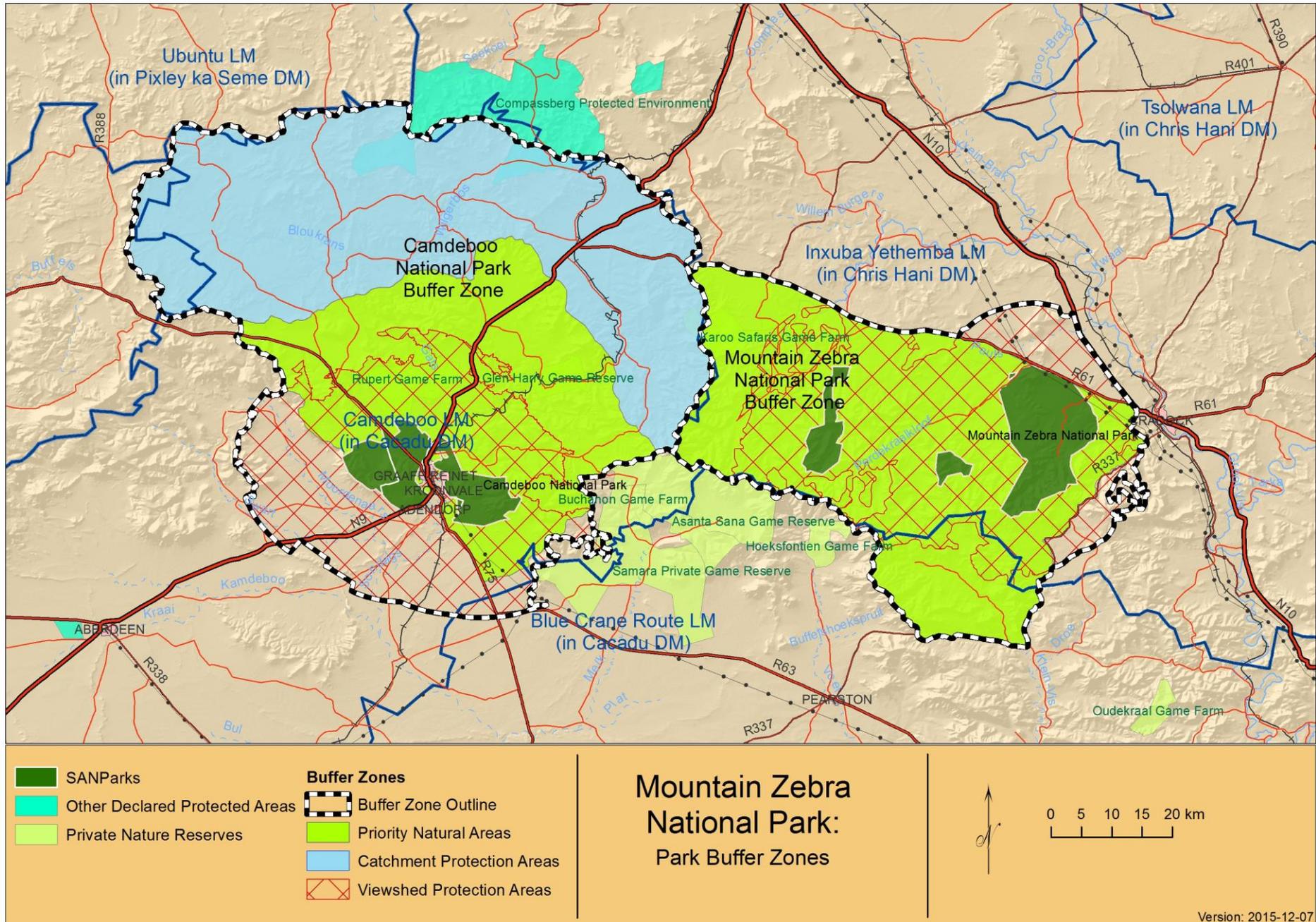
Map 3: Land tenure and potential expansion



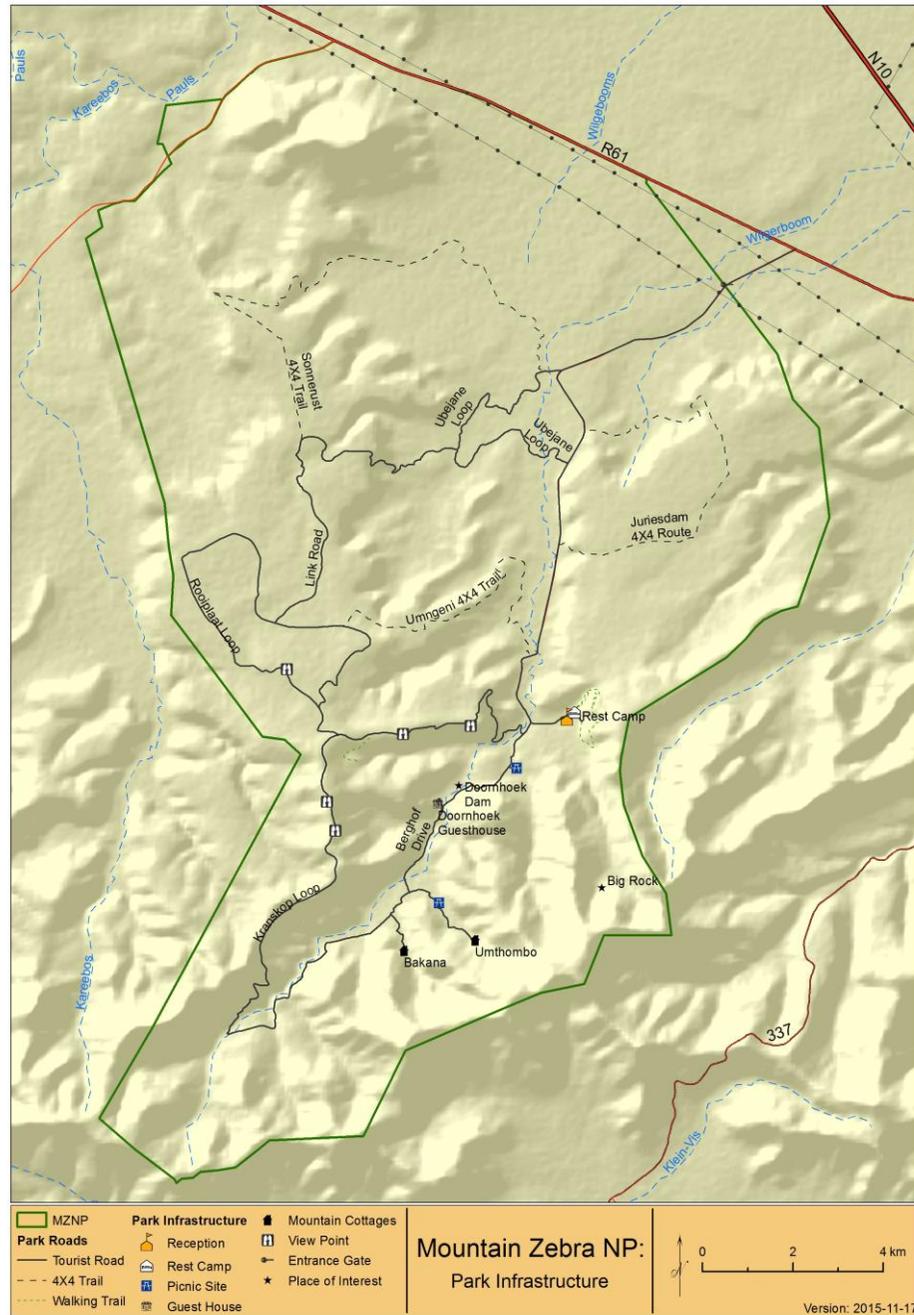
Map 4: Zoning



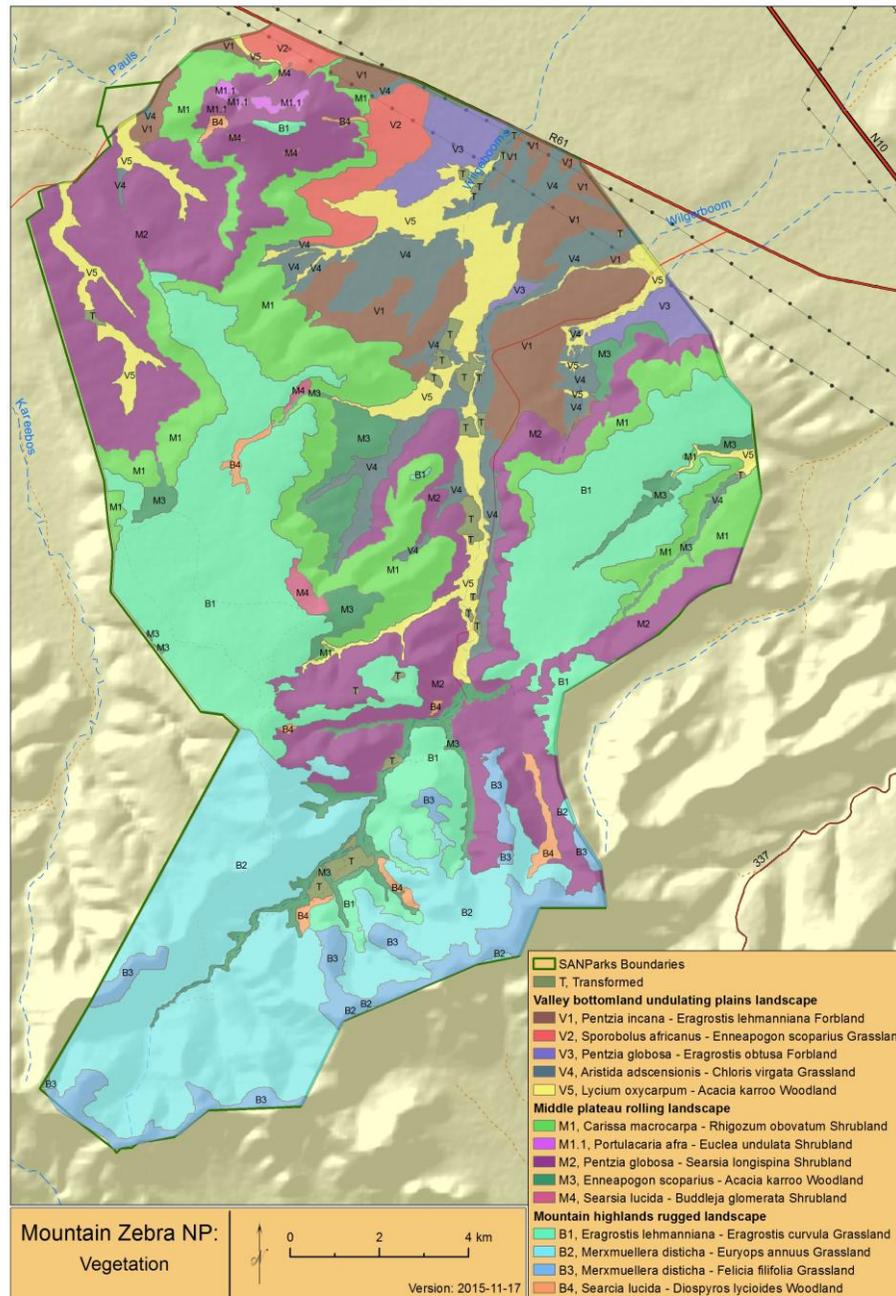
Map 5: Zoning and sensitivity



Map 6: Buffer zone



Map 7: Park infrastructure



Map 8: Vegetation