South African NATIONAL PARKS

Mapungubwe National Park and World Heritage Site

Management Plan

For the period 2013-2018

Section 1: Authorisation

This management plan is hereby internally accepted and authorised as required for managing the Mapungubwe National Park in terms of Sections 39 and 41 of the National Environmental Management: Protected Areas Act (Act 57 of 2003) and chapter 4 of the World Heritage Convention Act (Act 49 of 1999).

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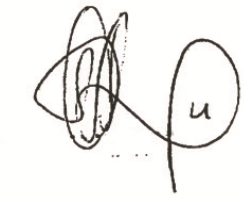
Date: October 2012



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Date: 15 March 2013

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Glossary

Aquifer	An underground layer of water-bearing permeable rock or unconsolidated materials (gravel, sand, or silt) from which groundwater can be extracted.
Archaeology	The study of the human past through primarily the recovery and analysis of the material remains and the environmental data left behind by these people. Archaeological studies aim at understanding how humans lived and interacted with the environment, which is how they shaped and were shaped by the environment
Bioregion	A region defined through physical and environmental features, including watershed boundaries and soil and terrain characteristics. Bioregionalism stresses that the determination of a bioregion is also a cultural phenomenon, and emphasises local populations, knowledge, and solutions
Cultural heritage	The physical objects and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations. Cultural heritage includes tangible culture (such as buildings, monuments, landscapes, artefacts, rock art, stone tools, residential areas and stone walls), intangible culture (such as folklore, traditions, language, music, sacred sites, and knowledge), and natural heritage (including culturally-significant landscapes, paleontological sites and biodiversity).
Cultural landscapes	Defined geographical areas that have been molded by nature and humans. Cultural landscapes are therefore landmarks left by humans and nature over time in a given environment.
Dolerite	A dark, fine-grained rock, formed through the cooling and solidification of magma or lava.
Ephemeral	Lasting only a brief period.
Fauna	The animal life of a particular region or time.
Geology	The scientific study of the origin of the Earth along with its rocks, minerals, land forms, and life forms, and of the processes that have affected them over the course of the Earth's history.
Herbivory	The ecological processes associated with the consumption of vegetation by animals.
Hydrology	The study of the movement, distribution, and quality of water.
Invasive alien species	Invasive alien species (IAS) are species whose introduction and/or spread outside their natural past or present distribution threaten biological diversity.
Lithology	The physical characteristics of a rock, including colour, composition, and texture.
Monitoring	The collection and analysis of repeated observations or measurements to evaluate changes in condition and progress toward meeting a conservation or management objective.
Palaeontology	The study of the forms of life existing in prehistoric or geologic times, as represented by the fossils of plants, animals, and other organisms.
Responsible tourism	Responsible tourism is an approach to the management of tourism, aimed at maximising economic, social and environmental benefits and minimising costs to destinations. Simply put, responsible tourism is tourism 'that creates better places for people to live in, and better places to visit'. A responsible tourism approach aims to achieve the triple-bottom line outcomes of sustainable development, *i.e.* economic growth, environmental integrity and social justice. The distinguishing characteristic of the approach is the focus on the responsibility of role-players in the tourism sector, and destinations in general, to take action to achieve sustainable tourism development
Riparian	Of, on, or relating to the banks of a natural course of water.
Stakeholder	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
Topography	The land forms or surface configuration of a region.
Transfrontier conservation area	A relatively large area, straddling frontiers between two or more countries and covering large-scale natural systems encompassing one or more protected areas. TFCAs involve a unique level of international co-operation between the participating countries, particularly issues related to the opening of international boundaries and within each region.
Vegetation	The plant life of a particular region.
World Heritage Site	A UNESCO (United Nations Education, Scientific and Cultural Organisation) World Heritage Site is a place that is listed by UNESCO as having outstanding cultural or natural importance to the common heritage of humanity. The list is maintained by the international World Heritage Programme administered by the UNESCO World Heritage Committee.

Acronyms and abbreviations

1	CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
2	CDF	Conservation development framework
3	CHM	Cultural heritage manager
4	CM	Conservation manager
5	CPF	Coordinated policy framework
6	CSD	Conservation services division
7	DEA	Department of Environment Affairs
8	EE	Environmental education
9	EIA	Environmental impact assessment
10	EMP	Environmental management plan
11	EMS	Environmental management system
12	EPWP	Expanded public works programme
13	GG	Republic of South Africa Government Gazette
14	GMTFCA	Greater Mapungubwe Transfrontier Conservation Area
15	GN	Government Notice
16	HIA	Heritage impact assessment
17	HSM	Hospitality services manager
18	IDP	Integrated development plan
19	ISCU	Invasive species control unit
20	IUCN	The World Conservation Union
21	MCL	Mapungubwe cultural landscape
23	MPMP	Mapungubwe National Park
24	NBSAP	South Africa's national biodiversity strategy and action plan
25	NEMA	National Environmental Management Act (Act 107 of 1998)
26	NEM:BA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
27	NEM:PAA	National Environmental Management: Protected Areas Act (Act 57 of 2003)
28	P&C	People and conservation
29	PM	Park manager
30	RM	Regional manager
31	SAHRA	South African heritage resource agency
32	SANBI	South African National Biodiversity Institute
33	SANParks	South African National Parks
34	SAPS	South African Police Service
35	SDF	Spatial development framework
36	SMME	Small, medium and micro enterprises
37	SSC	Species of special concern
38	TFCA	Transfrontier conservation area
39	TPC	Threshold of potential concern
40	WfW	Working for water
41	WfWet	Working for wetlands
42	WHS	World Heritage Site

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Table 2: Estimated annual operational costs for 2012 / 2013

Table 2: Estimated once off cost of the various programmes.

Table 4: Estimated replacement value of the existing infrastructure and any new infrastructure required with the estimated annual maintenance budget for the existing and new infrastructure.

Table 5: Total value based on the original purchase price of various categories of minor assets.

Table 6: Summary of the annual and once off operational costs (based on actual expenditure) that is required to fully implement the activities in the management plan over the next five years.

Appendices

Appendix 1: List of declarations

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Appendix 3: Species of special concern

Appendix 4: Zoning

Appendix 5: Stakeholder consultation report

Appendix 6: Statement of outstanding universal value

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Executive summary

This document serves as a reference to the management and development of the Mapungubwe National Park (MPNP) over the next ten years, and provides a source of relevant information relating to the background, biophysical features, vision and desired state, and management and development programmes.

The outstanding universal value that led to its inscription as a cultural landscape lies in the evidence at more than 400 archaeological sites for a dynamic interaction between people, natural resources and the landscape. This interaction laid the foundation for a new type of social organisation in the region by Iron Age ancestors of the Venda, North Sotho and Shona between AD 900 and 1300. For the first time in the interior of southern Africa, a kingdom was established that traded local products such as gold and ivory in exchange for imported items from the east coast of Africa and beyond. The challenge for SANParks is to retain the authenticity and integrity of the archaeological remains and the biodiversity in the landscape that shaped, and was shaped by, the people who have lived there. They strive to do this by consolidating the park and integrating management of the cultural and natural values. Mapungubwe National Park and World Heritage Site offers unique potential for visits to heritage sites that increase public understanding of the important interconnections between people, their heritage and biodiversity in the landscape. Human presence in the Mapungubwe cultural landscape stretches over at least a million years. Stone tools found at many places in the park show where hunter-gatherer people lived. Within the last ten thousand years, ancestors of the San inhabited the area and left numerous rock paintings that are a graphic reminder of the importance of certain animals in their belief system

The programmes designed to achieve the desired state for the park focus primarily on the conservation of the unique cultural-historical and biodiversity characteristics of the area, including the status of the park as a World heritage site and a Transfrontier conservation area (TFCA). There is also a strong emphasis on the building of cooperation between stakeholders, good neighbourliness and the effective management of the park. Most importantly the park recognises that it cannot function in isolation; therefore this plan has been developed to complement the larger vision of the Mapungubwe TFCA. A significant challenge over the next planning horizon is the establishment of a functional buffer zone that can protect the World heritage site from external developments, particularly mining.

Section 41 of the National Environment Management Act: Protected Areas (NEM:PAA, Act 57 of 2003) contains the following set of requirements for protected area management plans:

(1) The object of a management plan is to ensure the protection, conservation and management of the protected area concerned in a manner which is consistent with the objectives of this Act and for the purpose it was declared.
(2) A management plan must contain at least—
- (a) the terms and conditions of any applicable biodiversity management plan;
- (b) a coordinated policy framework;
- (c) such planning measures, controls and performance criteria as may be prescribed;
- (d) a programme for the implementation of the plan and its costing;
- (e) procedures for public participation, including participation by the owner (if applicable), any local community or other interested party;
- (f) where appropriate, the implementation of community-based natural resource management; and
- (g) a zoning of the area indicating what activities may take place in different sections of the area, and the conservation objectives of those sections.

(3) A management plan may contain—
- (a) development of economic opportunities within and adjacent to the protected area in terms of the integrated development plan framework;
- (b) development of local management capacity and knowledge exchange;
- (c) financial and other support to ensure effective administration and implementation of the co-management agreement; and
- (d) any other relevant matter.

(4) Management plans may include subsidiary plans, and the Minister or MEC may approve the management plan or any subsidiary plan in whole or in part.

The development of this management plan follows the adaptive planning process of SANParks and, in compliance with the provisions of section 41 of the Act, includes the following sections:

Section 1: Introduction includes background information indicating the significance of the park, the salient biophysical and regional features, with further in-depth information to be found in the relevant appendices or source documents in the reference list. This outlines the considerable cultural and biodiversity value, as well as its importance as a World heritage site and Transfrontier conservation area.
Section 2: Legal status including location, size, declaration dates, total area, relationship with local municipalities, international listings.
Section 3: Policy framework including SANParks' policy governing the development of management plans, the strategic adaptive management methodology and strategies that will ensure that the park undertakes an adaptive approach to management towards the desired state.
Section 4: Consultation processes followed to develop the first version of the plan and to revise the current one.
Section 5: Purpose, an outline of the desired state of the park and how this was determined, vision, mission, vital attributes objectives hierarchy.
Section 6: Zoning plan, aimed at minimizing user conflicts by separating potentially conflicting activities and defining what can and cannot occur in different parts of the park in terms of natural and cultural resource management, access and benefits, visitor use and experience and infrastructure.
Section 7: Access, visitor and administrative facilities, infrastructure, commercial activities, entrance points and use of aircraft.
Section 8: Expansion strategy, including the incorporation of private land on a contractual basis.
Section 9: Concept development plan, indicating new developments such as planned infrastructure.
Section 10: Strategic plan including the various programmes of implementation required to achieve the desired state of the park. Each contains a table with objectives, actions, indicators and responsibilities. Obviously these programmes can extend over many years, but here we present a five year projection. Monitoring and evaluation are built into each programme occurs through the inclusion of verifiable indicators of progress. In addition, managers will report annually on progress by programme through the strategic performance management system of SANParks.
Section 11: Costing, including anticipated costs of the programmes of implementation, income generation, a high level budget to cover costs and funding shortfalls. This is based on a comprehensive business plan developed simultaneously with this management plan. Broad timeframes are presented but these need to be refined in annual operational plans.

The Process

The first management plan required in terms of NEM:PAA was submitted in 2007 and was partially approved by the Minister. The current review of the management plan provided an opportunity to build on the foundation set by the previous plan, while addressing the shortcomings and aligning the plan with the new planning guidelines (DEA 2010, Guidelines for the development of a management plan for a protected area in terms of the National Environmental Management: Protected Areas Act). In accordance with NEM:PAA stakeholder groups and individuals were consulted (see Appendix 5 for details). This management plan will come into effect following the approval by the Minister under section 39 of NEM:PAA on a date specified by the Minister and will remain in place until replaced by a newly approved plan within a time period set by the Minister.

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Section 2: Legal status

2.1 Name of the area

The Vhembe/Dongola National Park was declared on 09 April 1998 (GN 490 in GG 18814). The Mapungubwe cultural landscape (MCL) was gazetted as a National heritage site by the then newly-established South African Heritage Resources Agency (SAHRA) in December 2001. The MCL was inscribed on the United Nations Education, Scientific and Cultural Organization's (UNESCO) World Heritage List in 2003. In Government Notice No. 71 of 30 January 2009 (GN 31832) the then Minister Marthinus van Schalkwyk declared the MCL as a World Heritage Site in terms of the World Heritage Convention Act (Act 49 of 1999), and delegated specified powers of management to SANParks. The park name was changed to Mapungubwe National Park (MPNP) on 30 July 2004 (GN 900 in GG 26602). A full list of declarations is included as Appendix 1. The park also forms the core of the Vhembe Biosphere Reserve.

2.2 Location

The Mapungubwe National Park and World Heritage Site is located on the South African side of the confluence of the Shashe and Limpopo Rivers (Appendix 5; Map 1). The Limpopo River forms the northern boundary and the R572 between Musina and the R521 forms the southern boundary. Government Notice 31832 identifies the coordinates for the core of the MCL World Heritage Site as:

NW corner 22°12' 56"S 29°08'22"E
NE corner 22°10' 10"S 29°29'04"E
SE corner 22°14' 15"S 29°31'35"E
SW corner 22°17' 40"S 29°12' 00"E

The core stretches from the Pont Drift in the west for about 35 km to Schroda in the east, and stretches from the Limpopo River in the north to the tarred road (R572) linking Pont Drift and Musina in the south. A map showing the regional context of the park is given as Appendix 7 Map 1.

2.3 History of establishment

The process of identifying this area as a place of natural and cultural significance began in 1922 when nine farms were set aside as a botanical reserve and, following much controversy, were declared as a wildlife sanctuary in 1947. A change of governing party led to this declaration being repealed the next year, with settlement by white farmers then taking place. By 1967 there was a renewed lobby for park status, now also including the important archaeological values. As a consequence, the site known as K2 was declared a national monument on 9 September 1983 and Mapungubwe hill and its southern terrace were declared on 17 August 1984 in terms of the former National Monuments Act (Act No. 28 of 1969). During the later apartheid years, the region had a significant military presence on the farm Greefswald which left a legacy of fences and other infrastructure, much of which has been removed as it did not complement the aesthetics of the landscape. After the small provincial Vhembe nature reserve consisting of three farms was declared in 1967, there was renewed interest in investigating national status of the park as a larger area intended for a tourism hub in the late 1980s, a move later supported by De Beers following establishment of Venetia diamond mine to the south in 1990.

In 2003, the MCL, synonymous with the Mapungubwe National Park and National Heritage Site, was the first of South Africa's national parks to be inscribed on the World

The status of the MPNP and MCL in terms of its National and World heritage designation makes up an important component of international context, with the Department of Environmental Affairs and the South African heritage resource agency (SAHRA) ensuring that the values supported by national legislation are met.

At international level, close liaison is required with the UNESCO World Heritage Centre and the Greater Mapungubwe Transfrontier Conservation Area (GMTFCA) involving Botswana, Zimbabwe and South Africa.

On 9 June 1995 an agreement was signed between SANParks and what was then the Northern Province government committing them to the development of a new national park in the Shashe / Limpopo River border area of South Africa. In terms of the agreement the government of the Northern Province (re-named the Limpopo Province in 2002) would make the farm Greefswald, then part of the Vhembe nature reserve, available to SANParks, to be declared a national park in terms of the National Parks Act (Act 57 of 1976 as amended). This ambitious development for a major national park in the area, provisionally known as the Vhembe / Dongola National Park, was not only a spur to the development of the eco-tourism industry in Limpopo Province, but has served as a regional growth point for tourism and conservation because of the positioning of the park on the international borders between Botswana, Zimbabwe and South Africa. The ultimate objective stated at the time of its official declaration as a national park on 9 April 1998 was that the park should become a major component of a Transfrontier conservation area shared by the three countries.

As a World Heritage Site since July 2003, the MPNP is obligated to supply information for periodic reporting required in the operational guidelines set out by UNESCO to retain the significance and outstanding universal value of the place. This plan provides most of the essential requirements, including a statement of the outstanding universal value, the factors affecting the property and a summary of recommended actions. A description of the monitoring programme with key indicators for measuring the state of conservation will have to be added.

The memorandum of understanding for the GMTFCA was signed on 22 June 2006. Innovative strategies will be required to balance the varying activities and demands that are likely to occur in the GMTFCA, not least of which concern elephant related issues, tourist circulation, benefits and area security.

The park management plan has been developed as required by NEM:PAA and therefore applies only to the MPNP, but covers briefly the contribution the park will make towards the realisation of the GMTFCA.

As a National Heritage Site, the MPNP must work closely with SAHRA which is responsible for monitoring the heritage resources, establishing heritage management policies and heritage agreements, and the issuing of permits for research and conservation interventions.

Biodiversity is equally important and in view of its uniqueness, there is a possibility that the Golope / Maloutswa wetland could be considered for future designation in terms of the Ramsar convention on wetlands of international importance. Private nature reserves in the region (including the 34,200 ha large Venetia Limpopo Private Reserve, and the Mapungubwe Private Nature Reserve to the west of the park) can be linked to the park through contractual agreements, thereby expanding the area under biodiversity conservation.

The Department of Mineral Resources also needs to play a significant role. The rich coal and diamond resources and other strategic minerals on the borders of the park, a projected power station and the coal / gas field north of the Soutpansberg will change the character of the landscape in and around the MCL. SANParks must liaise closely with the Department of Mineral Resources and provincial planning departments to ensure that the integrity and outstanding universal value of the Mapungubwe World heritage site is retained. A map indicating land tenure and potential expansion is included as Appendix 7 Map 3.

2.4 Land managed under contract

The areas of land managed by SANParks under contract with the landowners are shown in Appendix 1, Tables 1 and 2. These contractual areas include both land which has been declared (Table 1) and areas which have not been declared in terms of NEM:PAA (Table 2). The period of the contracts is 99 years in all cases. The areas immediately surrounding Mona and Little Muck Lodges are excluded from the contracts (Appendix 1, Table 2). There are no co-management agreements.

2.5 Total area

The core area of the World heritage site comprises 28,168.66 ha. Various privately owned properties make up the buffer zone, which, added to the core, comprises some 100,000 ha. (Appendix 7, Map 2). The total surface area of the park declared in terms of NEM:PAA is 15,236.92 ha, with some 4,900 ha in the process of being declared.

This includes seven privately owned contracted properties which contribute to achieving the vision and overall desired state of the park (Appendix 1, Table 1 and Appendix 5, Map 3). A further 4,489.9583 ha privately owned land managed under contract by SANParks but not declared (Appendix 1 Table 2) and 12,703.31 ha privately owned land that is not managed by SANParks are present within the core area of the World heritage site (Appendix 1, Table 3).

2.6 Highest point

The highest point is in the south-western corner of the park at 626 m on the farm Balerno (Appendix 5, Map 2). According to NEM:PAA Section 47 aircraft are not allowed to fly lower than 2,500 feet above this point. A map showing the physical features of the park is given as Appendix 7, Map 2.

2.7 Municipal areas in which the park falls

Mapungubwe falls within the Vhembe District Municipality, and the Musina Local Municipality. The MPNP is also a ward in the Vhembe District Municipality and also has close ties with the Blouberg Municipality.

For effective regional management and inter-governmental support, the MPNP is reflected in both the district and local municipalities' integrated development plans (IDPs) and spatial development frameworks (SDF). SANParks staff members are currently striving as part of an ongoing process to make the park part of the local government planning through targeted briefings. Thus far both the district and local municipality have included SANParks poverty relief projects (DEA funded) into their IDPs. The projects include roads, staff houses, rehabilitation of farm lands and archaeological sites. Co-operation with provincial departments such as environmental affairs, tourism, heritage resources and land claims is essential and ongoing.

2.8 International, national and provincial listings

As noted, the MCL was listed as a World heritage site by UNESCO in July 2003. Proposed initially in the late 1990s the transfrontier conservation initiative culminated in the formal establishment of the Greater Mapungubwe Transfrontier Conservation Area (GMTFCA) in June 2006 with the signing of a memorandum of understanding by the Governments of Botswana, South Africa and Zimbabwe. The selection of the Limpopo / Shashe area for the transfrontier park was based on the rich biodiversity of the area, its scenic beauty and the cultural importance of the archaeological treasures of Mapungubwe. The current GMTFCA institutional arrangements consist of the following:

a. Trilateral ministerial committee;
b. Trilateral technical committee;
c. National technical committees;
d. Joint working groups;
e. International coordinator.

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Investigations to have the area recognised as a biosphere reserve are also under way.

2.9 Biophysical and socio-economic description

2.9.1 Climate

Mean annual rainfall ranges from 350–400 mm, variable but usually falling during the summer months. Extended periods of below average rainfall can occur. Evaporation from free water surfaces is in excess of 2,500 mm per year, and summer temperatures sometimes rise to 45 °C. The winters are generally mild, although frost may occur.

2.9.2 Topography, geology and soils

Mapungubwe comprises an attractive semi-arid landscape with varied geology, including extremely old archaean rocks, metamorphics of intermediate age, karoo sandstone / conglomerate uplands that are about 200 million years old, and recent alluvium and sands. Elevation is generally low with the highest point at 626 m. Kimberlites about 100 million years old are found in the region, and a large diamond mine exists at Venetia, about 50 km south of the park boundary, drawing water from the Limpopo system inside the park. Coal reserves have been identified in the park and on neighbouring properties. A limited range of fossils is associated with the karoo and kimberlite formations. A variety of soils are present, with large areas characterised by sandy, lime-rich soils generally deeper than 750 mm. Soils generally have low agricultural potential, with irrigated alluvium tending to become brackish. Greater detail around the physical features of this park is displayed in Appendix 5, Map 2. This region is linked to one of the oldest known geological features in the world. A small exposure of, arguably, the original crustal material of the earth, 3,700 million years, occurs near Musina.

The most primitive rocks of South Africa were laid down on this original crust. These were formed by magmatic activity as well as erosion of rocks of the original crust. The park is surrounded by terrain of the Archaean granulite-grade rocks (Beit Bridge gneisses) of the Central zone of the Limpopo belt, believed to have developed during the collision of the Kaapvaal craton (from the south) and the Zimbabwe craton (from the north) 2 700 million years ago (McCarthy & Rubidge 2005).

2.9.4 Hydrology

The confluence of the seasonally-flowing Shashe and Limpopo rivers is a dominant hydrological feature, as is the large ephemeral Kolope / Maloutswa wetland upstream of the confluence.

Groundwater supplies are generally poor except along fault lines, and irrigation withdrawals up- and downstream of the park are large relative to water supplies.

The Limpopo and Golope floodplains are the dominating wetland type in Mapungubwe. These two floodplains ultimately form one system towards the confluence in the Samaria section of the park. Various other smaller, with steeper gradient, seasonal tributaries occur in the park and mostly mouth onto the Limpopo floodplain.

The dolerite features close to the confluence with the Shashe River are crucial in the functioning of the floodplain. Various seeps and springs have been noted and are mostly associated with the dolerite intrusions, the fault zones and also with contacts between different lithologies. The weathered sandstones, weathered contacts and fault zones are excellent aquifers.

2.9.5 Flora and fauna

Invasive alien species known to occur in the park are listed in Appendix 2.

Vegetation

As can be expected from the varying substrates and topography, a variety of vegetation and animal habitats occur within the MPNP. Diverse plant communities on koppies stand above *Commiphora-Colophospermum* veld (kanniedood and mopane) on the surrounding undulating terrain. River and floodplain associated vegetation includes *Acacia xanthophloea* (fever tree), *Hyphaene petersiana* palmveld, *Salvadora australis* shrubveld on the floodplains, and *Acacia stuhlmanni* communities on old lands. Species of special concern in the park are listed in Appendix 3.

Almost unique in the South African context is the tall lowveld riparian woodland which graces the main rivers and appears under considerable threat (O'Connor and associates 2005). Detail of vegetation types in part of the current core area is available (Götze 2002). Although not part of a priority biodiversity area in the recent classification by the South African National Biodiversity Institute (SANBI), the riparian, wetland and other special arid habitat features make a compelling case for biodiversity conservation, alongside the overwhelmingly important cultural issues.

Alien plant threats are generally low but need to be monitored.

Fauna

The Kolope / Maloutswa ephemeral wetland, when inundated, attracts large numbers of birds and has become an established birdwatching spot.

One commercial farm on the wetland, enclosed by the park, pumps water and maintains ponds year-round. Alien fish species are stocked here as well as higher up in the Limpopo and Shashe River systems, and have escaped into the Limpopo River system.

Medium-sized herbivores in the park include eland, gemsbok, impala, kudu, waterbuck, wildebeest and zebra. Mega-herbivores such as elephants and white rhinos are also present. While most of the animal populations have variable growth rates within the park due to the park forming part of a larger region over which species roam, no immediate threats to the environment are foreseen with the exception of elephant effects (SANParks 2009). Elephant use of landscapes is constrained by water distributions and fences in the Mapungubwe area, but also other human activities in the region.

Threatened reptile, bird and mammal species occurring in the park are listed in Appendix 3, Table 2.

2.9.6 Cultural heritage

Sustainable human settlement in the MCL has a long history and extends beyond the boundaries of the park into Botswana and Zimbabwe. The earliest archaeological sites date back more than a million years with evidence of earlier sone age tools made by ancestors of modern humans found within the park. Several sites have been excavated (Kuman *et al.* 2004; Kuman *et al.* 2007; Pollarolo & Kuman 2009). In addition, there are sites dating to the middle Stone Age and later stone age as well (Hall & Smith 2000; Van Doornum 2005). These Stone Age people were all hunter-gatherers who lived both within rock shelters and out in the open. Within the last few thousand years, the San made numerous rock paintings that illustrate animals such as giraffe, elephant and rhino (Eastwood & Blundell 1999; Eastwood 2003; Eastwood & Eastwood 2006). Archaeological excavations in several rock shelters indicate that ancestors of the San occupied the MCL for nearly thirteen thousand years (Van Doornum 2005), moving away only after interaction with the incoming iron age farmers for several hundred years between 900 and 1300 AD (Hall & Smith 2000).

Archaeological research between the 1930s (Fouché 1937; Galloway 1959; Gardner 1963) and the present (Hanisch 1980, 1981; Voigt 1983; Steyn 1994; Meyer 1998, 2000; Huffman 2000, 2005; Steyn & Nienaber 2000; Huffman *et al.* 2004; Calabrese 2000, 2005; Van Schalkwyk & Hanisch 2002) has provided much evidence for the most significant period of human settlement in the MCL when it was the centre of the first known powerful indigenous kingdom in southern Africa, established by cultural ancestors of many of the peoples living in present-day Limpopo Province. Evidence of this occupation and history is preserved in hundreds of archaeological sites in South Africa and scores more in Botswana and Zimbabwe (Huffman 2000, 2005). Wealth accrued by its leaders, through trade from the Indian Ocean network (Wood 2000), resulted in social organisation changing to a situation in which the ruling elite lived separately from commoners. Due to a combination of political and climate change, the people of the kingdom dispersed after AD 1300, with the centre of regional power shifting to Great Zimbabwe, north of the Limpopo River (Smith 2005).

The wealth of Mapungubwe was realised in the 1930s when extensive archaeological research uncovered valuable artefacts on the sacred hill (Fouché 1937; Tiley 2006). More recent research at several related sites has uncovered the extensive historical importance of the wider region (Carruthers 2005). However, very limited oral history exists to understand the social and historical relationship of the people occupying the areas next to Mapungubwe before colonial occupation began (Ralushai 2003).

Pre-colonial land-use included usage of different landscape positions in the Earlier Stone Age (river terraces) (Pollarolo & Kuman 2009), Middle Stone Age (talus slopes, that is slopes covered with loose rock) and Later Stone Age (caves) by hunter-gatherers, and within the last 2000 years by Khoi herders (Hall & Smith 2000). Early Bantu-speaking farmers kept livestock and grew crops on lower-lying ground with better soils, while hilltops were favoured by the elite and were considered important for rain-making (Huffman *et al.* 2004; Huffman 2005). White farmers in the 20th century tended to occupy land near the river for irrigation, or farm in the areas away from the river with cattle and / or game-based ventures on the extensive semi-arid range. Military, mining and conservation land usage has added to the mix over the past century.

2.9.7 Social context

The area around the park is characterised by a sparse human population, and long distances for infrastructural lines of support. Land use and ownership within the park and the buffer is unusually diverse and includes contractual partners, land owners and land claimants, private tourism operations, game farms and local communities. The nearest larger populations of people are in the towns of Alldays and Musina and the Venetia diamond mine arranges daily transport for workers from these centres. Coal mining is likely to develop in the surrounding region over the next five years, bringing changing in population distribution and in traffic. Influx of people from Zimbabwe and to a lesser extent Botswana exacerbates the social problems in the area.

The Vhembe District Municipality, within which the park is situated, covers 21,407 km^2 and has population of over 1.1 million, living in 297,753 households.

Of these 292,508 are black households, 4,236 white, 321 coloured and 689 asian. The district municipality faces critical basic services backlogs. In the Musina local municipality the population was 42,656 in 2004, having grown at 3% per year since 1995. The unemployment rate in the district municipality stood at 49% in 2006. It rose to this level from 47.7% in 1996.

A local economic analysis is available on the web site http://www.vhembe.gov.za/docs/Local%20Economic%20analysis.pdf. This analysis concludes that MPNP, together with several other protected areas, presents the district with good potential to grow in the tourism sector. The analysis shows that 99% of the people of Vhembe are previously disadvantaged people. This population is characterised by underdevelopment, poverty and lack of skills.

The economy was considered low key, and as having been subsidised for security purposes during the apartheid era. Much hope is centred on recent developments in nature-based tourism (including ecotourism and hunting lodges) particularly with Mapungubwe as a hub, and on the likely regional benefits of a greater GMTFCA straddling the three countries.

The expanded public works programme, which fulfils the Government's objectives for job creation and skills development for poverty relief started in 2002. SANParks recruited its labour source from the previously disadvantaged communities that neighbour the park for the construction of tourism facilities comprising three rest camps (one hutted, one tented and one rustic wilderness), several ordinary and 4x4 drive routes, and several scenic boardwalks. Guided tours of Mapungubwe hill are now regularly conducted. The park has shown promise as a tourism attraction since being opened to the public in 2004. Importantly, black tourists make up a considerable fraction, indicating a societal demand to experience the cultural roots of black civilisation in South Africa.

Section 3: Policy framework

SANParks, like all protected area management authorities, are subject to the constitution, legislation, international agreements, national policies and government priorities. Section 41 of the NEM:PAA requires that management plans be located within the context of a coordinated policy framework (CPF), with SANParks complying with a first CPF having been developed in 2006. This CPF is currently being revised and will be updated in 2012 (SANParks in preparation). Until its update, the current CPF will remain in force.

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

(1) 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.
(2) 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.
(3) Policies and guiding principles:
    a) Finances and commercialisation;
    b) Tourism;
    c) Zoning system in parks;
    d) Stakeholder relationships;
    e) Management to maintain biodiversity and ecosystem processes;
    f) Risk management;
    g) Safety and security;
    h) Cultural heritage resources;
    i) Resource use;
    j) 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. This policy framework is open to public review by stakeholders.

The planning cycle for management plans in SANParks is 10 years, although programmes and costing will be revised at a more regular basis, normally every five years but more often if needed. In the case of the park, however, the planning cycle is also governed by the World Heritage Convention Act which has a five year horizon or longer as determined by the Minister. This matter will be taken up with DEA.

Park-specific Issues

Of importance to the park is the National Water Act (Act No 36 of 1998) and National Environmental Management Act (Act 107 of 1998), which provide the framework governing water use and management. Authorisation to use water, including surface and groundwater, is legislated under the above and requires application to the Limpopo Office of DEA (Department of Environmental Affairs) for water user licenses. Wetlands are defined according to the National Water Act and include floodplains, valley bottom wetlands, hill-slope seepage wetlands and pans / depressions. The possibility that the aquifers are of a Trans-boundary nature requires international water law considerations. Wetlands are further protected, and the management thereof, controlled by the National Environmental Act, 1998 (NEMA) and the Conservation of Agricultural Resources Act 43 of 1983 (CARA).

In terms of the SANParks coordinated policy framework river management policy, SANParks will play a leading role in assertively influencing river management in a sustainable direction in South Africa and the southern African region. Trans-boundary rivers pose a particular challenge, with SANParks again in a unique position of leverage with several important TFCAs, two major ones straddling the Limpopo. Given the aridity of the system and the over-use of groundwater in the region, specific guidelines are needed on the development of artificial water points. These are:

1. Water points should not be developed to promote the tourism experience at the cost of conservation goals. If a need for such water provision is identified the ecosystem risks have to be weighed against the tourism gains before such a decision can be made.
2. Existing artificial water sources should be evaluated according to the following criteria:
   - They must not alter the natural functioning of the Limpopo ecosystem or impact on, distribution, density and relative abundance of species;
   - Provision of water should only be permitted in areas where anthropogenic activities have reduced or removed water;
   - Availability (*i.e*. restoring historical availability). Water provision should not be used to attract animals to areas where water was known to be scarce or absent altogether.
   - The abstraction of water should not impact on the capacity of the underground water system, especially the underground water dependent ecosystems in the park (the riparian forests and wetlands);
   - Riparian vegetation should not be flooded through impoundment.

Reporting structure

All park managers (except for Kruger National Park) report to the Managing Executive: Parks through a regional general manager. In the case of the park this is via the regional general manager for the Northern region. The park's organogram (Figure 1) sets out the reporting structure in the park.

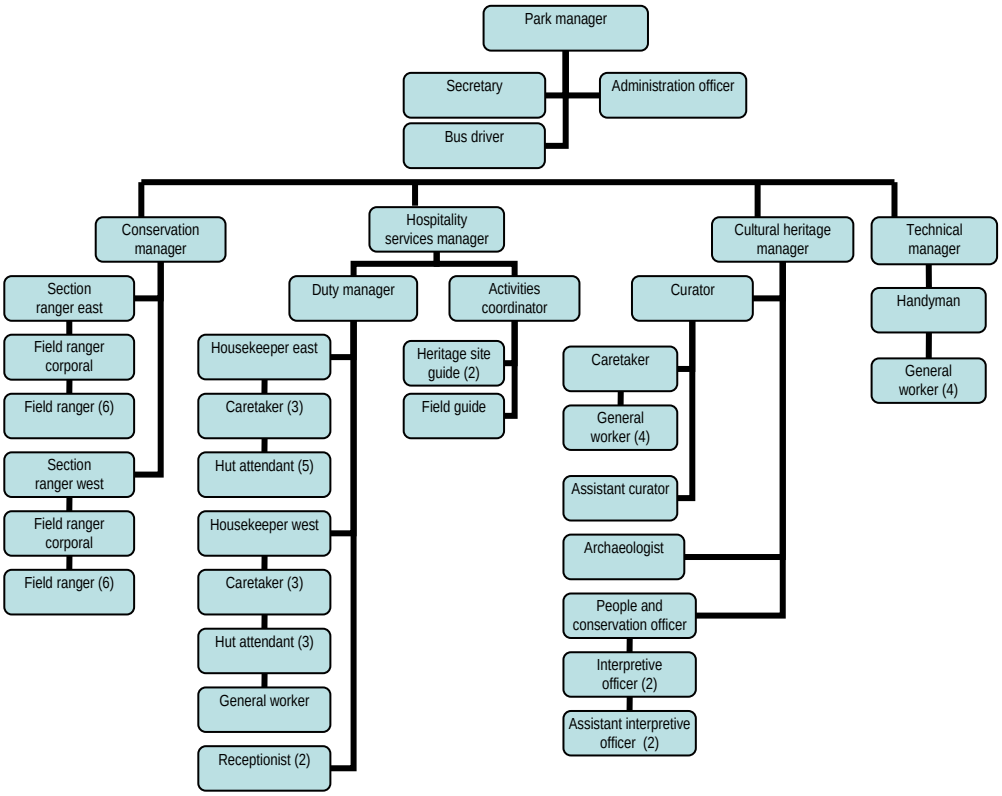

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Figure 1: Organogram for Mapungubwe National Park

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 aimed to recognize all knowledge, indigenous, ordinary and expert, as well as the diversity of values and opinions that exist between stakeholders. Feedback was provided on the outcome of the processes to stakeholders which demonstrated how their inputs were captured and considered in the decision making process.

The commitment to the incorporation of public opinion into this plan is rooted in the parks' 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 (a) help stakeholders express opinions and values in a structured way, (b) to use the opinions and expressed values to formulate a vision for the park, and (c) to translate the vision into management objectives that reflect the values as expressed by stakeholders.

For the revision of this management plan all the stakeholders that had registered during the 2006 revision process were informed by e-mail and telephone of SANParks' intention to review the management plan during the 2009 / 2010 financial year. Forty five stakeholders registered to become part of this process. Their information was added to the parks' stakeholder database, bringing the total to 122 registered stakeholders. The workshop to formulate the desired state of the park took place on 30 June and 1 July 2009 at Dongola Ranch. There were 35 participants, 17 SANParks staff and 18 stakeholders representing the following:

- Provincial government;
- Tertiary institutions;
- Local communities;
- Park Forum;
- Neighbours;
- Business and tour operators;
- Private land owners;
- Non-governmental organisations;
- Local government.

A focus group meeting was convened with the Park Forum on 6 August 2009 at Mopani Bush Lodge to discuss the draft hierarchy of objectives. Eighteen Park Forum members attended and 20 comments were recorded. The draft management plan was discussed at a public day on 18 March 2010 at the Musina Local Municipality office. Thirty six stakeholders attended, and 24 comments were recorded at this meeting, and stakeholders were given a further 30 days to submit comments. A further 22 comments were registered via e-mail. A summary of the stakeholder consultation is given as Appendix 5.

A comments and response document was complied reflecting all the comments and official responses captured during the revision process. A total of 66 comments were recorded. Details of the consultation process are provided in Appendix 5.

The closest and most regular consultative relationship is between the park and the members of the Park Forum which meets on a quarterly basis. Meetings are chaired by the chairperson and the park serves as a secretariat. Future plans include consolidating membership so that there is consistency. Sub-committees, such as the one dealing with cultural heritage, perform tasks for the park on request.

Section 5: Purpose and mission

5 Introduction

Within the framework of the corporate strategy map, the development of a desired state, vision and mission in consultation with stakeholders is the first step in developing a park management plan. This section of the plan details the setting of the park's desired state, as well as the vision and mission statements. As part of this process the park's vital attributes were identified, as well the determinants of these attributes (that is factors that are essential to maintaining the attributes) and the threats to the attributes. Objectives were chosen specifically with a view to maintaining the determinants and overcoming the threats. Management programmes were then designed to attain the objectives.

The park's conservation development framework (which includes a zoning plan, see Appendix 3) details the spatial targets and constraints through specification of strategic land use intent for MPNP for the next 20 years.

5.1 Mission

The current desired state and objectives of the MPNP is the outcome of a process of public participation that took place over the last 10 years as detailed in the two earlier versions of this management plan (SANParks 2003, 2008). This present version of the management plan began with a public participation meeting in July 2009 where higher and lower level objectives were identified. These objectives were completed in November 2009. When first established, the mission of SANParks for the Vhembe / Dongola National Park was "*To acquire land to consolidate and manage the Vhembe / Dongola National Park as part of a world-class Trans Frontier Conservation Area and World Heritage Site*".

The 2009 public participation process generated the following revised vision statement that allows a potentially wider range of objectives: "*Mapungubwe Cultural Landscape will be managed and developed to conserve its cultural heritage and biodiversity for all*." It follows from the Vision that the Mission will be "*To manage and develop Mapungubwe Cultural Landscape to conserve its cultural heritage and biodiversity for all".*

5.2 Values

Values are the principles used to evaluate the consequences of actions to propose and choose between alternative options and decisions. Values may be held by individuals, communities, organisations or even society.

Essential to the park's values are the up-dated statement of the values of the MCL (Appendix 6) which was supplied in October 2009 by SANParks staff at the request of the World Heritage Centre of UNESCO to replace what was previously referred to as the statement of significance. The values identified in the statement of outstanding universal value (Appendix 6) are, however, are focused on the archaeological sites that relate to the Mapungubwe period between AD 900 and AD 1300.

A broader range of values and vital attributes for the MPNP, identified by stakeholders present at the 2009 public participation meeting, were grouped under the core components of protected areas management as follows:

- **Cultural heritage and landscape values.** The cultural landscape that relates to the Mapungubwe period between AD 900 and AD 1300 is the core business of the park, but other cultural heritage sites include those dating to the Earlier, Middle and Later Stone Age from more than a million years ago to the last 1,500 years. They are evident in numerous stone tools as well as rock paintings and engravings made by ancestors of the San and Khoekhoe. Iron Age farming history is reflected in the precursor to the Mapungubwe kingdom and subsequent settlements that date from before AD 800 to after AD 1,800. There are also more recent historical sites relating to colonial settlement over the past 200 years, graves and intangible heritage and living culture relating to religious and spiritual values attached to places, oral histories, and indigenous knowledge systems. These reflect the sense of pride and belonging, a sense of place and aesthetic values in the landscape, sites of pilgrimage, inter-relationships between people and their environment, and cultural diversity.
- **Biodiversity values.** The geological and paleontological history of the landscape has created values associated with the Limpopo-Shashe River's confluence and scenery. Research has highlighted ecological values in wildlife, wetlands and the riparian forest.
- **Social and educational values**. Interaction of cultural values and biodiversity has societal benefits associated with appreciation of wildlife and cultural opportunities for public education. Learning opportunities linked to the school curriculum, and outreach programmes for youth are enriched by publications that make the results of research available to the public and that create research opportunities for universities.

5.3 Vital attributes, determinants, strengths and threats underpinning the outstanding universal value

In terms of the adaptive planning process followed by SANParks, stakeholders participated in formulating the following factors for the outstanding universal value:

- Vital attributes: the few most important characteristics / properties of the system to be managed which make it unique or at least very special. These may be social, technical, ecological, economic and / or political;
- Determinants: those factors or processes that determine, strengthen or ensure persistence;
- Threats are those factors or processes that threaten, erode or inhibit the vital attributes or their determinants. Threats can also be factors within, or outside, a partnership that undermine its values and inhibit the pursuit of the vision or future desired state.

These factors guide the exact formulation of park objectives, which are designed to strengthen positive determinants and weaken or remove threats. In this way objectives are appropriate to the uniqueness and special nature of this national park. The vital attributes help to develop the real value proposition of the park.

The following vital attributes, and associated determinants and threats, were identified in collaboration with stakeholders:

- A consolidated park and conservation area is one of the most vital attributes for the building of lasting positive relationships with the park and all stakeholders, particularly the local community. The major determinant of a park and TFCA with different types of ownership and land use in one consolidated area and management plan is to create greater certainty for future planning and conserve the values for all. SANParks therefore participates wherever possible in assisting land claimants. The strengths of this approach are that participation in the settlement of land claims will have benefits for claimants, while land owners not yet in the park can approach the land claims commissioner to get consent to proceed with negotiations. This will reduce uncertainty and improved social and living conditions can result from feelings of goodwill and an increase in tourism. If these strengths are not met, the management of the park could become difficult. Private land owners within the park, incompatibility of land use, conflicts of interest from business developers and conflict amongst land claimants could lead to volatile social dynamics. All facts should be communicated to all parties to enable the consolidation process to proceed.
- A fully functioning GMTFCA has been a desired state attribute since the inception of the park and will result in an expansion of biodiversity and species conservation and extension of the cultural landscape will improve its authenticity and integrity and therefore its attractiveness to tourists. The viewpoint of the Limpopo-Shashe River's confluence is a favourite place for visitors because of its location on the borders of three countries. As a result of the political history, the juxtaposition of Zimbabwe, Botswana and South Africa makes for complex institutional arrangements that have the potential to develop eventually into a transfrontier world heritage site. Explicit attention should be given to make the TFCA

arrangements work. Particular subsections of this attribute are the issue of veterinary controls (especially fences) in the area, and the strong context of the emergent TFCA whose plans and activities will both influence and be influenced by the MPNP plan and activities. The major threat is the possible lack of commitment to international agreements. The fact that the park is fragmented into a western and an eastern section is a threat.

- An efficient and functioning Park Forum and advisory committees that involve all stakeholders to create a vibrant park community. The strength of this vital attribute is responsible and meaningful stakeholder participation and effective communication that will help the Park Form and its committees make a significant contribution to the park. Threats are linked to non-participation by Park Forum members, local communities and municipalities if expectations are not met.
- A cultural landscape with both cultural heritage and biodiversity values is the core business of the park. The aesthetics, authenticity and integrity of the scenery and the powerful 'sense of place' are a major draw card to the Mapungubwe area, and this may constitute a large part of the 'macro-ambience' upon which we can build the cultural and biodiversity attractions. These attractions are determined essentially by the geology and geomorphology, but are enhanced by the cultural heritage sites, eco-trails, treetop walk, hides, access to wildlife and the Limpopo-Shashe area. The 'sense of place' with limited signs of human intervention can potentially be threatened by injudicious developments such as cluttering or disturbing the viewshed, elephant activity and illegal immigrants. The emphasis should be on the mystique and beauty of the landscape and its remoteness from main centres. It is a key attribute which needs recognition in that it needs to be managed both in terms of the positive ('wide open spaces far from anywhere' appeal) and negative (ensure reasonable access and market special attractions) aspects of this factor. A serious long-term threat to this attribute is the coal mining and possible power station on the eastern boundary.
- Cultural heritage resources are of global significance. The key cultural heritage sites at Mapungubwe Hill and the Southern Terrace, as well as sites that are not regularly visited by tourists at K2, Schroda and Leokwe Hill, are acknowledged as being of outstanding universal value in the nomination dossier for World Heritage listing. Their significance is increased by their relationship to a wider range of archaeological Stone Age and Iron Age sites, rock paintings and engravings that are different from those in the Drakensberg and other southern African rock art traditions, and historical sites such as Rhodes Drift and the Smuts cottage. There are more than 100 rock art sites in the park alone and research done by the late Ed Eastwood has provided a valuable database that enables park staff to locate and monitor them. There is a powerful sense of pilgrimage, particularly for African visitors, but there are also visitors who are not respectful because of a lack of understanding. The constraints or threats are that these places are not only unique and non-renewable, but are also highly sensitive and vulnerable to the impact of tourism and over-exploitation. Well-trained specialist tourist guides and a monitoring programme are essential.
- Strong biodiversity and a wide range of habitats form a complex system that includes gallery and riverine forest, the Limpopo River floodplain, wetlands, geohydrology and arid habitats. The park wildlife continues to diversify and importantly includes iconic animals of significance to earlier inhabitants such as rhino, elephant and giraffe, and iconic sacred and medicinal plants such as the baobab. The diversity contributes to species conservation in a resilient system

that offers a wonderful educational and research resource. On the other hand, there has been little focus on taxa other than iconic species and the size and fragmentation of the park do not encourage sustainable use by local communities. The wetland system needs to be rehabilitated and balanced against cultural indigenous resource use. The gallery forest has been negatively impacted and river water has been over-allocated to the various land uses in the area. The TFCA agreements will have to consider threats of disease-carrying species crossing the borders, the impact of cattle on the gallery forest, the mix of domestic and wild animals in the park, and seasonal increases in the elephant population. This gallery forest is recognised as a major attraction, and one with biodiversity significance. It is not only 'ambience' and 'cultural' aspects that justify keeping the forest's biodiversity characteristic of the millennium prior to mechanized agriculture but also the intrinsic value of the biodiversity. Discussions with SANBI have revealed that this forest is in fact critically endangered, and not least threatened. What is correctly mapped as least threatened is the alluvial vegetation band around the forest.

The determinants obviously include the alluvial confluence-related landscape context, but co-factors producing it are unclear. It is believed by some that such forest was previously far more widespread, suggesting an even greater responsibility for this remnant patch. A speculative co-factor is the long (more than 100 years) virtual absence of elephant, and possibly over a thousand years of low elephant density due to human occupation. The future of the forest is in clear jeopardy (O'Connor and associates 2003) and ongoing threats include low river flows and water abstraction, tree mortality due to creepers, fire as a possibility now that the under-storey is flammable, and elephant and other herbivore impacts.

The Golope / Maloutswa wetland is another of the leading biodiversity features, although it is in a highly degraded state. It has been and is still threatened by water-use locally and upstream; by agriculture and fish-farming and all the structures erected to manipulate water flow; and by fragmentation of the aquatic features themselves. The array of arid habitats and resultant special biota is the result of the varied geology, hydrology and geomorphology, while the special forms of life are the result of the above factors and geographical position on the subcontinent. We need to ensure that we restore and maintain as many of these natural processes as possible when feasible, given the constraints of other objectives and the surrounding TFCA land mosaic. Explicit threats include water flow and quality, exotic fish, and possible homogenisation of vegetation due to elephant impacts.

Well-preserved geological formations and paleontological fossils contribute to the exceptionally long history of biodiversity over hundreds of millions of years. Although not a wide variety, there are important fossils associated with the karoo rocks and kimberlite geological formations. Wise protection, study and management of this resource is required. Tourist guides need to be trained to appreciate the significance of the geological formations and to identify and protect the fossils.

Interesting and innovative tourism opportunities and infrastructure make the park unique. The cultural and biodiversity resources in the park offer a major opportunity for appreciation and learning. These values are determined by the presence of the landscape and relicts in sufficiently intact form; by a potentially willing or receptive audience visiting the new interpretive centre, some of whom must be prepared to walk when they visit the park; and by the appropriate ambience and infrastructure the park can provide to facilitate this. Other factors are the attractiveness of and access to the localities and general areas of interest; societal attitudes; and appropriate resourcing to develop facilities. A special stakeholder subgroup that needs to be encouraged is that of anthropological and oral history researchers who have not yet played a critical role in the development of the story of the MCL. Archaeological research which plays a critical role in tying up missing links to the history of the area should be managed carefully, recognising that the research methods used can be destructive, and the benefits they produce have to be balanced against preservation goals. Research also has to be sensitive to the imperatives of nation building and the research sensitivities and needs of communities. Uncontrolled excavation or uncontrolled tourism constitutes obvious threats. Animal impacts at sites, especially by burrowing animals and rodents, appear to do considerable damage but is not yet addressed.

Mineral wealth is a reality of the broader Mapungubwe environment. Although prospecting and mining are not allowed within the WHS, the implications of such activities on our immediate borders and in a regional context are far-reaching. Expansion of prospecting and mining rights in the vicinity of the WHS is a definite threat to its integrity and that of the GMTFCA. The added pressure of the primary, secondary and cumulative impacts of mining within the water catchment and buffer zone of the WHS will be detrimental to the park and WHS. Tourism which is seen as a sustainable land use will also be negatively affected. Therefore it must be carefully assessed and managed as a matter of urgency by the Department of Environmental Affairs in collaboration with the Department of Mineral Resources and their counterparts in Zimbabwe and Botswana.

5.4 Management objective – an objectives hierarchy

The objectives hierarchy developed for the park has been gradually refined since the 2003 integrated management plan developed for the nomination of the park as a national and world heritage site, and the February 2008 plan that was developed according to the SANParks biodiversity custodianship framework.

This revised management plan has benefited from the experience of the earlier plans and from the public participation process. In all three stages of development of the MPNP management plan the consolidation of the park and establishment of a GMTFCA have had high priority alongside the integrated management of cultural heritage and biodiversity. Land consolidation has been slower than expected with some of the land claims still unresolved, so remains high priority. Meeting expectations from the World Heritage Centre that require retention of the outstanding universal values of the cultural landscape is also high priority. The objectives hierarchy, based on the identification of all the vital attributes and their strengths and weaknesses, therefore ensures that both these high priority objectives receive clearly defined support and cross-linkages with tourism, stakeholders, public education, research and well resourced administrative support services so that the park can move from the initial establishment phase to one that creates a solid base of knowledge and experience to meet the higher level objectives and create greater opportunity for development of sustainable strategies. In all fields there is a strong need for a detailed and interactive GIS database that records the location, significance and conservation status of all the cultural and natural heritage resources in the park that contribute to the outstanding universal value of the World Heritage Site. It is obvious that they must be identified before they can be managed, but this is particularly important on properties that have only recently been incorporated into the park, or that could be developed for tourism, or that might be managed on a contractual basis with private land owners and/or successful land claimants.

The various higher level objectives have been cross-linked in the following six overarching objectives that are set out in figure 1.

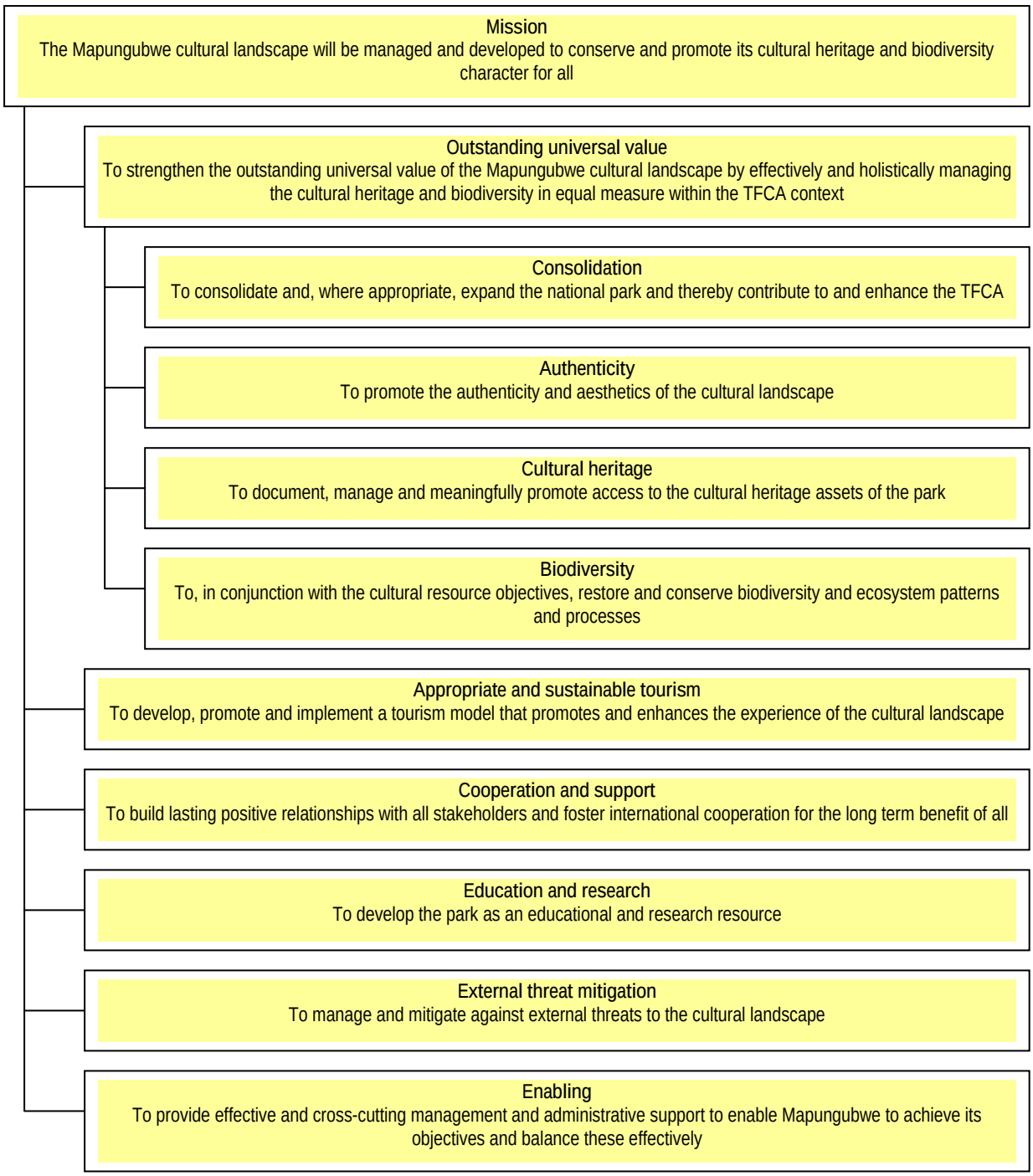

Figure 1: Mapungubwe National Park and World Heritage Site objectives hierarchy.

Section 6: Zoning plan

The primary objective of a park zoning plan is to establish a coherent spatial framework in and around a park to guide and co-ordinate conservation, tourism and visitor experience initiatives. A zoning plan plays an important role in minimizing 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 conflict with the park's values and objectives (especially the conservation of the protected area's natural systems, its biodiversity and heritage resources) can continue in appropriate areas.

The zoning of Mapungubwe National Park was initially undertaken in conjunction with the Peace Parks Foundation as part of the application process for world heritage site status. The zoning was based on an assessment of the park's biophysical (including detailed vegetation and soil mapping), heritage (including an assessment of archaeological sites) and scenic resources, and an assessment of the park's current and planned infrastructure and tourist routes / products. The zoning scheme was modified in November 2009 as part of the routine management plan update cycle.

In addition to internal use zoning, the zoning plan also describes how the park interacts with the processes which control land use and activities in the buffer zones around national parks (e.g. SDFs and IDPs). The buffer zones identify the area within which activities such as land use change may have an influence on the park (current and future extent), describe responses at a strategic level, and serve to define the buffer zone in terms of the DEA policy on buffer zones for national parks and the SANParks buffer zone policy.

Overview of the use zones of Mapungubwe National Park:
The summary of the use zoning plan for the park is shown in Map 4. Full details of the use zones (including high resolution maps), the activities and facilities allowed in each zone, the conservation objectives of each zone, the zoning process and the park buffer zones (detailing park interaction with adjacent areas) are included in the Appendix: Mapungubwe National Park zoning plan.

Primitive zone: The prime characteristic of the zone is the experience of wilderness qualities with access controlled in terms of numbers, frequency and size of groups. The zone has wilderness qualities, but with limited access roads (mostly 4x4) and the potential for basic small-scale self-catering accommodation facilities or small concession lodges (which would generally have more sophisticated facilities). Views of human activities and development outside of the park may be visible from this zone. The conservation objective is to maintain the zone in an almost completely natural state with little or no impact on biodiversity processes, and very limited and site specific impacts on biodiversity pattern. Existing impacts on biodiversity either from historical usage or originating from outside the zone should be minimized. The aesthetic / recreational objectives for the zone specify that 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. In the park, primitive areas were designated to protect most of the sensitive areas (such as the riparian forest, floodplain and cultural precincts) from high levels of tourist activity. Primitive areas contain all the controlled access tourism areas of the park (*e.g.* private concession sites, bush camps, trail huts and access roads to these sites).

Low intensity leisure zone: The underlying characteristic of this zone is motorised self-drive access with the possibility of small basic camps. Facilities along roads are limited to basic picnic sites with toilet facilities. The conservation objective is to maintain the zone in a largely natural state that is in keeping with the character of a protected area, mitigate the biodiversity impacts of the relatively high levels of tourism activity and infrastructure that are accommodated within this zone through careful planning and active management, and to ensure that both the negative effects of the activities and infrastructure are restricted to the zone. The aesthetic / recreational objectives for the zone specify that although activities and facilities will impact on the wild appearance and reduction of the wilderness characteristics of the area (solitude, remoteness, wildness *etc.*) is inevitable, these should be managed and limited to ensure that the area still provides a relatively natural outdoor experience. Low intensity leisure areas were designated in the current game viewing areas, around current accommodation and other associated infrastructure outside of the main administrative / staff centre, around recreational areas associated with contractual arrangements, and along existing minor provincial roads.

High intensity leisure zone: The main characteristic is that of a high density tourist development node with amenities such as shops, restaurants and interpretive centres. This is the zone where more concentrated human activities are allowed and is accessible by motorised transport on high volume transport routes. The main focus is to ensure a high quality visitor experience, however the conservation objectives still require that the high levels of tourism activity and infrastructure that are accommodated within this zone are planned and managed to minimize the effect on the surrounding natural environment, and that the zone must still retain a level of ecological integrity consistent with a protected area. The aesthetic / recreational objectives for the zone specify although the high visitor numbers, activities and facilities will impact on the wild appearance and reduction of the wilderness characteristics of the area (solitude, remoteness, wildness *etc.)* is inevitable, these should be managed and limited to ensure that the area generally still provides a relatively natural outdoor experience. In the park only the main interpretive and administrative centre with its associated gate infrastructure was designated high intensity leisure.

Overview of the special management overlays of MPNP:

Special management overlays which designate specific areas of the park that require special management interventions were identified. Areas were designated (Appendix 7 Maps 4and 5):

Special conservation areas – cultural heritage: The key cultural heritage sites of the park were included into this special management overlay to ensure the protection of cultural resources in this zone.

Special conservation areas – riparian forest and floodplain: These sensitive habitat types were identified for special protection in order to reduce any potential loss and to prioritize rehabilitation work in these areas.

Special conservation areas – citrus-rehabilitation: Agricultural activities (i.e. citrus cultivation) which were present in these areas when the land was purchased will be retained in the short to medium term. The objective is to rehabilitate these areas in the long term.

Summary of the buffer zones around the park:

This section describes how the park interacts with the processes which control land use and activities in the buffer zones around national parks (*e.g.* SDFs and IDPs. The buffer zone section identifies the area within which activities such as land use change may have an influence on the park (current and future extent), describes responses at a strategic level, and serves to define the buffer zone in terms of the DEA policy on buffer zones for national parks and the SANParks buffer zone policy.

The current extent of MPNP is included in a conservation focused category in the land use maps included in the SDFs of the local and district municipalities in which the park is located. These SDFs are the spatial components of municipal IDPs. T he park interacts with the appropriate local government processes such as SDF and IDP development on an ongoing basis as part of the bioregional programme, in order to ensure that issues such as appropriate development of buffer zones around parks are also incorporated into proactive land use planning instruments such as SDFs and IDPs.

The park buffer zones show the areas within which land use changes could affect a national park.

The zones, in combination with guidelines, will serve as a basis for a.) identifying the focus areas in which park management and scientists should respond to EIA's, b.) helping to identify the sort of impacts that would be important at a particular site, and most importantly c.) serving as the basis for integrating long term protection of a national park into the of SDFs and IDPs of municipalities and other local authorities. In terms of EIA response, the zones serve largely to raise red-flags and do not remove the need for carefully considering the exact impact of a proposed development. In particular, they do not address activities with broad regional aesthetic or biodiversity impacts.

Priority natural areas: These are key areas for both pattern and process that are required for the long term persistence of biodiversity in and around the park. The zone also includes areas identified for future park expansion. Inappropriate development and negative land-use changes should be opposed in this area. Developments and activities should be restricted to sites that are already transformed. Only developments that contribute to ensuring conservation friendly land-use should be viewed favourably. Inappropriate development which may impact on hydrological processes (dam construction, loss of riparian vegetation *etc.*) should be opposed. Control of alien vegetation & soil erosion as well as appropriate land care should be promoted.

Viewshed protection areas: These are areas where development is likely to impact on the aesthetic quality of the visitor's experience in a park. Within these areas any 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 zone would be perfectly suited for development. In addition, major projects with large scale regional impacts may have to be considered even if they are outside the viewshed protection zone.

Current status and future improvements:

A full conservation development framework (CDF) will be developed for the park once the park is fully consolidated. Key outstanding issues are clarity on the linkages between the east and west sections and also potential contractual arrangements with Venetia Nature Reserve. In the interim, as the park is consolidating, it is anticipated that the zoning will need to be updated regularly.

Areas suitable for proclamation as wilderness under NEM:PA need to be identified, and their formal proclamation pursued where possible.

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Section 7: Access and facilities

Introduction
All park infrastructure is indicated in appendix 7, map 6.

Access and site management
All visitors to the park must check-in at the main gate. To help manage access to the park, permits will be issued. All visitors to the park must be in possession of an official entry permit. Before leaving the park, overnight guests must check out at the gate.

The majority of the visitors to the park will arrive by road and will travel within the park by road. Access to the park is via the main gate, Tshugulu gate and the Den Staat/ Pontdrift road. The western section, which includes Rhodes Drift lodge, tented camp and the camping site in the western section of the park, can be accessed in the north-west from the R521. The main gate, as well as Leokwe camp, Tshugulu and Little Muck lodges, can be accessed from the R572. The eco-trail and all the SANParks camps and sites visited in the eastern section, are accessed through the main entrance gate which is the only pay point. It is open between 06h30 - 18h00 in winter and 06h00 - 18h30 in summer. An unpaved road network that totals 146 km links the different sections of the park.

The park has disused airstrip, and currently visitors cannot use aircraft to access the park directly. A tarred runway located at the Venetia mine is the closest active runway. Aircraft, both fixed wing and helicopter, are used by SANParks for management purposes. The Protected Areas Act prescribes the minimum altitude for aircraft over the park as 2,500 feet above the highest point in the park.

Appreciation, enjoyment and understanding of the park are core to the vision for responsible and sustainable tourism in the park. To achieve this there are areas within the park that are not accessible to visitors due to the limitations set by the zoning. These limitations are mainly due to the sensitive nature of cultural and natural sites. The park reserves the right to close any area on a temporary or permanent basis. Such management decisions could be based on the negative impact of tourism activities on cultural and natural sites or emergencies.

Visitor accommodation
Overnight visitors to the park have a range of tourism products to choose from. These accommodation options are set out below:

- Tshugulu lodge, with accommodation for 12 people;
- Vhembe wilderness camp, with accommodation for eight people;
- Leokwe rest camp, with accommodation for 76 people;
- Limpopo forest tented camp, with accommodation for 16 people;
- Mazhou camping site, with facilities for 10 caravan/tent sites (60 people).

In total the park currently has 172 beds available and the average unit occupancy rate for 2010/2011 was 51.8%. All the camps are self-catering the interpretive centre will have a restaurant and curio shop.

Facilities and activities
The park provides a range of activities, self-guided or guided, that aim to support the vision of responsible and sustainable tourism. The options include:

- Interpretation centre (museum);
- Day visitors area;
- Self-guided game viewing and visit to the various view points;
- Bird watching;
- Tree top board walk and viewing platform;
- Bird and game hides;
- Guided sunset and night drives;
- Self-guided 4x4 trails;
- Guided walks;
- Guided visits to cultural heritage sites / Mapungubwe hill;
- Annual rainmaking ceremony/celebration;
- Soccer pitch.

Other recreational and public gatherings
This plan prohibits any activity or public gathering not covered in the above section. A person, group/s or representative may apply to the park for permission to engage in certain recreational activities or public gatherings. Ultimately the decision making process must take into cognisance visitor safety and the impact on cultural and biodiversity assets.

Visitor information and interpretation
Well prepared brochures, maps, information booklets and websites enable visitors to plan appropriately and enjoy the park. Information about the park can be sourced from the SANParks website, park brochures and information booklets, interpretative and regulatory signage and guided activities presented by park staff.

The newly developed interpretative centre will focus on the cultural heritage aspects of the park. Static displays will focus on rock art and other archaeological assets and interpretation officers will be at hand to assist visitors in understanding the storyline associated with this cultural landscape. Planning is currently underway to cater for a museum exhibit.

Promotion and marketing
Strategic and targeted promotion and marketing can influence visitor awareness, numbers and length of stay. This is a vital component in attracting more visitors to visit, stay over and experience the park. Secondly, promotion and marketing communicates the message of the conservation of cultural and biodiversity assets to the broader public.

The integration with existing tourism structures on a national and regional level could further boost promotion and marketing opportunities. Tourism in the Limpopo valley is built around a number of towns, features and products that include amongst others the following:

- Soutpansberg Conservancy, which contributes to conservation of the natural environment, cultural history and man-made activities of the region.
- The Ivory Route, an adventure experience extending from the north, offers 4x4 tourists and safari enthusiasts a true outdoor adventure, while providing insight into the rich cultural legacy of the area.
- The mopane bushveld region of the Soutpansberg is ideal for wildlife tourism such as game farming that provides tourists with excellent hunting facilities that cater for local as well as international hunters. Major attractions in the vicinity of the park include the Venetia Limpopo nature reserve, Vhembe game reserve and Limpopo Valley game reserve.

The park is one of three in the northern region, consisting of Marakele National Park, Golden Gate Highlands National Park and Mapungubwe National Park and World Heritage Site. Promotion and marketing of the park is a regional responsibility. The regional office focuses on a national and provincial promotion and marketing strategy in order to maximise exposure to the cluster. This allows the park to focus on local level promotion and marketing.

Access and fences
Road access to the park is via the main gate, Tshugulu gate and Den Staat road. An unpaved tourist road network that totals 146 km is spread out within the different sections of the park. In the eastern section these include roads to the Leokwe and Vhembe wilderness camps, tree top walk, confluence and other look out points as well as some 4x4 roads. In the western section these include roads to the Limpopo forest camp, Mazhou camping site and Maloutswa hide as well as to Tshugulu lodge, Little Muck bird hide and Tshugulu eco trail. Certain sections of the tourist roads are in urgent need of maintenance or mayor upgrade. One of the constraints in the park is the limited number of tourist roads accessible by sedan vehicles. The consolidation of the park is therefore important and will allow the linkage between the eastern and western sections.

In addition management roads in the park total about 60 km. These roads are designated restricted access roads, indicated by no entry signs, and are not open to the public.

The park is responsible for the management and maintenance of the southern, eastern and western perimeter fences. This fence is a 2,4 m high game proof fence that spans 104 km.

The northern border of the park is fenced along 27 km with a 1,2 m high stock fence (Schroda to Den Staat), and a further 20 km with a 1,8 m SANDF security fence (Tuscanen to Rhodes Drift and at Weipe Schroda border). The northern veterinary fence spans almost 47 km along the Limpopo River, and is maintained by the Department of Agriculture, Forestry and Fisheries. The maintenance of the SANDF and veterinary fences does not receive the necessary attention, and certain portions are in a state of disrepair.

In 2008/2009 financial year, elephant exclusion zones were constructed to prevent elephants from damaging identified high conservation value portions of the Limpopo riverine forests. One block is located in the western section and two blocks are located in the eastern section of the park.

Servitudes

Servitudes allow land owners or representatives of organisation access to the park to perform certain duties. The following servitudes have been registered on properties within the park:

- A 300 m servitude encircling the Greefswald VOR, an air traffic navigation beacon, is located to the east of the staff village. This installation is the property of the Air traffic and navigation service;
- The Limpopo border road runs from west to east all along the northern boundary of the park and is used by the South African National Defence Force (SANDF) for border control. The Department of Agriculture, Forestry and Fisheries also use this road for veterinary control purposes;
- Roads that lead to Telkom and Eskom infrastructure.

The above organisations perform maintenance on their respective infrastructure and associated roads periodically.

Communication infrastructure

Telkom provides telephone land lines to the entrance / reception complex of the park, and also to some of the old farm houses occupied by staff, i.e. Schroda, Rhodes Drift, *etc.* Telecommunications in the park is a major concern as lines to the reception / office complex are regularly stolen. A satellite system will be implemented in due course to ensure constant communications in support of park operations. T he installation of a cell phone tower in the area is also under investigation. A satellite IT data line system is in place at the reception and offices to the park.

Radio telecommunication infrastructure is in place to support management in the remote areas. The support infrastructure is located at the confluence while another, the property of Venetia mine, is located at Schroda dam. This enables the mine to monitor and control water usages remotely. The park has permission to use this mast as a repeater to improve coverage.

Management and support infrastructure

Park administration. An office for the majority of the management personnel is located at the entrance and reception complex. Additional office space has been allocated at the interpretation centre. The accommodation facilities of staff based in other areas of the park also double up as offices i.e. the technical manager, two section rangers, etc. There is still a shortage of office space in the park, and is one of the strategic areas that must receive attention over the next 5 years.

Staff accommodation. The previous owners of the farms that constitute the park have over time built various types of infrastructure. The park has taken over these buildings as a running concern and in many a case these need urgent maintenance, upgrade or must be decommissioned. Mapungubwe is currently experiencing a staff accommodation shortage. Staff is now being accommodated in some of these facilities as an interim arrangement. To alleviate the pressing need a staff village was built in 2007 and comprises of six back to back bachelor flats and two three-bedroom houses. The situation will slightly improve after the completion of phase 2 that has started in January 2010 and will provide a further eight one-bedroom houses and a two-bedroom house. These additional staff houses will not cater for all existing staff as well as newly appointed staff members. Many of them are still going to be accommodated in farm houses, which place a burden on park operations due to the distances and time to collect staff to perform their duties. The long term plan is to accommodate most of the staff in the staff village, with a supporting node in the west. Accommodation for key tourism staff is provided at all tourism facilities, *i.e.* Limpopo forest tented camp, Leokwe rest camp, Vhembe trails camp and the confluence viewpoint.

Tourism accommodation. The majority of the tourism infrastructure (see tourism programme) was constructed between 2003 and 2005 and is relatively new and in good condition, except the for the Tshugulu lodge

Cultural heritage infrastructure. Infrastructure was developed to afford tourists the opportunity to experience the cultural heritage assets associated with the landscape. The following infrastructure must be maintained to ensure a unique experience:

- The interpretation centre located in close proximity to the main entrance;
- Storage and curator room for the SANParks archaeological collection;
- The archaeological excavation at K8 with associated interpretative and walkways from K8 up Mapungubwe hill and on top;
- The K2 walkway and concrete shelter with associated displays;
- The General Jan Smuts house; and
- The Balerno homestead and compound.

Bulk services

Power. The electrical distribution system, whilst being a park asset, draws power from the Eskom grid. The 200 kVA step up step down system provides electricity to the Limpopo tented camp, Mazhou camping site, Leokwe camp, confluence facilities, main entrance building, interpretative centre and staff village. To minimise aesthetical pollution a three km stretch of overhead cable was put underground. There are an additional 600 m of overhead power lines to be converted to underground at the confluence. The Mapungubwe valley power line (supporting the De Beers water pipeline) should in future also be converted to underground. Due to its remoteness solar power has been installed at the Vhembe wilderness camp.

Water distribution and storage. The water reticulation system is supported by submersible and solar pumps and most facilities in the park receive their water via pipelines from these boreholes. The water quality in some areas is a cause for concern and must be address through the use of new technology. A new 11 km pipeline was put in place during 2005 from a borehole next to the Limpopo River that goes to the main complex of the park at the entrance gate. This pipeline services the entrance gate and reception, interpretive centre, cultural events centre, park management offices and staff village in future. The Schroda dam, dam wall and pump station located on Greefswald is the property of the Venetia mine. Water is stored and pumped to the mine located 14 km south of the park.

Sewerage. The Leokwe rest camp has a reed bed system while the rest of the park infrastructure is serviced by septic tank and soak away system.

Section 8: Consolidation strategy

Although the park is not situated within a biodiversity priority habitat as identified by the South African national conservation assessment (Driver *et al.* 2005), its consolidation remains important for SANParks in its attempt to establish a large protected area as part of the Greater Mapungubwe Transfrontier Conservation Area initiative (Hanks 2002; Yawitch *et al.* 2003) and the Mapungubwe Cultural Landscape. The plans are aligned with the National Protected Areas Expansion Strategy (DEAT 2008).

The current 20,182 ha large park consists of 7,394 ha state owned and 12,347 ha contractually included private land. A total of 15,236 ha which has been declared as national park, of which 7,842 ha is contractual land. A total of 4,504 ha of contractually owned land remains to be declared. The park conserves three different vegetation types, none of which are threatened (Driver *et al.* 2005), although the subtropical alluvial vegetation associated with the Limpopo River floodplain remains biologically and ecologically the most important for the park.

It is proposed that the expansion footprint of Mapungubwe National Park and World Heritage Site be extended to cover an area of about 33,000 ha area (Appendix 7, Map 4) centred on the confluence of the Limpopo and Shashe Rivers, and bounded by the Pontdrift - Musina regional road in the west and south, and extensive agriculture lands in the Weipe area in the east. This would see the alluvial vegetation increase to 9,200 ha, meeting 81% of the national target.

Consolidating the outstanding footprint area via land acquisition alone would cost an estimated R117 million. In line with the accepted expansion plans over the next five years SANParks do not plan to purchase land because of the high costs, competing land acquisition priorities, unresolved land claims over the entire area, and a shrinking land acquisition budget. However, SANParks need remain flexible to opportunities and as such remain open to approaches from neighbouring land owners. Instead negotiations will be conducted towards including land by contractual agreement with the land owners. Proposed extensions of the footprint include:

1. The state/communal land known as Den Staat (farm 27/1), with a view to including at least the agriculturally less important southern section. If this can be achieved by agreement with the land claimants it would enhance the link between the east and west sections of the park.
2. A 5,700 ha large central part separating the east and western sections of the park (Samaria 1 and 2, Hackthorn, Machete - Appendix 5).
3. Relatively small, isolated land parcels surrounded by SANParks land - amounting to 1,416 ha - should also be acquired for managerial efficiency.

Possible contractual extensions to the buffer zone include the 34,200 ha large Venetia Limpopo private reserve, further protecting the Kolope drainage system, and properties to the west (Mapungubwe private nature reserve) and east (the property known as Bismarck) of the park.

The re-examination of the buffer zone mentioned in section 6 will also be part of the park's consolidation strategy. This will facilitate the strategic engagement with the now numerous prospecting and mining applications in the area, especially around the need to negotiate advantageous off-sets arrangements with prospective mining companies.

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Section 9: Concept development plan

New developments or major upgrades

The following have been identified as priority projects:

- New staff housing and entertainment centre at staff village;
- Additional offices for park management;
- A research centre, including artefact storage and laboratory;
- An environmental education overnight facility;
- New boreholes at Balerno and Schroda;
- Upgrade the main tourist roads, *i.e.* road from the main entrance to the confluence lookout point, road to Leokwe rest camp, pave road from interpretation centre to the day visitors site – 22,5 km;
- New sewerage system at the confluence.

It is estimated that a further R33.2 million is needed to implement the above projects. These projects could be funded through the capital works, expanded public works programme or infrastructure development programme.

The park has identified the following as possible projects:

- Making archaeological sites accessible to the public (boardwalk, signage, information etc);
- Workshop and store room;
- Rubbish sorting and storage facility;
- Various new roads (management and tourism);
- The construction of five km sedan-friendly tourist road to link the eastern and western sections. This is only applicable if the park can be consolidated;
- Upon consolidation replace old boundary fence and cattle grids where required;
- Additional campsites and ablution block;
- Undercover parking (management);
- Undercover parking for visitors at day visitor centre;
- Cultural village;
- Gazebos at the confluence.

It is estimated that a further R28 million is needed to implement the above projects. These projects could be funded through the capital works, expanded public works programme or infrastructure development programme.

Areas suitable for proclamation as wilderness under NEMPA need to be identified, and their formal proclamation pursued where possible.

It must be noted that the execution of the projects listed above is dependent on funding availability.

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Section 10: Strategic plan

10 Introduction

Sections 3, 4 and 5 of this plan outlined the policy framework, the consultation process and development of a mission and high level objectives for the park. In this section the goals and 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, the 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;
- Effective park management.

Each programme is presented as follows:

- **Programme name:** A name describing the programme.
- **High level objective:** Stating the overall goal of 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 odd, 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 over the planning cycle).
  - **References**: References to relevant programmes, lower level plans (LLPs) or other documents.

10.1 Bioregional

The following objective was identified:

Consolidation objective: to consolidate and, where possible, expand the park and thereby contribute to and enhance the Transfrontier conservation area

This objective includes two programmes, the park consolidation programme and the transfrontier conservation area programme. The former gives effect to section 8 dealing with the consolidation of the park. The timeframes given for the park consolidation programme are provisional as this depends on the outcomes of future negotiations with landowners.

PARK CONSOLIDATION PROGRAMME					
HIGH LEVEL OBJECTIVE: To consolidate an ecologically viable park through a mosaic of state/communal, private and communal cooperative agreements. Protect and fully integrate the unique World Heritage Cultural Landscape of the area into park management					
PURPOSE: The purpose of this programme is to strengthen the outstanding universal value of the Mapungubwe Cultural Landscape by effectively and holistically managing the cultural heritage and biodiversity in equal measure within the Greater Mapungubwe Transfrontier Conservation Area initiative					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To incorporate the state / communal land (Den Staat farm 27/1) identified for inclusion into the park.	Engage with the Land Claims Commission on the resolution of the claim on Den Staat	Park manager, Land estate manager	Settlement agreement	Ongoing	
	Demarcate identified areas to be fenced in as part of the park	Section ranger	Demar-cation plan map	Year 4	
	Declare as part of the park.	Legal services	Gazette	Year 4	
To incorporate private land identified in the core areas (Samaria 1 and 2, Hackthorn, Machete) for inclusion into the park	Continue engagement with the individual land owners.	Regional manager, Park manager	Correspon-dence		
	Enter into formal agreements.	Regional Manager, Park Manager	Signed contracts	Year 2	
	Declare as part of the park and manage the areas in accordance with agreed terms	Legal services, Park manager	Gazette	Year 3	
	Remove internal fences and build external boundary fences to consolidate the eastern portion.	Senior section ranger	Fences removed, new fences in place	Year 4	
	Remove the Den Staat Road from declarations.	Legal services	Gazette	Year 4	
To incorporate private land identified east of the park for inclusion (Bismarck)	Continue engagement with the individual land owner.	Regional manager, Park manager	Correspond ence	Ongoing	
	Facilitate the specialist heritage and ecological studies	Park Manager, Regional Manager	EIA and HA Reports	Year 2	
	Enter into formal agreements	Legal services	Contracts	Year 3	
	Facilitate delineation of fences	Park manager	Delineation map	Year 4	
	Implement terms of agreement	Park manager	Minutes of meetings	Year 5	

Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To incorporate private land identified west of the park for inclusion (Mapungubwe Private Nature Reserve)	Continue engagement with the individual land owner.	RM, PM	Correspon-dence	Ongoing	
	Enter into formal agreements	Legal services	Contracts	Year 3	
	Facilitate delineation of fences	PM	Delineation map	Year 4	
	Implement terms of agreement	PM	Minutes of meetings	Year 5	
To incorporate private land identified south of the park for inclusion (Venetia Limpopo nature reserve)	Continue engagement with the individual land owner.	RM, PM	Correspon-dence	Ongoing	
	Enter into formal agreements	Legal services	Contracts	Year 3	
	Implement terms of agreement	PM	Minutes of meetings	Year 4	
Re-examine the buffer zone	Develop a revised buffer zone for consideration with stakeholders.	DEA-SANParks task team	Report	Year 1	
	Put forward the revised buffer zone for consideration by UNESCO	DEA-SANParks task team	Report	Year 1	

Transfrontier conservation area programme

This programme aims to implement the integrated development plan for the GMTFCA which has been prepared through various stakeholder consultation meetings and trilateral technical committee (TTC) working group. In collaboration with the various technical committees and working groups the park will focus on (1) re-establishing wildlife movements and corridors (2) facilitating socio-economic development through cross-border ecotourism and (3) managing benefits from the GMTFCA to the region and its people.

TRANSFRONTIER CONSERVATION AREA PROGRAMME					
HIGH LEVEL OBJECTIVE: To promote and foster international cooperation, preserving biodiversity across international boundaries, protecting the cultural heritage and geographic landscape of the area and facilitating socio-economic benefits.					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To re-establish wildlife movements and corridors by managing and protecting the ecosystems, biodiversity and cultural elements of the Limpopo Valley.	Facilitate agreement the agreement for fence removal	PM CSD	Conser-vation and veterinary working group meetings.	Year 1 and ongoing	MOU and IDP of GMTFCA
	Facilitate reconciliation of law enforcement approach between the countries	PM	Minutes of trilateral committee	Year 1, ongoing	
	Develop a fence removal strategy including priority and cost implications	CM	Programme developed	Year 3, depends on signed agreement)	
	Implement fence removal plan	CM		Year 3, depends on signed agreement)	
	Develop joint management plans for species on international concern such as elephants, large carnivores, other large herbivores	CM	Docu-mented manage-ment plans	Year 1 and ongoing	
	Collaborate on cultural research and monitoring programmes between the three countries	CHM	Research reports	Ongoing	
To facilitate socio-economic development by establishing ecotourism as a key economic activity	Identify cross border tourism opportunities	HSM	Inventory of opportunities	Year 1	
	Facilitate the development of a joint activity plan (including marketing), *e.g.* four by four trails, cycling events, hiking trails.	HSM	Activity plans	Year 1 and ongoing	
	Participate in implementing of prioritized activities.	HSM	Joint activities implemented	Ongoing	
	Evaluate effectiveness of the implemented activities.	HSM	Reports	Ongoing	

Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
Participate in managing benefits from GMTFCA to the region and its people.	Initiate the development of a joint committee to examine opportunities.	P&C	Working group formed, minutes		
	Identify and prioritize the benefits as well as beneficiaries (*e.g.* access, economic benefits, community based resource use management; educational opportunities, employment opportunities)	P&C	Benefit sharing plan	Year 2	
	Initiate the development of benefit sharing programmes within acceptable environmental and social parameters.	P&C	Benefit sharing plan	Year 3	
	Record and monitor benefits derived from programmes	P&C	Evaluation reports	Year 3 and ongoing	

10.2 Biodiversity

The following objective was identified:

Biodiversity: to restore and conserve biodiversity and ecosystem patterns and processes

10.2.1 Water in the landscape

The purpose of the water in the landscape programme is to promote the restoration of river flow, water quality and associated groundwater attributes of the Limpopo / Shashe Rivers' system, its tributaries and groundwater dependant ecosystems, to deliver basic ecosystem functions to surrounding environments. It aims at encouraging participation by the park in relevant water use fora and to ensure that communication channels are established with other stakeholders sharing groundwater resources. It is also necessary to initiate a hydro-census (collect, review and archive baseline information on the existing groundwater resources and threats in the park), and set up a simple groundwater monitoring programme. This will ensure systematic realisation of the responsible management of groundwater resources, allowing the natural interaction and bidirectional flow between groundwater and surface water (including base flow of rivers in dry periods and recharge of aquifers during wet periods).

The following challenges are to be addressed in the programme:

1. The Limpopo River is severely stressed and overused. No in-stream flow requirements or environmental reserve determinations have been done for the Limpopo. The park cannot only focus on managing water inside the park, and will as such also have to play an active role in influencing water usage regionally with support of CSD.
2. A number of habitats within MPNP are aquifer dependent ecosystems. The system does not have enough water flowing throughout the year and the various activities *e.g.* mining and agriculture produce contaminants which are flushed into the system with the onset of rains. The contamination of ground water resources by mining activities remain a potential threat.
3. Groundwater is a critical component of the park, with several aboveground features (*e.g.* river flow, riparian forest and Golope wetland) directly dependent on groundwater for their persistence. However, the groundwater resources in MPNP are impacted on by human actions (abstraction for mining and irrigation purposes, damming upstream and land cover transformations) as well as natural processes (*e.g.* droughts and floods). Thus groundwater supplies are generally poor except along fault lines, and irrigation withdrawals up- and downstream of the park are large relative to water supplies MPNP must therefore monitor this resource in order to understand and subsequently influence surface- and groundwater usage in the region to best achieve biodiversity conservation and management. For the park to address these challenges three priority objectives have been identified regarding groundwater:
    - Integrate MPNP into regional water user community;
    - Negotiate regular feedback from De Beers and the Department of Water Affairs regarding groundwater abstraction within the park;
    - Groundwater level monitoring and feedback.

4. The wetlands in the park have been impacted upon by a long history of agriculture practices, including draining, damming, and cultivation and grazing. Accelerated erosion and sedimentation are a pertinent problem in various catchments. Recent impacts include exposure to high elephant concentrations and conservation interventions such as water transfer. Developing the Golope / Maloutswa wetland as a key biodiversity feature in the park (refer to the rehabilitation programme) is a challenge likely to last at least a decade. This is influenced by its status (based on the presence of artificial water on land not under SANParks current control) as a significant component of a recognised important bird area.
5. Artificial water sources in the park include old farm dams in drainage lines, as well as alien fish breeding dams in the Golope wetland. The park is an arid and largely water driven system which is very vulnerable to any disturbance. The artificial provision of water therefore poses a considerable risk of changing this system, often leading to degradation and a loss of resilience. For this reason only natural water sources should be allowed in the park to ensure that the ecosystem patterns and processes are maintained and / or restored where necessary.

A long-term and international management issue which will have to be tackled in achievable steps will be the overall flow patterns in the Limpopo and Shashe Rivers. SANParks must play a significant role in Limpopo-wide river negotiations, including those regarding the proposed Dikgatlhong dam on the Shashe River, 80 km upstream in Botswana. SANParks should be an active member on the relevant water use and other committees in the area.

In terms of both concerns relating to river flow and groundwater management, SANParks will negotiate and agree with De Beers on ways to modulate abstraction from Greefswald and Shroda well fields, especially during low-flow and dry periods. This will be aided if MPNP management has access to DEA and De Beers's internal monitoring results / reports and recommendations on the well fields as they become available.

Interim water quality objectives should be compiled by the relevant catchment forums within the system. This will be used to monitor and manage the water quality in the absence of the reserve (resource quality objectives). SANParks should play an active role in this.

WATER IN THE LANDSCAPE PROGRAMME					
HIGH LEVEL OBJECTIVE: To promote the restoration of river flow, water quality and associated groundwater attributes of the Limpopo / Shashe Rivers' system, its tributaries and groundwater dependant ecosystems, to deliver basic ecosystem functions to surrounding environments					
PURPOSE: Re-evaluate artificial water provision in the light of unintended impacts on natural processes and to reconcile these with tourism needs					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To keep abreast of best practice in managing water in the landscape	Facilitate quarterly science-management meetings which will include water in the landscape issues	Regional ecologist, CM	Minutes of meetings	Quarterly	
	Facilitate and attend relevant meetings on water management between SANParks and stakeholders	Regional ecologist, PM	Minutes of meetings	Ongoing	
	Engage in catchment management initiatives to improve water flows, participate in appropriate water use meetings and/or promote their establishment	Manager: water resources, PM, Regional ecologist	Minutes of meetings	Ongoing	
To re-evaluate artificial water provision in the light of unintended impacts on natural processes and reconcile these with tourism needs	Inventorise the groundwater resources, threats to resources (hydro-census) and artificial water points (boreholes, dams etc.)	Research technician, Conservation manager	GPS coordinates and map,	Year 1	
	Develop and implement monitoring of groundwater level and quality (including quality for human consumption)	Research technician, CM, Technical manager.	Monthly reports	Year 1 and ongoing	
	Develop and implement monitoring of artificial water points (water availability, use by animals, and impact on vegetation).	Research technician, CM	Documented programme, monthly reports	Year 1 and ongoing	
To describe and under-stand the dynamics of the wetland systems and the role of river geo-morphology	List and map the wetlands of the park	CSD	Report and map Documents		
	Develop an adaptive management programme for wetlands	CSD	Documented programme		

10.2.2 Herbivory management

The purpose of the herbivory management programme is to restore and conserve biodiversity and ecosystem patterns and processes in conjunction with cultural objectives. Herbivore management guidelines exist as to how herbivores should be managed in an open system such as the park, where minimum interference and allowance for natural population flux are particularly appropriate. For most large herbivore species in the park no immediate threats to the environment are foreseen. However elephant movements are constrained by water distributions and fences, as well as certain other human activities in the region. This confinement may have consequences especially for the gallery forest and dry season habitats favoured by elephants and associated species. Elephant management forms a key focus, but will primarily be addressed in a separate subsidiary plan compiled in accordance with the national norms and standards for the management of elephants. It is anticipated that management of herbivore effects will focus on features in landscapes which influence the use of space by herbivores - like water points and fences - rather than on management of herbivore numbers. This is in line with the large mammal management direction for SANParks (herbivore management plan 2006; Ferreira 2008). Management actions will be minimal, with a particular emphasis on herbivore effects on cultural and biodiversity values.

Elephant exclosures

Because there is a single, fairly stable elephant population moving between Botswana, Zimbabwe and South Africa, a management induced decrease in elephant numbers cannot be considered to be a viable option to protect the gallery forest. The creation of elephant exclosures was selected as the most appropriate management option by a science and management committee. The reasons for the creation of the exclosures are twofold, namely:

1. The people who historically occupied the land along the river would have kept elephant away from the river and would have therefore enhanced the development of the more extensive gallery forest that we know today. The fence is an attempt to maintain this effect.
2. To learn about the effect of elephant in this open system on the gallery forest.

Three large elephant exclosures have been erected along the Limpopo River. Additionally 10 smaller exclosures (20x20 m) have been erected to establish the effect of excluding small ungulates on the regeneration of the riverine trees. Baseline plots have also been established in comparative similar sized plots in the area where only elephant are excluded and the area open to all animals.

In the larger elephant exclosures (A, B & C) trees above five m have been permanently marked over a three year period to determine their response to elephant impact. Smaller specimens of the key species (trees < 2 m) will also be identified and permanently marked to be able to determine their growth and survival.

The larger riverine trees have been permanently marked to evaluate the outcome of the elephant impact as well as the effect of changing riverine flow. These trees are evaluated every year to determine trends in their survival. Monitoring of the large tree component along the river indicated that nearly 10% of the large trees have lost more than 50% of their bark. It was therefore decided to protect the part of the forest closest to Mapungubwe hill from elephant because the forest was part of the ambience of the cultural heritage site. However, information from SANBI indicated that this forest was an important biodiversity component that was not protected elsewhere and a larger part of the forest was then excluded from elephant impacts.

A TPC for elephant impact on the gallery forest is reached when 10% of trees of the indicator species are 50% ring-barked over any one year period. This TPC must be re-evaluated using available information.

Risk management

After sufficient data have been collected, the commitment by the Venetia diamond mine to co-operate is important if management goals for the forest are to be achieved. The mine's adherence to set guidelines with regard to water abstraction is crucial if the forest is to survive in the longer run. Another risk is the one of elephant impacts and though the fencing has addressed this problem, it is essential to keep the fences intact if the required benefits are to be achieved.

The availability of human and financial resources determines the capacity to monitor and the science – management links will determine the efficacy of the implementation of the monitoring results. Conflicting objectives between tourism and conservation is the other huge risk as the best conservation practice is often not the most efficient approach to maximizing income; these conflicting objectives have to be addressed in the research management forums to ensure effective park management. There is a big need for research to verify and improve the TPCs suggested in this plan and outside researchers is required to address this need. To attract such researchers' reasonable accommodation and game guard services need to be available.

HERBIVORY MANAGMENT PROGRAMME					
HIGH LEVEL OBJECTIVE: To enable herbivory as an ecosystem process, with variable intensities over space and time, within the greater Mapungubwe TFCA.					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To manage herbivore effects on cultural and biodiversity values as well as their interactions with humans	Assess risks associated with game impact on cultural sites and camps.	CHM, Archaeologist, CM	Report	Year 1, ongoing	Risk manage-ment programme
	Design and implement risk mitigation plan for cultural sites and camps *(e.g.* rock packing, electric fencing)	Park management	Plan, maps, monthly reports	Year 1 and ongoing	
	Review layout and design of elephant exclosures, repair and maintain the elephant exclosure fences	Section rangers, Technical manager, CSD	Weekly and monthly reports	Ongoing	
	Monitor effectiveness of elephant exclosures	CM	Reports	Ongoing	
	Monitor impact of elephants (comparison inside and outside of exclosures – veld condition assessments)	Regional ecologist, rangers,	Quarterly report	Annual	
	Monitor large herbivore distribution	Section rangers	Cyber-tracker records	Monthly	
	Conduct aerial census to monitor large herbivore population trends.	Regional ecologist, CM	Census report	Annual (depending on budget)	
	Implement management measures as recommended by CSD to mimic natural processes	PM, CM, CSD	Annual report	Ongoing	

Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To evaluate, inform and revise herbivore management through collaborative research agreements	Solicit research projects to understand the role of seasonal and habitat variability in driving spatial and temporal movements and impacts of herbivores.	CSD	Registered research projects	Ongoing	
	Solicit research projects to understand the role of herbivores in the mortality, establishment survival and distribution of key riverine tree species (this implies that fences for the exclosures have to be maintained)	CSD	Registered research projects	Ongoing	
	Solicit research projects To understand the role of herbivores in maintaining the eco-system function in the different geological and vegetation types	CSD	Registered research projects	Ongoing	
To manage elephant impact and human interactions through inducing variation in elephant use of landscapes by restoring spatial landscape limitations	Submit the elephant management plan as a subsidiary management plan to the Minister for approval.	CSD	Completed plan	Year1	
	Implement the approved elephant management plan	CSD	Milestones in plan achieved	Year2 (funds).	

10.2.3 Disease management

The purpose of this programme is to facilitate the development of joint veterinary control principles and ensuring that the TFCA boundary is developed into the outer boundary for disease control to regulated animal movement control, which will also act as a barrier to help control introduction of unwanted diseases. This approach will allow free movement of wildlife in the GMTFCA and allow natural processes to function better than in the current fragmented landscape. There are currently no serious disease threats to wildlife in the park, although there is a risk of introduction of diseases, including alien diseases, through the unregulated movement of livestock or wildlife. Efforts should therefore be directed at developing a joint disease control policy at the periphery of the TFCA and preventing the introduction of any wildlife diseases to the area. The TFCA veterinary working group has determined that the outer boundary of the TFCA must be the 'disease control' line that is recognised by all three countries and that movement of both livestock and wildlife should be strictly controlled and in line with international regulations. Surveillance of foot and mouth disease in livestock crossing the border will be a very important. State veterinary control is currently limited or absent, and the park must continue to engage constructively with relevant state veterinary institutions so that active and passive disease monitoring programmes assist with informing risk management. Foot and mouth disease is possibly present in cattle in Zimbabwe and there is frequent livestock movement across the border into South Africa and Botswana posing a risk for the agricultural sector in South Africa. This could pose threats to the open borders with Botswana and Zimbabwe in the GMTFCA.

The main objectives of this programme are to:

1. Encourage stakeholders of the Greater Mapungubwe Transfrontier Park to uniformly approach disease control matters;
2. Introduction of wildlife diseases must be prevented through vigilant control of animal movement and only animals coming from known 'disease free' areas must be allowed to enter the GMTFCA;
3. The park will work closely with state veterinary services and SANParks veterinary wildlife services in disease control and surveillance;
4. Passive surveillance of disease through opportunistic post mortem or sampling is the current realistic management action to determine disease status in the park;
5. Should active surveillance be required by the state vets then a formal objective driven monitoring programme will be developed to meet those requirements;
6. At the time of writing there are no major disease threats to the wildlife in the park other than introduction of diseases like foot and mouth disease, which could affect the disease status of the park or illegal movement of buffalo from the Limpopo Valley, which could introduce all four regulatory diseases currently absent from MPNP (bovine tuberculosis, foot and mouth disease, corridor disease and *Brucella*);
7. No buffalo will be introduced in the medium term (including disease-free buffalo) as per agreement with Botswana regarding the regulatory issues surrounding buffalo in Botswana. The risk of not supporting this agreement will result in Botswana erecting a fence to exclude them from the TFCA.

Accomplishing the objectives of the programme will focus disease control on the outer boundary of the GMTFCA, thereby allowing free movement of wildlife in a natural system, uninterrupted by veterinary control barriers. Very little management action is currently required other than passive and opportunistic disease sampling.

DISEASE MANAGEMENT PROGRAMME					
HIGH LEVEL OBJECTIVE: To facilitate joint veterinary control principles and disease surveillance					
PURPOSE: The purpose of this programme is to facilitate the development of joint veterinary control principles and ensuring that the TFCA boundary is developed into the outer boundary for disease control to regulated animal movement control					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To facilitate joint veterinary control principles and disease surveillance	Engage with GMTFCA partners to promote the development of joint disease control policy around the periphery of the GMTFCA	Veterinary wildlife services and CSD, State veterinary services	Minutes of meetings, policy document	Year 1	TFCA programme
	Engage with GMTFCA partners to promote measures to prevent the entry of alien and unwanted disease	Veterinary wildlife services, state veterinary services and park management	Minutes of meetings, policy document	Ongoing	TFCA programme
	Engage with GMTFCA partners to promote surveillance of Foot and Mouth Disease in livestock	Veterinary wildlife services, State veterinary services and Park management	Minutes of meetings	Ongoing	TFCA programme
	Disease surveillance through opportunistic post-mortem sampling	Section ranger, State veterinary services	Post mortem analyses submitted	Ongoing	

10.2.4 Fire management

The purpose of this programme is to maintain the natural, cultural and biodiversity components of the ecosystem within the protected area, as specified in the particular desired state, whilst protecting life and property. Consequently it has two main objectives, (1) the protection of life and property (including cultural heritage resources) in collaboration with the fire protection association (FPA), in accordance with the National Veld and Forest Fire Act, and (2) the maintenance of biodiversity and ecological processes.

In the context of the latter objective, fire is recognised as a vital ecological process that influences the landscape. It is, however, less dominant as an ecological process in arid savannas where mean annual rainfall is <650 mm. The incidence of fires in these ecosystems tends to be erratic, as variable rainfall and herbivory often prevent the accumulation of sufficient fuel to support regular spreading fires. The tree layer is effectively prevented from reaching closure, as it is constrained by a lack of moisture, hence the elimination of fire does not lead to total dominance by woody vegetation. Given the presence of people in the area over more than 500,000 years, anthropogenic fires are likely to have occurred frequently. During the last 70 years it is possible that fire has been very infrequent or even absent, due to the change in land use and reduction of the fuel load through heavy grazing.

Lack of knowledge of the effect of fires within the Limpopo ecosystem, makes is difficult to recommend a fire programme with confidence and therefore priority should be given to encourage further fire research within the park. On the basis of best available current information, a fire programme that allows for the spread of lightning fires to burn to their natural extent should be implemented. This needs to be reconciled with fire safety and security. However, because of potential loss of all grazing from a single fire, it is recommended that in extremely wet years when there is sufficient fuel to support fires, not more that 50% of the area should be allowed to burn. This will apply to all ignition sources, including lightning. Owing to the fragile nature and significance of the world heritage cultural sites, fires in the immediate vicinity of open sites should be extinguished.

The effect of fire on these cultural sites needs to be researched. During years of above average rainfall for the park, firebreaks need to be established around all infrastructure. Firebreaks can be created in two possible ways: firstly through the removal of grass by slashing or brush cutting to create strips wide enough to prevent fires from entering or exiting camps and other infrastructure, and secondly firebreaks may be burnt around such infrastructure. If burning is the option used, then timing of such breaks should be at the beginning of winter (May to June) and should be set late in the afternoon or if possible at night.

All fires will be mapped from MODIS 250m satellite images. The one constraint to using the MODIS 250m resolution imagery to map the fires is that the satellite will not detect fires that are smaller than two football fields. These smaller patches of fires are however ecologically important and it is recommended that these fires be mapped on the ground with the cyber-tracker system. The following crucial information is required from the park:

1. Starting date of the fire;
2. GPS co-ordinates of the ignition points or as many GPS co-ordinates of the fire as possible;
3. The cause of the fire;
4. The end date of the fire.

Accurate reports and feedback from CSD, Skukuza to the park manager and conservation manager is very dependent on the information received from Mapungubwe and updated maps and information will be provided after each fire. It is the responsibility of the park manager to ensure that the information is collected, processed and reported. The programme manager for fire ecology from the Kruger National Park will assist where possible.

FIRE MANAGMENT PROGRAMME					
HIGH LEVEL OBJECTIVE: To maintain the natural, cultural and biodiversity components of the ecosystem within the protected area, as specified in the particular desired state, whilst protecting life and property					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To manage fire to protect life, property and cultural heritage resources.	Design and implement fire protection plans for all infrastructure and cultural sites.	CM, CHM, CSD	Plan	Year 1 and ongoing	Risk manage-ment plan
	Affiliate with and attend Fire protection sssociation meetings	CM	Minutes of meetings	Quarterly	
	Monitor fuel loads to spatially determine fire risks.	CM, CSD	Veld assessment reports, rainfall records.	Annual, monthly	
	Training of fire fighting personnel / reaction team (including EPWP staff).	Section rangers, Working on Fire	Record of training	Annual	

Objectives	Actions	Responsibility	Indicators	Time- frame	Reference
To manage fire to maintain biodiversity and ecological processes	Develop and implement fire management guidelines (including guidelines on burning schedules and fire suppression)	Fire ecologist, CM	Documented guidelines	Year 1	
	Monitoring of fire incidence, locality and extent in accordance with fire management guidelines.	Section rangers	Maps, monthly reports	Ongoing	

10.2.5 Invasive alien species

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. Clearing was originally carried out in areas invaded by CARA (Conservation of Agricultural Resources Act (Act 43 or 1983, as amended 2001) listed species. SANParks has a legal obligation to control and eradicate weeds and invader plants in terms of CARA. The control and eradication strategy is therefore based in the list published in terms of the CARA and the associated regulations as well as the invasive species identified in the park. DEA is currently in the process of finalising an alien invasive species list to be published in terms of the NEM:BA. SANParks acknowledge that as soon as this list has been gazetted the park will have to comply with section 70 to 77 of the NEM:BA. SANParks will align the alien species control and eradication programme accordingly.

The Mapungubwe National Park and World Heritage Site Working for Water (WfW) project employs 13 people and is employed for five months a year. There is no other funding organisation involved in the removal of IAP's within Mapungubwe. Collaboration will be established with the Limpopo Region WfW project to discuss clearing operations in the overall region.

The change in abundance of IAPs varies from year to year, driven by annual rainfall patterns. Invaded areas have been mapped, including private land adjacent to the park. A list of alien species occurring in the park can be found in Appendix 2. The highest priority invasive alien plants include:

a. *Datura ferox*;
b. *Datura stramonium*;
c. *Opuntia ficus-indica;*
d. *Argemone ochroleuca;*
e. *Nicotiana glandulosa*

The project area at present comprises of one management unit and high priority is given mostly to the tourist areas.

A total of 21,061 ha are infested with alien invasive plants in and around the park. Of this 5,922 ha require initial clearing and 15,139 ha are for follow up. The 15,139 ha initially cleared has a relatively low density of alien plants. The current strategy is to first follow-up these areas, then schedule further initial work. For initial work the areas closest to the Limpopo River and wetlands are a priority and will be completed systematically, ensuring that the more invasive species are addressed first.

Selection of appropriate methods of control is based on the species to be controlled, the size of the target plants, density of the stand, accessibility of the terrain, environmental safety, and disposal of dead vegetation and the cost of application of herbicides or other products.

Alien fish species: prior to being declared a national park, a number of species were used for aquaculture purposes. Control of alien fish species is impossible, but might be reduced to some extent with the rehabilitation the artificial dams.

Domestic animals such as goats and donkeys frequently enter the park. Although these movements need to be controlled according to veterinary requirements, impacts on vegetation are not likely to be high. These incursions will be dealt with on an individual basis with stock owners.

Monitoring

Monitoring will be carried out in line with the SANParks biodiversity monitoring programme for invasive alien species. A number of indicators and targets have been developed and will be assessed. Control of alien plants has not yet been applied long enough to provide an indication of the long-term efficacy of the control methods. Owing to continuous re-invasion from external sources is anticipated that alien clearing can never be relaxed, but must be regarded as an ongoing activity.

INVASIVE ALIEN SPECIES PROGRAMME					
HIGH LEVEL OBJECTIVE: To prevent entry and control of invasive alien species (IAS) in order to reduce their distribution, abundance and impacts, thereby maintaining the integrity of the indigenous biodiversity of MPNP.					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
Monitor infestation of alien species including new invasions	Continuous evaluation during ranger patrols	Section rangers	Monthly reports, maps	Ongoing	
	Update list of alien plants	Section rangers	Monthly reports	Ongoing	
	Monitoring effectiveness of control programmes (including area covered by each invasive alien species).	Invasive species control unit area manager, Section ranger	Annual reports, maps	Annual	
To develop and implement an alien control plan	Develop and implement annual plans of operations and allocate budgets	Invasive species control unit area manager	Documented plan	Annual	
	Identify and develop partnerships to address alien plant control on a landscape level, especially Limpopo River	Park management	Partnership agreements ; MoU's	Year 1 and ongoing	
	Secure future funding for alien control	PM	Budgets	Ongoing	

10.2.6 Restoration and rehabilitation

The purpose of this programme is to rehabilitate and conserve biodiversity and ecosystem patterns and processes, in conjunction with the cultural resource objectives. As used here, the term rehabilitation means aiding the ecosystem to reach a functional state as distinct from "restoration" which means returning the system to its original undisturbed state (Lamb 1994). A state of biodiversity workshop held in July 2009 indicated that the most important areas requiring restoration or rehabilitation are the terrestrial field layer (rehabilitating old lands and preventing sheet and donga erosion), redundant infrastructure, and the Golope / Maloutswa wetlands. The expanded public works and working for wetland funds can provide for short-term rehabilitation goals. The primary function of these is to create work opportunities that will reduce poverty and lead to other work once the project is over. The first step in the programme will be to develop proposals to secure funding from these sources.

RESTORATION AND REHABILITATION PROGRAMME					
HIGH LEVEL OBJECTIVE: To, in conjunction with the cultural resource objectives, rehabilitate and conserve biodiversity and ecosystem patterns and processes					
PURPOSE: The most important areas requiring restoration or rehabilitation are the terrestrial field layer, redundant infrastructure, and the Kolope / Maloutswa wetlands.					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To rehabilitate the terrestrial field layer and associated inherited farm infrastructure (roads; dams; dam walls)	Develop a project proposal to secure funding.	Conservation manager; Regional ecologist	Proposal	Year 1	
	Develop and implement a prioritised removal programme for inherited farm infrastructure (excluding buildings).	Park management, Regional ecologist	Implemen-tation plan, annual reports	Year 2 and ongoing	
	Develop and implement a prioritised programme for rehabilitation of old lands	Conservation Manager; CSD	Implemen-tation plan	Year 2 and ongoing	
	Develop and implement a prioritized programme for sheet erosion and donga rehabilitation, often linked to flow restoration	Conservation manager; Regional ecologist	Implementa tion plan	Year 2 and ongoing	
To motivate and secure programme to rehabilitate wetlands	Develop a wetlands rehabilitation proposal	Conservation manager; Regional ecologist	Documen-tend plan	Year 1	
	Motivate and secure a Working for wetlands Programme	Park manager	Motivation, Budget	Year 2	
	Implement Working for wetlands programme (on condition that funding is available)	Section rangers	Annual plan of operations	Year 3	

10.2.7 Damage causing animals

The purpose of this programme is to develop and implement a procedure for dealing with the increasing number of complaints that wild animals, supposedly from the park, cause damage on surrounding properties. It comprises, fact-finding to assess the extent of damage, risk assessment and the development of a mitigation plan.

DAMAGE CAUSING ANIMALS PROGRAMME					
HIGH LEVEL OBJECTIVE: To develop a procedure for handling damage causing animals					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To assess the impact of damage causing animals on the park and external stakeholders	Monitor incidents and extent of damage caused by animals (including past records).	Conservation m manager	Monthly reports	Monthly, annual	
	Develop and implement a risk assessment	Conservation manager	Assess-ment	Year 1, ongoing	
	Liaise with provincial conservation authority on control of damage causing animals outside the park	Conservation manager	Monthly reports; correspond ence		
To develop and implement mitigation plans, monitor outcomes	Document a plan for dealing with damage causing animals	Conservation manager	Plan	Ongoing	
	Monitoring effectiveness of control measures	Conservation manager	Reports	Ongoing	

10.2.8 Species and features of special concern

There is currently no programme for species of special concern for the park. Relevant background information has been collected and a corporate species of special concern programme is being developed by SANParks for the national park system as a whole. A programme may be developed for the park during the next five years depending on priorities indentified in the corporate programme.

The gallery forest has been identified as a special feature of the park, and a programme has been established with the purpose of maintaining existing forest patches and, where these have disappeared, encouraging re-establishment. The gallery forest comprises the vegetation occurring in the riparian zone along the Limpopo River and the floodplains. This represents a near-unique vegetation type. It is characterised as closed woodland and consists of various of species. Some of the more prominent trees found in the riparian fringe are *Acacia xanthophloea, Faidherbia albida, Ficus sycomorus* and *Xanthocercis zambesiaca*, occurring on rich alluvial soils deposited by the river. The best preserved patches of palm forests are found on Samaria and are included in the gallery forest. As can be seen on aerial photographs, the gallery forest is restricted to the floodplains and riparian zone of the Limpopo River where it depends directly on sub-surface aquifers.

The focus of the programme entails monitoring the plant moisture stress levels as determined by the Greefswald operating rules for the gallery forest. It is essential to implement the monitoring towards these thresholds, given the dire condition of the gallery forest. The monitoring of plant moisture stress must be continued to enable thresholds of potential concern (TPCs) to be calculated (Biggs & Rogers 2003). The plant moisture stress TPC is determined in the Greefswald Operating Rules as follows:

a. Limit 1: 13 Bar-abstraction limited to 300,000m3 per month;
b. Limit 2: 20 Bar-abstraction limited to 200,000m3 per month;
c. Limit 3: 23 Bar-abstraction limited to 100,000m3 per month.

The Venetia mine's self imposed operating rules include the discontinuation of pumping should the PMS reach 23 bar.

Research is required on seedling establishment and the drivers of successful establishment to help to develop appropriate TPCs. There is a TPC for the allowable percentage of tree mortality with increasing distance from the well field on a 5-yearly basis. T his TPC has to be adapted according to future research results for increasing distance from the river and should cover all parts of the gallery forest. The research should determine whether a TPC from increasing distance from the river before and after extraction is needed and whether the TPC developed by O'Connor & Associates (2005) is suitable. In addition, research should investigate an emergent tall tree TPC to track the changes in age structure of trees in the forest, taking the possibility of event driver recruitment into account. It will be important to investigate whether the expected recruitment can be represented by an inverse J-curve. It is essential to implement the monitoring towards these thresholds as soon as possible, given the dire condition of the gallery forest.

FEATURES OF SPECIAL CONCERN PROGRAMME					
HIGH LEVEL OBJECTIVE: To maintain existing forest patches and, where these have disappeared, to encourage re-establishment					
PURPOSE: As a key biodiversity feature, manage the process of herbivory in a manner that emulates the natural ecosystem fluxes (historically occurring in this region, recognising that much of the large mammal's component was probably seasonally transient at different spatial and temporal scales					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To understand the key drivers of the establishment and maintenance of the gallery forest (and conversely its decline) *e.g.* river flow; abstraction; groundwater; agric legacy; herbivory including elephant.	Plant moisture stress monitoring, research on tree mortality and seedling establishment.	CSD	Research reports	Ongoing	
To protect and maintain elephant exclosures	Maintain elephant exclosures (see herbivory management programme)	CM,Technical manager	Effective fence	Ongoing	

10.3 Responsible tourism

Responsible tourism: To develop, promote and implement a responsible tourism programme that enhances the experience of the cultural landscape.

The purpose of this programme is to strike a balance between providing a range of products and activities for the appropriate use, appreciation and enjoyment by visitors while having minimal impact on the cultural and biodiversity assets that make Mapungubwe special (Appendix 4, Map 6). SANParks has embarked on tourism in the park to generate income in support of the conservation of cultural and biodiversity assets, while affording tourists the opportunity to enjoy the nature based products and activities. Secondly SANParks wants to boost local economic development, through providing jobs, contracting certain services thereby stimulating the establishment of small and medium enterprises (SMME's).

As a national park, a national heritage site and a world heritage site that is based on vulnerable and fragile cultural heritage assets of outstanding universal value any new development must be aligned with the product development strategy and conform to the zoning. This will ensure responsible tourism practises that balance the values against the need to generate income to sustain their integrity and significance. T he effects of tourism must therefore be monitored to identify potential threats that can be addressed in the management plan to avoid degradation of the sites at risk, loss of irreplaceable assets and de-listing from the world heritage site list.

Strategic and targeted promotion and marketing can influence visitor awareness, numbers and length of stay. This is a vital component in attracting more visitors to visit, stay over and experience the park. Secondary, promotion and marketing communicates the message of the conservation of cultural and biodiversity assets to the broader public. The integration with existing tourism structures on a national and regional level could further boost promotion and marketing opportunities.

RESPONSIBLE TOURISM PROGRAMME					
HIGH LEVEL OBJECTIVE: To develop and implement a responsible tourism programme that promotes and enhances the experience of the cultural landscape and to market this					
PURPOSE: Strike a balance between providing a range of products and activities for the appropriate use, appreciation and enjoyment by visitors while having minimal impact on the cultural and biodiversity assets that make Mapungubwe special					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To deliver high quality responsible tourism products	Improve existing tourism products and services to provide value for money experiences	HSM	Income to cost ratio, Guest feedback	Ongoing	
	Identify and conduct feasibility studies for new activities to be introduced	HSM	Reports	Year 1	Product development strategy
	Develop implementation plans including mechanisms for partnerships.	HSM	Plans	Year 1	
	Prioritise products for implementation.	HSM	Plan	Year 2	
	Recruit and train staff to deliver high quality products.	HSM	Staff appointed and trained	Ongoing	
	Monitor success of the various products	HSM	Reports	Ongoing	
Develop initiatives to increase the number of black visitors to the park .	Identify products / initiatives (swimming pool; restaurant; entertainment activities) that will increase the number of black visitors.	HSM	Reports	Year 1	
	Conduct feasibility studies	HSM	Reports	Year 1	
	Develop implementation plans (including appropriate mechanisms for partnerships)	HSM	Plans	Year 2	
	Monitor success of the products / initiatives	HSM	Reports	Ongoing	
	Develop and implement interpretative resources and cultural tourism concepts.	HSM	Proposals	Year 1	
To promote awareness of the tourism experiences to a diversity of users and stakeholders through appropriate marketing	Use all available media and marketing forums, covering a diversity of audiences and stakeholders for awareness programmes	HSM	Minutes of meetings, articles in local media, regional marketing strategy and plan	Ongoing	Stakeholder and cooperation
	Use SANParks week to introduce and market tourism experiences in the park, including the rainmaking day and international museum day	P&C, tourism managers	Statistics	Ongoing	

10.4 People and conservation

The people and conservation section in the park has co-responsibility with park management for two broad spheres identified as overall objectives for the park. These are heritage and conservation constituency building and, although other sections in the park are also involved, they are dealt with under this section.

10.4.1 Cultural heritage

Cultural heritage programme

Cultural heritage: to promote the authenticity and integrity of the cultural landscape, and to document, manage and meaningfully promote access to the cultural heritage assets of the park

The purpose of this programme is to consolidate what is known about the cultural heritage sites within the Mapungubwe cultural landscape, and to fill any gaps in knowledge about the location and nature of places of significance. This action will provide a strong foundation that will enable these sites to be managed according to best practice for world heritage sites, in line with SANParks obligations and in accordance with the World Heritage Convention. The Mapungubwe cultural heritage programme highlights the necessity to secure adequate funding for professional staff and surveys, consolidation of appropriate resource material into a GIS database, site and resource management, rehabilitation, collections management, oral history and indigenous knowledge, as well as ongoing monitoring to check compliance with the desired state. In addition, interactions with stakeholder interests have highlighted appropriate use of these resources for tourism, and maintenance of appropriate ambience to sustain the all-important sense of place.

An important achievement at the park has been the completion of four site-specific plans for the most important sites open to the public, and a generic fifth one to allow for management at other archaeological sites. In addition, in a training programme at Mapungubwe offered by the Getty Conservation Institute in Los Angeles, generic and site-specific management plans for rock art sites were developed in 2005 and were up-dated in 2008. The sites include two Balerno sites (not updated in 2008), Thudwa (Little Muck), Tombo-la-Tholo (Armenia), Alfred's Rock (Armenia) and Kaoxa (Machete, not yet part of the MPNP). The Getty Conservation Institute held a rock art tourist guiding course at Mapungubwe in 2006 and a rock art interpretation and presentation workshop in 2007 that were helpful in the design of displays in the new interpretation centre. It is believed that the energy invested in the above projects funded by the Getty Conservation Institute will give SANParks, as custodian of the Mapungubwe Cultural Landscape, a good set of basic information for achieving the desired state of the park. The programme of the next five years will further refine and implement these existing plans.

The site-specific management plans that were prepared for the world heritage nomination dossier in 2003 and were referred to in the SANParks management plans of 2006 and 2008, focused mainly on places that would or could be opened to the public. Generic plans were drawn up for other archaeological and rock art sites, but similar detail is needed for paleontological and historical sites. These plans contains a statement of significance, site information, sensitivities and threats, details of existing site management, as well as management objectives and monitoring measures.

In addition, responsibilities and timeframes are made explicit for Mapungubwe hill and Terraces, K2 and Bambandyanalo, Schroda, Leokwe Hill and generic cultural heritage sites. All these supporting documents require up-dating as they were designed to be used during planning of the poverty alleviation and rehabilitation programme that was completed several years ago.

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 on land managed by the MPNP. The results of this work should be entered into a GIS database to facilitate monitoring and management. Alongside the monitoring task TPCs should be estimated for visitor carrying capacity at sites open to the public.

Apart from general issues of conservation and sustainable tourism, of particular importance is the display and storage of the archaeological collections, including gold objects from Mapungubwe Hill that were recovered during archaeological excavations in the 1930s. They have been curated mostly by the University of Pretoria where, since 2000, they have been on public display. While it was envisaged by some that the collection would be on display at the new interpretation centre at the park, the current facilities are inadequate to store and curate the entire collection. In March 2009, a tripartite memorandum of understanding was entered into by SANParks, SAHRA and the University of Pretoria. Discussions are underway between the three parties towards the signing of a heritage agreement that will among other things stipulate the future curatorship of the Mapungubwe archaeological collection. In addition, in February 2010, SAHRA conducted a national audit of Mapungubwe archaeological collections at other repositories in South Africa, the outcomes of which are still pending.

Owing to a long history of extractive research, current policy on further cultural heritage research, particularly archaeological, in MPNP is conservative and permit applications to SAHRA must be approved by the Park manager and SANParks. However, there is a critical backlog in recording research on areas such as rainmaking (Schoeman 2006), and there is a critical gap in identified cultural heritage resources unrelated to settlement by white farmers that are so far unaccounted for in the period between AD 1300 and the 20th century. Research on the location and distribution of cultural heritage resources in the park is ongoing with the assistance of the universities of Pretoria, Wits and Venda.

Current archaeological work in the park is focused on earlier Stone Age and Iron Age sites. The priority is to articulate research needs and knowledge gaps and solicit appropriate projects such as research on stone-walling, rock art sites, and colonial and oral history. Palaeontology will also be dealt with. The current condition of all sites open to the public must be assessed and reported so that when monitoring is done periodically by researchers and park personnel the nature and rate of change will be measured and appropriate conservation action taken.

Baseline research is needed to establish TPCs. Cultural heritage sites are particularly vulnerable to damage through visitation by people. Although the park has been careful to allow only guided visits to the main sites, and does not allow visits to most of the other sites, removal of potshards and other artefacts, walking on rock engravings and touching of rock paintings is a constant temptation. The damage needs to be quantified with a programme that will involve the survey of key sites, recording of their present condition and regular and efficient monitoring, if necessary to count the number of artefacts that are lost over a test period to measure and quantify the TPC. Damage by animals such as baboons and elephants might warrant similar monitoring. All infrastructure developments that involve disturbance or digging below the surface will involve assessment to identify the TPC and mitigation might be required. A good example of the value of this approach is the archaeological sites discovered and prepared for visitors on Hamilton on the viewpoint north of the new interpretation centre. To establish credible TPCs, all sites open to the public should be carefully assessed to estimate their visitor carrying capacity.

Risk

To minimise threats to the integrity of the Mapungubwe cultural landscape that might be adversely affected in the course of infrastructure development for tourism or other purposes, all developments and interventions in the landscape must be subject to an impact assessment process as required by NEMA regulations, and by SAHRA. The following are identified as threats to the Mapungubwe cultural landscape:

- There is potential for non-integration of natural and cultural heritage management tasks and objectives if areas of mutual interest are not identified, recorded and assessed;

- Impact of wildlife on surface artefacts and features;
- Cultural heritage sites – including paleontological sites - are not accurately marked on maps and this could result in the sites being ignored or damaged in the course of fencing, building and other infrastructural development in the landscape;
- Visitors with unrestricted access could damage walling, disturb in situ deposits, move or remove surface artefacts and leave litter;
- Rock engravings are vulnerable to people walking on them if they are placed on horizontal rock surfaces;
- Sites close to vehicle access points are most vulnerable to inappropriate visitor behaviour;
- Clearing of vegetation in rock art sites to allow more people onto a site may change the micro-climate and adversely affect paintings;
- Veld fires can affect rock paintings causing the paintings to flake;
- Structures, sites and places that are not significant in the context of the Mapungubwe cultural period (900 A.D. – 1290 A.D.) may be overlooked or destroyed because their significance in the broader history of the landscape is not appreciated;
- Impact of game animals should be carefully monitored as elephants and other large game could affect cultural deposits by denuding vegetation;
- Uncoordinated research can lead to unnecessary removal of irreplaceable deposits.

These risks will be addressed through the site management plan and monitoring.

CULTURAL HERITAGE PROGRAMME					
HIGH LEVEL OBJECTIVE: To manage, promote and conserve cultural heritage within the Mapungubwe Cultural Landscape					
PURPOSE: Document and inventorise of all heritage and archaeological sites within the Mapungubwe Cultural Landscape, conserve, research, interpret and monitor Cultural Heritage					
Objectives	Actions	Responsibility	Indicators	Time- frame	Reference
To document all cultural sites within the cultural Landscape (rock art, archaeo-logical, historical, ritual)	Consolidate a database of sites to register the location of sites	Archaeologist	Site data base	Year 1 and ongoing	National Heritage Act
	Create GIS database for monitoring changes within landscape	CHM, Archaeologist	GIS database, map	Year 2 and ongoing	
	Conduct condition surveys of prioritized sites	Archaeologist	Condition reports, map	Year 1	
	Monitor the sites as per recommendations from the conditions report	Archaeologist	Reports	Year 1 and ongoing	
	Develop a collection management plan	Curator	Collection plan	Year 1 and ongoing	

Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To document all collections related to Mapungubwe landscape (ethnographic and archaeo-logical)	Identify Mapungubwe collections located within different institutions and those found or excavated from the landscape	Curator	Accession Register Report	Year 1 and ongoing	
	Consolidate and update a database of collections of artefacts about Mapungubwe landscape	Curator	Electronic and manual database	Year 1 and ongoing	
	Negotiate for repatriation with identified institutions where applicable	PM, Legal services	Loan agreement MoU	Year 1 and ongoing	
	Organise appropriate storage facilities for preservation of the rediscovered collections according to international museum standard guidelines	Curator	Displays and acquisition register	Year 1 and ongoing	
	Assess conditions of artefacts for monitoring and conservation purposes	Curator	Artefact condition report	Year 1, ongoing	
To prioritise, develop and manage selected cultural sites for cultural tourism experience	Identify priority sites with tourism potential	Archaeologist, HSM	Priority list	Year 1, ongoing	
	Conduct individual feasibility studies	HSM; CHM	Research, visitor survey	Year 1, ongoing	
	Develop and refine site specific management / conservation plans	CHM, Archaeologist	Site manage-ment plan	Year 1, ongoing	
	Rehabilitate sites, if necessary	Archaeologist	Report	Year 1	
	Develop site specific interpretation plans	P&C, Archaeologist	Brochures, information panels	Year 2	
	Monitor visitor impact	Archaeologist	Impact assessment	Year 1, ongoing	
To document oral history, indigenous knowledge and living culture related to cultural landscape	Develop cultural heritage plan (to include archaeological and cultural interpretation plan)	CHM	Cultural heritage plan	Year 3	
	Identify relevant informants for interviews and / or sharing information	CHM	List of informants	Year 1	
	Recording of different types of stories using appropriate mechanisms (books, audio, visual, interpretive material)	CHM	Materials developed	Year 2 and ongoing	
	Organise appropriate storage for the recorded material (in cooperation with different institutions and informants)	CHM	Displays, archives, publications	Year 2 and ongoing	
	Locate and map identified places of cultural significance within the landscape	Archaeologist, CHM	Map	Year 2 and ongoing	

Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To manage and conserve cultural sites within landscape	Identify and prioritise sites based on sensitivity analysis and conservation needs	Archaeologist	List of priority sites	Year 1 and ongoing	
	Develop a maintenance and monitoring schedule based on sensitivity analysis and conservation needs	Archaeologist	Mainte-nance plan/ schedule	Year 1 and ongoing	
	Conduct interventions (rehabilitation, reconstruction) as per monitoring recommendations	Archaeologist	Rehabilita-tion / recon-struction programme	Year 2 and ongoing	
	Review site conditions periodically as per monitoring recommendations	CHM, Archaeologist	Condition report	Year 1 and ongoing	
To facilitate research and partnerships with heritage and educational institutions (including international co-operations)	Identify potential research institutions and researchers relevant to Mapungubwe cultural landscape	Park manager, CHM	Database / register of researchers and interest	Year 1 and ongoing	
	Encourage, regulate and monitor research based on agreed prioritised research needs	Park manager, Conservation manager	Contracts, MoU	ongoing	
	Implement research recommendations, where possible or applicable	Park Manager , Conservation Manager	Research reports	Year 1 and ongoing	

10.4.2 Stakeholder relations

To build lasting positive relationships with all stakeholders and foster international cooperation for the long term benefit of all.

The purpose of this programme is to establish and maintain meaningful and beneficial relationships between the park and a wide range of stakeholders who support the SANParks core business. The closest and most regular relationship is between the MPNP and the members of the Park Forum which meets on a quarterly basis. A forum charter was adopted in June 2011. Limpopo Province, De Beers, Friends of Peace Parks, neighbouring land owners, land claimants and local municipalities are the most significant partners, and these relationships will require maintenance and strengthening in the forthcoming five-year cycle if the desired state is to be achieved. In particular, SANParks must remain involved in IDPs and Limpopo province's growth and development strategy. The management plan addresses local economic Development through the local socio-economic programme that must be further developed in future. Currently the expanded public works programme contributes to this important issue. The park also supports local businesses through purchasing locally and regionally and supporting SMMEs.

STAKEHOLDER RELATIONS PROGRAMME					
HIGH LEVEL OBJECTIVE: To grow constituencies for the national parks system and enhance reputation and collaboration with key stakeholders					
PURPOSE: To establish and maintain meaningful and beneficial relationships with a wide range of stakeholders supporting SANParks core business					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To develop and manage a stakeholder database for all stake-holders in the Mapungubwe Cultural Landscape	Develop and manage a database of the park's diverse stakeholders and their level of expertise and / or contribution through institutionalised structures (*i.e.* SANParks Honorary Rangers) and non institutionalised structures	P&C	Database	Year 1, ongoing	Park Forum Charter
To maintain and sustain a purposeful relationship with the Mapungubwe Park Forum	Coordinate quarterly Park Forum and committee meetings	P & C	Minutes of meetings	ongoing	
	Organise annual public meetings	P & C	Minutes of meetings	Year 1, ongoing	
To nurture co-operative relationships with local and provincial authorities	Develop and maintain appropriate fora	PM, P & C	Fora established, maintained. Regular meetings, information exchanged	Year 1, ongoing	
To establish and maintain networks with other institutions relevant to the management of the World Heritage site	Develop and manage a database of diverse stakeholders and their level of expertise and/or contribution through institutionalised structures and non institutionalised structures	PM, CHM	Data base	Ongoing	
	Identify possible co-learning opportunities (exchange programmes)	PM, CHM, archaeologist	Identified opportu-nities	Year 1, ongoing	
	Arrange learning programmes for internal staff to build capacity	PM	Training programme and/ or workshops attended	Ongoing	

10.4.3 Socio-economic development

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 adjacent to the park. This will be achieved by partnering with local government to form part of the IDPs, participating in government programmes (WfW, EPWP, *etc*.) contributing to local skills development by supporting learnerships, implementing needs related training programmes and creating business opportunities. The contribution of the park to local socio-economic development will in turn contribute greatly to the continuous conservation and preservation of Mapungubwe World Heritage Site for future generations. By doing so the local communities will be able to continue to create a sense of ownership of the site and embrace its existence.

The EPWP will remain a focus area of the park to effectively contribute to the creation of temporary jobs in the short term. Through effective management of the current EPWP programmes the park will demonstrate its reliability as an implementing agent. These successes could lead to future funding with major opportunities presenting themselves in the next five years being related to alien plant clearing, and infrastructure development. Other local opportunities envisaged in the near future include utilising small local businesses for catering, cultural group dancing and cultural instrument displays. The establishment of appropriate and ongoing monitoring indicators and criteria requires expansion beyond the EPWP projects and research.

SOCIO ECONOMIC DEVELOPMENT PROGRAMME					
HIGH LEVEL OBJECTIVE: To play a significant, targeted and effective role in contributing to local economic development, economic empowerment and social development in communities and areas adjacent to the park					
PURPOSE: To facilitate socio-economic development and develop alternative sources of revenue and to implement enterprise development programme; expanded public works programme (EPWP) and community based socio-economic programme					
Objectives / Initiatives	**Actions**	**Responsibility**	**Indicators**	**Timeframe**	**Reference**
To facilitate private public partnerships within Mapungubwe National Park	To identify possible public private partnership opportunities within the park	PM, P&C	Opportunities identified	Year 1, ongoing	Tourism Development Plan; study
	Align existing business opportunities within the park with SANParks commercialisation strategy	PM, Technical manager	Business opportunities aligned	Ongoing	SANParks commercialisation strategy

Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To identify possible socio economic benefits and potential risks associated with conservation areas, their management and related activities	Identify and review existing and planned conservation related activities that may have a negative socio-economic impact on the park	P&C	Activities identified	Year 1	
	Compile recommendations for avoiding negative impacts or undertaking mitigation measures necessary if impacts may be unavoidable	PM, P&C	Recommen -dations available	Year 1	
	Develop action plans for priority projects	P&C, PM, Tchnical manager	Action plans for priority projects	Year 1	Socio-economic study report
To promote development of creative industries and small tourism businesses (e.g. produc-tion of arts and crafts)	Identify potential SMME's in the landscape relevant to the park's operation	P&C	List of SMME's identified	Year 1, ongoing	
	Provide business opportunities within the park	P&C	Number of SMME's contracted	Ongoing	

10.4.3 Environmental / cultural education and interpretation

To develop the park as an educational and research resource

The purpose of this programme is to build constituencies amongst people in support of the parks' cultural and conservation endeavours by providing a variety of educational opportunities and initiatives. Being a national park and world heritage site the park has the unique opportunity to increase awareness and understanding of local culture and biodiversity. The focus groups will be pupils and students.

The park caters for visiting school groups through a range of day programmes. The current themes are:

- Arts and culture. This programme focuses on the storyline and inhabitants of the Mapungubwe landscape, as well as interpreting rock art;
- Basic ecology. This programme introduces the learners to the Mapungubwe environment;
- Parks and conservation. This programme focuses on the SANParks protected area system.

These programmes are interactive and the participants get the opportunity to experience nature and archaeological sites while guided by trained heritage interpreters and or rangers.

Environmental / cultural interpretation. The park has built a world class interpretation centre on site and it is envisaged that the exhibitions will form part of the education and interpretation programmes. The centre will showcase the storyline of the Mapungubwe landscape and artefacts discovered.

Educational resources used are reviewed on a continuous basis through:

- Inputs considered in terms of the needs and requests from groups;
- The addition of new and updated information, as well as the contribution of new ideas;
- Existing and future research projects contribute indirectly to the development or revision of environmental education programmes;
- Internal and external evaluation of the environmental education programmes by means of an evaluation form.

The park also has an out reached programme to schools within the Musina and Blouberg local municipality districts. The outreach programmes coincides and focuses on the themes of national environmental days. The park is also busy developing a junior honorary ranger's programme.

The risks related to this programme and supporting activities are:

- The shortage of capacitated and experienced staff for implementation.
- A lack of vehicles for use by the P&C division of the world heritage site and a lack of electronic equipment and other resources.
- There is a limited overall ability to resource and fund environmental education and interpretation programmes and activities adequately that could be exacerbated by increased numbers of school visitors who might negatively impact on the world heritage site.
- There will be a need to evaluate the impact of visitors of the Mapungubwe hill because of its sensitivity and develop a plan to mitigate negative impacts.

ENVIRONMENTAL INTERPRETATION AND EDUCATION PROGRAMME					
HIGH LEVEL OBJECTIVE: To build constituencies amongst people in support of SANParks' conservation endeavours by playing a targeted and effective role in promoting a variety of EE opportunities and initiatives.					
PURPOSE: Grow constituencies for the park to improve environmental education					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To implement programmes that facilitate meaningful environmental / cultural education amongst communities, stakeholder groups, and schools as well as contribute to youth development and environmental awareness amongst staff.	Compile and implement plans as required.	P & C	Plans submitted	Ongoing	EE plan
	Implement funded EE programmes	P & C	Programmes conducted	Year 1, ongoing	
	Facilitate and / or participate in educator support and development initiatives such as eco schools and EE networks	P & C	Educator network activities maintained	Ongoing	
	Plan and Implement youth development programmes such as junior rangers, and eco-school	P & C	Youth programmes conducted	Ongoing	
	Plan and implement campaigns to enhance environmental awareness in local communities and stakeholder groups.	P & C	Campaigns conducted	Ongoing	Annual environ-mental calendar
	Plan and implement programmes to enhance the environmental awareness amongst staff	P & C	Programmes conducted for staff	Ongoing	
To improve awareness and reputation of SANParks with visitors and the public in general.	Plan and implement programmes for visitors and stakeholders as required, *e.g.* holiday programmes and activities for special interest groups.	P & C	Visitor programmes conducted	Ongoing	EE plan
	Plan, develop and implement a range of appropriate interpretive materials to enhance environmental awareness	P & C	Interpretive materials available to the public	Ongoing	Annual plan of operations

10.5 Effective park management

To provide effective and cross-cutting management and administrative support service to enable the park to achieve its objectives and balance these effectively.

Effective park management programmes 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.

10.5.1 Environmental management

The purpose of this programme is to set clear guidelines for the management of environmental impacts and resource use. Proper management of development and operational activities within the park can only be achieved through appropriate planning tools 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 the SANParks policy framework.

These key tools and controls used by the park forms the basis of an environmental management framework.

DEA has, in terms of section 24(2) of the 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.

Further to the provisions of NEMA, the park will develop standards of best practice to guide all operational activities that may have an impact on the environment. These activities will include any new infrastructure development that is not listed under NEMA as well as general maintenance. The development of best practice standards will be guided by the precautionary principle: 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.

ENVIRONMENTAL MANAGEMENT PROGRAMME					
HIGH LEVEL OBJECTIVE: To implement best practices in the field of records and information management					
PURPOSE: To establish and then maintain a database of park information					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To ensure compliance with environmental legislation and best practice principles for all management activities in the park	Make all new environmental legislation available to park management.	CM	Updated environmental legislation and best practice principles available	Ongoing	
	Review and develop a set of best practice principles for identified activities as required.	CM	Best practice principles developed	Ongoing	Zoning plan; fire management guidelines
	Conduct internal scoping of all activities that may potentially impact on the environment and ensure that EIAs and HIAs are conducted where required and that EMPs are developed to guide activities	CM	Compliance as required	Ongoing	Zoning plan

10.5.2 Risk

The management of business risk is regarded by SANParks as an integral part of management across all business operations. In line with corporate governance best practices and as per PFMA requirements, the Board of SANParks has formalized the risk management processes by adopting a corporate risk management framework. The main aim is to instil a culture of corporate risk management 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 those risks that are assessed as exceeding the risk appetite of the organisation.

RISK MANAGEMENT PROGRAMME					
GIGH LEVEL OBJECTIVE: To ensure that emerging issues of risk, that can jeopardise the achievement of park (and SANParks' corporate) objectives, are timely identified and assessed in terms of possible severity.					
PURPOSE: Maintain and update the park's risk profile					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To establish and maintain effective, efficient and transparent systems of risk management	To identify and assess risks for all business operations in the park	PM	Risk register	Year 1	
	To develop responses to address and prevent or mitigate issues of risk.	Park management	Risk response plan	Year 1	PFMA OHS Act NEM:PAA NHBRC Regs. etc.
	To monitor effectiveness in terms of the risk response plan and improve as needed.	Park management	BSC	ongoing	

10.5.3 Finance and administration

SANParks' budget policy follows the zero-based approach, which implies that every category must be critically assessed, evaluated and supported by an approved business plan. Once budget amounts have been determined for a category, it needs to be compared to previous years and any variance in excess in excess of budget guidelines must be motivated and explained. The budget period is for one financial year starting on 1 April and end on 31 March the following year. Annual budgets should be compiled in accordance to budget guidelines and instructions issued annually by SANParks corporate finance division.

FINANCE AND ADMINISTRATION PROGRAMME					
HIGH LEVEL OBJECTIVE: To ensure sound financial management and administration in the park					
PURPOSE: To run the identified corporate governance programmes					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To attain effective financial management of the park	Ensure less than 1% variance on cost of operations	PM and Heads of departments (HoDs)	Monthly financial statements with less than 1% variance	Ongoing	Financial manage-ment systems
	Ensure sound financial management of special projects; i.e working for water; working for wetlands; working on fire and others	PM, CM, Project managers	Budget targets achieved	Ongoing	Project business plans
To grow revenue (including alternative sources of revenue)	Identify new and align existing business opportunities within the park with the commercialisation programme of SANParks.	PM and HoDs	Opportu-nities identified in line with policy. New income streams generated	Ongoing	Commer-cialisation strategy
	Identify possible external funding to supplement current income streams	PM and HoDs	Funding proposals submitted	Year 1 and ongoing	Partnership contracts signed
	Develop support mechanisms and procedures for the park to receive grants and donations.	PM, Financial manager	Mechan-isms and procedures in place	Year 1	
To ensure financial accountability and align financial management systems	Facilitate an annual independent audit of the park financial records	PM, Financial manager	Audit report	Ongoing	
	Facilitate access to audited statements by the public	PM, fFnancial manager	Audited statements available to the public	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 SMP objectives	PM, financial manager, HoDs	Annual budgets prepared	Ongoing	Annual budgets
	Provide monthly financial reports timeously by cost centre	Financial manager	Financial reports prepared	Ongoing	
To submit annual financial reports to the Minister	Submit annual reports	Financial manager, PM	Financial reports submitted		Section 37 of WHCA

10.5.4 Human capital development

Transformation and wellness

The park strives for the effective management of human capital through the recruitment and selection of qualified people to meet the strategic objectives of the organisation. We seek to promote lifelong learning within the organisation by implementing a skills development programme informed by a skills audit. T he park furthermore seeks to maintain a healthy workforce within a supportive environment, and specific objectives include inculcating a sense of wellness, to maximise work performance and to develop an institutional culture that is sensitive to the needs of those in need of help. Transformation will be enhanced by implementing the employment equity plan and ensure the attainment of the set equity targets.

Staff capacity building

Each employee has set goals in terms of defined individual development plans. These development plans are based on the individual's training needs as agreed upon by the employee and his/her supervisor. The use of the SETA's for funding the training will be explored both at head office and park level.

A workplace skills development plan is also produced for the park every year as required by legislation. This is coordinated at head office level, with input from the park and the employment equity forum. Most of the staff is involved and encouraged to make inputs into the plan.

HUMAN CAPITAL DEVELOPMENT PROGRAMME					
HIGH LEVEL OBJECTIVE: To ensure a harmonious and productive work environment with a developed and capacitated workforce in the park					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To ensure the park attracts and retains the most suitable human capital	Implement the corporate selection and recruitment policy	PM, HR Admin Officer	Procedures followed for appoint-ments	Ongoing	SANParks recruitment and selection policy
To implement performance management system	Ensure category C and upper have signed balanced scorecards	HR Admin Officer, PM	Balanced scorecard documents	Ongoing	

Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To implement plans and skills development strategies to meet the strategic goals of the organisation	Conduct skills audit, develop skills plan and ensure training interventions are conducted	HR Admin officer	Training plan in place, % of employees trained %of budget spent on training	Ongoing	MPNP training plan
	Develop human capital in the fields of conservation, cultural heritage and ecotourism through the internship programme	HR Admin officer	Implemen-tation of Internship Programme	Annual	
	Develop human capital in the field of ecotourism by introducing tourism experiences to FET and learners	HSM	Learner and FET groups addressed	Ongoing	
	Enable staff to keep abreast of trends in conservation science and the tourism industry to positively influence the practises within the park.	Management	Affiliation to relevant bodies, Minutes of meetings	Ongoing	
Promote the Employment Equity Act to attain the set organizational targets	Establish employment equity forum, design a plan and fill vacancies as planned	HR Admin officer, PM	Vacancies filled	Ongoing	Employ-ment equity report submitted to Dept of Labour
Implement workplace health care programmes which focus on preventative physical and mental health care	Conduct AIDS awareness workshops	HR Admin officer	Workshops, attendance registers	ongoing	Corporate HIV policy
	Provide private facilities at all areas within the park to enable employees access to ICAS	HR Admin Officer	Facilities, reports	ongoing	
	Invite professionals to the park to promote awareness on OHS and mental health issues	HR Admin Officer	Attendance registers	ongoing	
	Commemorate all events related to wellness (e.g. AIDS day, world blood donor day, days of activism on non-violence against women)	HR Admin Officer	Attendance registers, invitations	Ongoing	
Implement all HR policies and ensure compliance	Conduct educational training to staff on all HR policies	HR Admin Officer	Attendance registers, invitations	Ongoing	

10.5.5 Information management

Management of the park requires that the appropriate data and information is collected, maintained and made readily accessible to staff responsible for all aspects of management. Such data is not only essential for formulating effective long-term management objectives, plans, programmes 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.

INFORMATION MANAGEMENT PROGRAMME					
High level objective: To implement best practices in the field of records and information management					
Purpose: To establish and then maintain a database of park information					
Objectives Initiatives	Actions	Responsibility	Indicators	Timeframe	Reference
To develop and implement a records manage-ment and file plan for the park in accordance with SANParks policies and procedures	Review the existing records management and file plans within the various areas of the park, and implement a single file plan	PM	Draft records manage-ment and file plan	Year 1	(Act no. 43 of 1996 as amended)
	Implement the records management and file plan	PM, Admin	Records and documents filed ito plan	Ongoing	Corporate file plan and policy
	Ensure appropriate access to park files and records in accordance to corporate records management policy and guidelines.	PM, Admin	Access procedures recorded and implemented	Ongoing	Corporate file plan and records manage-ment policy

10.5.6 Infrastructure

The purpose of this programme over is the upgrading and maintenance (day to day and scheduled) of existing infrastructure. 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, lookout points, hides, picnic site, and tourism accommodation). These facilities enable staff to execute the respective duties towards achieving the park's objectives and providing a tourism product at the best possible standard. The product development strategy, applicable legislation and limitations of the zoning plan will guide new infrastructure development. Infrastructure must be developed and maintained in accordance with all applicable legislation, policies, standards and codes. Maintenance must be undertaken in a cost effective manner. As far as practicable incorporate good, cost effective environmental design, use low maintenance designs and material, and use existing roads and tracks and disturbed sites and to limit green field developments. All current infrastructure in the park is listed in section 7.

INFRASTRUCTURE PROGRAMME					
HIGH LEVEL OBJECTIVE: To upgrade and maintain the existing infrastructure and development new infrastructure, all of which are in support of conservation and tourism in the park.					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To ensure that infrastructure is maintained to a desirable state	Complete an inventory of all infrastructure in the park, assess construction types and determine extent of maintenance needed	Technical services manager	Inventory	Year 1, ongoing	
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.	Technical services manager	Inventory	Year 1, ongoing	
To maintain all infrastructure and equipment to a desired state	Document the scope of work for each maintenance need in accordance with the relevant specifications.	Technical services manager	Scoping documents	Year 1 and ongoing	NHBRC Building regulations, SANS 0142 Electrical regulations
	Prioritise maintenance needs and develop a 5-year maintenance plan for the park.	Technical services manager, PM	Mainte-nance Plan, Annual schedules	Year 1 and ongoing	
	Implement the 5-year maintenance plan according to the annual maintenance schedules	Technical services manager	Monthly and Annual reports	Ongoing	
	Assess progress, revise annual maintenance schedules and evaluate standard of work.	Technical Services Manager, PM	Annual report	Ongoing	
	Develop an annual maintenance schedule for all equipment	Technical services manager	Schedule	Year 1, ongoing	
	Implement annual maintenance schedule for all equipment	Technical services manager	Schedule	Year 1, ongoing	

Safety and security

The purpose of this programme is to provide a safe and secure environment for both our visitors and SANParks employees, and to ensure that the area integrity of the natural and cultural resources of the park is maintained in a sustainable manner. At a broader level, the plan must ensure that tourist perceptions are maintained in order to protect the brand and reputation of SANParks and the tourism industry at large. Owing to the interlinked nature of cross-border issues and broader safety and security, these components may be integrated into the GMTFCA safety and security programme.

The programmes developed and stated in the strategic safety and security plan are guided by various Acts including the following: National Environmental Management Act 107 of 1998, NEM: Protected Areas Act 57 of 2004, NEM: Biodiversity Act 10 of 2004, Criminal Procedure Act 51 of 1977, Occupational Health and Safety Act 85 of 1993, Basic Conditions of Employment Act 3 of 1997, National Veld and Forest Fire Act 101 of 1998.

The following challenges have been identified:

a) **Criminal activities**. The proximity of the international border with Zimbabwe and Botswana poses a threat to the park. Illegal activities such as border crossing, poaching, theft and trafficking through the park occur on a weekly basis. The involvement of the SAPS and SANDF in border security is vital. Rhino poaching and farm attacks have also occurred in the vicinity;
b) **Localised and surrounding farming activities**. The fact that the park is not consolidated and has large scale commercial farming activities in and around the park;
c) **Tourism threats**. Tourist complaints of not feeling safe, shots heard at night (local farms/hunting/poaching), large number of Zimbabweans seen, Zimbabweans visiting Treetop, Confluence, Leokwe, Wilderness Camp pose a serious challenge to the park;
d) **The international boundary fence**. The FMD and old military fences are not being maintained by the Department of Agriculture, Forestry and Fisheries, Veterinary Department and Military.

The park will manage safety and security on an ongoing basis through the application of the risk management framework. The designated safety and security person (DSSP) is responsible to facilitate the implementation of the safety and security plan. This person will act as the link between the park and relevant security institutions. All conservation staff are appointed as environmental management inspectors (EMI) in terms of section 31D(1) of the National Environmental Management Act (NEMA) to exercise the powers and functions in respect to the enforcement of the provisions of:

a. The National Environmental Management Act 107 of 1998;
b. The National Environmental Management: Protected Areas Act 57 of 2003;
c. The National Environmental Management: Biodiversity Act 10 of 2004.

Area integrity planning

The threat analysis of the park and sections will be updated regularly to ensure that the security measures implemented are current and ever changing in response to criminal threats. Information gathered through various sources will be verified and used to plan patrols and other safety measures.

SAFETY AND SECURITY PROGRAMME					
HIGH LEVEL OBJECTIVE: To provide a safe and secure environment for both our visitors and SANParks employees, and to ensure that the integrity of the natural and cultural resources of the park is maintained in a sustainable manner.					
Objectives	Actions	Responsibility	Indicators	Timeframe	Reference
To achieve and maintain high standards amongst all staff in the park, focusing on training, equipment, motivation and discipline. .	Review relevant safety and security plans.	CM	Reviewed plans (immediate action drills; standard operating procedures; evacuation plans; Incident management guidelines)	Ongoing	Immediate action drills; standard operating procedures; evacuation plans; incident management guidelines
	Develop and implement a radio communication system (hardware and procedure) for proper communication.	CM	Communication system in place.	Year 3	ICASA regulations
	Train staff in area integrity management, conservation guardianship, and readiness to react to emergency situations.	CM	Training records	Ongoing	Strategic safety and security plan
	Assess readiness of staff.	CM	Audits; drill procedures	Ongoing	IDP's
Improve overall park safety through interactions with external role players	Align the safety and security activities to accommodate collaborative operations with external partners, e.g. GMTFCA bi-lateral safety and security working group, SAPS, SANDF.	CM	Safety and security plan	Year 2 and ongoing	
	Conduct regular patrols to ensure that area integrity is maintained.	CM	Safety and security plan, incident reports	Ongoing	
	To actively participate in various external safety and security related forums	CM	Minutes	Ongoing	Inter agency and bi-lateral agreements.

Section 11: Costing

As required by NEM:PAA the programmes of implementation to achieve the desired state have been costed. The following guiding principles were applied:

- Responsible management of the allocation of budget, revenue raising activities and expenditure;
- Ensure solid financial management in support of 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 cost estimate was derived for the activities of each programme listed in Section 10. In estimating the costs the following were considered:

- **Recurring costs**: those costs and associated resources which could be allocated to specific activities and which were of a recurring nature;
- **Once-off** costs: 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.)

The annual directly allocated cost (including staff, travel and supplies and tools) for 2011/2012 is compared between programmes in Table 5, and the once-off costs are shown in Table 6. .

Table 1: Estimated annual operational costs for 2011/2012.

Programmes	Estimated budget	Percentage of total
Responsible tourism operations	R 2,638,173	21.7%
Infrastructure	R 1,894,001	15.6%
Fire management	R 1,524,823	12.5%
Herbivore management	R 1,113,445	9.2%
Rehabilitation and restoration.	R 700,936	5.8%
Invasive aliens	R 683,058	5.6%
Cultural heritage.	R 653,554	5.4%
Safety and security	R 543,459	4.5%
Stakeholder relationship	R 400,481	3.3%
Cultural and environmental education	R 386,666	3.2%
Water in the landscape	R 317,674	2.6%
Environmental management	R 257,292	2.1%
Information management	R 193,819	1.6%
Human capital development	R 149,820	1.2%

Programmes	Estimated budget	Percentage of total
Damage causing animals	R 117,495	1.0%
Water in the landscape	R 317,674	2.6%
Environmental management	R 257,292	2.1%
Information management	R 193,819	1.6%
Transfrontier conservation	R 97,611	0.8%
Park consolidation	R 87,051	0.7%
Risk management	R 84,437	0.7%
Disease management	R 67,459	0.6%
Socio-economic development	R 36,762	0.3%
Total	R 12,150,359	100%

Table 2: Estimated once-off cost of the various programmes.

Programmes	Estimated cost
Infrastructure	R 25,170,000
Rehabilitation and restoration	R 6,000,000
Cultural heritage	R 2,790,000
Transfrontier conservation	R 800,000
Safety and security	R 475,000
Tourism	R 150,000
Total	R **35,385,000**

Unallocated fixed costs

The unallocated fixed costs for 2011/2012 are R2 883 186.

Maintenance

Table 7 shows estimated replacement value and annual maintenance for 2011/2012 for each of the different categories of existing and proposed new infrastructure. The maintenance requirement was calculated as a percentage of the replacement value. The projected maintenance for existing infrastructure is estimated at R2,378,662 in 2011/2012. If the new planned infrastructure is developed it will add a further R2,386,832 (at 2011/2012 rates) to the annual maintenance budget, increasing it to R4,765,494. The maintenance requirement was calculated as a percentage of the replacement value.

Table 3: Estimated replacement value and maintenance cost for different categories of infrastructure. A distinction is made between existing and proposed new structures.

Estimated replacement value				Estimated maintenance		
	Existing (R)	New (R)	Total (R)	Existing (R)	New (R)	Total (R)
Infrastructure	68,886,250	34,414,000	103,300,250	991,962	578,242	1,570,204
Roads & tracks	13,130,000	39,350,000	52,480,000	955,700	1,750,500	2,706,200
Trails	0	0	0	0	0	0
Fencing	10,970,000	3,570,000	14,540,000	329,100	51,840	380,940
Water system	2,095,000	100,000	2,195,000	72,750	5,000	77,750
Electricity	855,000	0	855,000	4,650	0	4,650
Sewerage	490,000	25,000	515,000	24,500	1,250	25,750
Other	0	0	0	0	0	0
Total	96,426,250	77,459,000	173,885,250	2,378,662	2,386,832	4,765,494

Replacement of minor assets

The amount required to make provision for replacement of minor assets was calculated on the basis of original purchase prices in accordance with SANParks standard practice (Table 8). Management should make provision for about R432,470 in 2011/2012. It is anticipated that replacement requirements will be reduced through the lease of vehicles and computers, as these items require frequent replacing.

Table 4: The total value based on the original purchase price of various categories of minor assets.

Asset type	Asset value (R)	Provision for replacement (R)
White goods	R 239,482	R 34,212
Vehicles and trailers	R 1,617,033	R 231,005
Air conditioners	R 49,983	R 7,140
Firearms	R 37,808	R 3,781
Furniture	R 655,069	R 93,581
Mechanical equipment	R 391,153	R 55,879
Office equipment	R 49,997	R 7,142
Total	**R3,040,524**	**R432,740**

Summary

It is estimated that the park will require an annual operating budget of R17,844,947 for 2011/2012, increasing to R23,880,565 in 2016/2017. I n addition to this amount the park will also require R85,385,000 over the next six years for once off costs to build/upgrade new infrastructure.

Table 5: A summary of the annual and once off costs (based on actual expenditure) that is required to fully implement the activities in the Management plan over the next 5 years.

	2012/2013 (R)	2013/2014 (R)	2014/2015 (R)	2015/016 (R)	2016/2017 (R)
Annual operational costs	18,915,644	20,050,583	21,253,618	22,528,835	23,880,565
Once off management costs over 6 years	35,385,000				
SANParks budget for MPNP	13,995,010	14,834,711	15,724,794	16,668,281	17,668,378
Deficit	4,920,634	5,215,872	5,528,824	5,860,554	6,212,187

The annual operational deficit for 2012/2013 totals R4,920,534, which can be broken down as follows:

- R1,791,586 required for maintenance. This is the shortfall between the current maintenance budget and required maintenance;
- R960,521 required to meet HR requirements for eight new positions;
- R600,000 for effective management of the elephant exclosures;
- R500,000 is required for the decommissioning of redundant infrastructure;
- R350,000 to effectively manage aliens;
- R160,000 to survey heritage sites and develop site management plans;
- R160,000 for environmental education projects;
- R60,000 for support of stakeholder participation commitments;
- R60,000 for the monitoring of rhinos.

SANParks will explore possibilities for making good this shortfall through appropriate sponsorships and donations. The possibilities of receiving offsets from mining activities will also be explored.

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Appendix 1: List of declarations

List of proclamations and status of land, Mapungubwe National Park and World Heritage Site

Name of the Area, Declaration Date, Gazette Reference

Government Notice *490* / Government Gazette *18814* of *9 April 1998 declared the following land to be part of the Vhembe/Dongola National Park:*
Farm Den Staat 27 MS (remainder), Registration Division MS, Northern Province, in extent 1 842,1763 hectares, as indicated on Diagram SG No. A1 237/60

Government Notice *339* / Government Gazette *21 042 of 7 April 2000 declared the following land to be part of the park:*
Farm Greefswald 37 MS, in extent 2 503,8386 hectares, situated in the District of Zoutpansberg, as described in Diagram SG No. A345611906.

Government Notice *355* / Government Gazette *22231* of 26 April *2001 declared the following land to be part of the park:*

Portion 1 of the Farm Riedel 48, Registration Division M.S., Northern Province, in extent 2569,7720 hectares as described in Diagram SG No. A278 1/43.

Portion 1 of the farm Balemo 18 MS, Limpopo Province, in extent 768,6940 (Seven Six Eight Comma Six Nine Four Zero) hectare, held under Deed of Transfer T 14692812002

Portion 3 of the farm Tuscanen 17 MS, Limpopo Province, in extent 1301,0380 (One Three Zero One Comma Zero Three Eight Zero) hectare, held under Deed of Transfer T15475612000

Remainder of the farm Schroda 46 MS, Limpopo Province, in extent 929,0942 (Nine Two Nine Comma Zero Nine Four Two) hectare, held under Deed of Transfer T3765411990

Portion 4 of the farm Schroda 46 MS, Limpopo Province, in extent 929,0942 (Nine Two Nine Comma Zero Nine Four Two) hectare, held under Deed of Transfer T3765411990

Portion 7 of the farm Schroda 46 MS, Limpopo Province, in extent 1295,4212 (One Two Nine Five Comma Four Two One Two) hectare, held under Deed of Transfer T2562911990

Portion 8 of the farm Schroda 46 MS, Limpopo Province, in extent 419,9119 (Four One Nine Comma Nine One One Nine) hectare, held under Deed of Transfer T4745211990

Government Notice *902* / Government Gazette *26615 of 30 July 2004 declared the following land to be part of the park:*

Portion 2 of the Farm Hamilton 41, M.S Registration Division, Limpopo Province, in extent 65,1140 hectares, held under Title Deed T566912004-06-23

The Remaining extent of the Farm Hamilton 41, M.S Registration Division, Limpopo Province, in extent 359,461 7 hectare, held under Title Deed T566912004- 06-23

Portion 3 of the Farm Tuscanen No. 17, M.S Registration Division, Limpopo Province, in extent 1301.0380 hectare. held under Title Deed Tl54756I2OOO

Government Notice 1056 of Government Gazette 31461 of 3 October 2008 declared the following properties to be part of the park:

Portion 1 of the Farm Janberry No. 44, measuring 755,5492 ha

Remainder of the farm Samaria 28, measuring 431,9858 ha

Portion 3 of the farm Samaria 28, measuring 431,9858 ha

Portion 3 of the farm Welton 16, measuring 708,0486 ha

Government Notice No. 71 in Government Gazette No. 31832 of 30 January 2009 declared the Mapungubwe Cultural Landscape as a World Heritage Site in terms of the World Heritage Convention Act, and delegates certain management powers and duties to SANParks. This notice defines the location of a core area and a buffer zone. For the Mapungubwe Cultural Landscape it is a legal requirement to have an Integrated Management Plan and site specific management plans.

The Mapungubwe Cultural Landscape was gazetted as a National Heritage Site by the newly-established South African Heritage Resources Agency (SAHRA) in December 2001.

Appendix 1, Table 1: Declared land managed by SANParks as part of the MPNP and WHS**.**

Farm name and number	Portion	Extent (ha)	Owner	Section	Declaration date	Government gazette
Welton No.16	3	708.0486	NPT of SA(0.6) and SANParks (0.3)	20(1)(a)(ii)	03-Oct-08	31461
Tuscanen 17	3	1301.038	WWF of SA	2B(1)(b)	30-Jul-04	25562
Balerno 18	1	768.694	SANParks	2C(2)	17-Oct-03	25562
Remainder of Den Staat 27	0	1842.1763	SANParks	2D(1)(a)	04-Jun-98	18814
Remainder of the farm Samaria 28	0	431.9858	SANParks	20(1)(a)(ii)	03-Oct-08	31461
Samaria 28	3	431.9858	SANParks	20(1)(a)(ii)	03-Oct-08	31461
Greefswald 37	0	2503.8386	RSA	2B(1)(a)	07-Apr-00	21042
Remaining Extent of Hamilton 41	0	359.4617	SANParks	2C(2)	30-Jul-04	26615
Hamilton 41	2	65.114	SANParks	2C(2)	30-Jul-04	26615
Janberry 44	1	755.5492	SANParks	20(1)(a)(ii)	03-Oct-08	31461
Remainder of Schroda 46	0	929.0942	De Beers	2B(1)(b)	17-Oct-03	25562
Schroda 46	4	929.0942	De Beers	2B(1)(b)	17-Oct-03	25562
Schroda 46	7	1295.4212	De Beers	2B(1)(b)	17-Oct-03	25562
Schroda 46	8	419.9119	De Beers	2B(1)(b)	17-Oct-03	25562
Riedel 48	1	2569.772	NPT of SA	2B(1)(b)	26-Apr-01	22231
TOTAL		15311.1855				

Appendix 1, Table 2: Contractual land not declared but managed by SANParks as part of the park.

Farm name and number	Portion	Extent (ha)	Owner	Period	Restrictions
Mona 19	0	560.4003	Friends of Peace Parks	99 years	Exception of affected areas around Mona & Little Muck lodges
Armenia 20	0	856.5320	Friends of Peace Parks	99 years	Exception of affected areas around Mona & Little Muck lodges
Armenia 20	1	69.3806	Friends of Peace Parks	99 years	Exception of affected areas around Mona & Little Muck lodges
Rhodes Drift 22	Remaining extent	865.0285	Peace Parks Foundation	99 years	
Little Muck 26	0	2147.6169	Friends of Peace Parks	99 years	Exception of affected areas around Mona & Little Muck lodges
TOTAL		**4498.9583**			

Appendix 1, Table 3: Privately owned land within the boundary of the Core area of the World Heritage Site as declared in Government Notice 71 of 30 January 2009, but not managed by SANParks.

Farm name and number	Portion	Extent (ha)
Pont Drift 12	0	2.51
Pont Drift 12	5	204.30
Modena 13	0	216.35
Modena 13	1	1032.59
Tuscanen 17	1	875.71
Den Staat 27	1	1835.91
Samaria 28	1	891.77
Samaria 28	2	881.50
Machete 29	0	958.84
Hackthorne 30	0	1033.73
Athens 31	0	532.46
Welton 34	0	186.44
Janberry 44	0	1411.84
Weipe 47	0	1226.28
Riedel 48	0	353.57
TOTAL		**12703.31**

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Appendix 2: Invasive alien species

Appendix 2, Table 1: Invasive alien species in the Mapungubwe National Park

Species	Vernacular (English)	Priority	Control
Plants			
Achyranthes aspera	Burweed	Low	No
Agave sisalana	Sisal	Medium	Yes
Argemone ochroleuca subsp. *ochroleuca*	White flowered Mexican poppy	Very low	No
Aristolochia elegans	Dutchman's pipe / calico flower		
Arundo donax	Giant reed, Spanish reed	Medium	Yes
Azolla filiculoides	Red water fern	Very low	Biological control
Cardiospermum grandiflorum	Balloon vine, heart pea vine	Medium	Yes
Catharanthus roseaus	Graveyard flower, Madagascar periwinkle	Very low	No
Cereus jamacaru	Queen of the night, Peruvian apple cactus	Medium	Yes
Cinnamomum camphora	Camphor tree	Low	Yes
Cuscuta campestris	Common dodder	Low	No
Cylindropuntia fulgida var. mamillata	Rosea cactus	High	Yes
Datura ferox	Large thorn apple	Low	No
Datura inoxia	Downy thorn apple	Low	No
Datura stramonium	Common thorn apple	Low	No
Delonix regia	Flamboyant	Low	Yes
Eucalyptus cinerea	Florist gum	Low	Yes
Flaveria bidentis	Smelter's bush	Low	No
Hedychium spp.	Ginger lily	Low	Yes
Lantana camara	Spanish flag, lantana, tickberry	High	Yes
Macfadyena unguis-cati	Cat's claw creeper	High	Yes
Melia azedarach	Chinaberry, pride of India, syringa, seringa	Low	Yes
Nicotiana glauca	Brazilian tree tobacco, wild tobacco	Low	No
Opuntia ficus-indica	Indian fig opuntia, sweet prickly pear	High	Yes
Opuntia rosea	Rosea cactus	High	Yes
Opuntia stricta	Erect prickly pear, Australian pest pear	High	Yes
Pennisetum setaceum	Fountain grass	High	Yes
Pinus spp.	Pines	Low	Yes
Ricinus communis	Castor oil plant	Low	No
Sesbania punicea	Red sesbania, coffee weed, black acacia	Medium	Yes

Species	Vernacular (English)	Priority	Control
Solanum seaforthianum	Potato creeper	Medium	Yes
Tecoma stans	Yellow bells, yellow trumpet flower	Low	Yes
Verbesina encelioides	Golden crownbeard	High	Yes
Xanthium spinosum	Spiny cocklebur, burweed	Low	No
Xanthium strumarium	Large cocklebur	Low	No
Fish			
Oreochromis niloticus	Nile tilapia	High	Not possible
Other species-unidentified		High	Not possible
Birds			
Acridotheres tristis	Indian myna	Low	Destroy nests; shoot
Mammals			
Bos taurus	Cattle	Low	Co-management with neighbours; herd back to own property;
Capra hircus	Goat	Low	Co-management with neighbours; heard back to own property;
Equus asinus	Donkey	Low	Co-management with neighbours; heard back to own property;
Felis catus	Domestic cat	High	Staff prohibited from owning cats; trap at high risk areas if necessary
Canis	Dog		

Appendix 3: Species of special concern

Appendix 3, Table 1b: Threatened (Red Data List) plants recorded in MPNP (SANBI list, 16 June 2006).

TAXON	LIFE FORM	ENDEMISM	NATIONAL (2006)	GLOBAL (2006)
Adenia fruticosa ssp *simplicifolia*	Tree	NOT	NT	
Adenium oleifolium	Dwarf succulent shrub	FSA	LC	LC
Aloe angelica	Succulent shrub/tree	SA	LC	LC
Aloe swynnertonii	Succulent	NOT	DD	DD
[1]*Boscia foetida* subsp. *Minima*	Dwarf shrub	NOT	LC	LC
Capparis sepiaria var *subglabra*	Climber	NOT	LC	LC
Chionathus battiscombei	Tree	NOT	LC	LC
Encephalartos transvenosus	Tree	SA	NT	NT
Euphorbia tortirama	Dwarf succulent shrub	SA	LC	LC
Euphorbia zoutpansbergensis	Tree	SA	LC	LC
[1]*Hibiscus waterbergensis*	Shrub	SA	VU	VU
Huernia nouhuysii	Succulent	SA	VU	VU
Hoodia currorii subsp. *Lugardii*	Succulent shrub	NOT	LC	LC
Ipomea stenosiphon	Climber	SA	LC	LC
Jatropha spica	Shrub	NOT	LC	LC
Ochna glauca	Shrub	NOT	LC	LC
Orbea conjuncta	Succulent	SA	LC	LC
Orbea hardyi	Succulent	SA	LC	LC
Orbea maculate	Succulent	NOT	LC	LC
Orbea woodii	Succulent	SA	VU	VU
[1]*Ozoroa insignis* subsp. *Latifolia*	Possibly an identification error; only recorded in Namibia			
Pachypodium saundersii	Succulent shrub	FSA	LC	LC
[3]*Peristrophe cliffordii*	Shrub	SA	VU	VU
[3]*Peristrophe gillilandiorum*	Shrub	SA	DD	DD
Phyllanthus kirkianus	Shrub/tree	NOT	LC	LC
Ruspolia hypocrateriformis var *australis*	Shrub	NOT	LC	LC
Satapelia clavicorna	Succulent	SA	NT	NT
Sericanthe andongensis var. *andongensis*	Tree	NOT	LC	LC
Strophanthus luteolus	Climber	NOT	LC	LC
Xeroderris stuhlmannii	Tree	NOT	LC	LC
[2]*Xylopia odoratissima*	Tree	NOT	LC	LC

[1]Reported to be present on Greefswald;
[2]Listed for an adjoining 1x1°grid square,
[3]May also be present.

Appendix 3 Table 1b: Legend to Table 1a.

IUCN Threatened Species Programme Criteria Endemism	**FSA countries:**
SA – Endemic to South Africa FSA – Endemic to FSA countries EX – Extinct NOT – Occurs in SA and at least EW – Extinct in the Wild CR – Critically Endangered EN – Endangered VU – Vulnerable NT – Near Threatened DD – Data Deficient LC – of Least Concern NE – Not Evaluated	South Africa; Lesotho; Swaziland; Botswana; Namibia

Appendix 3, Table 2: Threatened reptile, bird and mammal species occurring in Mapungubwe National Park (see Skelton 1977; Branch 1988; IUCN 2008).

Species	Common name	IUCN Red List (2008)	TOPS
Crocodylus niloticus	Nile crocodile	LC	Protected species
Python sebae natalensis	Common African python		Protected species
Xenocalamus transvaalensis	Transvaal quillsnout snake	Rare	Data deficient
Aquila rapax	Tawny eagle		Vulnerable
Ardeotis kori	Kori bustard		Vulnerable
Balearica regulorum	Grey crowned crane		Endangered
Bucorvus leadbeateri	Southern ground hornbill		Protected
Ciconia nigra	Black stork		Vulnerable
Coracias garrulous	European roller	NT	
Ephippiorhynchus senegalensis	Saddlebilled stork		Endangered
Falco naumanni	Lesser Kestrel	VU A2bce+3bce	Vulnerable
Gyps africanus	African whitebacked vulture	NT	Endangered
Gyps coprotheres	Cape vulture	VU C1+2a(ii)	Endangered
Heteromirafra ruddi	Rudd's lark	VU A3c; C2a(ii)	
Polemaetus bellicosus	Martial eagle		Vulnerable
Scotopelia peli	Pel's fishing owl		Endangered
Terathopius ecaudatus	Bateleur		Vulnerable
Torgos tracheliotos	Lappetfaced vulture	VU C2 a(ii)	Endangered
Trigonoceps occipitalis	Whiteheaded vulture	VU C2 a(ii)	Vulnerable
Acinonyx jubatus	Cheetah	VU C2a(i)	Vulnerable
Atelerix frontalis	South African hedgehog		Protected
Ceratotherium simum	White rhinoceros	NT	Protected
Crocuta crocuta	Spotted hyaena		Protected
Hyaena brunnea	Brown hyaena	NT	Protected
Leptailurus serval	Serval		Protected
Loxodonta Africana	African elephant	NT	Protected
Lycaon pictus	African wild dog	Endangered	Endangered
Manis temminckii	Pangolin		Vulnerable
Mellivora capensis	Honey badger		Protected
Panthera leo	Lion	Vulnerable	Vulnerable
Raphicerus sharpei	Sharp's grysbok		Protected

(No 'red listed' small vertebrate species is known to occur in MPNP)

Appendix 4: Zoning

1. INTRODUCTION

The primary objective of a park zoning plan is to establish a coherent spatial framework in and around a park to guide and co-ordinate conservation, tourism and visitor experience initiatives. A zoning plan plays an important role in minimising 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 conflict with the park's values and objectives (especially the conservation of the protected area's natural systems and its biodiversity) can continue in appropriate areas. A zoning plan is also a legislated requirement of the Protected Areas Act, 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 area and the conservation objectives of those sections".

The zoning of Mapungubwe National Park was initially undertaken in conjunction with the Peace Parks Foundation as part of the application process for World Heritage Site status. The zoning was based on an assessment of the park's biophysical (including detailed vegetation and soil mapping), heritage (including an assessment of archeological sites) and scenic resources, and an assessment of the park's current and planned infrastructure and tourist routes/products. The zones used in this initial process have been converted into the standard SANParks use zones in order to ensure compatible outputs. The zone boundaries were refined in November 2009 as part of the routine management plan revision cycle. This document sets out the rationale for use zones, describes the zones, and provides management guidelines for each of the zones.

In addition to internal use zoning, the zoning plan also describes how the park interacts with the processes which control land use and activities in the buffer zones around national parks (*e.g.* Spatial Development Frameworks (SDFs) and municipal Integrated Development Plans (IDPs)). The Buffer Zones identify the area within which activities such as landuse change may have an influence on the park (current and future extent), describe responses at a strategic level, and serve to define the buffer zone in terms of the DEA policy on buffer zones for national parks and the SANParks buffer zone policy

2. RATIONALE FOR USE ZONES

The prime 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 area, 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 comprising the integrity of the environment.

Further, people visit a park with differing expectations and recreational objectives. Some people visit a 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 socialize in a rest camp.

Further, people visit a park with differing expectations and recreational objectives. Some people visit a 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 different users and different activities. Appropriate use zoning serves to minimising 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 conflict with the park's values 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.

3. ZONING SYSTEM

Process followed to compile the zoning system

The zoning of Mapungubwe National Park was initially undertaken in conjunction with the Peace Parks Foundation as part of the application process for World Heritage Site status. The zoning was based on an assessment of the park's biophysical resources, and an assessment of the park's current and planned infrastructure. The zones used in this initial process have been converted into the standard SANParks use zones (with some minor modifications to ensure compatibility) in order to ensure compatible outputs. The current park use zonation is based on an underlying biophysical analysis combined with an assessment of the park's current and planned infrastructure. However, the zoning plan is not a full Conservation Development Framework (CDF), as certain elements underlying the CDF such as an environmental sensitivity-value analysis and a tourism market analysis have not been incorporated into the park use zonation.

The zoning system

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

a) Visitor use zones covering the entire park, and

b) Special management overlays, which designate specific areas of a park that require special management interventions.

Details of the zones are given in Table One. The zoning of Mapungubwe National Park is shown in Map 4.

Primitive zone:

Characteristics:

The prime characteristic of the zone is the experience of wilderness qualities with the accent 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 remote zones, but with the provision of basic self-catering facilities and access. It also provides access to the remote zone and wilderness areas. Human activities and development outside of the park may be visible from this zone.

This zone has the following functions:

- It provides the basic facilities and access to serve wilderness areas and remote zones.
- It contains 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.
- It serves as a buffer to the fringe of the park and other zones, in particular wilderness and remote zones.
- It serves to protect sensitive environments from high levels of development.

Visitor activities and experience:

Activities: Access is controlled in terms of numbers, frequency and size of groups. Activities include hiking, 4x4 drives and game viewing. Access is 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. Several groups may be in 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 minimize these interactions.

Conservation objectives of the zone:

The conservation objective is to maintain the zone in an almost completely natural state with little or no impact on biodiversity processes, and very limited and site specific impacts on biodiversity pattern. Existing impacts on biodiversity either from historical usage or originating from outside the zone should be minimised. The zone should be managed within the following specific objectives:

Table 1: Summary of Use Zone Characteristics

Zone	General Characteristics	Experential Qualities	Interaction between users	Type of Access	Type of activities	Type of Facilities	Conservation Objectives	Biophysical Conservation Objective	Aesthetics and recreational conservation objective
PRIMITIVE	Generally retains wilderness qualities, but with basic self-catering facilities (concession facilities may be more sophisticated). Access is controlled. Provides access to the Remote Zone, and can serve as a buffer.	Experience wilderness qualities	Low	Controlled access. Accompanied or unaccompanied. Foot; 4x4 vehicles	Hiking; 4x4 drives; game viewing; horse riding	Small, basic, self-catering; or limited concessions with limited numbers (concession facilities may be more sophisticated); 4x4 trails; hiking trails	Maintain the zone in an almost completely natural state with little or no impact on biodiversity processes, and very limited and site specific impacts on biodiversity pattern. Existing impacts on biodiversity either from historical usage or originating from outside the zone should be minimized.	The zone should be kept in an almost completely natural state, and deviation from a natural/pristine state should be small and limited to restricted impact footprints. 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.	The area should be kept in a natural state, and 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.
LOW INTENSITY LEISURE	The underlying characteristic of this zone is motorised self-drive access with basic facilities. The numbers of visitors are higher than in the Remote and Primitive Zones.	Comfortable facilities in a relatively natural environment.	Moderate to high	Motorised self-drive access.	Motorised self-drive game viewing, picnicking, walking, cycling; rock climbing; hiking; adventure activities.	Facilities limited to basic picnic sites; ablution facilities; information/education centres; parking areas. Small to medium (incl. camping) rest camps with basic facilities. Low spec access roads to provide a more wild experience.	Maintain the zone in a largely natural state that is in keeping with the character of a Protected Area, mitigate the biodiversity impacts of the relatively high levels of tourism activity and infrastructure that are accommodated within this zone through careful planning and active management, and ensure that the negative impacts of the activities and infrastructure are restricted to the zone.	The zone should be kept in a largely natural state. 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.	The zone should be maintained in a largely natural state from an aesthetics point of view. 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.
HIGH INTENSITY LEISURE	The main characteristic is that of a high density tourist development node, with modern amenities, where more concentrated human activities are allowed.	Comfortable and sophisticated facilities while retaining a natural ambiance	High	Accessible by motorised transport (car/bus) on high volume transport routes, including delivery vehicles.	As above. Additional sophisticated infrastructure. Larger, organised adventure activities (orienteering, fun runs). Dining at restaurants.	High density tourist camps with modern amenities. Footpaths, transport systems, accommodation, restaurants, curio and refreshment stalls; education centres. High volume roads.	The zone needs to be managed to ensure that the overall objectives and purpose for proclamation of the park are not compromised by the very high levels of tourism activity and infrastructure that are accommodated within this zone. Activities and infrastructure in this zone should be managed to ensure there is a minimal effect on the surrounding natural environment.	The zone must retain a level of ecological integrity consistent with a protected area. 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 no activities or infrastructure should be allowed which compromise the overall objectives and purpose for proclamation of the park.	The area should be managed to provide a relatively natural outdoor experience. 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), the aesthetics of the zone still need to be maintained in a sufficiently natural state to ensure that the overall objectives and purpose for proclamation of the park are not compromised.

Biophysical environment: The zone should be kept in an almost completely natural state from a biodiversity perspective, and 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: The area should be kept in a natural state, and 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. Alternatively, facilities designed for high levels of luxury, but limited visitor numbers can be accommodated here (e.g. controlled access private 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 is limited to low-spec roads, often 4x4 only. Tourist and game viewing roads are 4x4 only. Established footpaths are provided to avoid erosion and braiding.

Location in park:
In the park primitive areas were designated to protect most of the sensitive areas (such as the riparian forest, floodplain and cultural precincts) from high levels of tourist activity. The primitive zone contains all the controlled access tourism areas of the park (e.g. private concession sites, bushcamps, trail huts, and access roads to these sites).

Low intensity leisure zone:

Characteristics:
The underlying characteristic of this zone is motorised self-drive access with basic facilities. The numbers of visitors are higher than in the remote and primitive zones. Relatively comfortable facilities are positioned in the landscape retaining its inherent natural and visual qualities which enhance the visitor experience of a more natural and self providing experience.

Access roads are low key, preferably gravel roads and/or tracks to provide a more wild experience. Facilities along roads are limited to basic picnic sites with toilet facilities.

Visitor activities and experience:
Activities: Self drive motorised game viewing, picnicking, walking, cycling, hiking, adventure activities.

Interaction with other users: Moderate to high

Conservation objectives of the zone:
The conservation objective is to maintain the zone in a largely natural state that is in keeping with the character of a protected area, mitigate the biodiversity impacts of the relatively high levels of tourism activity and infrastructure that are accommodated within this zone through careful planning and active management, and to ensure that both the negative effects of the activities and infrastructure are restricted to the zone. The zone should be managed within the following specific objectives:

Biophysical environment objectives: The zone should be kept in a largely natural state. 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 objectives: The zone should be maintained in a largely natural state from an aesthetics point of view. 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 basic (including camping) camps of low to medium density. Additional facilities can include swimming pools. Trails for 4x4 trails can also be provided. Day visitor site are not placed within the camps.

Sophistication of facilities: Self contained units with bathroom facilities. Camp sites will include ablution facilities. Facilities are generally basic.

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. In some parks, large busses and open safari vehicles are not permitted. When busses are permitted, some roads should be designated as accessible to self drive only. Roads are secondary gravel tourist roads or minor game viewing roads.

Location in park:
Low intensity leisure areas were designated in the current game viewing areas, around current accommodation and other associated infrastructure outside of the main administrative/staff centre, around recreational areas associated with contractual arrangements, and along existing minor provincial roads where these form part of the road network.

High Intensity Leisure Zone:

Characteristics:
The main characteristic is that of a high density tourist development node with modern amenities such as restaurants and shops. This is the zone where more concentrated human activities are allowed. As impacts and particularly cumulative impacts are higher, such facilities should be placed on the periphery of the park. Staff not directly associated with tourism facilities should be accommodated outside of the park if possible. All industrial type facilities such as laundries, abattoirs, maintenance depots and workshops should ideally be located outside of the park within suitably zoned adjoining urban or rural areas. Accessible by motorised transport (car/bus) on high volume transport routes. More concentrated activities occur than in than low intensity leisure.

Visitor activities and experience:
Activities: Traditional game viewing routes with associated more sophisticated infrastructure, sight seeing at tourist destinations, picnicking, walking, cycling, rock climbing, hiking, adventure activities (orienteering, fun runs), activities associated with amenities such as dining in restaurants.

Interaction with other users: High

Conservation objectives of the zone:
The zone needs to be managed to ensure that the overall objectives and purpose for proclamation of the park are not compromised by the very high levels of tourism activity and infrastructure that are accommodated within this zone. Activities and infrastructure in this zone should be managed to ensure there is a minimal effect on the surrounding natural environment. The zone should be managed within the following specific objectives:

Biophysical environment objective: The zone must retain a level of ecological integrity consistent with a protected area. 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 no activities or infrastructure should be allowed which compromise the overall objectives and purpose for proclamation of the park.

Aesthetics and recreational environment objective: The area should be managed to provide a relatively natural outdoor experience. 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), the aesthetics of the zone still need to be maintained in a sufficiently natural state to ensure that the overall objectives and purpose for proclamation of the park are not compromised.

Facilities:
Type and size: High density camps providing tourist accommodation with modern amenities such as restaurants, shops, education centres and botanical gardens. Day visitor sites are provided outside of the main camps. Day visitor sites or picnic sites may provide catered facilities and kiosks. Infrastructure may include picnic sites, view sites, information centres, ablution facilities, parking areas, education centres etc. Staff villages and administrative centres within the park should be restricted to core staff. Housing for non essential staff, administration and industrial activities positioned outside of or peripheral to the park.

Sophistication of facilities: Moderate to high density facilities. Self catering and catered. These camps have modern facilities such as shops and restaurants.

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:
In the park only the main administrative centre with its associated gate and interpretive facilities was designated as high intensity leisure.

Overview of the special management overlays of Mapungubwe National Park:
Special management overlays which designate specific areas of the park that require special management interventions were identified (Map 4). Three areas were designated:

Special conservation areas – cultural heritage: The key cultural heritage sites of Mapungubwe were included into this special management overlay to ensure the protection of cultural resources in this zone.

Special conservation areas – riparian forest and floodplain: These sensitive habitat types were identified for special protection in order to reduce any potential loss and to prioritise rehabilitation work in these areas.

Special conservation areas – citrus rehabilitation: Agricultural activities (i.e. citrus cultivation) which were present in these areas when the land was purchased will be retained in the short to medium term. The objective is to rehabilitate these areas in the long term.

3. THE PARK BUFFER ZONE

A buffer zone is the identified area within which activities (e.g. land use change) have an influence on the park (current and future extent). This section of the management plan is aligned with the DEA policy on buffer zones for national parks, the declared buffer of the world heritage site, and the SANParks buffer zone policy. This section of the management plan formally identifies and defines the buffer zone.

The park buffer zones shows the areas within which land use changes could affect a national park. The zones, in combination with guidelines, will serve as a basis for a.) identifying the focus areas in which park management and scientists should respond to EIA's, b.) helping to identify the sort of impacts that would be important at a particular site, and most importantly c.) serving as the basis for integrating long term protection of a national park into the spatial development plans of municipalities (SDF/IDP) and other local authorities. In terms of EIA response, the zones serve largely to raise red-flags and do not remove the need for carefully considering the exact impact of a proposed development. In particular, they do not address activities with broad regional aesthetic or biodiversity impacts.

The park has two buffer zone categories (Map 5).

Priority Natural Areas:

This zone 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 parks survival in a living landscape.

Priority natural areas include areas identified for future park 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 of 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 (e.g. a lodge on a game farm) should be favourably viewed if they contribute to ensuring conservation friendly land use within a broader area. 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, the control of soil erosion, and appropriate land care (e.g. appropriate stocking rates) should be promoted.

Viewshed protection:
These are areas where developments could impact on the aesthetic quality of a visitors experience in a park. This zone is particularly concerned with visual impacts (both day and night), but could also include sound pollution.

Development guidelines:
Within these areas any 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 zone would be perfectly suited for development. In addition, major projects with large scale regional impacts may have to be considered even if they are outside the viewshed protection zone.

3. CURRENT STATUS AND FUTURE IMPROVEMENTS:

A full Conservation Development Framework (CDF) will be developed for Mapungubwe National Park once the park has been fully consolidated. This will include an analysis of the park's biophysical, heritage and scenic resources; an assessment of the regional context; and an assessment of the park's current and planned infrastructure and tourist products; all interpreted in the context park objectives. In the interim, as the park is rapidly expanding and consolidating, it is anticipated that the zoning will need to be updated regularly.

Areas suitable for proclamation as Wilderness under NEM:PAA need to be identified, and their formal proclamation pursued where possible.

4. REFERENCES:

Department of Environmental Affairs and Tourism. 2003. National Environmental Management: Protected Areas Act (Act 57 of 2003). Department of Environmental Affairs and Tourism, Pretoria.

SANParks. September 2005. Sensitivity-Value analysis Manual. Unpublished. SANParks , Pretoria.

SANParks. November 2005. CDF Planning Manual. Unpublished. SANParks , Pretoria.

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Appendix 5: Stakeholder consultation

All the stakeholders that registered during the 2006 management plan revision process were informed (via e-mail and telephonic) of our intention to review the Mapungubwe National Park and World Heritage Site integrated management plan during the 2009/2010 financial year.

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

Mechanism to Register	Description	Date
1. Media Advertisements	Registration in response to advertisements in 3 national newspapers, 1 local newspaper. - Sunday Times (English) - Rapport (Afrikaans) - City Press -	 14 February 2010 14 February 2010 14 February 2010 19/02/2010
2. National Registration	At SANParks Head Office via e-mail, fax, telephone, post or via the internet	From 01 April 2009
3. Local Registration	At Mapungubwe National Park and World Heritage Site. Registration forms were available at reception and distributed by staff.	From 01 April 2009
4. Registration at meetings	Stakeholders were able to register at the Desired State Workshop and the Public Day.	30 June 2009 & 01 July 2009 and 18 March 2010

45 Stakeholders registered to become part of this process. Their information was added to the Parks' stakeholder database bringing the total to 122 registered stakeholders.

Workshop
The Desired State Workshop took place on 30 June 2009 and 01 July 2009 at Dongola Ranch.

Activities	Description
Invitations Park management, SANParks specialists, the Park Forum and other key stakeholders were invited.	
Attendance:	35 Participants (17 SANParks Staff and 18 Stakeholders) representing the following constituencies: • Provincial government; • Tertiary institutions; • Local communities; • Park forum; • Neighbours; • Business and tour operators; • Private land owners; • Non governmental organisations; • Local government; • SANParks.

Focus Group Meeting
A focus group meeting was convened with the Park Forum at Mopani Bush Lodge.

Date	Purpose	Attendants	Comments
06 August 2009	To discuss the draft hierarchy of objectives.	22 individuals (6 SANParks staff and 18 Park Forum members) attended	20 Comments were recorded.

Public Meeting
Stakeholders were invited to attend a public day where the draft management plan was discussed.

Date	Venue	Number of Stakeholders that attended
18 March 2010	Musina Local Municipality office	36 Stakeholders attended and 24 comments were recorded.

Starting on 18 March 2010 stakeholders had 30 days to submit their input/comments. A further 22 comments were registered via email.

Comments and Response Document
A comments and response document were complied reflecting all the comments and official responses captured during the revision process. A total of 66 comments were recorded.

Appendix 6: Statement of Outstanding Universal Value

Mapungubwe Cultural Landscape
inscribed on the World Heritage List on the basis of criteria (ii) (iii) (iv) and (v)
Statement of Outstanding Universal Value[1]

Values

The Mapungubwe Cultural Landscape is an outstanding example demonstrating the rise and fall of the first indigenous kingdom in Southern Africa. Within the defined sites are the remains of three capitals and their satellite settlements. Located around the confluence of the Limpopo and the Shashe rivers the fertility of the area supported the large populations within this first African kingdom. Mapubgubwe's position at the crossing of the north/south and east/west routes in southern Africa enabled it to control trade through the East African ports to India and China and throughout southern Africa. From its hinterland it harvested gold and ivory – commodities in scarce supply elsewhere –which brought it great wealth displayed in such imports as Chinese porcelain and Persian glass beads. Mapungubwe's demise was brought about by climatic change. Mapugubwe's position as a power base in southern Africa shifted north to Great Zimbabwe and later Khami. The remains of this famous kingdom viewed against the present day fauna and flora, together with the geomorphological formations in the Limpopo/Shashe confluence creates an impressive cultural landscape of universal significance.

Criterion (ii): The Mapungubwe Cultural Landscape contains evidence for an important interchange of human values that led to far-reaching cultural and social changes in Southern Africa between AD 900 and 1300. International Trade through the Indian Ocean ports created wealth in society which was closely linked to ideological adjustments and changes in architecture and settlement planning. The archaeological evidence shows a clear shift as trade increased to a pattern influenced by an elite class with sacred leadership in which the king was secluded from the commoners, hence the settlement patterns.

Criterion (iii): The remains in the Mapungubwe Cultural Landscape are a remarkably complete testimony to the growth and subsequent decline of the Mapungubwe state which at its height was the largest kingdom in the African subcontinent. Until its demise at the end of the 13th century AD, Mapungubwe was the most important inland settlement in the African subcontinent. In its heyday between 1220 and 1300 AD the kingdom extended over an area of about 30,000 km2 on either side of the Limpopo and Shashe rivers. The cultural landscape contains a wealth of information in archaeological sites that record the development of the kingdom from relatively small settlements based on cattle rearing with separate areas for the elite and commoners. The archaeological remains at Mapungubwe are testimony to a once thriving civilization.

Criterion (iv): The establishment of Mapungubwe as a powerful state trading through the East African ports with Arabia and India was a significant stage in the history of the African sub-continent. At Mapungubwe trade, in gold and ivory through the east African ports in exchange for glass beads and ceramics that derived from as far afield as China, combined with ideal climatic conditions for agriculture, led to the establishments of the first indigenous kingdom in the southern African, a significant stage in the history of the sub-continent.

[1] Revised Statement of Outstanding Universal Value submitted to UNESCO by SANParks in 2009.

Authenticity and integrity

The designated cultural sites and the buffer zone have not been subject to any form of human intervention since they were abandoned apart from archaeological excavations. The agricultural activities in the area have not had an impact on the cultural landscape. The main settlement whose remains form the core of the site are all in the designated cultural landscape. All the major phases in the development and decline of the Mapungubwe kingdom are located in the declared site.

Requirements for the Protection and Management

The Mapungubwe site and the buffer zone are legally protected through the National Heritage Resources Act (No 25 of 1999) The South African World Heritage Convention Act (No 43 of 1999) and the Environment Conservation Act (No 73 of 1989). SANParks provides for the overall management system which also involves coordinating government and local community efforts to conserve the site. SANParks is currently updating the management plans. Regular consultative meetings with stakeholders and local communities take place on the site. The Mapungubwe site is also protected through the Greater Mapungubwe Trans Frontier Conservation Area which will extend the protected area beyond the designated buffer zones into Botswana and Zimbabwe.

Appendix 7: Maps

MAP 1: Regional context

MAP 2: Physical features

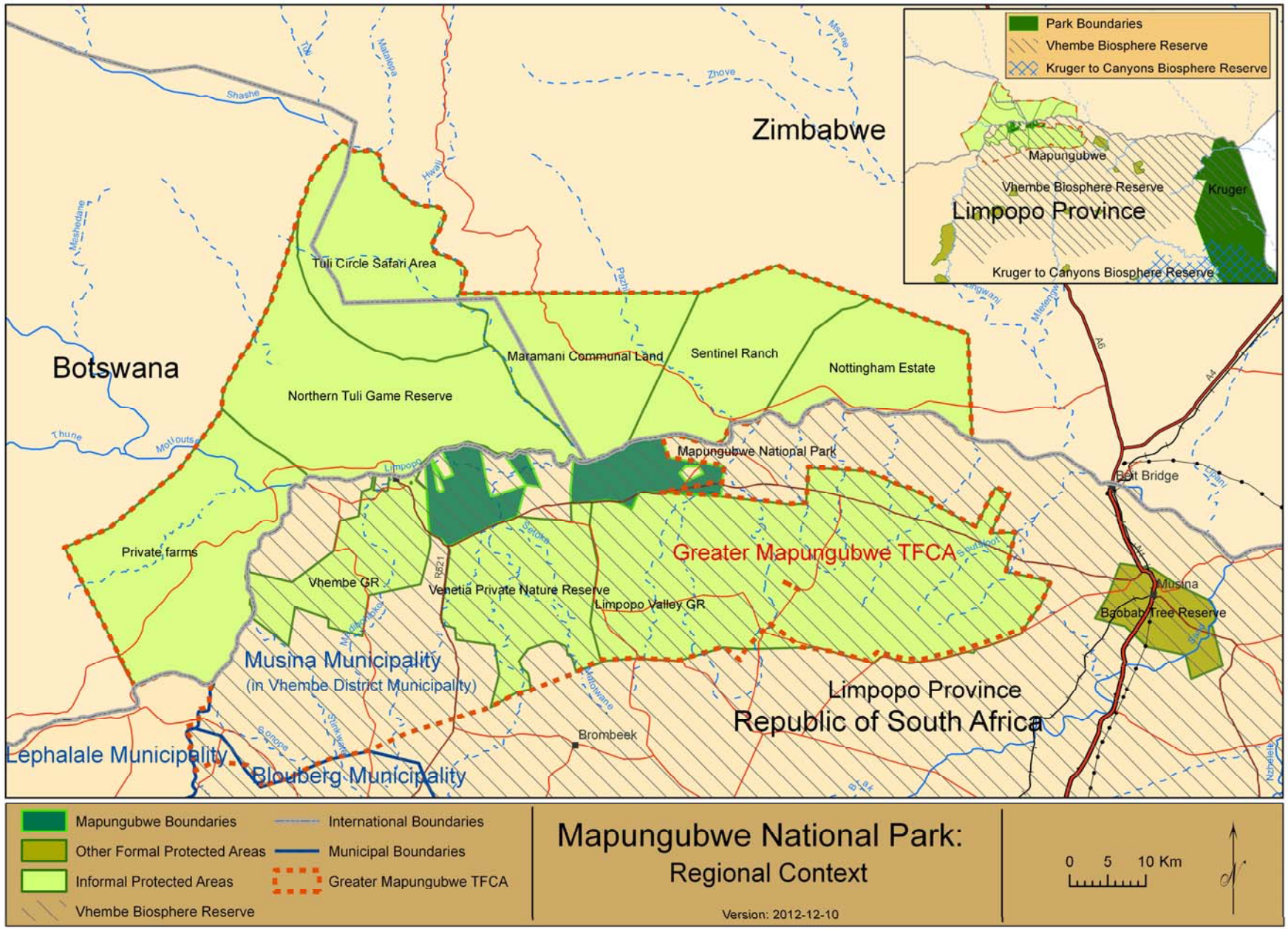
MAP 3: Land tenure and potential expansion

MAP 4: Zoning

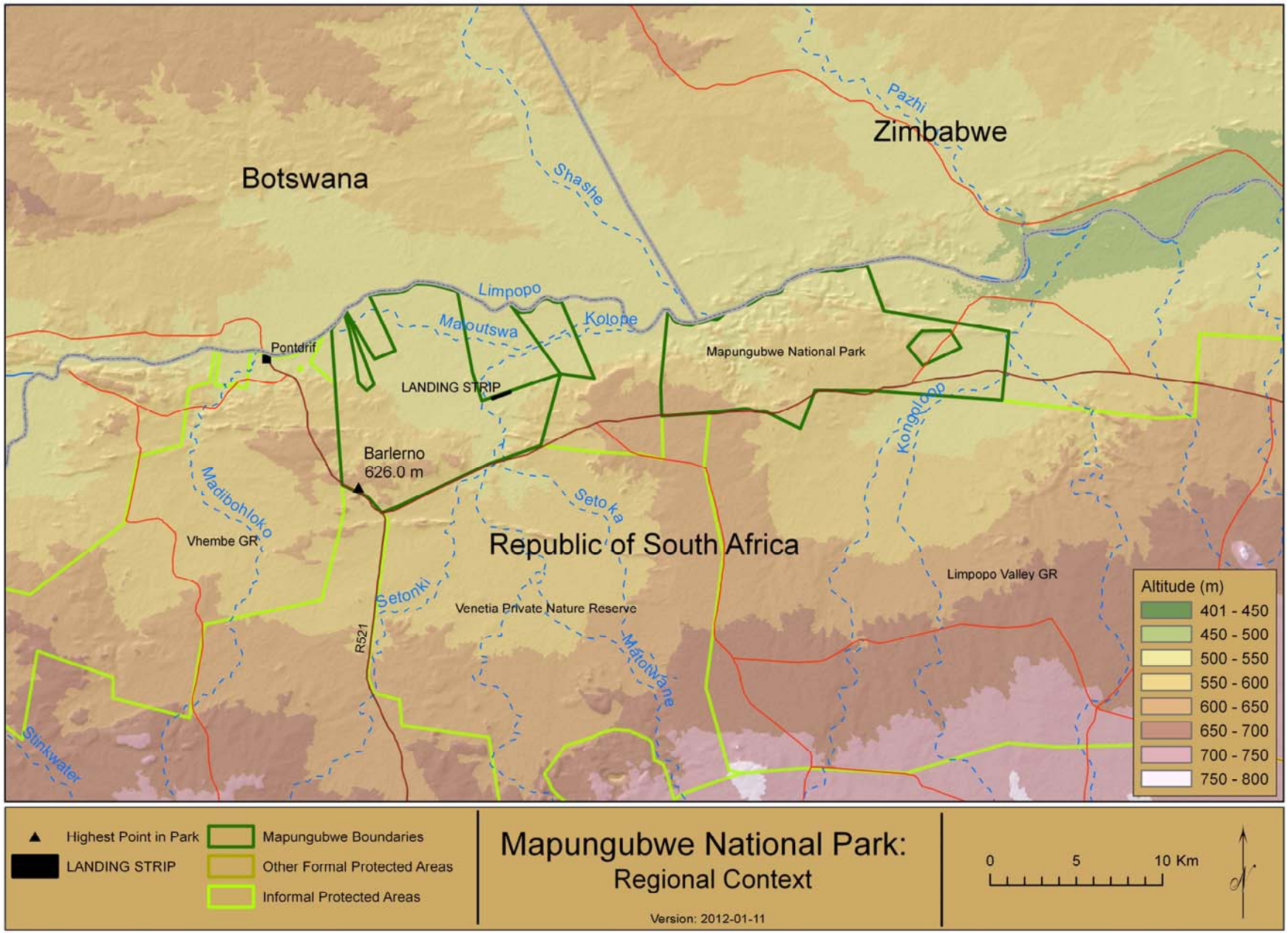
MAP 5: Buffer zones

MAP 6: Infrastructure

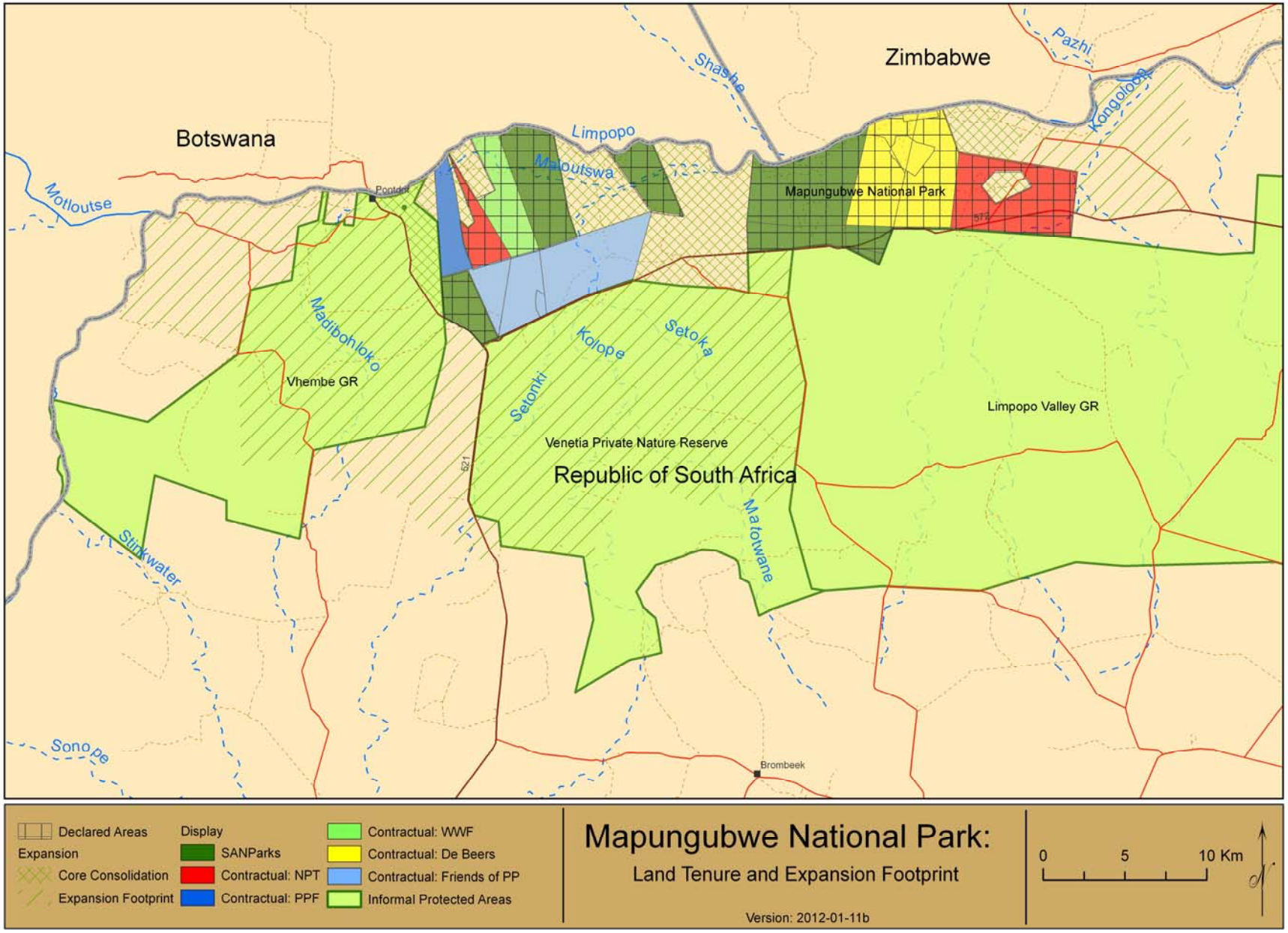
MAP 7: Vegeration



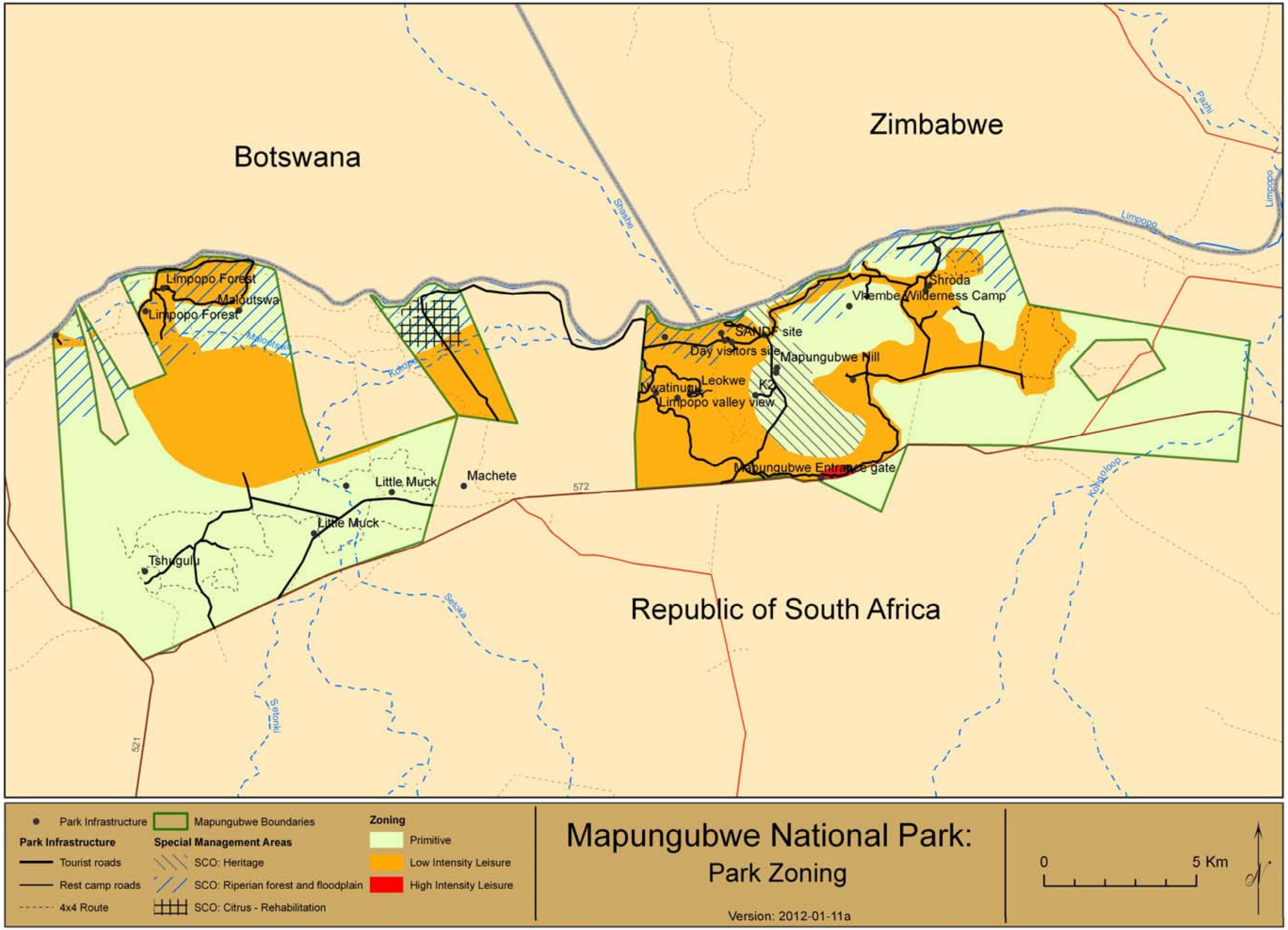
Map 1: Regional context



Map 2: Physical features

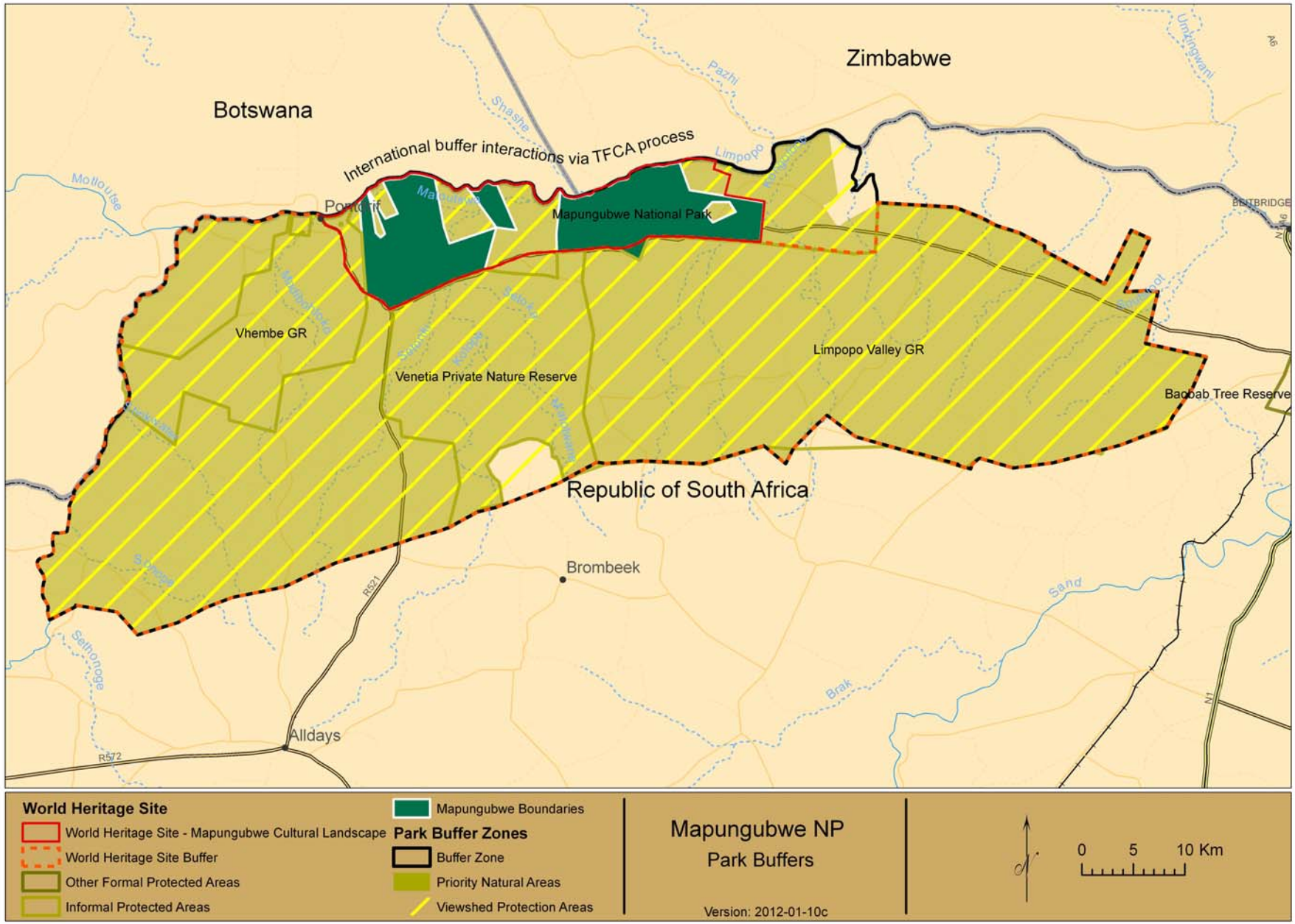


Map 3: Land tenure and potential expansion

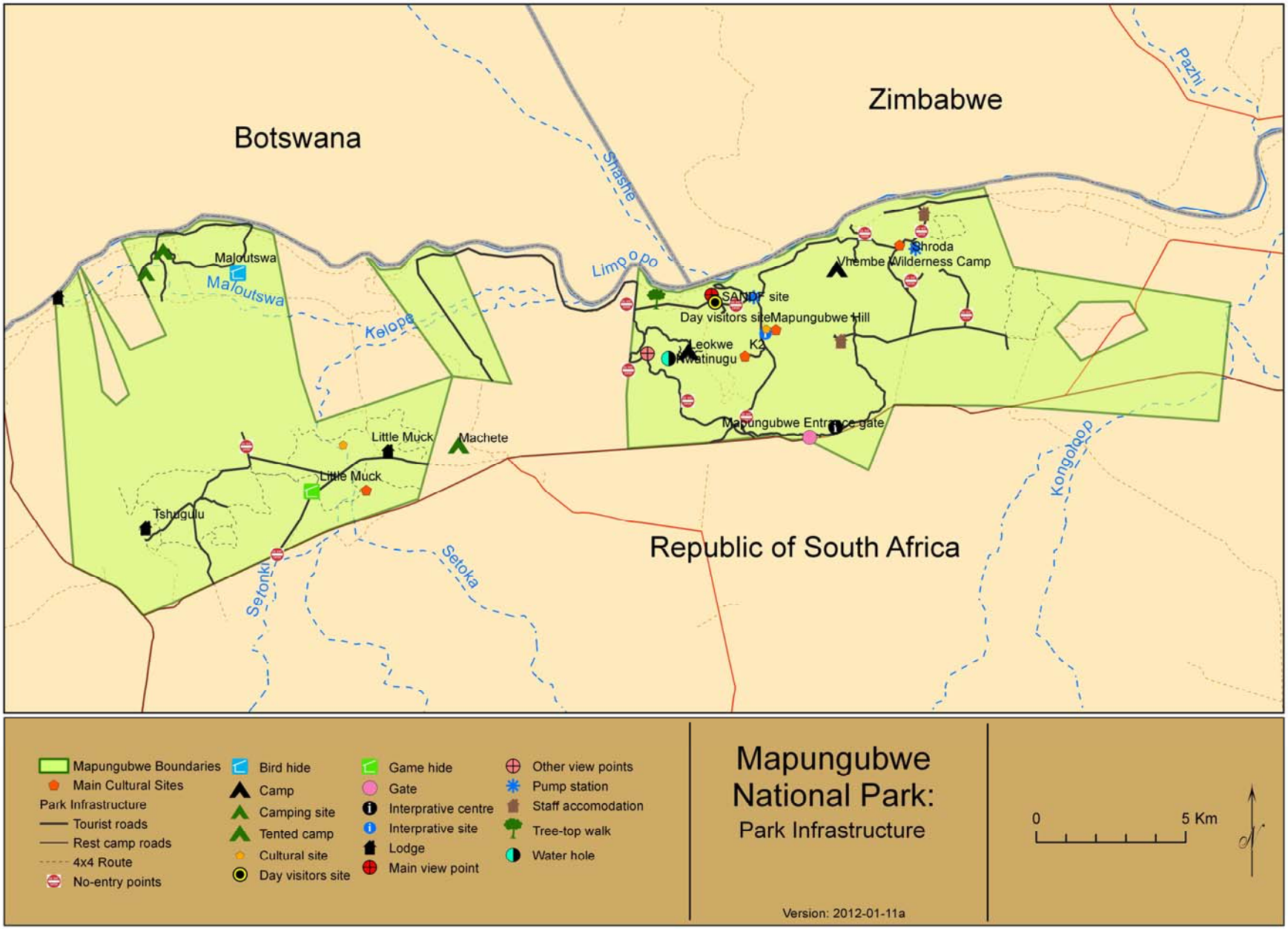


Botswana
Zimbabwe
Republic of South Africa
Limpopo Forest
Maloutswa
Limpopo Forest
Little Muck
Machete
Little Muck
Tshugulu
572
521
Shashe
Limpopo
Pazhi
Seloka
Setonki
Kolope
Kolopoloop
SANDF site
Day visitors site
Mapungubwe Hill
Leokwe
K2
Mazhou
Limpopo valley view
Mapungubwe Entrance gate
Vhembe Wilderness Camp
Shroda
Park Infrastructure
Mapungubwe Boundaries
Zoning
Park Infrastructure
Special Management Areas
Tourist roads
SCO: Heritage
Rest camp roads
SCO: Riperian forest and floodplain
4x4 Route
SCO: Citrus - Rehabilitation
Primitive
Low Intensity Leisure
High Intensity Leisure
Mapungubwe National Park:
Park Zoning
Version: 2012-01-11a
0
5 Km

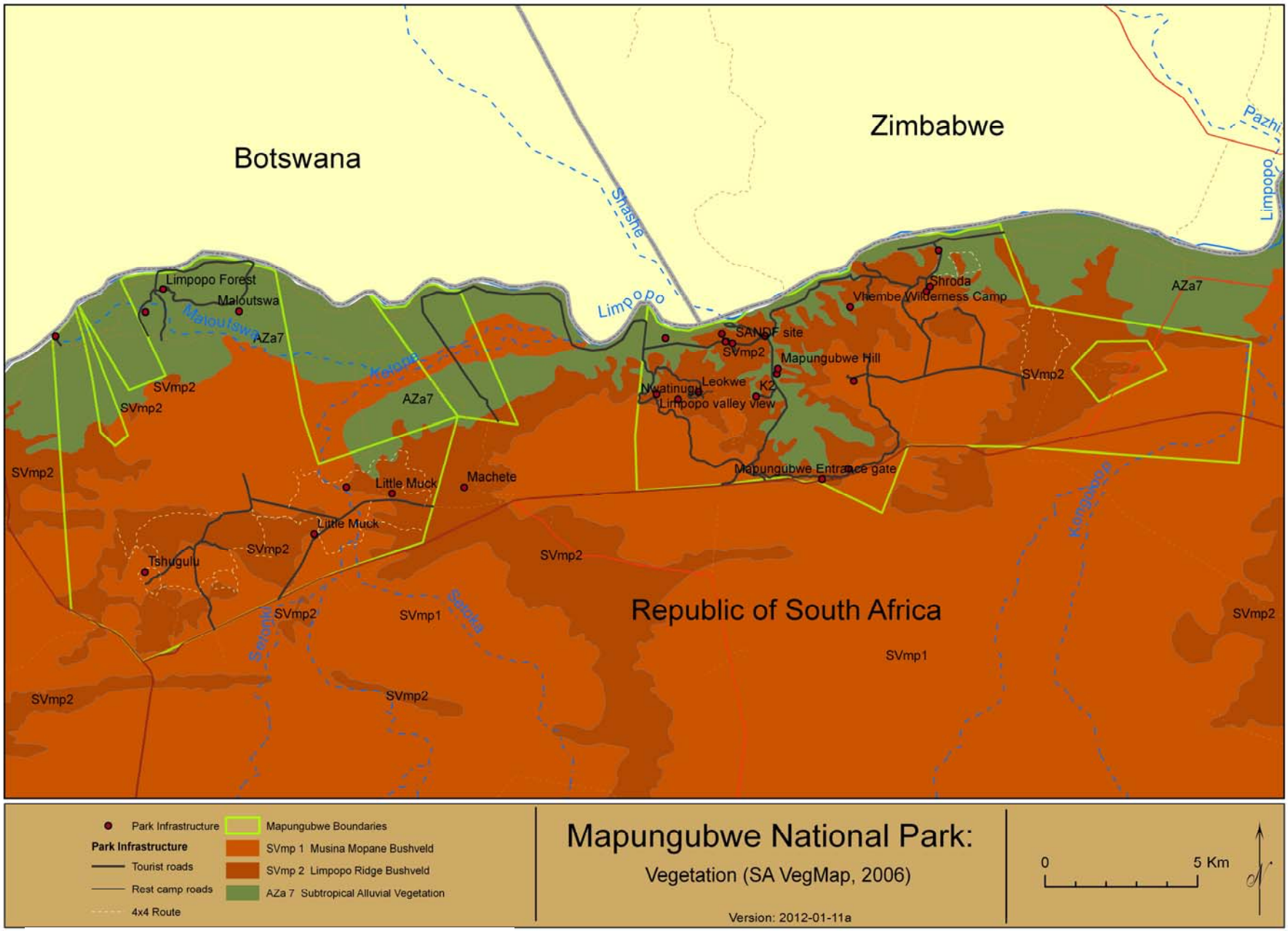
Map 4: Zoning



Map 5: Buffer Zones



Map 6: Infrastructure



Map 7: Vegetation