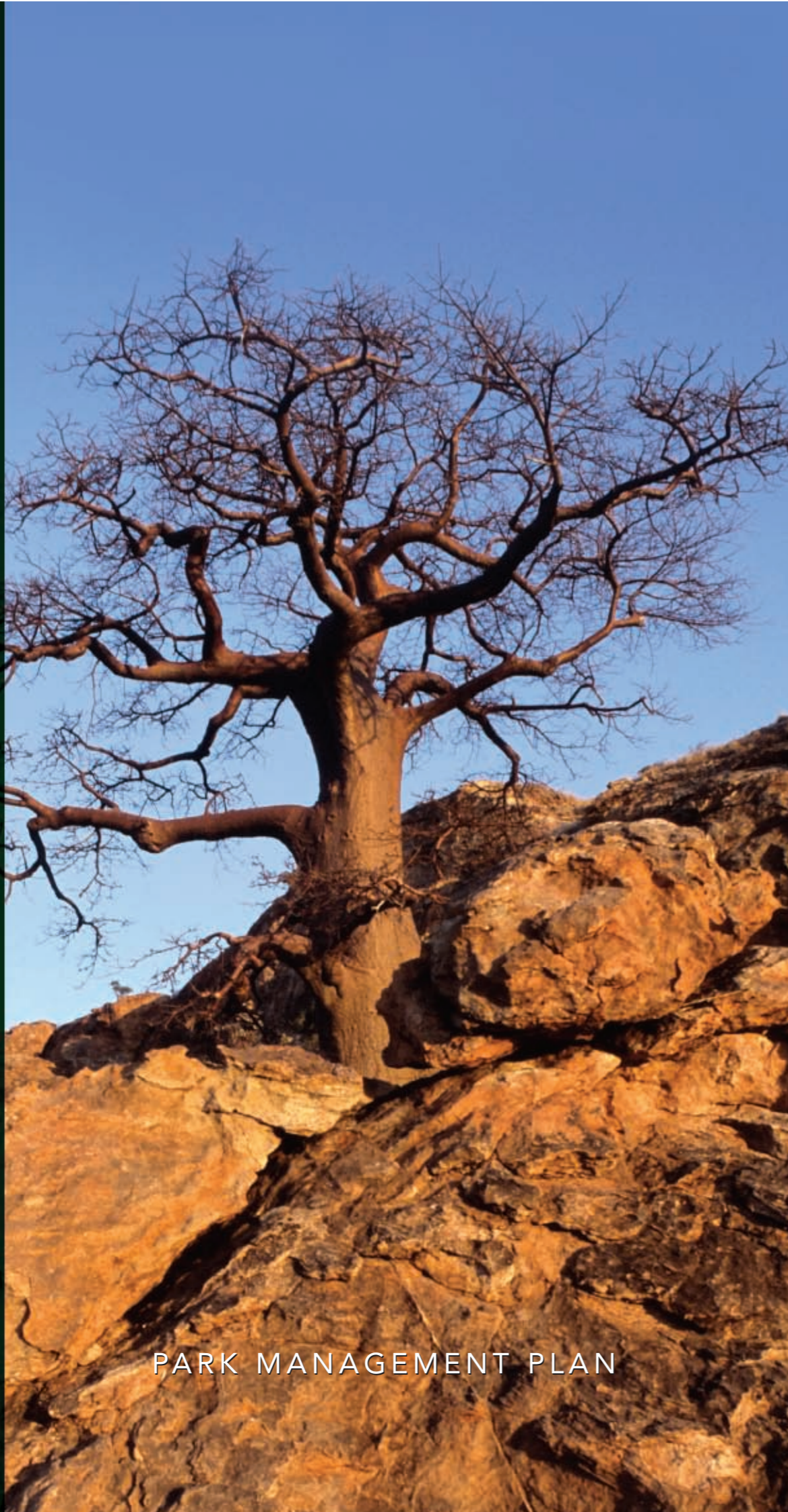


MAPUNGUBWE

NATIONAL PARK



MARCH 2008

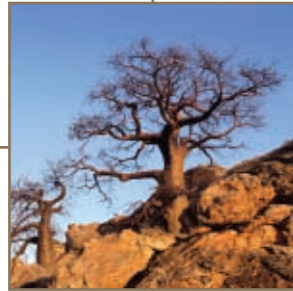
PARK MANAGEMENT PLAN

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**AUTHORISATION**

This management plan is hereby internally accepted and authorised as the legal requirement for managing Mapungubwe National Park as stated in the Protected Areas Act.

DATE: 31 MARCH 2008

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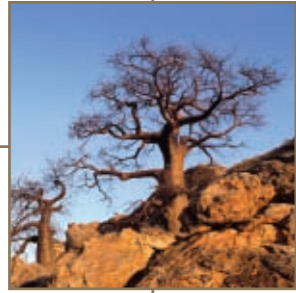
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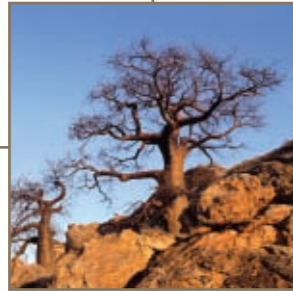
#### LIST OF ACRONYMS AND ABBREVIATIONS

CDF:	Conservation Development Framework
DEAT:	Department of Environmental Affairs and Tourism
DWAF:	Department of Water Affairs and Forestry
EPWP:	Expanded Public Works Programme
IDP:	Integrated Development Plan
IFR:	Instream Flow Requirement
IUCN:	International Union for the Conservation of Nature
NEM: PAA:	National Environmental Management Protected Areas Act
SAHRA:	South African Heritage Resources Agency
SANBI:	South African National Biodiversity Institute
SANParks:	South African National Parks
TFCA:	Transfrontier Conservation Area
TPC:	Threshold of Potential Concern
WFW:	The Working for Water Programme

#### GLOSSARY OF SELECTED WORDS

**Mapungubwe Cultural Landscape** – refers to the cultural attributes of the core area and a wider area around it, including archeological sites occupied during the development and heyday of the Mapungubwe Kingdom between AD 900 and 1300. Although essentially synonymous with Mapungubwe National Park, the terminology is used to emphasise the extreme importance of the cultural layer of this landscape.

**World Heritage Site** – a site of international significance in human cultural history, as denoted by UNESCO and recognised in South Africa in terms of the World Heritage Convention Act 1999.



## EXECUTIVE SUMMARY

Mapungubwe National Park constitutes a prime cultural holding of South African National Parks, forming the core area of the Mapungubwe Cultural Landscape which received World Heritage designation. It was the home of the first known strong black empire in southern Africa, arising around 900 AD and dissipating after 1300 AD, an empire with wealth based on goldsmithing, agriculture, strong trading links with the east, and one leading to radically changed social organisation. As such Mapungubwe represents strong historical potential for consciousness building and symbolic pilgrimage. The San hunter-gatherers who inhabited the area prior to the Mapungubwe occupation have left numerous rock paintings spread throughout the park. The park also contains near-unique examples of remnant indigenous gallery forest, and a large and ecologically significant ephemeral wetland, though this is seriously degraded. Many landscapes are breathtakingly scenic and promote the ambience and mystique of this park.

Mapungubwe is centrally placed in the Limpopo-Shashe Transfrontier Conservation Area, and is envisaged in many ways as playing the role of a central hub. It is also an important component of potential growth and development in the Limpopo Province, and is close to large mining and agricultural operations whose activities and impacts need to be balanced with conservation in a sustainable wider landscape mosaic.

The desired state of the park is based on a mission, vital attributes, objectives and acceptable endpoints, all specified in this plan. It is primarily set around conservation and sustainable utilisation of the unique cultural attributes. There are four thorough site plans for the four main cultural heritage sites, and a generic fifth plan for other sites. Important biodiversity objectives concern the gallery forest, wetland, freshwater flows and special habitats. People-centered social engagement objectives also feature prominently, as do emergent tourism possibilities compat-

ible with the cultural and resource objectives. Several crucial enabling objectives, such as research support, without which SANParks will not reach its goals, are also included. A small but crucial suite of thresholds is presented for monitoring performance relative to the desired state.

This is followed by a set of appropriate programmes to achieve the desired state. The strongest emphasis falls on well-structured cultural heritage management including relevant public access and education. Gallery forest and freshwater issues, including the wetland, dominate the biodiversity programmes with rehabilitation being an important tool. Cultural and biodiversity issues are inte-

grated in a synergistic manner and some sequencing of key activities are discussed. Finally, the all-important learning pathways, represented by the various feedbacks in the adaptive management cycle, are made explicit for the likely scenarios which could unfold as SANParks manages Mapungubwe National Park.



## OVERVIEW OF THE SANPARKS MANAGEMENT PLANNING PROCESS

### Process Overview

South African National Parks (SANParks) has adopted an overarching park management strategy that focuses on developing, together with stakeholders, and then managing towards a 'desired state' for a National Park. The setting of a park desired state is done through the adaptive planning process (Rogers 2003). The term 'desired state' is now entrenched in the literature, but it is important to note that this rather refers to a 'desired set of varying conditions' rather than a static state. This is reinforced in the SANParks biodiversity values (SANParks 2006) which accept that change in a system is ongoing and desirable. Importantly, a desired state for a park is also not based on a static vision, but rather seeks refinement through ongoing learning and continuous reflection and appropriate adaptation through explicit adoption of the Strategic Adaptive Management approach.

The 'desired state' of a park is the parks' longer-term vision (30-50 years) translated into sensible and appropriate objectives through broad statements of desired outcomes. These objectives are derived from a park's key attributes, opportunities and threats and are informed by the context (international, national and local) which jointly determine and inform management strategies, programmes and projects. Objectives for national parks were further developed by aligning with SANParks corporate strategic objectives, but defining them in a local context in conjunction with key stakeholders. These objectives are clustered or grouped into an objectives hierarchy that provides the framework for the Park Management Plan. Within

the document only the higher level objectives are presented. However, more detailed objectives, down to the level of operational goals, have been (or where necessary are currently being) further developed in conjunction with key stakeholders and specialists.

This approach to the management of a National Park is in line with the requirements of the National Environmental Management: Protected Areas Act No. 57 of 2003 (NEM: PAA). Overall the Park Management Plan forms part of a National Planning framework for protected areas as outlined in the figure on the left.

Park Management Plans were not formulated in isolation of National legislation and policies. Management plans comply with related national legislation such as the National Environmental Management: Biodiversity Act, national SANParks policy and international conventions that have been signed and ratified by the South African Government.

The SANParks Coordinated Policy Framework provides the overall framework to which all Park Management Plans align. This policy sets out the ecological, economic, technological, social and political environments of national parks at the highest level. In accordance with the NEM: Protected Areas Act, the Coordinated Policy Framework is open to regular review by the public to ensure that it continues to reflect the organisation's mandate, current societal values and new scientific knowledge with respect to protected area management. This document is available on the SANParks website.

### Coordinated Policy Framework Governing Park Management Plans

The SANParks Coordinated Policy Framework provides the overall framework to which all Park Management Plans align. This policy sets out the ecological, economic, technological, social and political environments of national parks at the highest level. In accordance with the NEM: Protected Areas Act, the Coordinated Policy Framework is open to regular review by the public to ensure that it continues to reflect the organisation's mandate, current societal values and new scientific knowledge with respect to protected area management. This document is available on the SANParks website.

### Key functions of Park Management Plans

The key functions of this management plan are to:

- ensure that the Park is managed according to the reason it was declared;
- be a tool to guide management of a protected area at all levels, from the basic operational level to the Minister of Environmental Affairs and Tourism;
- be a tool which enables the evaluation of progress against set objectives;
- be a document which can be used to set up key performance indicators for Park staff;
- set the intent of the Park, and provide explicit evidence for the financial support required for the Park.

### This Management Plan for Mapungubwe National Park comprises four broad sections:

1. The background to and outline of the desired state of the Park and how this was determined.
2. A summary of the management strategies, programmes and projects that are required to move towards achieving the desired state (obviously these strategies, programmes and projects can extend over many years but here we present the management focus until 2010).
3. An outline of the Strategic Adaptive Management methodology and strategies that will ensure that the Park undertakes an adaptive approach to management. It focuses park management on those critical strategic issues, their prioritisation, operationalisation and integration, and reflection on achievements to ensure that the longer-term desired state is reached.
4. Presentation of a high level budget.

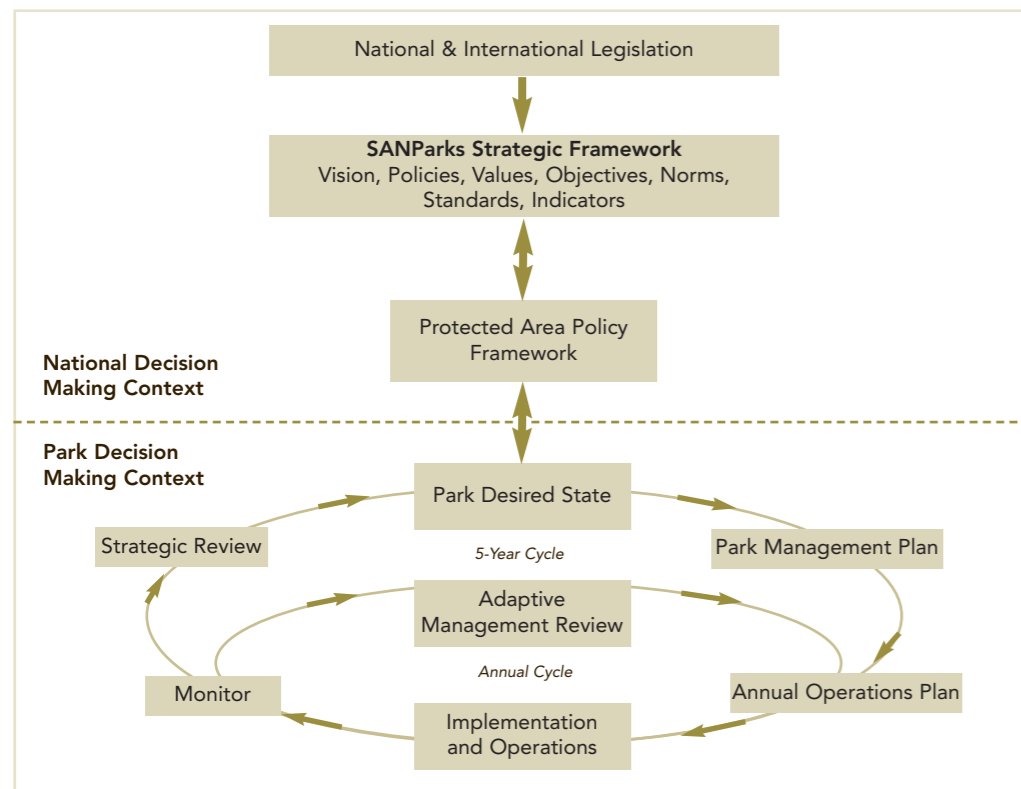
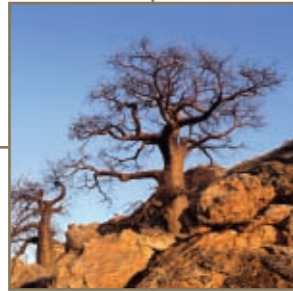


Figure 1: Protected Areas planning framework



## INTRODUCTION

### 1. BACKGROUND TO AND FORMULATION OF THE DESIRED STATE OF THE PARK

This section deals with the setting of a park desired state through the adaptive planning process (Rogers 2003), from the general to the specific, focusing on unique attributes of Mapungubwe National Park. The term 'desired state' is now entrenched in the literature, but it is important to note that this rather refers to a 'desired set of varying conditions' rather than a static state. This is reinforced in the SANParks biodiversity values (SANParks 2006) which accept that change in a system is ongoing and desirable.

#### 1.1 The fundamental decision-making environment

The three pillars of the decision-making environment are seen as the mission statement, the context, and thirdly, the values and operating principles. Although derived through a process, the mission is stated upfront, but much of the supporting material which helped form it is captured under other headings further down the document. It is important to know that, prior to the Protected Areas Act, a thorough and repeated process of public participation was followed concerning the establishment and functions of Mapungubwe National Park. This took place over the last 10 years, and is detailed in the previous plan (SANParks 2003).

Certain in-house revisions were subsequently made to the detail of the biodiversity objectives, in the light of the recent appearance of biodiversity values in SANParks and the full biodiversity custodianship framework (Rogers 2003). These were presented as part of an integrated proposal of a management plan at public meetings held in terms of the Protected Areas Act on 18 July and 29 August 2006.

##### 1.1.1 Mission

*Mapungubwe National Park and Mapungubwe Cultural Landscape will be developed by SANParks to maintain the faunal and floral assemblages, ecological processes, cultural resources and landscape characteristics representative of the area, to foster international co-operation for the establishment of a transfrontier conservation area, and offer long-term benefit to the people of the area.*

The explicit inclusion of the words "Mapungubwe Cultural Landscape" signifies the importance of the cultural aspects of this park, which are considered by many stakeholders to represent the predominant values of the park. Although SANParks recognises and accepts this, it will become clear in this management plan that there are also unique biodiversity attributes which need concerted attention. These appear not to oppose the cultural attributes, so that the cornerstones of the

mission statement (namely maintenance of cultural and ecological attributes, transfrontier co-operation, and human benefits) can be effectively supported in an integrated way. It is important to recognise that the public process which led to the above mission statement (SANParks 2003), also generated a vision statement, namely "to acquire land to consolidate and manage [as it was then provisionally known as] the Vhembe/Dongola National Park as part of a world-class Transfrontier Conservation Area and World Heritage Site". This current management plan will strive to fulfill both the mission and vision.

#### 1.1.2 Context

The range of values as well as social, technological ecological, economic, legal and political facts, conditions, causes and surroundings that define the circumstances relevant to Mapungubwe National Park provide the "context" for decisions and are therefore important elements of any decision making environment. These contextual issues are broadly outlined below.

##### 1.1.2.1 Location and Boundaries

Mapungubwe National Park is centred on the South African side of the confluence of the Shashe and Limpopo Rivers (Figure 1; Map 1 – presented in Appendix of Maps). It forms the core area of the Mapungubwe Cultural Landscape, with the rest of the Transfrontier Conservation Area (TFCA) forming a buffer around it.

Mapungubwe falls within the Vhembe District Municipality, comprising the Musina Local Municipality, Makhado Local Municipality, Thulamela Local Municipality and Mutale Local Municipality. The municipalities have

Integrated Development Plans (IDP) and Spatial Development Frameworks but they do not yet adequately include Mapungubwe. SANParks are currently driving to make it part of the local government planning through targeted briefings. Thus far municipalities have included our poverty relief projects (DEAT funded) into their IDPs. The projects include roads, staff houses and rehabilitation of farmlands and archaeological sites.

There are a number of contractually included parcels of land which contribute to achieving the vision and overall desired state of this national park as outlined in Table 1 and Map 3 (in the appendix of maps).

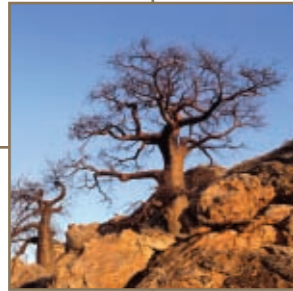
Mapungubwe National Park has one gravel landing strip which was acquired with the recent inclusion of the farm Samaria into the park. The strip is currently regarded as unsafe and not in use.

##### 1.1.2.2 History

Numerous rock paintings provide evidence of an earlier occupation of Mapungubwe by San and hunter-gatherer inhabitants. Archeological research spanning from the 1930's has indicated that the Mapungubwe Cultural Landscape was the centre of the first known powerful indigenous kingdom in southern Africa, established by cultural ancestors of many people living in present-day Limpopo Province. Evidence of this occupation and history is preserved in over 400 archeological sites in South Africa and scores more in Botswana and Zimbabwe. Wealth accrued by its leaders, through trade from the Indian Ocean network, resulted in social organisation changing to a situation in which the ruling elite lived separately from commoners. Due probably to climate change, the kingdom dispersed after AD 1300, with the

Table 1: Private land included, by proclamation, into the national park by written permission of the landowner

TITLE DEED	FARM	PORTION NO	EXTENT	OWNER	SECTION	GG	PROCLA DATE	PERIOD	RESTRICTIONS
T154756/2000	Tuscanen 17	Portion 3	1301.0380	WWF of SA	2B(1)(b)	25562	17/10/2003	99 years from October 2003 with an option to renew for further 25 years.	None
T37654/1990	Remiander of Schroda 46	Portion 0	929.0942	De Beers	2B(1)(b)	25562	17/10/2003	99 years.	
T37654/1990	Schroda 46	Portion 4	929.0942	De Beers	2B(1)(b)	25562	17/10/2003		
T25629/1990	Schroda 46	Portion 7	1295.4212	De Beers	2B(1)(b)	25562	17/10/2003		
T47452/1990	Schroda 46	Portion 8	419.9119	De Beers	2B(1)(b)	25562	17/10/2003		
T103911/1995	Riedel 48	Portion 1	2569.7720	NPT of SA	2B(1)(b)	22231	2001/04/26	99 years from April 2001 with an option to renew for further 25 years	None



centre of regional power shifting to Great Zimbabwe, north of the Limpopo River. The wealth of Mapungubwe was realised in the 1930s when extensive archaeological research uncovered valuable artifacts on the sacred hill. Further archaeological work which spanned right into the early 2000's was done at several related sites and uncovered the extensive historical importance of the wider region. 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. The Mapungubwe Cultural Landscape was declared a national heritage site in December 2001, and listed as a World Heritage Site in July 2003.

White rulers of South Africa had in 1922 first set aside nine farms as a botanical reserve, and following much controversy, declared them a wildlife sanctuary in 1947. A change of governing party led to repeal 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 archeological values which had become apparent. A far smaller provincial nature reserve consisting of three farms was proclaimed, and by 1986 renewed interest arose in investigating national status of the park as a larger area intended for a tourism hub, a move later supported by De Beers (following establishment of Venetia Diamond Mine to the south in 1990). Provincial and national authorities in the new South African democracy reached consensus by way of an agreement signed on 9 June 1995, committing the area to national park status. Mapungubwe National Park was established through an inter-departmental government transfer and a number of land acquisitions commencing in 1996, leading to declaration on 9 April 1998. The concept of the park focused around three elements, namely that of re-establishing the Dongola Wildlife Sanctuary concept that started in the 1920s; incorporation of the cultural landscape associated with Mapungubwe and conservation and socio-economic opportunities associated with the transfrontier arrangements with Botswana and Zimbabwe.

During the latter apartheid years, the region had a significant military presence which has left a legacy of fences and other infrastructure which do not complement the aesthetics of the landscape. Veterinary cordons for international disease control have used or added to this fencing. More detail and references on the history are available in the 2003 management plan (SANParks 2003).

#### 1.1.2.3 Physical environment and land use

Mapungubwe comprises an attractive semi-arid landscape with varied geology, including extremely old archaic rocks, metamorphics of intermediate age, karoo sandstone / conglomerate uplands of 200 million years age, and recent alluvium and sands. Kimberlites of 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. The confluence of the seasonally-flowing Shashe and Limpopo rivers is a dominant hydrological feature,

as is the large ephemeral Kalopi/Maloutswa wetland upstream of the confluence. 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. Map 2 (presented in the Maps Appendix) provides greater detail around the physical features of this park.

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.

Pre-colonial land-use included usage of different landscape positions in the Early (river terraces), Middle (thalus slopes) and Later (caves) Stone Age, and herding by Khoi people. Bantu farmers kept livestock and grew crops on lower-lying ground with better soils, while hill-tops were favoured by the elites and were considered important for rain-making. White farmers in the 20<sup>th</sup> 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 usages have been discussed above. Currently there is no mining taking place within the park, although there are some light impacts from Venetia diamond mine, situated 35km from the park.

Much of the area currently being purchased to enlarge the park has a history of agriculture in the last few decades, with much riparian woodland having been cleared for this purpose. Groundwater supplies are generally poor except along fault lines, and irrigation withdrawals up- and downstream of the park are large relative to water supplies.

#### 1.1.2.4 Biological environment

As can be expected from the varying substrates and topography, a variety of vegetation and animal habitats occur. 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), *Hyphaena petersiana* palmveld, *Salvadora australis* shrubveld on the floodplains, and *Acacia stuhlmanni* communities on old lands. 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 in a thesis (Götze 2002). The

Kalopi/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 systems, and have escaped into the Limpopo system. Alien plant threats are generally low but need to be monitored.

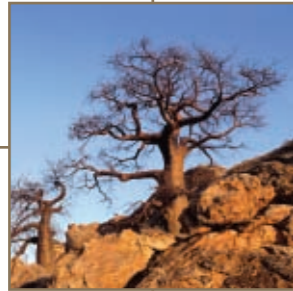
Although not part of a priority biodiversity area in the recent classification by the South African National Biodiversity Institute (SANBI), the riparian, wetland and other special arid habitat features make a compelling case for biodiversity conservation, alongside the overwhelmingly important cultural issues. Earlier plans detailing suitability for "the big 5" and other large herbivores are not emphasised in this plan. Special species interests could however develop around endemics or threatened species, though these would need to be made explicit – rare and threatened plants are listed for the one-degree grid square around the park. Biodiversity considerations will also need to be aligned to emerging TFCA realities as well as take cognisance of the sensitive cultural heritage and allow for enhanced viewing of the rock art which forms part of the heritage estate.

Maintaining or re-instating certain ecosystem processes will be challenging, for instance adequate river flow, flooding and deposition in the Limpopo system. Although large animal movement will be assisted by removal of fences, it is unlikely that the TFCA configuration (in particular the presence of the Maramani tribal lands directly opposite in Zimbabwe) will allow full-scale re-instatement of predator-prey cycles or entirely free movement of large herbivores. These issues will need to be discussed further in the light of the desired state of the park and region.

#### 1.1.2.5 Social, economic and political context

The area around Mapungubwe National Park is characterised by sparse populations of people, and long distances for infrastructural lines of support. The nearest larger populations of people are in the towns of Alldays and Musina and the Venetia Diamond Mine actually arranges daily transport for workers from these centres. Irrigation farms around Mapungubwe still make use partly or largely of illegal Zimbabwean labour. 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 TFCA 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, demanded that SANParks consider labour intensive programmes for its infrastructure development programme. This demanded that SANParks recruit its labour source from the previously disadvantaged communities that neighbour the park which included arranging transport to bring them in and out of the park. The new tourism infrastructure has been built through this process. This mainly serves a short-term job relief for park neighbours. Plans such as the 2002 Development Bank of Southern Africa funded Mapungubwe Tourism Initiative Conceptual Tourism Destination Plan detail these aspirations. If this can be achieved, the socio-economy of the region will be transformed from what was a partly subsidised agricultural and security-dominated environment, to one based on more sustainable nature-based tourism and large-scale irrigation and mining. This process is already underway, and Mapungubwe itself has attracted an encouraging level of tourism 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.

The Provincial administration of Limpopo Province played and still plays an important role in conservation issues in and around Mapungubwe, and takes a leading role in provincial growth and development strategies in the wider region. A coal mine will soon be established to the south-east of the park, cutting across areas previously planned as migration corridors for the TFCA. Recent tourism facility development within Mapungubwe National Park has resulted in 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.

#### 1.1.2.6 International and national context

Mapungubwe National Park must be successfully embedded in the Limpopo-Shashe TFCA involving Botswana, Zimbabwe and South Africa, as this further develops. The Memorandum of Understanding for this was signed on 22 June 2006. Important terms of reference for the context of Mapungubwe National Park include the allocation of the historic/archaeological and wildlife theme to the park in terms of the larger area tourism plan. Innovative strategies will be required to balance the varying activities and demands that are likely to occur in the TFCA, not least of which concern elephant-related issues, tourist circulation, benefits and area security.

The full status of the Mapungubwe Cultural Landscape in terms of its National and World Heritage designation makes up another important component of international context, with the Department of Environmental Affairs and Tourism and South African Heritage Resources Agency (SAHRA) ensuring that the values supported by national legislation are met.

As in all parks, a wide range of national legislation is relevant to Mapungubwe National Park. Areas of extremely high relevance in the case of Mapungubwe include international, national and provincial cultural heritage legislation, water legislation, protected area legislation and land restitution legislation. In view of its uniqueness, there exists a possibility that the Kalopi/Maloutswa wetland could be considered for future RAMSAR designation.

#### 1.1.3 Values and Operating Principles

Our values are the principles we use to evaluate the consequences of actions (or inaction), to propose and choose between alternative options and decisions. Values may be held by individuals, communities, organisations or even society and the values articulated below primarily follow the World Heritage values (SANParks 2003) as defined in the operational guidelines for the World Heritage Convention, as well as the generic list of SANParks values (SANParks 2006).

A summary of Mapungubwe cultural landscape values:

- Mapungubwe represents a unique organically evolved and associative **cultural landscape** with associated **biodiversity**;
- Mapungubwe embodies cultural traditions that have disappeared in a landscape which illustrates a significant **stage in human history**;
- The architectural ensemble and **traditional human settlement** and land-use which is representative of a culture that became vulnerable under the impact of irreversible change is preserved in the greater Mapungubwe cultural landscape;
- Mapungubwe provides and has potential for **education** and greater public understanding;
- We subscribe to appropriate **development** values.

These should be read in conjunction with the SANParks' overarching conservation values, namely that we:

- Respect the complexity, as well as the richness and diversity of the socio-ecological systems making up each national park and the wider landscape and context; respect the interdependency of the formative elements, the associated biotic and landscape diversity, and the aesthetic, cultural, educational and spiritual attributes and leverage all these for creative and useful learning.
- Strive to maintain natural processes in ecosystems, along with the uniqueness, authenticity and worth of cultural heritage, so that these systems and their elements can be resilient and hence persist.
- Manage with humility the systems under our custodianship, recognising and influencing the wider socio-ecological context in which we are embedded.
- Strive to maintain a healthy flow of ecosystem and cultural goods and services (specifically preserving cultural artefacts), and to make these available, also through access to national parks, thereby promoting

enjoyment, appreciation and other benefits for people.

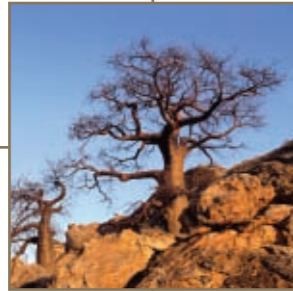
- When necessary, intervene in a responsible and sustainable manner, complementing natural processes as far as possible, using only the level of interference needed to achieve our mandate.
- Do all the above in such a way as to preserve all options for future generations, while also recognising that systems change over time.
- Acknowledge that conversion of some natural and cultural capital has to take place for the purpose of sustaining our mandate, but that this should never erode the core values above.

More detail about the above and listings of other more generic corporate SANParks values and operating principles, as well as a list of generic policies, are available (SANParks 2006).

#### 1.2 Vital attributes underpinning the value proposition of the Park

The following vital attributes (i.e. the few most important characteristics/properties of the system to be managed; these may be social, technical, ecological, economic and/or political) have been identified, together with stakeholders, as making this park unique, or at least very special. Important determinants and threats have also been identified. Determinants are those factors or processes that determine, strengthen or ensure persistence while threats are those factors or processes that threaten, erode or inhibit these 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. This information helps focus the exact formulation of park objectives, which must strengthen positive determinants and weaken or remove threats, so that objectives are appropriate to the uniqueness and special nature of this national park. In this way the management plan is customised in its fullest local extent, without detracting from some of its more generic functions. These vital attributes help to develop the real *value proposition* of the park.

- *The Mapungubwe Cultural Landscape exhibits an important interchange of human values, over the time period between AD 900 and 1300 in Southern Africa, on developments in technology, and town-planning, bearing a unique or at least exceptional testimony to a cultural tradition or to a civilisation which has disappeared from the Limpopo/Shashe area; it is an outstanding example of a type of architectural and technological ensemble and landscape which illustrates a significant stage in human history, and it represents an outstanding example of a traditional human settlement and land-use which is representative of a culture that became vulnerable under the impact of irreversible change.*



This is an organically evolved landscape, constituting both:

- a relict (or fossil) landscape in which an evolutionary process came to an end at some time in the past, either abruptly or over a period. Its significant distinguishing features are, however, still visible in material form; and
- an associative cultural landscape by virtue of the powerful religious, artistic and cultural associations of the natural elements of the landscape rather than material cultural evidence, which may be insignificant or even absent.

These vital attributes are determined by the particular geographical attributes and history of the area (SANParks 2003). The fact that they are still relevant today is a function of the fact that the landscape and relicts, although damaged (for instance, by subsequent agriculture and by earlier archeological work), have not been destroyed. Preservation measures are the key to maintaining the value of this attribute as long as reasonably possible, while several other land uses, or even injudicious usage of the cultural sites themselves, can quickly threaten it. Ongoing lack of consolidation of the park and increasing tourism infrastructure development in neighbouring farms with low awareness levels of the importance and sensitive nature of the cultural heritage resources hence represents one threat in this regard for those components still not under our control. In addition, should increased rainfall result from global climate change, this will shorten the lifespan of cultural artifacts preserved in situ.

- The above attributes in turn create another key attribute of this park, namely a major opportunity for appreciation and learning.

This is determined by the presence of the landscape and relicts in sufficiently intact form, by a potentially willing or receptive audience, some of whom must be prepared to visit the park, and by the appropriate ambience and infrastructure we can provide to facilitate this; by attractiveness of and access to the localities or general area; societal attitudes; and by appropriate resourcing to develop facilities. A special stakeholder subgroup is anthropological and oral history researchers who have not played a critical role in the development of the story of Mapungubwe. Archaeological research which stays a critical role in tying up missing links to the history of the area should be considered carefully recognising that the research methods used are sometimes destructive to the landscape and the benefits they produce, also 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 constitute obvious threats. Animal impacts at sites, especially by burrowing animals and rodents, appear to do considerable damage.

- *Aesthetics/scenery*

This is believed to possibly be the second major drawcard to the Mapungubwe area, and may constitute a large part of the "macro-ambience" upon which we can build the cultural and biodiversity attractions. It is determined essentially by the geology and geomorphology, and should not be able to be easily threatened. However the favourable 'sense of place' can be threatened by injudicious developments such as cluttering or disturbing the viewshed. We should market the mystique and beauty of the landscape.

- *Remoteness from main centres*

This 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.

- *Three-country location*

A result of the political history, the juxtaposition of Zimbabwe, Botswana and South Africa makes for complex institutional arrangements. Explicit attention should be given to make these 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 Mapungubwe National Park plan and activities.

- *Gallery forest, with exceptionally large trees in an arid environment*

This feature 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, as currently "erroneously" mapped, as 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 year) 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.

- *River and floodplain; Kalopi/Maloutswa wetland and pans*

This 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.

- *Diversity of arid habitat, and resultant special biota*

The special array of particular habitats 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 sub-continent. We need to ensure that we restore and maintain as many of these natural processes as are possible and 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.

- *Fossil deposits*

Although not a wide variety, there are important fossils associated with the karoo and kimberlite geological formations. Wise protection, study and management of this resource is required.

- *Mineral wealth*

This is a reality of the broader Mapungubwe environment. Diamond and coal mining need to be interfaced sensibly into the overall landscape mosaic, with all the attendant difficulties and potential benefits. Although prospecting and mining is not allowed within national parks, the implications of such activities on our immediate borders is far-reaching.

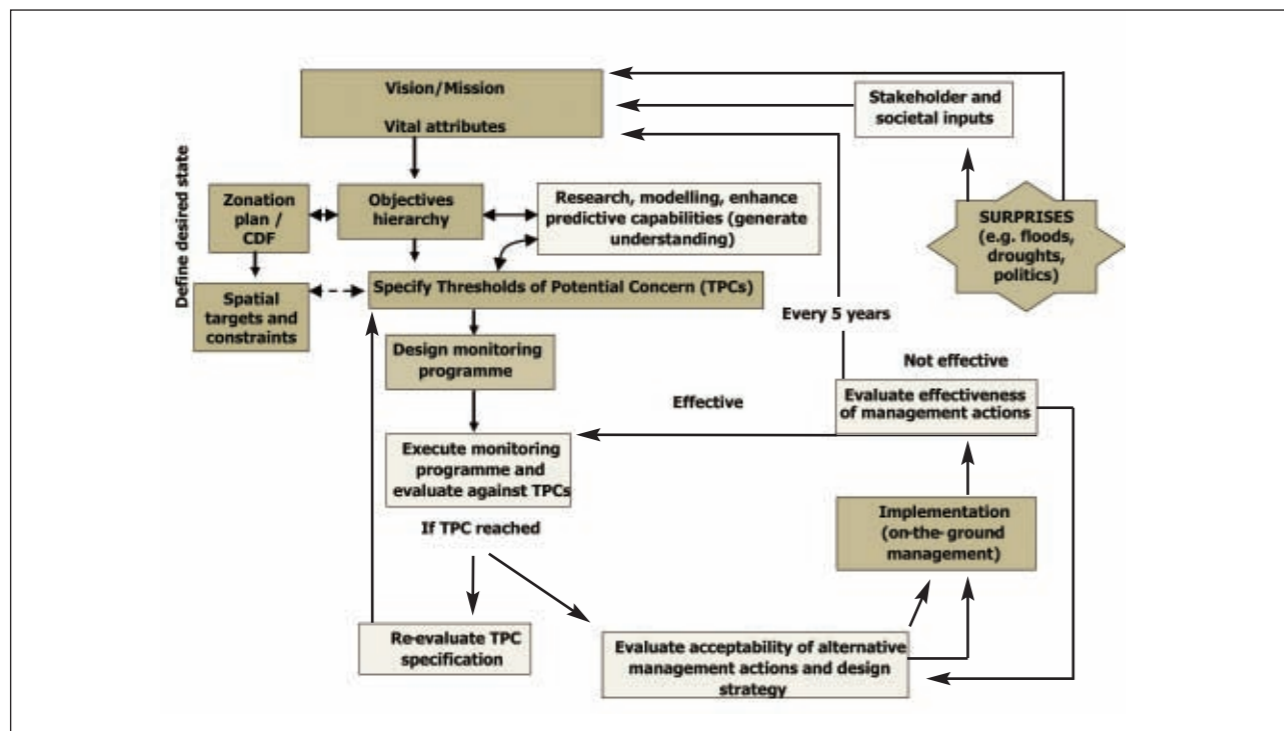


Figure 2: Desired state articulation (components shown in orange blocks) within the overall strategic adaptive management framework as embraced by SANParks.

### 1.3 Setting the details of the desired state for Mapungubwe National Park

The desired state is based on a collectively developed vision of a set of desired future conditions (that are necessarily varying), integrating ecological, socio-economic, technological, political and institutional perspectives within a geographical framework. The vision (within context and values), vital attributes of Mapungubwe and objectives (which are aimed at overcoming threats to ensure the persistence of vital attributes and/or their determinants for this national park), together with the thresholds of potential concern (TPCs) and the zonation plan together make up the broad ambit of desired state of Mapungubwe National Park.

In the adaptive management of ongoing change in socio-ecological systems, thresholds of concern are the upper and/or lower limits of flux allowed, literally specifying the boundaries of the desired state. TPCs specify the measurable “boundaries” of the desired state, flowing out of the objectives developed for the park. If monitoring (or better still monitoring in combination with predictive modeling) indicates certain or very likely exceedances beyond these limits, then mandatory management options of the adaptive cycle are prompted for evaluation and consideration (Figure 2).

The park’s Conservation Development Framework

(which includes a zonation plan) details the spatial targets and constraints through specification of a strategic land use intent for Mapungubwe National Park for the next 20 years. However, for Mapungubwe, a comprehensive spatially-based regionally-embedded framework, which includes multiple scales of detail still needs to be pulled together, and this full CDF will be available at the first iteration of this plan in 5 years time.

#### 1.3.1 An objectives hierarchy for Mapungubwe National Park

Outlined below (Figure 3) is the objectives hierarchy developed for Mapungubwe. The mission broadly outlines the purpose for which the park is managed. Because of the way in which the process was conducted during the two earlier public participation exercises for the Mapungubwe Cultural Landscape, and the fact that there was not a one-to-one linkage of objectives and mission components, 7 (of the 8) sub-objectives are all cross-linked to the four overarching objectives identified above the bracket (Figure 3). The same applies to point 5 of that list (“re-establish and maintain the biodiversity of the area in all its facets and fluxes”) but this one is considered exactly equivalent to the overall biodiversity objective and it’s associated hierarchy. This was derived subsequently in the light of SANParks’s biodiversity custodianship framework and values. In this way the 2 processes are most fluently reconciled.

What is implied by the biodiversity sub-objectives and their “in concert” qualifier is the following:

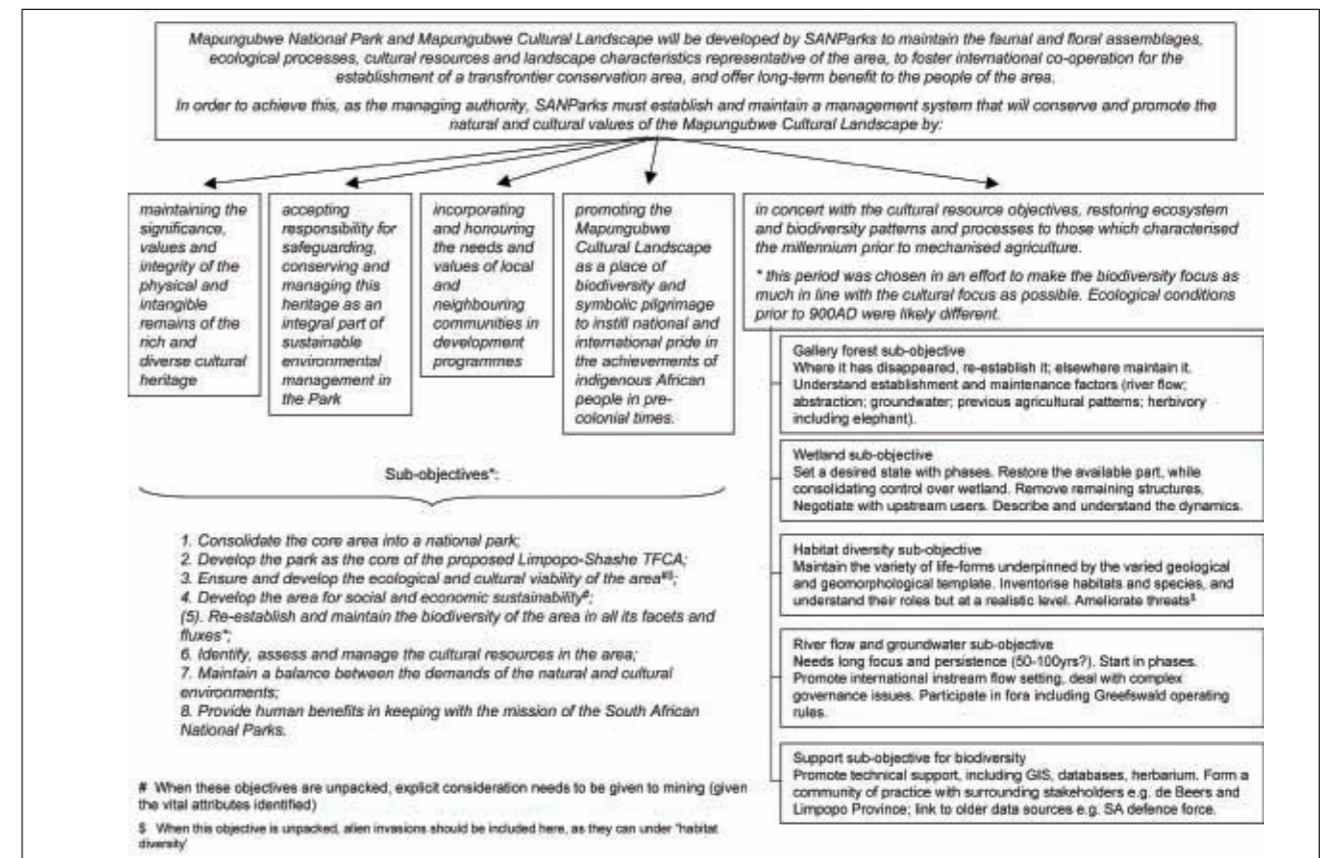
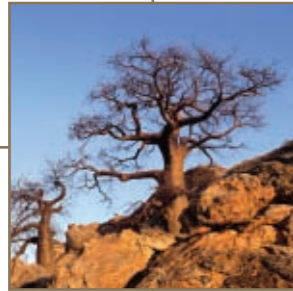


Figure 3: Objectives Hierarchy for Mapungubwe National Park



- that the “correct (environmental / biodiversity-based) ambience” will be created for cultural resource management and cultural tourism, and for management and tourism. This may involve real trade-offs with the presence of, for instance, high-density predators or mega-herbivores. SANParks should not impose rifle escorts purely because of unstated objectives dealing with large mammals.
- the opportunity cost of being drawn into managing non-core issues (issues other than cultural heritage and the stated biodiversity objectives) is a major potential disruption and enough reason for SANParks to decline acting on these marginal issues for Mapungubwe. For instance, stocking and managing low density antelope, while neutral or even seeming slightly positive for biodiversity issues, imposes so much additional management that core issues land up shortchanged, even when third parties may be promising support of various kinds in an effort to persuade SANParks to allow non-core developments. This could include the rehabilitation of newly incorporated farms.

### 1.3.2 Thresholds of concern and other exact conservation targets

As suggested above, thresholds of potential concern (TPCs) are the upper and/or lower limits of ecosystem flux allowed, literally specifying the boundaries of the desired state. Considering the biophysical objectives stated above, the following TPCs are provisionally tabled for Mapungubwe National Park.

- TPC for the gallery forest** – At this stage there is a TPC for the allowable percentage of tree mortality with increasing distance from the well field on a 5-yearly basis. This TPC has to be adapted in future for increasing distance from the river and should cover all parts of the gallery forest. In addition, there is an “emergent tall tree TPC” under development to track the changes in age structure of trees in the forest. In addition, there is an “emergent tall tree TPC” under development to track the changes in age structure of trees in the forest (see Supporting Document 3).

It is essential to implement the monitoring towards these thresholds as soon as possible, given dire condition of the gallery forest. An important indirect (supporting) TPC is the Plant Moisture Stress levels as determined by the Greefswald Operating Rules. In addition, fire TPCs will have to be developed for the gallery forest due to the vegetation changes there and the increased risk of fire. The rest of the Mapungubwe area is unlikely to require intense fire management or TPCs.

- Wetland TPCs** – The setting of exact TPCs is still pending the setting of a wet-

land desired state as outlined in this sub-objective. In the meantime, TPC/Target is articulated as follows: In an average year the Kalope should get surface flow at least once and wetlands should be full for at least 2 months per year. In addition, intermediary rehabilitation progress targets need to be set.

- River flow and groundwater TPCs** – These are currently difficult to determine in the absence of a defined Instream Flow Requirement (IFR) for the Limpopo River, which will have to be an international initiative. There are however upstream South African tributaries feeding the Limpopo mainstem (e.g. Magolokwena River) which have IFRs, and these at least should be monitored for compliance. The catchment management agency should be set up in two years time and will take 5 years to set the IFR.

Groundwater TPCs are tricky, but certainly need to be set. Currently De Beers use well levels to supplement their compliance to the Greefswald Operating Rules, and these constitute reasonable TPCs for that particular aquifer. However, appropriate levels also need to be set for other aquifers, particularly those that are utilised for abstraction.

Water quality of the Limpopo river and aquifers has to be monitored regularly. Salinity in the river is expected to increase due to the coal mine near Malapi. Old boreholes along the river can be used to monitor the river quality as there is very little quality measuring upstream.

- TPCs for herbivory impacts** – These TPCs are currently set based on best available knowledge and include an elephant impact TPC. This is due to the fact that ring barking was identified as a leading indicator of elephant impact and the range of canopy tree species, namely *Acacia nigrescens*, *Ficus sycomorous*, *Acacia xanthophloea* and *Faidherbia albida* are considered the best indica-

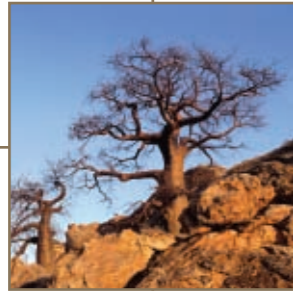
tors. A TPC for one of the three species is triggered when 10% of trees are >50% ring-barked per year (details provided in Supporting Document 5). This TPC seems to have been exceeded already and data is in the process of being evaluated.

- TPCs for alien biota** - Alien threat and invasion TPCs will only be applied as per perceived risk at Mapungubwe. This includes TPCs for any new invasions, as well as for spread and densification of selected established invaders. See Supporting Document 6.

The above TPCs constitute the range of biophysical thresholds believed to be necessary initially. If other issues arise (e.g. the need for certain species of conservation concern TPCs) these can be set from generic principles. However, serious consideration also needs to be afforded to developing socio-economic thresholds of concern, probably relating to issues around land claims, unemployment, resettlement of people displaced by the farms that SANParks bought, increasing carrying capacity for school visitors, rehabilitation of newly incorporated farms, etc. These will require attention and effort in the next cycle.

### 1.3.3 Conservation Development Framework

A full Conservation Development Framework (CDF) has not yet been set for Mapungubwe National Park. However a practical intermediary zonation (Appendix 2: Maps 4-6) is available and in use to guide development. There will be a full CDF available at the first iteration of this plan in 5 years time. The work towards a full CDF will, by its very nature, also ensure greater and more integrated alignment with the regional Spatial Development Framework (SDF) and Integrated Development Plans (IDP) which will be essential to achieving the desired state in the medium- to long-term.



## PROGRAMMES TO ACHIEVE THE DESIRED STATE

### 2. PROGRAMMES TO ACHIEVE THE DESIRED STATE

This section deals with all the discrete, but often interlinked, programmes which make up the approaches to issues, and lead to the actions on the ground. Together they are the park's best attempt to achieve the desired state specified in Part 1 above. Each subsection in this management plan is a summary of the particular programme, invariably supported by details in what are called *lower-level plans*, referred to as Supporting Documents but not included here.

The various programmes are classified into the five "real-world" activity groupings as reflected in the SANParks biodiversity custodianship framework (Rogers 2003), namely Biodiversity and Heritage Conservation, Sustainable Tourism, Building Co-operation, Effective Park Management, and Corporate Support. Corporate SANParks policies provide the guiding principles for most of the subsections, and will not be repeated here, except as references and occasionally key extracts. Within each of these groups, the last section entitled "Other Programmes" deals under one heading briefly with programmes which have relevance to Mapungubwe National Park, but which have been deemed sufficiently small as to not require their own subsection and reference to a fully-fledged lower-level plan.

#### 2.1 Heritage and Biodiversity Conservation

##### 2.1.1 Zonation Programme

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, heritage 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, but

otherwise the existing World Heritage Site zoning was retained.

#### **Overview of the use zones of Mapungubwe National Park**

The summary of the use zoning plan for Mapungubwe National Park is shown in Appendix 2 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 Interface Zones (detailing park interaction with adjacent areas) are included in Appendix 1: 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. Views of human activities and development outside of the park may be visible from this zone. The conservation objectives for this zone require that deviation from a natural/pristine state should be small and limited to restricted impact footprints, and that existing impacts should be reduced.

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 Mapungubwe NP, 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, bushcamps, trail huts and access roads to these sites).

**Low Intensity Leisure Zone:** The underlying characteristic of this zone is motorized self-drive access with the possibility of small basic camps without facilities such as shops and restaurants. Facilities along roads are limited to basic self catering picnic sites with toilet facilities. The conservation objectives for this zone specify that although deviation from a natural/pristine state should be minimized and limited to restricted impact footprints as far as possible, it is accepted that some damage to the biophysical environment associated with tourist activities and facilities will be inevitable. The aesthetic/recreational objectives for the zone specify that although activities and facilities will impact on the wild appearance and reduction of the wilderness character-

istics 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 centers. This is the zone where more concentrated human activities are allowed and is accessible by motorized transport on high volume transport routes. The conservation objectives for this zone specify that the greatest level of deviation from deviation from a natural/pristine state is allowed in this zone, and, it is accepted that damage to the biophysical environment associated with tourist activities and facilities will be inevitable. However, care must be taken to ensure that the zone still retains a level of ecological integrity consistent with a protected area. 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 Mapungubwe NP, only the main staff/administrative centre with its associated accommodation was designated High Intensity Leisure.

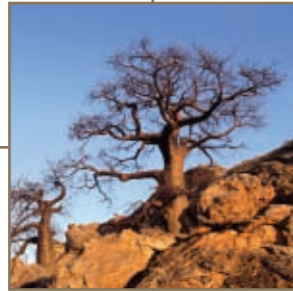
#### **Overview of the Special Management Overlays of Mapungubwe National Park**

Special management overlays which designate specific areas of the park that require special management interventions were identified. Two areas were designated (Appendix2: Map 4).

**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 prioritize rehabilitation work in these areas.

#### **Overview of the Park Interface Zone of Mapungubwe National Park**



The Park Interface Zones shows the areas within which landuse changes could affect a national Park. The zones, in combination with guidelines, serve as a basis for a.) identifying the focus areas in which park management and scientists should respond to EIAs, 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. Mapungubwe National Park has three Park Interface Zone categories. The first two are mutually exclusive, but the final visual/aesthetic category can overlay the others (Appendix 2: Map 6).

**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 favorably.

**Catchment Protection Areas:** These are areas important for maintaining key hydrological processes within the park. Inappropriate development (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

Mapungubwe National Park within the current update cycle. 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.

Particular attention needs to be drawn to the significant area under the designation "cultural", and to the fact that servitude zones are actually an important issue, both because of water piping to Venetia mine and because of prospecting and mining activities in areas not declared National Park. Also, large areas are zoned "special", mainly for their important biodiversity elements and for rehabilitation requirements. These areas will ultimately need rezoning once rehabilitation targets have been met.

This zonation is believed to support as best as possible the diversity of values and objectives in the desired state for this park. Once all components of a CDF are available, the zonation map will be re-derived and amended and should support Mapungubwe's desired state in an even more refined and effective way.

#### **2.1.2 Park Expansion Programme**

Park expansion is governed by listed principles and policies (SANParks 2006). Although Mapungubwe National Park is not situated within an identified biodiversity priority habitat by the South African national conservation assessment, the expansion of the park remains important for SANParks in its attempt to establish a large protected area as part of the Limpopo-Shashe Transfrontier Park initiative. Mapungubwe is part-way in a long-term process of potentially bringing the full core area (Appendix 2: Map 3) under its management. Several of these areas are not yet under our management, although much of the area is under some form of joint management with Peace Parks, De Beers and Friends of De Beers as key partners. In Mapungubwe, contractual agreements are key. A vital issue remains the satisfactory consolidation of the park, as is made clear at many points under the desired state, not least of which regarding the Kalopi/Maloutswa wetland.

The expansion of the park falls in line with the national strategic objective (SO 5) in the NBSAP (2005) of expanding the national protected area towards 12% of the terrestrial environment. A number of innovative mechanisms will be used to include land into the park. Land may, amongst others, be contracted into the park, vested, donated, purchased, swapped or incorporated on a co-operative management basis. Nevertheless,

strategic interventions will focus on acquisition on a willing-seller, willing-buyer basis, with the park ensuring that employment and land tenure agreements associated with land incorporated into the park are honoured but that sustainable conservation benefits are optimised. While proactively pursuing the inclusion of priority land, SANParks will also need to react on an ad hoc basis, as strategic pieces of land become available.

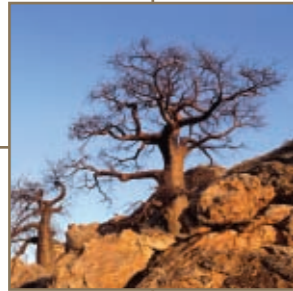
The objective is to create a park that primarily conserves the important cultural and associated environmental landscape, and contribute to the ecological, economic and social sustainability of the transfrontier initiative. The South African expansion programme is in full congruence with SANParks accepted biodiversity values, cultural heritage and land acquisition policies. The expansion will impinge upon a number of national Acts, some of which require particular attention to their potential social impacts, especially those affecting the agricultural labour sector. Earlier development plans for the park set the basis for the park's establishment and its expansion vision. Although no systematic conservation plan exists, the expansion vision for the park is driving towards a desired state that is underpinned by the need to:

- consolidate an ecologically viable park around the Limpopo-Shashe river confluence through a mosaic of international, state, private and communal cooperative conservation agreements;
- protect the unique cultural heritage of the area;
- provide a viable eco-tourism product as part of the economic engine for the region.

The current 20 000 ha large park (9 800 ha state owned and 10 000 ha contractually included private land) conserves three different vegetation types, none of which are threatened, although the Subtropical Alluvial Vegetation associated with the Limpopo River floodplain remains the most important for the park. The pragmatically identified core area of 24 600 ha would see this alluvial vegetation increase to 7 100 ha. Consolidating the outstanding core area via acquisition alone would cost about R115 million. The alternative in the 2007-11 management cycle includes the acquisition of 6 400 ha of key properties for consolidation and ecological/managerial linkage reasons at an estimated cost of R89 million, and the contractual inclusion of a further 3 300 ha. Further contractual inclusion in the surrounding mosaic could add considerable land with the largest single inclusion being the 31 500 ha Venetia Game Reserve, increasing the total park area to 63 600 ha in the medium term.

#### **2.1.3 Land Restitution Programme**

National Parks and other protected areas in South Africa face numerous land claims lodged with the Commission for Restitution of Land Rights in terms of the Restitution



of Land Rights Act of 1994 as amended. Currently not all of these claims are gazetted and published for processing. The full extent and impact of land claims in national parks and other protected areas is unknown at this stage due to delays in the processing stage.

The SANParks Board has endorsed the restitution process in its policies and strategies and supports the government in the quest to correct past imbalances of land ownership. SANParks will co-operate with the Commission for Restitution of Land Rights to realise a sustainable resolution to this challenge within the parameters of the law. The strategic focus will be the implementation of the Cabinet Memorandum on resolving land claims in nationally protected conservation areas including national parks. The Chief Executive, supported by the relevant divisions will spearhead this initiative over the next few years.

The areas where the Park Management Programme has a significant interface with the Land Claims process are:

- a. Land Claims – For the purpose of the public participation process linked to the park management plan programme, any potential claimant, or representative (legal or commercial) will be dealt with in the overall framework of the participation process. SANParks believes that the process is inclusive enough and that it provides adequate opportunities for comment and engagement. SANParks is not singling out groups for preferential treatment. Until such time that SANParks officials are officially notified of a claim against any specific land managed by SANParks, there is no plan for any eventuality, however SANParks acknowledges that the land claims process will be concluded within the 5 year effective life of the park management plans that are currently being developed. Should a land claimant's claim to land within a protected area managed by SANParks be awarded, a consistent process needs to be followed to evaluate possible land uses and or commercial opportunities within the zonation/CDF developed for the park. When a land claimant becomes a landowner, the policy and rights and responsibilities need to be applied consistently to avoid setting precedents (at least from this point onward).
- b. Land owners - A policy statement on this matter; including rights and responsibilities (management fees and conservation management costs) is needed. This must be linked to the commercialisation approach, policies and guiding principles.

Within Mapungubwe, a number of land claims have been officially gazetted. SANParks' strategy will be to find a way of continuing the consolidation and proclamation of land within the park or intended for inclusion in the core area.

#### 2.1.4 Transfrontier Conservation Area Programme

The Department of Environment Affairs and Tourism sets out principles for transfrontier conservation area development. SANParks strives to embed Mapungubwe National Park as an essential core element in the Limpopo-Shashe TFCA. Under this schema, South Africa will contribute around 200 000 ha and each of Zimbabwe and Botswana approximately 150 000 ha. The Botswana holdings are all privately-owned, while Zimbabwe and South Africa include diverse ownerships of the areas envisioned for inclusion. The international Memorandum of Understanding was signed on 22 June 2006. Key issues emphasised in the agreement are joint socio-economic development in a unified regional context, more sustainable land-use with an emphasis on cultural and nature-based tourism. The next steps in this process include setting up of a Trilateral Ministerial Committee who will appoint a Trilateral Technical Committee under the initial leadership of South Africa to take the process forward.

For more details, see the website <http://www.peaceparks.org>. It is our belief that an effectively designed and implemented TFCA should enhance the achievability of the desired state within and around Mapungubwe National Park.

#### 2.1.5 Cultural Resource Management Programme

This programme is advised by SANParks policy on cultural resource management (SANParks 2006) as well as by the World Heritage legislation. The World Heritage Site designation necessitated preparation of, and credible responsibility for, an excellent set of principles and plans around the cultural resources of the Mapungubwe landscape. As can be read in these overall principles, authenticity, integrity and effective protection, preservation and sustainable utilisation of the resources are cornerstones.

The Mapungubwe Cultural Resource Programme highlights the necessity for acquisition of adequate funding, consolidation of appropriate resource databases, site and resource management, rehabilitation, collections management, oral history and indigenous knowledge, as well as rock art curation, and ongoing monitoring to check compliance with the desired state. In addition, interactions with stakeholder interests have highlighted appropriate tourism plans, and maintenance of appropriate ambience to sustain the all-important sense of place.

Due to a long history of extractive research, current policy on further cultural heritage research, particularly archaeological, in Mapungubwe is conservative. However, there is a critical backlog in recording research on areas such as rainmaking, and there is a critical gap that is unaccounted for from 1300 to the 1980's on the other population other than the white farmers. At this stage, the Cultural Resource Management Plan is integrated into the Integrated Management Plan (SANParks 2003), developed in 2003 as it was required by the World Heritage Committee. Within the next 5-year cycle, beginning in 2008, we will pursue the better integration of these two management plans to address the needs of both the Protected Areas Act as well as the World Heritage Committee in a single document.

An important achievement at Mapungubwe National Park has been the completion of four specific site plans for the most important sites, and a generic fifth one to allow for management at other sites. Each of 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. These site management plans can be accessed under the following headings within the 2003 integrated management plan (SANParks 2003):

- Mapungubwe Hill and Terraces
- K2 and Bambandyanalo
- Schroda
- Leokwe Hill
- Generic Cultural Heritage Sites

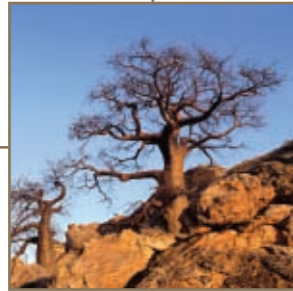
In addition, immediately after the development of the Integrated Management Plan, the following generic and site-specific management plans for the rock art sites were also developed:

- Generic Management Plan for all the Rock Art Sites - this generic plan gives an explanation on how all sites, including those that do not have management plans should be managed generally.
- Balerno Rock Art Site (Petroglyph and Shelters)
- Thudwa Rock Art Site (Little Muck)
- Tombo-la-Tholo Rock Art Site
- Koxa Rock Art Site (Machete).

It is believed that the energy invested in the above site management plans will give SANParks, as custodian of the Mapungubwe Cultural Landscape, an excellent chance of attaining or coming close to achieving the desired state of Mapungubwe National Park.

#### 2.1.6 Water in the landscape Programme

Guided by general SANParks principles in this regard, the key river, wetland and groundwater issues in



Mapungubwe are:

1. the overall flow patterns in the Limpopo and Shashe Rivers as a whole. This is a very long-term and international issue which will have to be tackled in achievable steps (some of these are indicated under the TPC section above). SANParks should 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.
2. the aquifers underlying Mapungubwe, in particular the Greefswald and Schroda aquifers from which mine water is withdrawn, and the operation of the off-channel Schroda Dam. Our participation on the Greefswald Operating Committee (and its resultant Water User Association) and on the Schroda Joint Management Committee is essential. These interactions have significant influences on our success in the Gallery Forest Programme.
3. an equally challenging and probably long-term (a decade?) rehabilitation process for the Kalopi/Maloutswa wetland as a key biodiversity feature in Mapungubwe. This is influenced by its status (based on the presence of artificial water on land not under our current control) as a significant component of a recognised Important Bird Area. A thorough wetland survey and report is overdue. See also the Rehabilitation Programme.

A massive and long-term task lies ahead with influencing the establishment and implementation of environmental flows in the Limpopo and its tributaries. Apart from the fact that the main stem is international, the nature of the river as seasonal and mainly groundwater-driven, makes it challenging for the setting on environmental flows (thresholds). There are the first preliminary activities relating to international collaboration in this regard, and we can use LS-TFCA as an important lever to assist here. It seems as though the best strategy would be for us to start setting provisional (they will be seasonal or ephemeral) flows or groundwater levels as demands. DWAF is fortunately active in this region and we need to further seek influence on particularly the Kalopi River (one of the important sources feeding the wetland) through the Water User Association which already oversees the Greefswald operating rules, and which will be re-examined.

The above three focus areas will consume much of our energy and will demand a really concerted long-term effort before the desired state can be met (lower level plan is detailed in Supporting Document 2).

### 2.1.7 Gallery Forest Programme

The principles governing our actions in this regard are drawn from various policy documents, including policy on herbivory and river flow (SANParks 2006). Mapungubwe contains a near-unique occurrence of these charismatic woodlands in South Africa, and there is little doubt that their future is highly threatened here. Aquifer abstractions are but one complicating factor (see 2.1.6 above).

Important to note is that the gallery forest in Mapungubwe fits into the description of "riverine forest" which is "critically endangered" and not, as currently erroneously mapped, "least threatened" by SANBI (although the alluvial vegetation band around the forest is "least threatened"). Discussions with SANBI indicated that no patch of riverine forest is currently mapped in the national park because:

1. SANBI knew about it, but did not have proper GIS coverage to place it on the current map, and
2. the National Forest Inventory needs overhaul (DWAF has allocated money for this). SANBI assured us that the Lowveld Riverine Forest unit will later also be mapped in Mapungubwe and elsewhere where needed and its status there will remain critically endangered possibly until the DWAF initiative comes up with a proposed change to the current protection target of 100%.

SANParks is seriously and urgently considering the impact of recent expansion of elephant into this zone, and take note of fire hazards which are arising now that the forest has already partly converted into open woodland. Although our conservation instincts make us realise that immediate and sustained action is required if this forest is to be kept in-line with the desired state (namely "biodiversity patterns and processes ... which characterised the millennium prior to mechanised agriculture"), an in-depth understanding will need to be built up of how feasible this really is. Details are provided in the lower level plan for the Gallery Forest Programme (Supporting Document 3).

Allowing the conversion of forest to woodland on a widespread scale will alter the character of Mapungubwe, and will have obvious biodiversity consequences. Rehabilitation of the floodplain forest patches (which were removed for agriculture) which flank and interdigitate with the Kalopi wetland has begun on a prototype basis, and will make up an important part of management action in Mapungubwe for the foreseeable future. See also the Rehabilitation Programme.

The fact that this alluvial subtropical vegetation type was decreasing over the whole region was concerning, and we should look for regional and more connected solutions to protection of these pockets. Rehabilitation

of forest as being experimented with on Mapungubwe, is difficult but should be pursued, and during the early phase will clearly require exclusion of herbivores. For all practical purposes, SANParks will try to retain as much as possible of the closed canopy forest. The fact that a laissez-faire approach to elephant will only possibly work (and some doubt this) once the TFCA and general regions was far more open for elephant, fencing is the only alternative discussed for now. Fencing is consistent with rehabilitation goals initially, and with the reality of citrus estates being perpetuated in the footprint of the core area under land restitution.

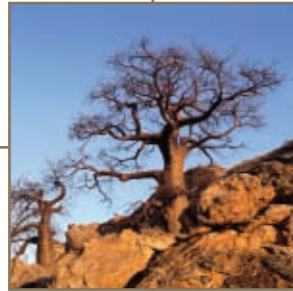
It is anticipated that fencing will not make a big difference to elephant populations (which are growing at a far lower rates now, in fact stable in Botswana). Ongoing inclusion of land to the TFCA on the South African side, would in any event result in additional pathways for elephant to migrate around fenced parts of Mapungubwe. What is clear though is that fencing sections of Mapungubwe will in all likelihood lead to increased pressure on the unfenced sections.

**Proposed immediate action** – small areas need to be fenced to give a large western block with a fair proportion of gallery forest, out of which all or most elephants will be chased. SANParks will then see if this is practical and can in fact be maintained. If so, idea in future would be to fence up to the confluence and enlarge the block, and incorporate other parts of still relatively healthy riparian forest. In all likelihood the Greefswald forest will also be fenced, at least in part. This would be a separate additional block as might the palm forest.

Prospective land claimants with potentially enclosed citrus, are unlikely to be affected negatively by the small prototype fencing (unless they were planning elephant tourism), and in fact would in all likelihood benefit and thus be in favour.

### 2.1.8 Habitat Diversity Programme

Apart from the gallery forest and wetlands, certain characteristic habitats and selected associated species in Mapungubwe are potentially threatened by a number of identified factors, chiefly water flow, alien invasions and injudicious herbivory. The general principles relating to these three factors thus provide the backdrop against which we operate in Mapungubwe. At this stage the most important action needed is simply to establish an inventory and monitoring baseline to test whether the scale and magnitude of current habitat changes are acceptable or not. The TPCs used to assess this will involve those established for herbivory-vegetation, water flow and aliens. A low-level plan is available (Supporting Document 4) detailing the landscapes and associated habitats, and focal species within them, as defined for the monitoring programme.



### 2.1.9 Herbivory Programme

This follows the general guidance of SANParks's corporate herbivory policy as well as that related to the provision of artificial water for herbivores. Likewise, introduction of herbivores and predators is governed by central policy (SANParks 2006). A reasonable suite of herbivore re-introductions has taken place in Mapungubwe, and the introduction of any further species, or augmentation of numbers of existing species, should be very critically evaluated against the desired state. In addition, opportunity costs of management concentrating on non-core objectives needs to be taken seriously if the challenging core objectives are ever to be met.

Herbivore impacts will be measured by the stated TPCs and adaptive management and concomitant flux simulation applied. Suggestions of placement of any further artificial waterpoints will need extremely careful consideration in the light of general principles and the park's particular desired state objectives. Although this monitoring will include current elephant impacts, the in-principle plan is to exclude elephant from practicable parts of the core area by low-visibility fencing, if at all feasible and energy-effective (see also discussion above). This may necessitate removal of elephant (according to allowable norms and standards) currently within the proposed exclusion area. The rationale for this approach in Mapungubwe is to provide the appropriate and desired ambience and management environment for cultural tourism and cultural resource management, and to ensure that management capacity can focus on all core issues in the desired state, including the core biodiversity objectives. In contrast, it is anticipated that elephant movement and management will be a major consideration in the wider TFCA area. By excluding elephant from practically defined sections of the core area it is envisaged that SANParks have the best chance of satisfying the desired state of Mapungubwe National Park and the expected, slightly contrasting, desired state for large parts of the broader TFCA, which will no doubt involve the presence of elephant. A lower level plan is available (Supporting Document 5), containing more detail of herbivores present, and of management and vegetation impacts in Mapungubwe National Park. Elephant impacts on *Commiphora* woodland and in particular on *Hyphaene* palm stands are noticeable to severe.

### 2.1.10 Invasive Biota Programme

The principles concerning this are well-established in SANParks and Working for Water, whose co-operation plays a critical role in the control of alien plants. Alien plants do not constitute as serious a threat at this time to Mapungubwe National Park as to many others, but the situation needs careful surveillance and ongoing use of particularly the early-level TPCs. *Opuntia (ficus-indica)* and queen of the night is established at low levels within and around the park. Annuals and riparian

threats such as those posed by giant spanish reed, balloon vine, lantana, syringa, castor oil and yellow bells will need monitoring and clearing. Serious biodiversity threats are posed by the escape of Nile Tilapia, *Oreochromus nilotica*, into the Limpopo system. Overall, invasive fish will impact on the desired state (see lower level plan in Supporting Document 6).

### 2.1.11 Disease Management Programme

Internationally significant disease control measures, particularly around foot-and-mouth disease, take place near this three-country juncture. Depending on the serotypes involved, these can be considered alien invasions, although this disease has far wider economic implications than any for biodiversity per se. Rather, some of the veterinary control measures themselves can be considered as important biodiversity conservation constraints, an issue under study in the AHEAD (Animal Health for Environment and Development) programme launched at the Durban World Parks Congress. Overall, invasive fish and possibly the implications of disease control measures in the region, impact on the desired state.

### 2.1.12 Rehabilitation Programme

Widespread rehabilitation is taking place in the park using principles contained in an overall rehabilitation framework. During the ensuing five years this will continue unabated, including removal of most farm infrastructure (including, importantly, barriers and canals in the Kalopi/Maloutswa wetland), rehabilitation of old lands, with particular emphasis (where appropriate as judged from historical aerial photos) on re-establishment of riparian woodland. Different practical experiments are being tested in finding the best and varied ways of working towards the desired state in this regard. Sheet erosion and donga rehabilitation, often linked to flow restoration (for example, where a district road crosses the Kalopi River) will continue. AA lower level plan is available (Supporting Document 7) containing more detailed rehabilitation measures and priorities.

### 2.1.13 Other programmes under Heritage and Biodiversity Conservation

Smaller issues in Mapungubwe National Park include fire management (Supporting Document 8), problem animal responses (Supporting Document 9), and species of conservation concern (Supporting Document 10). All of these enjoy guidance from SANParks corporate principles (SANParks 2006). In particular, regional metapopulation population strategies in which SANParks is involved may necessitate consideration of inclusion of such species in our planning, if compatible with existing major park objectives. Short lower level plans are available dealing with the particular

Mapungubwe situation.

Currently there are no written agreements in place for use of biological resources by local communities. However, plans are underway to develop a sustainable harvesting programme for mopani worms in the park. This will be in line with the SANParks approach and policy guidelines on the utilisation of natural resources within parks.

## 2.2 Sustainable Tourism

This heading clearly also cross-links to the Zonation Programme provided in 2.1.1. as well as to the CDF, once completed.

### 2.2.1 Sustainable Tourism Programme

Mapungubwe National Park has many points of tourism interest, including endemic birds, Mapungubwe Hill, K2 archaeological site and dry-stone walls, confluence picnic spot viewing deck, historical paintings by apartheid government army personnel, riverine forests along the Limpopo River, Khoisan painting tours offered during the wilderness trails.

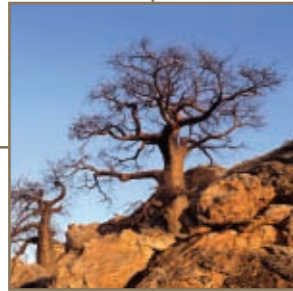
Currently the park offers only self-catering accommodation facilities which can accommodate visitors as follows:

Tshugulu Lodge:	12
Leokwe:	40
Tented Camp:	16
Mazhou Camping Site:	10 caravan sites
Vhembe Trails Camp:	8

Currently only Leokwe, Tented Camp, and Mazhou Caravan Camping Site are attracting visitors, with average monthly occupancy rates of 60, 58 and 65% respectively. Up until recently it has been difficult to attract tourists to the Trails Camp and Tshugulu Lodge due to a lack of staff and infrastructure (such as a game viewing vehicle for the Trails Camp). Although these units have not actively been marketed, the current occupancy rate is less than 5%.

It is hoped that occupancy rates of Mapungubwe's tourism facilities will be improved through vigorous marketing from April 2008. It is clear that solitude and isolation are some of the most important characteristics of all accommodation units.

At present, the main tourist activities include wilderness trails, walking trails, self-drive tours of the park and surroundings, guided sunset drives, morning drives, night drives and heritage site tours to Mapungubwe Hill. These features have the potential to attract tourists, but are not yet optimally marketed. Although accessibility to the park is currently still poor, with limited signage, the natural/scenic beauty with unique attributes of



remoteness and an 'undiscovered' sense of place, cultural and historical importance, the development of new visitor, interpretation and administration facilities, and a commitment by SANParks to develop the park, bode well for a sustainable yet initially small tourism product. Nevertheless, threats to the tourism product include the possible development of a coal mine on the south-eastern border of the park, impacts of water extraction and elephant utilisation on the gallery forest and the implications of land claims on the entire park.

The Musina IDP has been developed and includes identification of tourism projects. These include bead manufacturing, a community irrigation scheme, sewing opportunities, development of a Musina information centre and a game conservancy. The Alldays Municipality is currently in the process of identifying IDP projects. In addition, the Musina and Beit Bridge Municipality in Zimbabwe are in the process of establishing so-called Twin Municipalities Cooperation that will see the two municipalities cooperating on tourism activities. Projects listed by SANParks for Mapungubwe National Park are also captured in the Vhembe District Municipality and Musina Local Municipality IDPs, confirming SANParks' active role in the area as well as a willingness to integrate different plans. In addition, an opportunity exists for enhancing tourism to the park, ie, Mapungubwe being in the Ivory Route project of the Limpopo Provincial government.

The tourism vision of the park is to become a fully operational national park that provides for the needs of visitors, enhances the visitor experience and maintains a good balance between tourism and heritage conservation. In order to achieve this, Mapungubwe will need to develop appropriate tourist accommodation to increase revenue; develop and maintain basic visitor and park infrastructure; develop tourist activities that enhance the tourist experience; improve staff capacity to deliver an excellent service; effectively market Mapungubwe to increase the number of visitors and unit occupancy. It is anticipated that with the consolidation of the park and the establishment of controlled access to the park, marketing exposure may start to attract an increasing number of visitors and achieve this vision. It is not however envisaged that, at this stage, the park will aim for financial sustainability. The phased introduction of tourist and day-visitor services will however provide an indication of both cultural- and nature-based tourism potential for the park and the feasibility of the introduction of financially and environmentally sustainable tourism developments.

### 2.3 Building co-operation

Mapungubwe National Park surely have demonstrated satisfactory implementation of many SANParks co-operative governance and community participation

principles (SANParks 2006) in this regard. In fact, many of the principles were tested in this setting. After several iterations, the current Park Forum is well established and functional. There exists an ongoing evolving variety of models of partnership, and important developments in the next five years will include firming up several joint management plans. Special interest groups, especially in the field of archaeology, will be engaged in advising with decisions around management of the internationally significant cultural heritage.

Limpopo Province, De Beers, Friends of de Beers, Peace Parks and local municipalities are the most significant partners, and these relationships will require maintenance and deepening in the forthcoming 5-year cycle if the desired state is to be achieved. In particular, SANParks must remain involved in IDPs and Limpopo's Growth and Development Strategy.

#### 2.3.1 Stakeholder Relationship Management Programme

This programme (Supporting Document 12) strives to establish and maintain meaningful and beneficial relationships with a wide range of stakeholders, in a way as beneficial as possible to core park values and aims, and its overall desired state. Although it has grown organically in response to various needs, the co-operative governance thrust in the South African constitution is leading to its intensification.

The Park Forum is a key, organised arrangement for one level of immediate and ongoing public participation. The Mapungubwe Park Forum is constituted by representatives from the Universities of Venda and Pretoria, SANParks, Vhembe District Municipality, Blouberg Municipality, Musina Municipality, South African Heritage Resources Agency (Limpopo), DeBeers (Venetia Mine), Department of Sports, Arts and Culture (Limpopo), Water Affairs (Limpopo), Roads (Limpopo) and all other interested communities including those that have lodged land claims in the Mapungubwe Cultural Landscape. The Park Forum meets on a quarterly basis with meetings attended in the two municipalities of Musina and Blouberg as well as in the park. The park forum meetings are chaired by the chairperson and the park serves as a secretariat. Forum members are invited to attend meetings through emails and facsimile. The Mapungubwe Park Forum was revived in 2007. Future plans include consolidating membership so that there should be consistency. Once this has been done there will be formation of sub groups to perform certain tasks for the forum. The forum will operate according to the Forum Charter which is currently under development.

The overall stakeholder list of those involved is obviously very wide, and includes appropriate departments from all levels of government; national agencies (especially conservation NGOs and research institutions); contractu-

al and business partners of many kinds, local communities, employees, customers and the media. It also includes composite and bridging structures such as park forums, transfrontier committees, municipalities, tourism bodies, associations and neighbours. The park's links to planning structures such as integrated development plans and strategic development frameworks need more regular and deeper involvement in the next 5 years to build further co-operative institutional capacity and to ensure regular positive interaction. After the signing of the Memorandum of Understanding with Botswana and Zimbabwe, there is a need for regular interactions and a communication strategy geared to establishing stronger trilateral relationships with our neighbours. This is an aspect that will need funding from DEAT. Attention also needs to be given to monitoring progress.

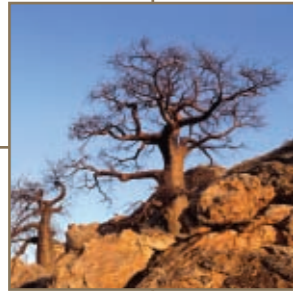
#### 2.3.2 Environmental Education and Interpretation Programme

Mapungubwe embarks on an ambitious such programme, in line with SANParks environmental education and interpretation policies, with a major facility at the entrance gate. This is part of a wider programme (see Supporting Document 13) which includes upgraded visitor information, visits of schoolchildren and partnership programmes with local communities, etc. The Park provides a number of different educational and awareness-building opportunities in to help build constituencies in support of SANPark's conservation and broader environmental endeavours. It is foreseen that all these thrusts will be continued over the next five year period, with staff training and additional capacity being critical, and effective research and monitoring should be developed around key aspects.

Development of an environmental and cultural heritage education programme and strategy, with a plan for the utilisation and use of the interpretation centre for educational programmes, the need to train local teachers and other adults on the use of the centre, the construction and development of an overnight facility for visiting adult and school groups, the development of other educational guided trails to the rock art sites and the development of educator and learner support materials will improve logistics and outputs. A high risk is the shortage of capacitated and experienced staff and general limited capacity and resources to fund programmes. In addition, there will be a need to evaluate the impact of visitors to Mapungubwe Hill because of its sensitivity and develop a plan to mitigate negative impacts.

#### 2.3.3 Local Socio-Economic Development Programme

This aims at contributing effectively to local economic development, economic empowerment and social development in communities and neighbouring areas adjacent to the park (Supporting Document 14).



The contribution of Mapungubwe to local socio-economic development will contribute greatly into 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 take ownership of the site and embrace its existence.

The park must participate more effectively in municipal integrated development plans and continue participating in appropriate government programmes (especially *Working for Water*, *Working on Fire*, Expanded Public Works Programmes (EPWP) etc.) in a way which not only produces short-term job opportunities but also contributes to local skills development: supporting learnerships, implementing needs-related training programmes, and creating useful exit strategies (after short-term employment) and business opportunities for participants. SANParks needs to keep up and expand its reputation as a reliable and meaningful vehicle for such government expenditure with major opportunities presenting themselves in the next 5 years being related to alien plant clearing, and infrastructure development. Other local opportunities envisaged in the near future include Mapungubwe 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. Important risks to this programme relate to a reliance on external funding.

#### 2.3.4 Other programmes under Building Co-operation

Constituency building (wider than just those visiting or living around Mapungubwe) in a people-centred manner constitutes an important corporate challenge. Mapungubwe allows SANParks an ideal vehicle to shed its image as an agency so concerned with biodiversity that cultural heritage is effectively sidelined. While important steps in this regard have already been taken, Mapungubwe is a real proving ground in public perception, and success there will also lead to expectations elsewhere from SANParks, a demand we should welcome. In a regional/cross-border context, SANParks and Mapungubwe National Park finds itself facing exciting challenges to operationalise the TFCA in partnership with two other countries, different land-owners, different socio-political makeups as well as the emergent regional development task relating to the Maramane community in Zimbabwe as closest neighbouring community.

### 2.4 Effective Park Management

Effective park management is essentially a means to an end, namely the enablement of our achieving the desired state in the three core areas above.

#### 2.4.1 Environmental Management Statement of Intent

Developments, activities and operational issues in Mapungubwe National Park are currently governed by SANParks conservation values and discipline principles, policies and standard practices. At present the park does not have a specific environmental programme to address the overall requirements of implementing the SANParks policies. However, it is Mapungubwe's intent to detail the needs and requirements for establishing the appropriate environmental management approaches for developments, activities and operational issues within the park in the next 5 year period. Having an environmental management programme will assist park management with the achievement of their environmental management responsibility regarding environmental impacts.

#### 2.4.2 Infrastructure Development Programme

In line with SANParks principles, such as "touch the earth lightly", focus in the next 5 years in terms of tourism infrastructure is on the upgrade and construction of 60 km of sedan-friendly tourist roads and construction of a camping site, an interpretive centre and cultural site as well as two phases of staff accommodation. There is an urgent need for rehabilitation of the Kalopi floodplain, degraded land and redundant infrastructure as well as rehabilitation of archaeological sites, and this has been provided for. Further details are provided in Supporting Document 15.

Existing infrastructure consists of:

##### Eco-cultural Tourism Infrastructure

- 42 bed main rest camp (Leokwe) consisting of 16 X 2 bed chalets & 2 family units. This rest camp also has a public kitchen, reception & kiosk and a swimming pool with separate ablution facilities.
- One hiking trails camp consisting of accommodation for 8 guests in 4 chalets. We also have one separate kitchen & dining room as well as 3 chalets for staff.
- Limpopo forest tent camp consists of 8 tent units, which can accommodate 2 guests each (16 guests in total). It also has a swimming pool.
- Camping site 10 stands with electricity & water and ablution facilities.
- Tshugulu lodge consisting of thatch roof facilities, which can accommodate up to 16 guests. It also has a swimming pool and a large open plan dining & braai area.
- Rhodes drift lodge is a large thatch roof farm house, which can accommodate up to 16 people. It also has a swimming pool and recreational area.
- Interpretive centre & museum with cultural area, day

visitors site and viewing decks – currently under construction.

##### Day visitors facilities

- The confluence facilities are consisting of an ablution block, kiosk and 5 wooden viewing decks as well as 8 picnic stands with braai areas.
- Treetop walk and hide consisting of a 300 meter long walkway and a game hide which overlooks the Limpopo River.
- Malutswa Pan bird hide and ablution facilities.
- Little Muck game hide and ablution facilities.
- Interpretive centre & museum – currently under construction.

##### Management infrastructure

Management infrastructure in the Park is located at the entrance to Mapungubwe National Park and consists of 2 offices, store rooms and ablution facilities as well as a reception area. One new office block is also under construction at the interpretive centre building site. Other buildings include 1 workshop, 2 sheds (one in the East & one in the West) and 21 Staff accommodation units.

##### Bulk infrastructure

Bulk infrastructure consists of:

- Approximately 110 km of roads and vehicle tracks
- 2 waste management sites where solid waste is collected and sorted and removed to the municipal dump at either Musina or Alldays.
- One wetland system
- One helipad

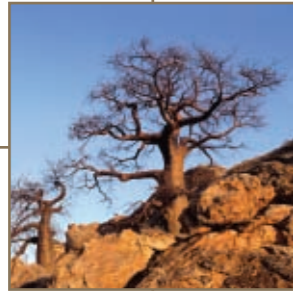
##### Conservation infrastructure

Other conservation infrastructure outside the developed centres consists of:

- One guided game hiking trail, which departs from the wilderness
- Camp and does not follow a predetermined path.
- Guided Bushmen painting tours, which are conducted mainly on Little Muck.
- Mapungubwe Hill & K2 guided tour. Done by means of a game viewing vehicle.

#### 2.4.3 Safety and Security Programme

Mapungubwe National Park is a popular destination for both national and international visitors. The significance of the Mapungubwe Cultural Landscape as well as both fauna and flora found within the boundaries of Mapungubwe necessitates the establishment of risk management measures. The area defined as the



Mapungubwe Cultural Landscape lies both within and beyond the Mapungubwe National Park, because it includes archaeological sites occupied during the development and heyday of the Mapungubwe kingdom between AD 900 and 1300. Sites dating to this period are also found on the four farms surrounded by the Park on neighbouring properties, and across the Limpopo River in Botswana and Zimbabwe. Tourist facilities and accommodation in the park consists of the Limpopo Forest Tented Camp, campsite, Tshugulu Lodge, Maloutswa Pan Hide and a network of Eco Routes. The strategic intent of the safety and security plan is to firstly ensure that effective visitor and employee's safety measures are in place, and secondly to ensure that tourist perceptions are managed in order to protect the brand and reputation of SANParks and SA Tourism at large. This document (Supporting Document 16) comprehensively addresses both the strategic and operational aspects of visitor safety and security within the framework set out by the SANParks Security Plan. Daily park activities, implemented to mitigate many illegal activities form an important part of this plan. Nevertheless, issues around visitor and staff safety and security, environmental crime, cash in storage and transit, access control and infrastructure (including document) security still pose challenges. Specific threats in and around Mapungubwe include:

- black-market related forces beyond SANParks control e.g. cigarette smuggling syndicates.
- extensive/ long international river boundary with Botswana and Zimbabwe of approximately 35 km.
- electrical fence of 98 km to be maintained by field rangers.
- high rate of labour turn-over..
- Illegal entering and grazing of Zimbabwean cattle, goats, sheep and donkeys in Mapungubwe, with the possibility of spreading foot and mouth disease, etc.
- improper communication with law enforcement personnel from Botswana and Zimbabwe.
- involvement of the SANDF and fence maintenance personnel in poaching and theft incidents.
- large amounts of cash in remote areas.
- open access with too many uncontrolled entrance gates and uncontrolled key and lock system.
- unrestricted after-hours access by Venetia mine contractors, Eskom workers as well as contractors working on Poverty Relief projects.
- Zimbabwean poachers hunting with dogs in the park.

Roll out of the Environmental Management Inspector programme will assist with implementation of enforcement and compliance in terms of environmental legislation while the Protected Area Management Audit (PAMA) highlights areas requiring additional attention. The safety and security strategy and operational plan will

be continuously developed and updated from monitoring and evaluation feedback. Indicators are not yet adequately developed but would include measures such as numbers of violent and non violent attacks per year, incident records, and tourism perception indicators such as positive and negative media measures.

#### 2.4.4 Other Programmes under Effective Park Management

An essential complimentary function of park effectiveness is maintaining adequate human resources to provide a conservation, supporting and visitor service. Staff capacity-building requirements and needs are aimed at the continuous development of all levels of skills through both formal and in-service training and education to improve understanding, encourage a sense of pride in the organisation and increase levels of efficiency and self fulfillment. These needs are generally incorporated into divisional targets, individual performance evaluations and development plans.

### 2.5 Corporate Support

Again, these are enabling initiatives to achieve the desired state for Mapungubwe as particularly outlined in 2.1 – 2.3 above.

#### 2.5.1 Research Support Programme

Given the seriousness of the many open questions in the cultural and biodiversity objectives (e.g. around the besieged gallery forest and wetlands), a significant research thrust is seen as imperative. This cannot be achieved without explicit commitment around the supporting environment, for instance researcher accommodation to help attract visiting researchers at reasonable project cost. The necessary databases, technical and herbarium support have also been highlighted as catalysts which will help achieve the desired state. Equally, liaison with research and biodiversity partners in the region is essential to this success, in particular De Beers, Universities and Limpopo Province. Research and monitoring programmes should, whenever necessary, be formulated in partnership with them. To this end, and regarding cultural resource management and related issues, the newly formulated Social Sciences Research Policy, supported by the Cultural Heritage Management Policy, gives impetus to this programme but needs proper funding and capacity.

#### 2.5.2 HIV/AIDS Programme

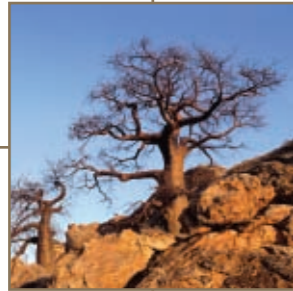
As an integral component of the Employee Assistance Programme, this is accorded priority within the SANParks programming. The Programme will form the

basis on which all employees working within Mapungubwe National Park, permanent and temporary, as well as their families, will be made aware of HIV/AIDS and assisted when infection has occurred. In addition to the SANParks internal programme, Mapungubwe National Park is additionally planning to team up with the provincial Department of Health, youth groups and local municipalities to fight the scourge of HIV/AIDS in the surrounding communities. This will be done by organising activities like joint soccer tournaments, workshops, debates and voluntary testing.

#### 2.5.3 Other Programmes under Corporate Support

SANParks is necessarily a risk adverse organisation mindful of the importance of the sustainability of our organisation to society as a whole. However, stakeholders and the Board recognise that engaging risk is also at the core of SANParks business, and that risk taking is a choice. SANParks Board and management are thus fully committed to and accountable for effective Corporate Risk Management in ensuring that SANParks business objectives are met and that continued, sustained growth and biodiversity management are achieved. Risk management is based on the principle that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions. Specific risks identified of relevance to Mapungubwe include:

- A failure to harmonise the requirements of both the Protected Areas Act and the World Heritage Convention, with specific reference to the development of management plans for these two sets of legislation.
- Since inscription of the park as a world heritage site, South African National Parks has been acting as a Management Authority for Mapungubwe World Heritage Site pending official declaration by the Minister of Environmental Affairs and Tourism. Finalisation of this process is long overdue.
- The possible move of the South African World Heritage Convention Act from the Department of Environmental Affairs and Tourism to the Department of Arts and Culture. The two Departments are still in discussion in terms of how the management of the sites already declared will be managed when the Act moves.
- The delay of the formation of the trilateral TFCA committee to implement the MoU signed in July 2006. The problem of illegal immigrants lies in how we manage that issue. Unless the Trilateral Committee with Botswana and Zimbabwe is sorted out, we will continue to experience problems of illegal immigrants.
- It is a risk not to finally consolidate Mapungubwe National Park.



## ADAPTIVE AND INTEGRATIVE STRATEGIES TO SUSTAIN THE DESIRED STATE

### 3. ADAPTIVE AND INTEGRATIVE STRATEGIES TO SUSTAIN THE DESIRED STATE

Section 1 has dealt with the desired state for Mapungubwe, and Section 2 with all the specific programmes which are believed necessary to achieve that jointly-agreed future state. However, the desired state cannot be effectively maintained without explicit attention being given to prioritization, integration, operationalisation, and above all, reflection and adaptation according to the principles in the biodiversity custodianship framework (Rogers 2003).

#### 3.1 Key Prioritisation, Integration and Sequencing Issues

The desired state of Mapungubwe has been set in a focused way, reducing the need for additional filtering processes to sift out what is most important. Most objectives need to be seriously addressed in the next 5 year management cycle. Certain of these are conservation measures of the last remaining archaeological deposits over the long term (the loss of top layers because of natural erosion, rodent impact, large mammals as well as indiscriminate or destructive research activities, etc) alongside the challenge over the ultra long-term in the scope of restoration of the Kalopi/Maloutswa wetland and even more so, restoration of acceptable environmental flows in the Limpopo. It is thus important, in the next 5 year cycle, to carry out those initial steps required to lay the foundation for this longer-term success. In the wetland context, this consists of park consolidation, a thorough wetland survey and evaluation, wetland research to assess the fundamental drivers, and provisional wetland rehabilitation consistent with the growing understanding of wetland function and longer-term goals. Equivalently, only the first few steps can be taken in setting up the *de facto* Limpopo and Shashe River management systems to one day be able to deliver acceptable environmental flows and improve our desired state.

This political groundwork must be done now. At the same time there are current threats needing attention, for instance the obvious impending demise of the gallery forest, and amelioration of the effects of imminent coal mining near the park. A balance must be struck between the energy needed to deal with these immediate threats, and the necessity of laying the all-important groundwork for longer-term strategic success. The desired state will take long and be tough to reach, and difficult trade-offs will need to be made along the way. It is hoped that the guidance offered in this section assists that decision-making in a structured way, though obviously ongoing evaluation is imperative.

Cultural and biophysical goals seem imminently compatible given the current formulation of the desired state. The clear implication is that SANParks must give cul-

tural issues equality if not precedence in Mapungubwe, but that the real uniqueness of the biodiversity system can actually be maintained or re-instated without any jeopardy to cultural goals. What will create contention to the achievement of these goals is a "big-5" and/or "big predator" emphasis, not least because of the imposed cost of managing these, and the difficulty they pose for staff and other resources focusing on the cultural and forest/wetland priorities.

Visitor expectations need to be tempered accordingly, as SANParks will need to keep the moral high ground in convincing the public that these issues are key cultural and biodiversity priorities – this is in line with our tourism value of providing quality experiences rather than catering to crass consumerism on the basis of existing (possibly misguided) market popularity alone. On the other hand, it may be difficult to achieve the planned elephant exclusion in parts of the core area, though clearly we subscribe to the adaptive approach and will now set about seeing what results materialise as we adapt and manage, and what the longer-term costs are of this strategy.

TFCA development itself will impose further costs on Mapungubwe management, and, at a point, several TFCA issues will become urgent in terms of their timetable. Further resources will be needed to deal with this adequately, alongside park management, and careful juxtaposition of elephant management plans and animal disease control in particular.

Poverty Relief (through the EPWP) funding, like research funding, can arrive slightly out of synchrony with the planned timetable for sequencing events, and this reality has to be dealt with as best as possible. The fact that we have clearly articulated goals, and broadly laid-out steps to achieve them, will sometimes (hopefully often) help unify our need for these with the timing of the resource. It will, for instance, be a great pity if we carry out expensive but ineffective rehabilitation on a wetland and discover ten years later that its fundamental function is driven in a way we did not understand. On the other hand, we cannot wait indefinitely, and initial surveys may in fact allow us to start with a fair chance of heading in the correct direction, hopefully backed up further along the way with the confirmatory research.

#### 3.2 Steps to Operationalisation

Given the desired state, and the above cross-links and sequential desirabilities and priorities, the next step for park management is to use this management plan to draw up a detailed plan of action for annual operationalisation and wherever necessary down to the level of tasks and duties. The Park Manager must be satisfied that all this serves the desired state as contained in this report. A further cross-check is contained in the Balanced Scorecard system implemented by SANParks,

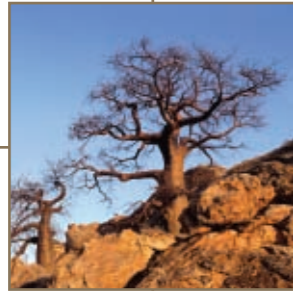
which serves not to replace any objectives contained in this plan, but to support their effective implementation. To help meld this synergy, a cross-tabulation of the important objectives of this plan and explicit ways in which these are reinforced by key performance areas in the Balanced Scorecard needs to be constructed, with the two systems adjusted into harmony where necessary.

Furthermore, the broad staff and finance costing for the five-year drive towards achieving the desired state must be realized, albeit incrementally. It should be stated that the costs emanating from historic limitations need to be considered in this regard. The costing must include all resources (but excludes research facilitation costs, and costs related to the Limpopo-Shashe TFCA; the latter being covered by the expansion of SANParks' TFCA Unit and supported by PPF (private) and DEAT funding) and is believed to be required to achieve realistic progress towards the desired state as outlined in this report. The fact that the resources required are higher than historically allocated to Mapungubwe National Park is the result of this report having made explicit what is actually required to achieve that. For instance, even the cost of minimalist monitoring to evaluate the desired state, now essential to our goals, is a significant new expense not historically carried by the park.

#### 3.3 Key Ongoing Adaptive Management and Evaluation Interventions

Lack of informative and effective feedback, which should stimulate proper reflection by managers, is the commonest underlying cause of failure of adaptive management, and hence of reaching the desired outcomes we set for parks. The hallmark of adaptive management is ongoing learning, and this only results if users apply their minds to the adaptive cycle (Biggs and Rogers 2003). This section aims to detail generic procedures but in the way that they are most likely to be used specifically in Mapungubwe National Park by which the integrity of these feedbacks, and hence learning, will be guaranteed.

- *Feedback that the management action as decided upon and specified, is carried out as such:-* This responsibility lies with line-function management, and will be reported on via upwards monthly, quarterly, annual and special reports. In addition, 'State of Conservation' reports to SAHRA and DEAT (World Heritage Convention Committee) on Cultural Resource Management effectiveness and compliance is an in-built feedback mechanism for effective management. Failure to check this feedback on management action could easily happen at Mapungubwe National Park in, for instance, the arrangements for testing effectiveness of different rehabilitation treatments in re-establishing forest on parts of degraded ex-agricultural lands, measuring and reporting the impact of tourism, traditional events and animals on



heritage sites, the expectancy of a 'big 5' product without considering and measuring for example elephant impact, and visual pollution of the threatened Limpopo River banks by tourism structures (on both sides – TFCA context) .

- **Feedback whenever a TPC specifying the endpoints of any biodiversity objective is violated, or is credibly predicted to be violated in the future:-** This requires that a disciplined monitoring programme be put in place, that the custodian of the particular programme duly reports the exceedance to a competent, preferably formally constituted, joint science-management forum, which includes the Park Manager or his duly appointed delegate. This must lead to a documented management response, recognising that the "do nothing response" may also be a specific justifiable response. The suite of biophysical TPC themes in Mapungubwe is relatively small (gallery forest, wetland, habitat integrity, river/wetland/groundwater status and aliens) and monitoring for as many as possible must be commissioned as soon as possible if we are to have some idea of where we find ourselves relative to the desired state. Wide experience shows it is far better to have roughly defined preliminary TPCs for these themes (and improve these later, something which then tends to happen automatically) than wait years for perfect ones to be developed.
- **Feedback that the predicted outcome of a management intervention, in response to the exceedance of a TPC, is achieved, or what materialised instead in its place:-** This is usually directly measurable by checking whether that same TPC returned to within its acceptable limits after management action was initiated. In Mapungubwe, this follow-up should be formally done through (at least) a quarterly meeting of the science-management forum. The best adaptive decision will be taken in the light of this evaluation. Some obvious outcomes likely to be of major learning value in this regard are differential rehabilitation strategies for the gallery forest and wetland areas, the results of excluding elephant from certain core areas, and the outcomes, measured within Mapungubwe, of upstream negotiations on river flow.
- **Feedback to SANParks Head Office of the overall performance of Mapungubwe relative to its stated objectives:-** This will be done via an annual State of Biodiversity Report for Mpungubwe National Park as well as other incidental reporting. The case is made clear that Mapungubwe will, for several key themes, take many years to progress towards the desired state, and that several issues will remain outside thresholds for many years or even decades. Progress in these cases must be tracked by achievement of intermediate steps towards the desired state.
- **Feedback as to whether organisational or societal acceptance of the conse-**

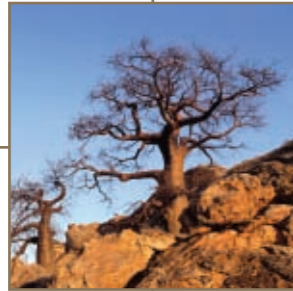
*quence of an intervention is still, as agreed on previously, acceptable:-* This is a longer-term adaptive evaluation, and if expectations are roughly met, can be dealt with at the time of the 5-yearly public meeting held to review the management plan. If, however, significant unintended consequences materialised that have shorter-term impacts, it will be the responsibility of the science-management forum to sense this, reflect on it, and make an appropriate recommendation to the Park Manager. The areas this is most likely to occur are the methods and rationale for, and effectiveness of, elephant exclusion; and the cost and effectiveness of forest rehabilitation. The long-term persistence necessary for improving flows in the Limpopo River should also not be underestimated, and feelings of lack of progress and even hopelessness may need to be countered.

- **Feedback as to whether the monitoring programme and list of TPCs is parsimonious and effective:-** This is the responsibility of the scientific custodians involved, but overall responsibility for the programme as a whole rests with the science-management forum. It is broadly challenged during each 5-yearly revision cycle. In Mapungubwe specifically, the costs of carrying out a very basic set of vegetation monitoring procedures around the gallery forest and especially other habitat objectives is likely to raise financier's eyebrows, and will need ongoing justification and determination.
- **Feedback as to whether overall park objectives need adjustment in the longer-term:-** This is dealt with effectively at the 5-yearly review step. However, in the case of perceived "emergencies" the Park Manager is constrained within the limits of agreement. It is likely that monitoring procedures for gallery forest and habitat integrity will be perceived

as onerous and that suggestions will arise over time to scrap or downgrade these objectives. This will be a crucial debate, especially around SANParks obligation to maintain these gallery forest remnants, and its ultimate feasibility.

- **Feedback regarding, or at least latent preparation for, surprises:-** By definition these cannot be predicted. It will, however, be an explicit obligation of the Park Manager to take responsibility to stimulate contingency and risk management assessments. From an ecosystem point of view, dealing with such surprises is best dealt with by generating scenarios and we must aim for at least one structured scenario planning session per 5 year cycle. It is suggested that three families of scenarios will significantly assist Mapungubwe's longer-term chances of success in goal achievement – scenarios around the relative power of mining developments vis-à-vis impacts and offsets; scenarios around different futures regarding the environmental reserve of the Water Act; and scenarios around attitudes to elephant when traded off against other values in society, a debate in which Mapungubwe presents a clear endpoint in a continuum, and hence a very clear test case of one kind. Formulating and contemplating these scenarios will significantly promote survival value of this park into the future.

If these obligatory feedbacks are effectively honoured, it is believed that Mapungubwe National Park will be practicing an acceptable if not sophisticated level of adaptive management, and in accordance with our overarching values around complex systems, will have the best chance of achieving the desired state in a sustainable way. Only vibrant local environmental learning of this kind will allow SANParks to be viable in its cause.



#### 4. HIGH LEVEL BUDGET AND COSTING PROGRAMME

In line with the requirements to cost the implementation of the management plan to move towards achieving the desired state, a costing programme has been developed for Mapungubwe, with a summary provided. The more than doubling of the total anticipated costs from those currently reflected for this park are mainly due to additional human resources needed to effectively implement the lower level plans as provided in this document. Park expansion and rehabilitation costs have been averaged over the 2007-2011 period as exact timing of such actions is dependent on a number of factors beyond speculation at this time. The significant increase in park development costs for the 2008/2009 cycle are due to significant planned road upgrades for tourism, management and support purposes. This budgeting process also makes provision for aspects that have not historically been budgeted for (including rehabilitation, monitoring and knowledge generation and management costs), nevertheless, these are seen as paramount to supporting progress towards a jointly agreed-upon desired state for Mapungubwe.

Table 3: Broad summary of projected (2007/8 -2011) costs for ongoing park acquisition and rehabilitation, development and operating costs.

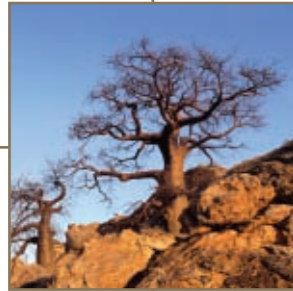
	2007/2008	2008/2009	2009/2010	2010/2011
Park acquisition and rehabilitation	R 31,812,500	R 34,312,500	R 27,812,500	R 27,812,500
Park development	R 6,100,000	R 27,000,000	R 9,200,000	R 0
Operating costs	R 9,026,864	R 9,474,076	R 9,907,021	R 10,467,542
<b>Total anticipated annual costs</b>	<b>R 46,939,364</b>	<b>R 70,786,576</b>	<b>R 46,919,521</b>	<b>R 38,280,042</b>

Table 2: Mapungubwe National Park Management Plan budget summary 2007-2010.

Cat 1	Cat 2	Description	2007-2008 (R)	2008-2009 (R)	2009-2010 (R)	2010-2011 (R)	2007-2011 (R)
<b>TMNP: Current Operational Budget</b>							
A. Income	Conservation Fee		-345005	-345005	-365705	-387647	-410906
A. Income	Concession Fees		-345005	-345005	-365705	387647	-410906
A. Income	Tourism Income		-4,926,220	-4,926,22	-5,221,793	-5,535,101	-5,867,207
A. Income	Other Income		-386553	-386553	-395000	-430000	-450000
B. Expenditure	Human Resource		2,673.338	3,2080.56	3,4005,394	3,6045,717	3,820,846
B. Expenditure	Depreciation		240798	255245.88	260000	290000	310000
B. Expenditure	Maintenance	Maintenance: Buildings	109401	150000	180000	200000	250000
B. Expenditure	Maintenance	Maintenance: Veld	22143	25000	275000	300000	335000
B. Expenditure	Maintenance	Maintenance: Roads	89666	150000	175000	205150	22570
B. Expenditure	Operating Costs	Rent Paid: All	85587	115000	125350	145605	170129
B. Expenditure	Operating Costs	Municipal Fees: All	184625	210000	245175	265000	285137
B. Expenditure	Operating Costs	Telecommunications	200000	250000	275450	300000	329124
B. Expenditure	Operating Costs	Transport Costs: All	683390	750000	860000	900000	960431
B. Expenditure	Operating Costs	Specialist & Agent Fees	00	350000	200000	100000	200400
B. Expenditure	Operating Costs	All Other	00	100000	150000	160000	185000
B. Expenditure	Finance Costs		7000	10000	11000	12000	13000
<b>Total Operations</b>							
<b>Mapungubwe Infrastructure Development Program (Provisional DEAT Funding)</b>							
C. IDP	Biodiversity Management	All Biodiversity Projects	00	8,000,000		2,000	
C. IDP	Tourism Management	All Tourism Projects	00	10,000,00			14,000
<b>Total: IDP</b>			<b>00</b>	<b>18,000,000</b>			<b>16,000</b>
<b>Extended Public Works Program Application</b>							
D. EPWP	Biodiversity Management	All Biodiversity Projects					27,000
D. EPWP	Tourism Management	All Tourism Projects	15,000,000				16,000
<b>Total: EPWP</b>			<b>15,000,000</b>				<b>43,000</b>
<b>Working for Water-Wetlands</b>							
G. WfW	Biodiversity Management	All Projects	800000				
<b>Total: WFW</b>							
<b>Unfunded Projects</b>							
I. UFP	Biodiversity Management	All Biodiversity Projects		40000	6000	7000	13000
I. UFP	Heritage Management	All Heritage Projects	50,000	500000	700000	800000	1,000,000
I. UFP	Tourism Management	All Tourism Projects	19,350		19,350	19,350	
I. UFP	Other	All Projects		2000	15,500	14,500	
<b>Total: UFP</b>							

Staffing - The Park currently has 31 staff members on its permanent establishment table. This is expected to increase substantially over time as key issues are addressed. This includes the apparent current underdevelopment of existing and/or introduction of additional key areas requiring staffing for Mapungubwe National Park's operations such as Heritage Interpretation, Conservation of Rock Art Sites and Mapungubwe Hill. The existing fragmentation of the management structure is a point of concern as it is required to uphold both the Heritage

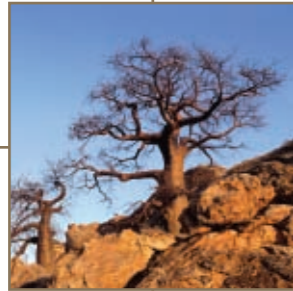
Significance and biodiversity mandate of Mapungubwe National Park. A recent rationalization exercise identified Tourism, Heritage Education and Interpretation, Conservation Services, Heritage Resources Management and Technical Services as the key areas that need to be developed and strengthened. By consolidating these areas, Mapungubwe stands a very good chance of not losing the World Heritage status.



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## APPENDIX 1

### MAPUNGUBWE NATIONAL PARK ZONING PLAN

#### 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 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 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, heritage 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, but otherwise the existing World Heritage Site zoning was retained. This document sets out the rationale for use zones, describes the zones, and provides management guidelines for each of the zones.

#### 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 compromising 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. 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 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 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-utilization.

#### 3. PARK USE ZONATION SYSTEM

##### The 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.

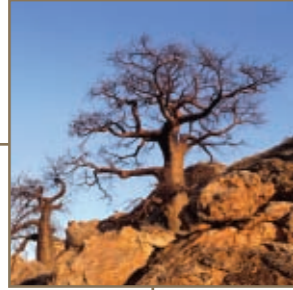
The zones used in this initial process have been converted into the standard SANParks use zones (with some minor modifications to ensure compatibility) in order to ensure compatible outputs. The current park use zonation is based on an underlying biophysical analysis combined with an assessment of the 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 minimize 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.

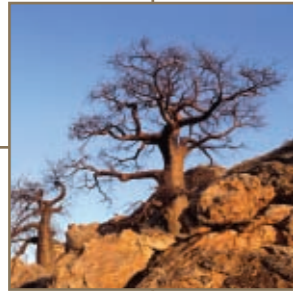
### Objectives of the zone (Limits of acceptable change)

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

Table 1: Summary of Zone Characteristics

Zone	General Characteristics	Experiential Qualities	Interaction between users	Type of Access	Type of activities	Type of Facilities	Limits of acceptable change- Biophysical	Limits of acceptable change- Aesthetics and recreational
PRIMITIVE	Generally retains wilderness qualities, but with basic self-catering facilities. Access is controlled. Provides access to the Remote Zone, and can serve as a buffer.	Experience wilderness qualities	Low	Controlled access. Unaccompanied or 4x4 vehicles	Hiking, 4x4 drives, game viewing	Small, basic, self-catering; or limited concessions with limited numbers, distributed to reduce contact between visitors; 4x4 trails	Deviation from a natural/pristine state should be small and limited to restricted impact footprints. Existing impacts should be reduced.	Activities which impact on the intrinsically wild appearance and character of the area should be restricted, and impacts limited to the site of the facility.
LOW INTENSITY LEISURE	The underlying characteristic of this zone is motorised self-drive access with basic self-catering facilities. The numbers of visitors are higher than in the Remote and Primitive Zones. Camps are without modern facilities such as shops and restaurants.	Comfortable facilities in a relatively natural environment.	Moderate to high	Motorised sedan self-drive access.	Motorised self-drive game viewing, picnicking, walking, cycling, hiking, adventure activities.	Facilities limited to basic self-catering picnic sites; ablution facilities; information/education centres; parking areas. Small to medium self-catering (incl. camping) rest camps with ablution facilities, but not shops or restaurants. Low spec access roads to provide a more wild experience.	Deviation from a natural/pristine state should be minimized and limited to restricted impact footprints as far as possible. However, it is accepted that some damage to the biophysical environment associated with tourist activities and facilities will be inevitable.	Although it is inevitable that activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area, these should be managed and limited to ensure that the area still provides a relatively natural outdoor experience
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 ambience	High	Accessible by motorised transport (car/bus) on high volume transport routes, including delivery vehicles.	As above: Additional sophisticated infrastructure. Larger, organised adventure activities (orienteeering, 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 greatest level of deviation from a natural/pristine state is allowed in this zone, and it is accepted that damage to the biophysical environment associated with tourist activities and facilities will be inevitable.	Although it is inevitable that the high visitor numbers, activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area, these should be managed and limited to ensure that the area generally still provides a relatively natural outdoor experience appropriate for a national park.

\*Wilderness areas need to be investigated and officially designated.



**Aesthetics and recreational environment:** Activities which impact on the intrinsically wild appearance and character of the area, or which impact on the wilderness characteristics of the area (solitude, remoteness, wildness, serenity, peace etc) should be restricted and impacts limited to the site of the facility. Ideally visitors should only be aware of the facility or infrastructure that they are using, and this infrastructure/facility should be designed to fit in with the environment within which it is located in order to avoid negative 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 Mapungubwe NP, 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 motorized self-drive access with basic self-catering facilities. The numbers of visitors are higher than in the Remote and Primitive zones. These camps are without modern facilities such as shops and restaurants. 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 self-catering picnic sites with toilet facilities.

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

**Activities:** Self drive motorized game viewing, picnicking, walking, cycling, hiking, adventure activities.

**Interaction with other users:** Moderate to high

#### **Objectives of the zone (Limits of acceptable change)**

**Biophysical environment:** 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.

#### **Aesthetics and recreational environment**

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.

#### **Facilities**

**Type and size:** Picnic sites, view sites, information centres, ablution facilities, parking areas, education centres etc. Small self-catering (including camping) camps of low to medium density. Additional facilities can include swimming pools. Trails for 4x4 trails can also be provided. Day visitor sites are not placed within the camps. Day visitor sites must be compliant with the general self-catering characteristic of this zone.

**Sophistication of facilities:** Self contained self-catering units with bathroom facilities. Camp sites will include ablution facilities. These camps are without 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:** Motorized 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.

### **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 motorized 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 (orienteeing, fun runs), activities associated with amenities such as dining in restaurants.

**Interaction with other users:** High

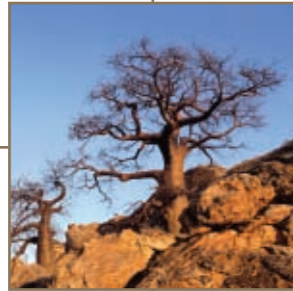
#### **Objectives of the zone (Limits of acceptable change)**

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

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

#### **Facilities**

**Type and size:** High density camps providing tourist accommodation with modern amenities. Restaurants, shops, education centres, botanical gardens. Day visitor sites are provided outside of the main camps. Day visitor



sites or picnic sites may provide catered facilities and kiosks. In some parks it may be necessary to provide high density recreational sites with a wide range of intensive activities (edutainment centres) close to the periphery of the park. 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 motorized 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 minimize conflict between users.

#### **Location in Park**

In Mapungubwe NP, only the main staff/administrative centre with its associated accommodation 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). Two 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 prioritize rehabilitation work in these areas.

#### **4. THE PARK INTERFACE ZONE**

The Park Interface Zones shows the areas outside a park within which landuse 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

Mapungubwe National Park has three Park Interface Zone, categories (Map 5). The first two are mutually exclusive, but the final visual/aesthetic category can overlay the others.

#### **Priority Natural Areas**

This zone aims to ensure the long term persistence of biodiversity, within and around the park, by identifying the key areas upon 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) within the area, 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 landuse 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. Guidelines applicable for the Catchment Protection Section would also apply to these areas.

#### **Catchment Protection Areas**

These are areas important for maintaining key hydrological processes (surface and groundwater) within the park.

#### *Development guidelines*

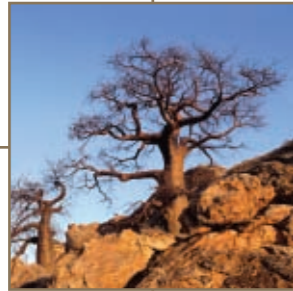
Within these areas inappropriate development such as dam construction, loss of riparian vegetation, and excessive aquifer exploitation should be opposed. In addition, the control of alien vegetation, the control of soil erosion, and appropriate land care (e.g. appropriate stocking rates) should be promoted

#### **Viewshed protection Areas**

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 Area.



### 5. CURRENT STATUS AND FUTURE IMPROVEMENTS

A full Conservation Development Framework (CDF) will be developed for Mapungubwe National Park within the current update cycle. 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.

### 6. REFERENCES:

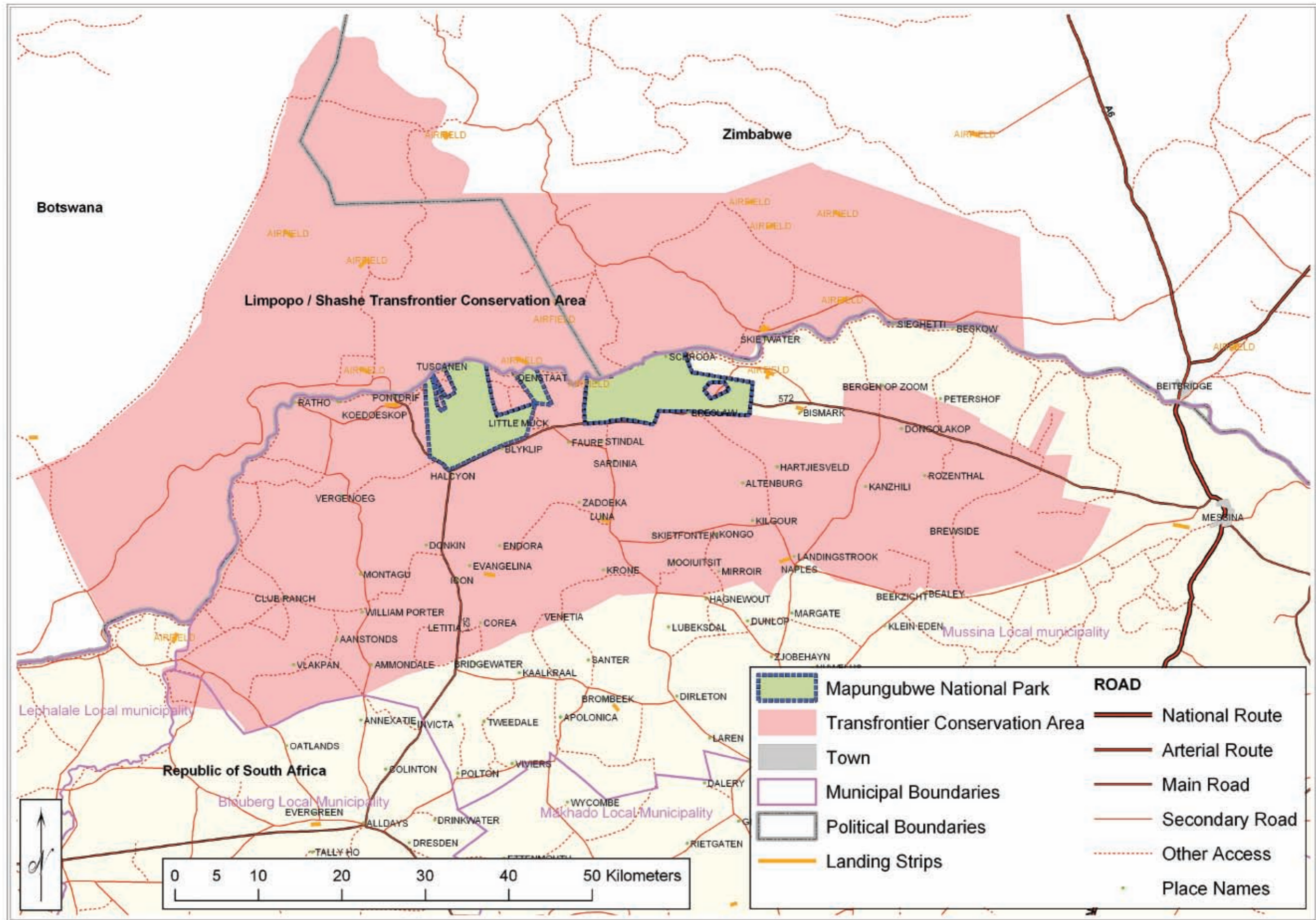
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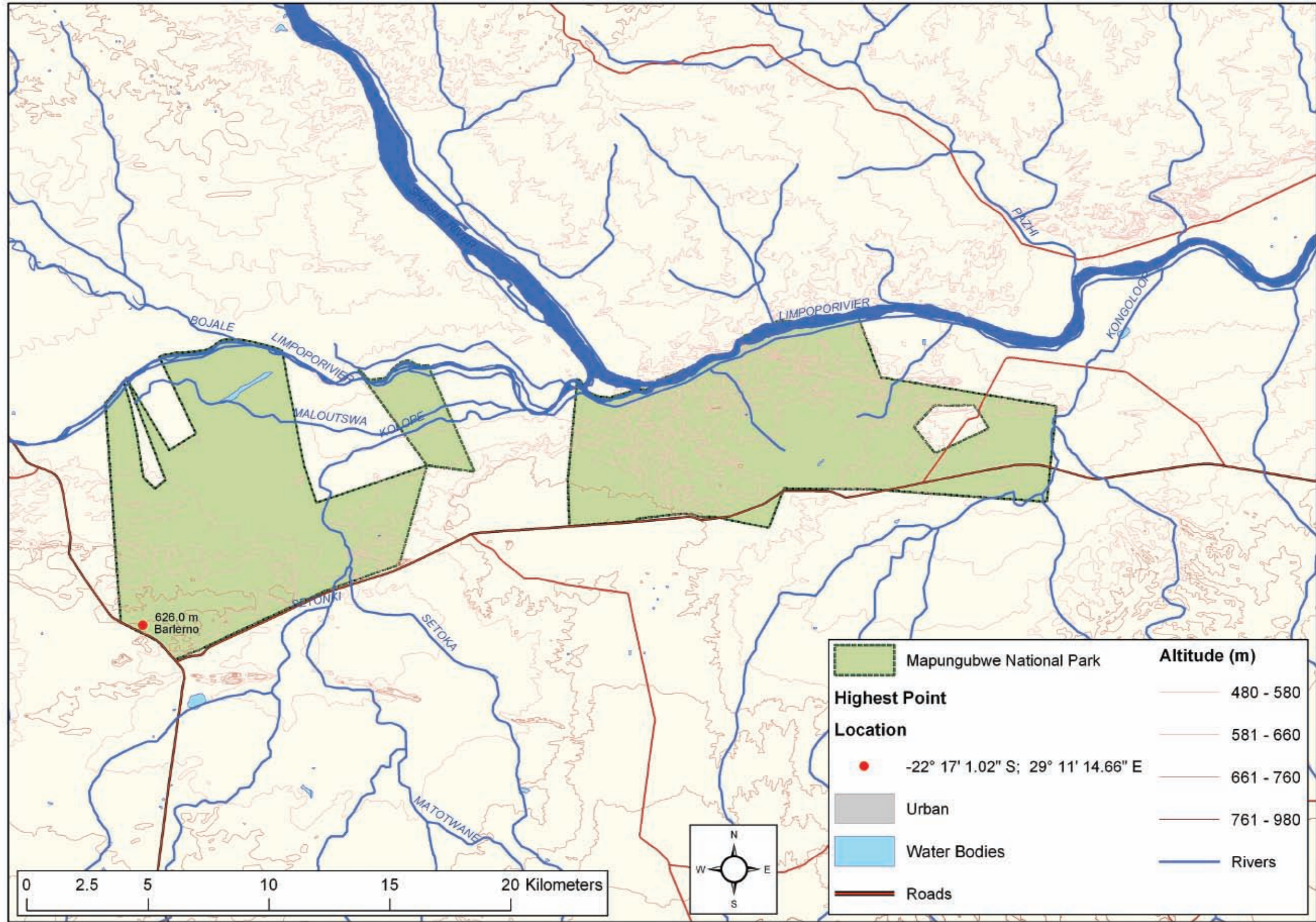
SANParks. November 2005. CDF Planning Manual. Unpublished. SANParks , Pretoria.

APPENDIX 2

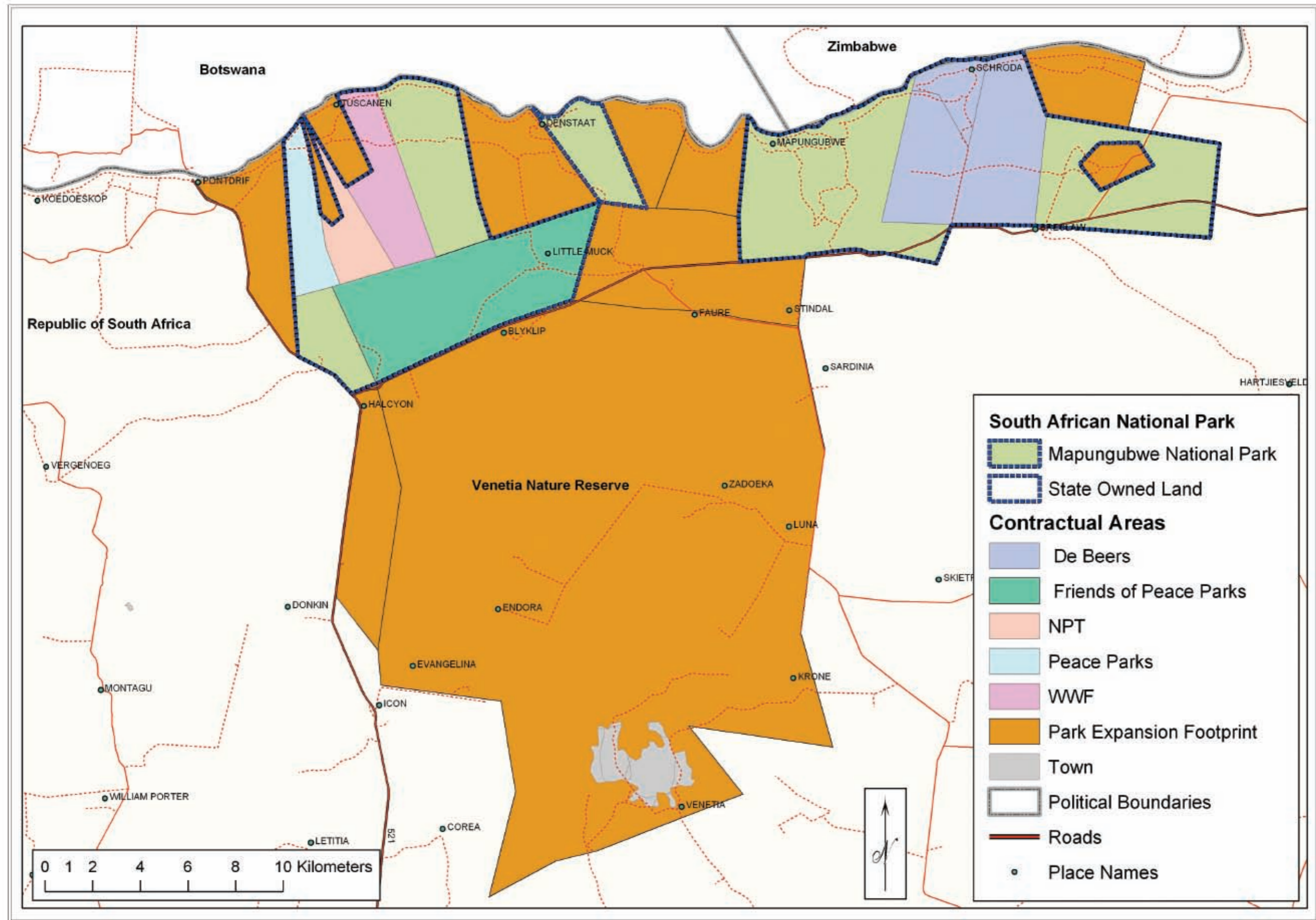
Map 1 – Regional Map

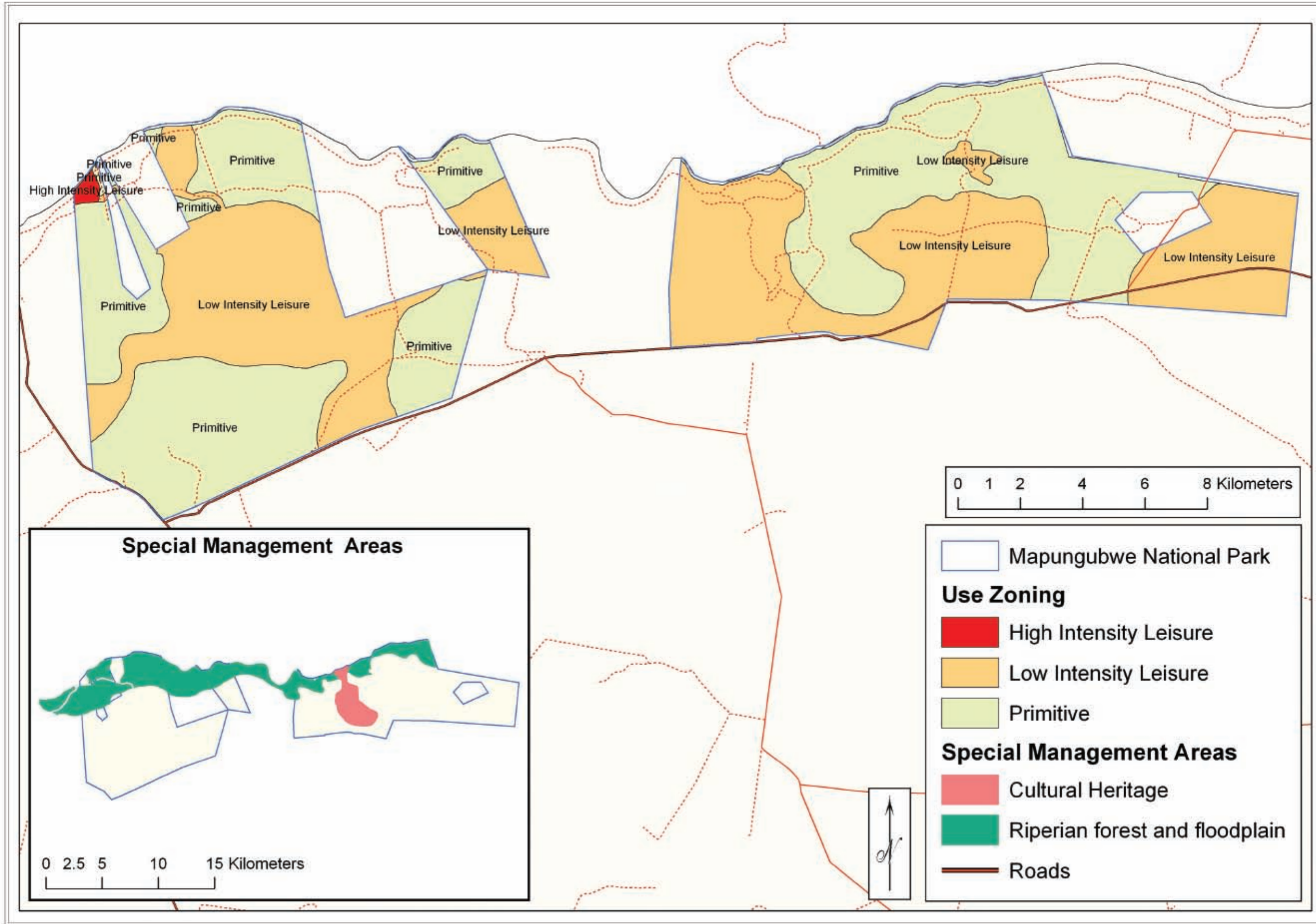


Map 2 – Physical features of the park

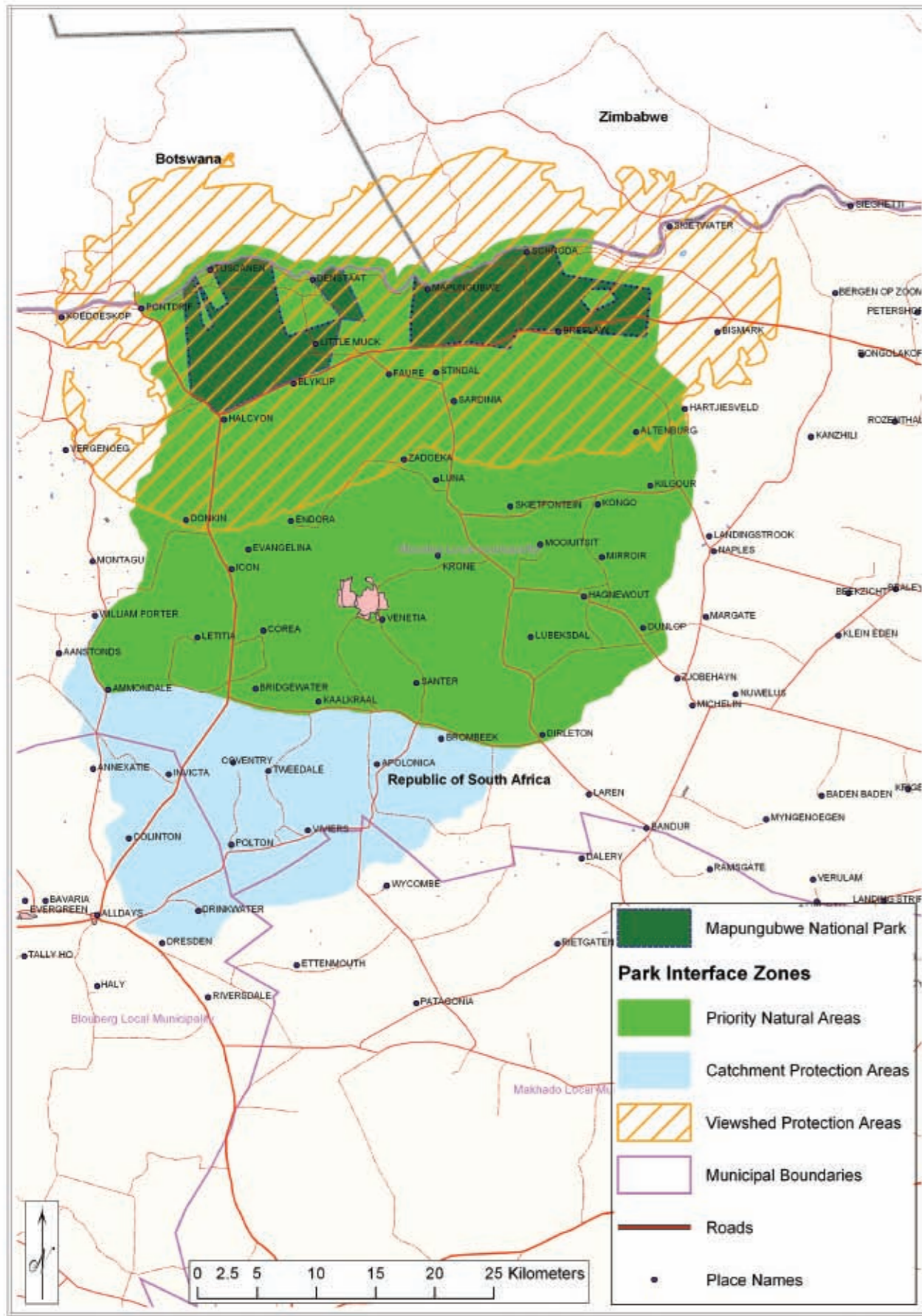


Map 3 – Land tenure and park expansion

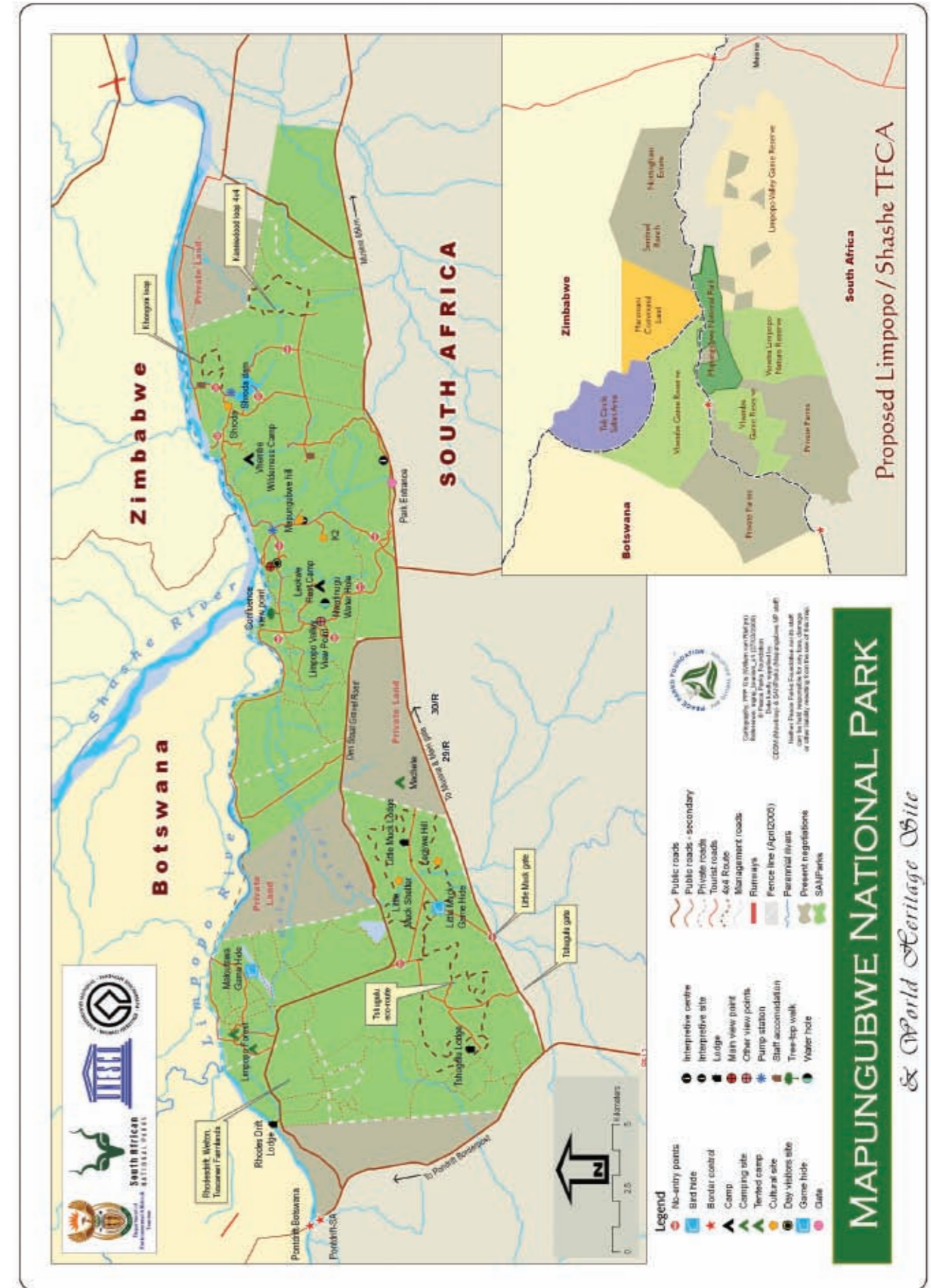




Map 5 – Buffer areas or interface zones



Map 6 – Infrastructure and development



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