



**EZEMVELO  
KZN WILDLIFE**  
Conservation, Partnerships & Ecotourism

# **SPIOENKOP NATURE RESERVE** *Protected Area* **MANAGEMENT PLAN**



John Thackeray



John Thackeray



# **SPIOENKOP NATURE RESERVE**

**KwaZulu-Natal  
South Africa**

## **Protected Area Management Plan Developed: 2013**

Prepared by  
Ezemvelo KwaZulu-Natal Wildlife Protected Area Management  
Planning Unit and the Spioenkop Nature Reserve Planning Committee

### Citation

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## **AUTHORISATION**

This Protected Area Management Plan for Spioenkop Nature Reserve is recommended by the Spioenkop Nature Reserve Planning Committee (NRPC), a multi-disciplinary team consisting of:

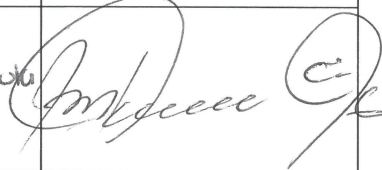
### **Ezemvelo KZN Wildlife**

D Mkhabela	Acting General Manager West
A Sigibudu	Conservation Manager uThukela District
E Mlaba	Officer-in-Charge: Spioenkop Nature Reserve
P Ngwenya	District Ecologist NW
S McKean	Resource Use Ecologist
J Z Mazibuko	District Conservation Officer Estcourt
Magda Goosen	Protected Area Management Planner

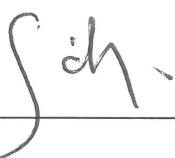
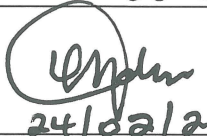
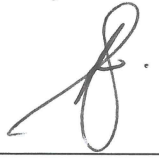



## APPROVAL


This Protected Area Management Plan for Spioenkop Nature Reserve is approved:

TITLE	NAME	SIGNATURE AND DATE
KwaZulu-Natal MEC: Department of Economic Development, Tourism and Environmental Affairs	M. Mabuyis Khulu	

## Recommended:

TITLE	NAME	SIGNATURE AND DATE
Chairperson: KZN Nature Conservation Board		2 C Ngidi 06.03.15
Chief Executive Officer: Ezemvelo KZN Wildlife	MD MABUNDA	 24/02/2015
Chairperson: Ezemvelo KZN Wildlife, Operations Committee	S. KESWA	
Chairperson: Operations Committee: West	D. MKHABELA	

Dr LW Mngoma  
Acting GM- Environmental  
Affairs(EDTEA)

Noted  
  
30/09/15



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## PREFACE

This Protected Area Management Plan for Spioenkop Nature Reserve is its primary and overarching management document. It forms the framework within which the nature reserve will be managed and developed towards the achievement of its management objectives, derived in collaboration with the protected area's stakeholders during July to October 2013.

The protected area management planning process has been designed to meet the statutory requirements of the National Environmental Management: Protected Areas Act and other relevant legislation.

The protected area management planning process requires participation from the protected area's stakeholders, the general public and specialists during the various stages of plan development and implementation. Although the management plan and its sub-components are framework planning documents, an annual review process will ensure an active adaptive management planning approach.

A long-term business approach has also been introduced that ensures that the protected area's management objectives are operationalised and reflected through a Financial Plan that will, at the same time, actively pursue additional and improved funding and income towards the achievement of the natural and cultural heritage conservation objectives of the nature reserve.

Ezemvelo KwaZulu-Natal Wildlife, as the appointed Management Authority for Spioenkop Nature Reserve, hereby commits itself to the implementation of this plan.

Dr. Bandile Mkhize

## EXECUTIVE SUMMARY

### Introduction

Spioenkop Nature Reserve is situated 17 km northwest of Winterton, approximately 15 km northeast of Bergville and 35 km from Ladysmith in the KwaZulu-Natal Province of the Republic of South Africa. The reserve falls within the Uthukela District Municipality and the Okhahlamba Local Municipality.

The reserve is a key component of the protected area system in the region of KwaZulu-Natal. The protected area is situated east of the northern section of the uKhahlamba Drakensberg Park World Heritage Site and to the north west of Wagon Drift Dam Nature Reserve and Weenen Nature Reserve.

Spioenkop was proclaimed initially in 1975 as the Spioenkop Public Resort Nature Reserve; in 1988 additional farms were consolidated and proclaimed as part of the Spioenkop Public Resort Nature Reserve with a total size of 7283 ha. The reserve is no longer known by the full proclaimed name but as Spioenkop Nature Reserve.

The reserve contains a portion of the Thukela River and the Spioenkop Dam which is a state controlled man made dam with rocky slopes. The dam was commissioned in 1972 and has a surface of 1529 ha with the dam wall of 53 m high. According to a report by the Water Research Commission (2010) the dam was initially constructed to transfer water to the Vaal System but this was later replaced by a better scheme (Woodstock/Driel Dams).

The reserve is bounded on the western side by the R600 road to Ladysmith and is situated within easy reach of major towns such as Ladysmith, Estcourt, and Pietermaritzburg. Its location is well suited for tourists and people of the district who want to enjoy the nature and recreation opportunities around the dam.

The famous historic battlefield site of Spioenkop hill can be accessed on foot from the reserve or alternatively by road from outside the reserve, it offers stunning views of the Drakensberg Mountains and foothills.

Spioenkop Nature Reserve is a registered Important Bird Area (IBA, SA 062) with Cape Vulture (*Gyps coprotheros*), the rare Bearded Vulture (*Gypaetus barbatus*) and occasionally the Lappet faced Vulture (*Torgos tracheliotus*) utilising the vulture restaurant in the reserve.

Important animal species such as White Rhino (*Ceratotherium simum*) is also represented in the reserve.

### Management issues, challenges and opportunities at Spioenkop Nature Reserve

The reserve currently does not have a secured boundary fence and this is continually exacerbated by the stealing and vandalising of the fence. This is a concern especially considering the presence of White Rhino in the reserve. The relationship with neighbours needs to be improved as there are mistrust present based on historical and current issues relating to disease control, the ineffectiveness of the fence and human/animal conflict issues.

Furthermore inappropriate land-uses in the area surrounding the reserve could potentially present threats to the reserve. The reserve tourism and management infrastructure need to be assessed and upgraded where required. There is the potential to expand eco-tourism facilities but the feasibility of this must be investigated with due consideration to current and required service infrastructure.

### **Managing the issues, challenges and opportunities at Spioenkop Nature Reserve**

To address the issues identified by the nature reserve planning committee as well as the stakeholders both human and financial resources will be required. Infrastructure maintenance specifically will require project funding initially and thereafter sufficient operational funding to maintain these facilities at an acceptable standard to encourage return visits to the reserve. The boundary fence needs urgent attention and funding especially in the light of the threat of poaching, disease control and human/wildlife conflict.

A fully functioning liaison forum should be established and maintained to ensure transparent and effective communication with stakeholders.

### **Annual Plan of Operation**

Each year an annual plan of operation will be prepared, based on the objectives, strategic outcomes, management activities and targets contained in the protected area management plan.

Records of recommendations for update/changes to the plan should be kept so that when the plan is revised, these recommendations can be assessed and included where necessary. This should be undertaken in the form of a running list, which is updated in each annual report so that the final annual report before the review of the management plan contains the complete list of recommendations. Any proposed significant changes to the management plan that are likely to result in amendment to the vision, objectives and zonation must be supported by the Regional Operations Committee and the Operations Committee (OPSCOM) before being subjected to the appropriate stakeholder participation process and before OPSCOM recommends that the proposed amended protected area management plan be submitted for authorisation to the Ezemvelo KZN Wildlife Board and to the MEC.

## ABBREVIATIONS

AMAFA	Amafa aKwaZulu-Natali (KwaZulu-Natal Provincial Heritage Agency)
A.S.L.	Above sea level
APO	Annual Plan of Operation
CCA	Community Conservation Area
CDP	Concept Development Plan (Component of Ezemvelo KZN Wildlife protected area management planning process)
CEO	Chief Executive Officer
CRMP	Cultural Resource Management Plan
CMS	Co-management Structure
DAE	KwaZulu-Natal Provincial Department of Agriculture and Environmental Affairs
DCO	District Conservation Officer
DEA	National Department of Environmental Affairs
DWA	National Department of Water Affairs
EIA	Environmental Impact Assessment
Ezemvelo	Ezemvelo KwaZulu-Natal Wildlife
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EWT	Endangered Wildlife Trust
FP	Financial Plan
FPA	Fire Protection Association in terms of the National Veld and Forest Fire Act (No.1 of 1998)
GDP	Gross Domestic Product
GIS	Geographical Information System
IDP	Municipal Integrated Development Plan
IUCN	International Union for the Conservation of Nature
MEC	Member of the Executive Council
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NEMA	National Environmental Management Act
NPAES	National Protected Area Expansion Strategy
NR	Nature Reserve
NRPC	Nature Reserve Planning Committee
NSBA	National Spatial Biodiversity Assessment
OiC	Officer in Charge
PA	Protected Area
SAHRA	South African Heritage Resources Agency
SAPPI	South African Pulp and Paper Industry
SDF	Municipal Spatial Development Framework
SNR	Spioenkop Nature Reserve
SMME	Small, Micro and Medium Enterprises
SWOT	Strengths, weaknesses, opportunities and threats analysis
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WWF	World Wildlife Fund

## 1) BACKGROUND

### 1.1 Purpose of the plan

The Protected Area Management Plan is a high-level, strategic document that provides the direction for the development and operation of protected areas. It informs management at all levels, from the staff on-site through to the CEO, the Board and the MEC. The purpose of the management plan is to:

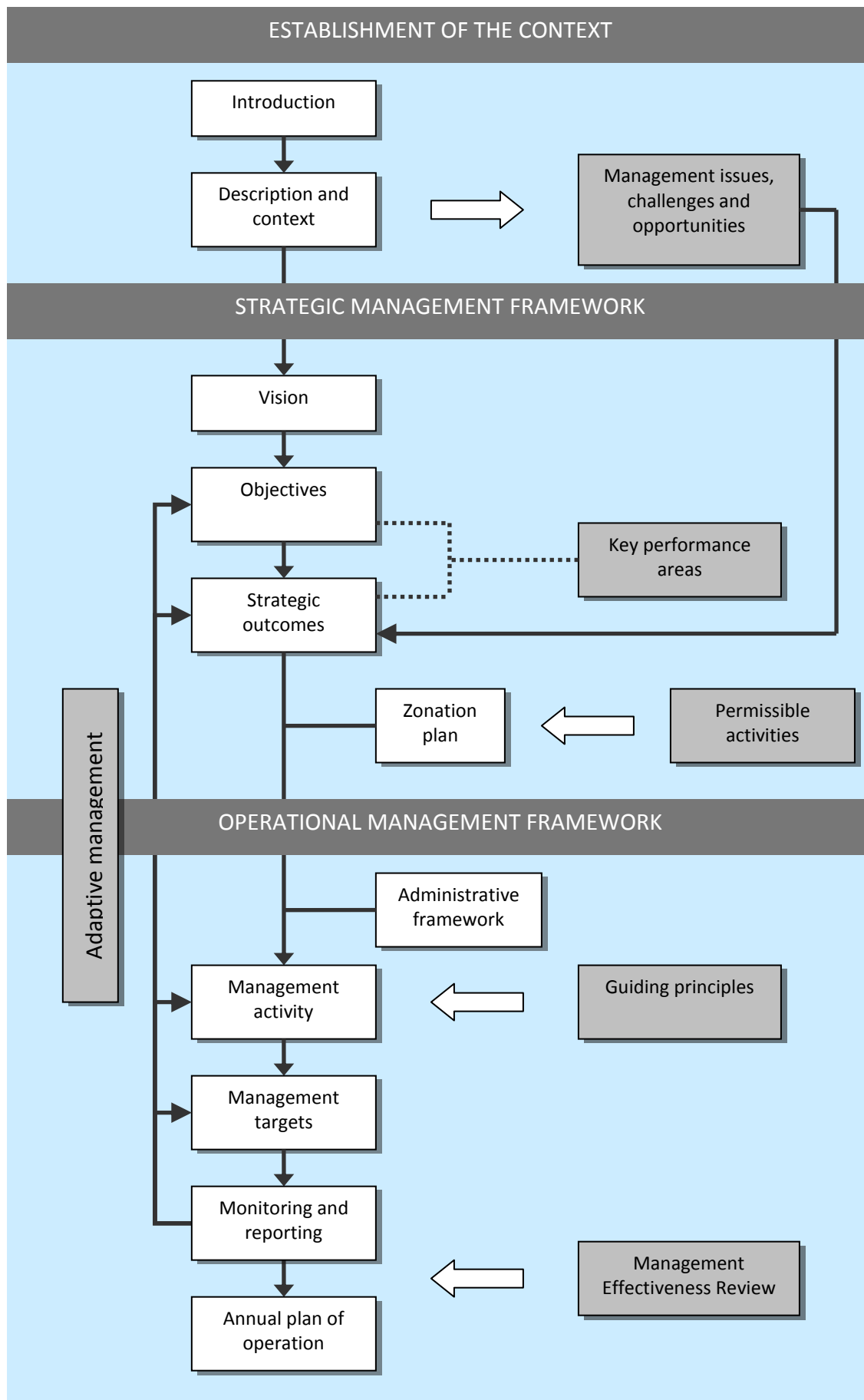
- Facilitate compliance with the National Environmental Management: Protected Areas Act (No. 57 of 2003).
- Provide the primary strategic tool for management of Spioenkop Nature Reserve (SNR), informing the need for specific programmes and operational procedures.
- Provide motivations for budgets and provide indicators that the budget is spent correctly.
- Build accountability into the management of SNR.
- Provide for capacity building, future thinking and continuity of management.
- Enable Ezemvelo KZN Wildlife to develop and manage SNR in such a way that its values and the purpose for which it was established are protected.

### 1.2 Structure of the plan

*See Figure 1.1 – Structure of the protected Area Management Plan*

Section 1:	Provides an introduction and background to the management plan and Spioenkop Nature Reserve.
Section 2:	Establishes the context of the nature reserve, providing the basis for the strategic and operational management frameworks that follow.
Section 3:	Sets out the vision and objectives that must be achieved in efforts to effectively conserve the nature reserve.
Section 4:	Sets out the zonation of the nature reserve, outlining the permissible land uses in particular zones.
Section 5:	Describes the administrative structure required to effectively manage Spioenkop Nature Reserve.
Section 6:	Sets out the detailed management targets that must be achieved in managing the nature reserve.
Section 7:	Sets out the monitoring measures required to determine if management targets are being met and the requirements for reporting on performance in implementing the plan.

Section 8:	Describes the components that must be included in the annual plan of operation.
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**Figure 1.1 Structure of the Protected Area Management Plan**

### 1.3 Introduction

Spioenkop Nature Reserve is situated off the Provincial Road R600, 27kms south-west of Ladysmith, 11kms north of Winterton and 6kms north-east of Bergville as the crow flies. (*Map A – Location of Spioenkop Nature Reserve*). Spioenkop Nature Reserve extends from 28°38'24"S to 28°43'12" S and from 29°24'00" E to 29°31'48"E.

The reserve consists of the state owned Spioenkop Dam, situated at its centre, and surrounded, predominantly, by vegetation types such as the KwaZulu-Natal Highland Thornveld covering approximately 97% of the reserve, as well as a small portion of the Northern KwaZulu-Natal Shrubland in the north-east of the Reserve which covers about 3% of the Reserve (*Map D*).

The Spioenkop Dam is under the jurisdiction of the Department of Water and Environmental Affairs (DWEA). The dam wall is approximately 55m in height, retains 282 million m<sup>3</sup> of water and has a surface area of approximately 1 468 ha. The Spioenkop Dam divides SNR into two sections, the South-Shore Section (2 304 ha) south of the dam and North-Shore Section (1 666 ha) north of the dam. The two sections of SNR are centrally managed from the main office in the South-Shore.

The reserve is a key component of the protected area system in the region of KwaZulu-Natal. The protected area is situated east of the northern section of the uKhahlamba Drakensberg Park World Heritage Site and to the North West of Wagon Drift Dam Nature Reserve and Weenen Nature Reserve (*Map A – Location of Spioenkop Nature Reserve*); within the Uthukela District Municipality and the oKhahlamba Local Municipality.

Spioenkop was proclaimed initially in 1975 as the Spioenkop Public Resort Nature Reserve; in 1988 additional farms were consolidated and proclaimed as part of the Spioenkop Public Resort Nature Reserve with a total size of 7283 ha. The reserve is no longer known by the full proclaimed name but as Spioenkop Nature Reserve.

The famous historic battlefield site of Spioenkop hill can be accessed on foot from the reserve or by road outside of the reserve, this site offers stunning views of the Drakensberg Mountains and foothills.

The area ranges across an altitude of 1070 m to 1210 m a.s.l. and surrounding land consists mostly of agricultural land uses and communal grazing areas. Spioenkop Nature Reserve is a registered Important Bird Area (IBA, SA 062) with Cape Vulture (*Gyps coprotheros*), the rare Bearded Vulture (*Gypaetus barbatus*) and occasionally the Lappet faced Vulture (*Torgos tracheliotus*) utilising the vulture restaurant in the reserve. The reserve protects important vegetation types including KwaZulu-Natal Highveld Thornveld with a small portion of the vulnerable Temperate Alluvial Vegetation present in the north east of the reserve. Small portions of the

vulnerable vegetation type, Northern KwaZulu-Natal Moist Grassland are present in the western and north western parts of the reserve.

Important animal species such as White Rhino (*Ceratotherium simum*) is also represented in the reserve.

#### 1.4 The values of Spioenkop Nature Reserve

The values of a place are those remarkable attributes that exemplify it and are largely the reason that it has been proclaimed as a protected area. The values are important in planning and management, as they are the aspects of the place that must be protected. The values of SNR include:

<b>Natural values</b>	<ul style="list-style-type: none"> <li>▪ An area of unique natural beauty.</li> <li>▪ Provide protection for threatened and endangered species and important vegetation types.</li> <li>▪ Protection of a portion of the Thukela River.</li> <li>▪ Learning and research opportunities in terms of natural systems and biodiversity.</li> <li>▪ Intact vegetation around the dam prevents siltation and keep dam functional.</li> <li>▪ High game reproduction rate.</li> </ul>
<b>Ecosystem service values</b>	<ul style="list-style-type: none"> <li>▪ The reserve delivers a range of ecosystem services to the broader community which includes climate change mitigation, water services, soil stability and refugia for biodiversity.</li> </ul>
<b>Eco-tourism values</b>	<ul style="list-style-type: none"> <li>▪ The reserve provides recreational facilities with the dam for water sports, game viewing and many others.</li> <li>▪ Opportunities for environmental awareness utilising the outdoor classroom concept.</li> <li>▪ Income generating opportunities through the development of sustainable eco-tourism products.</li> </ul>
<b>Cultural and historic values</b>	<ul style="list-style-type: none"> <li>▪ Learning and research opportunities relating to historical, cultural and living heritage sites.</li> <li>▪ Battlefield sites related to the Second Anglo-Boer War.</li> <li>▪ Late Iron Age settlement sites.</li> </ul>
<b>Social values</b>	<ul style="list-style-type: none"> <li>▪ The reserve provides both permanent and</li> </ul>

	<p>temporary job opportunities.</p> <ul style="list-style-type: none"> <li>▪ Provides opportunities for environmental education, awareness and research.</li> </ul>
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Consistent with Section 17 of the Protected Areas Act, the purpose of Spioenkop Nature Reserve is to:

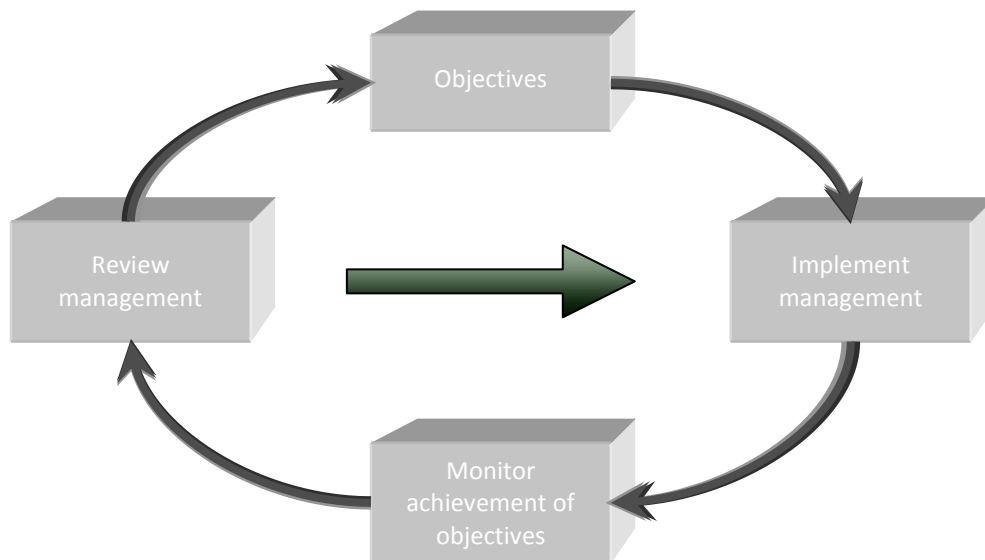
- protect ecologically viable representative portions of KwaZulu-Natal Highveld Thornveld, Thukela Thornveld and Thukela Valley Bushveld;
- preserve the ecological integrity of the area;
- conserve the important biodiversity in SNR;
- protect areas representative of ecosystems, habitats and species naturally occurring in SNR;
- protect SNR's endangered and vulnerable species;
- assist in ensuring the sustained supply of environmental goods and services specifically relating to water provision;
- create or augment destinations for nature-based tourism and recreation in the region;
- manage the interrelationship between natural environment, biodiversity, human settlement and economic development;

## 1.5 Planning approach

The preparation of this management plan has been undertaken based on the following guiding principles:

### 1.5.1 Adaptive management

Adaptive management is a structured, iterative process in which decisions are made using the best available information, with the aim of obtaining better information through monitoring of performance (*Figure 1.2 – The adaptive management cycle.*). In this way, decision making is aimed at achieving the best outcome based on current understanding, whilst acquiring the information needed to improve future management. Adaptive management can lead to revision of a part or if necessary the whole management plan.



**Figure 1.2 The adaptive management cycle**

Adaptive management enables protected area managers to:

- i) Learn through experience.
- ii) Take account of, and respond to, changing factors that affect the protected area.
- iii) Continually develop or refine management processes.
- iv) Adopt best practices and new innovations in biodiversity conservation management.
- v) Demonstrate that management is appropriate and effective.

### 1.5.2 Collaboration and transparency

Stakeholder involvement and support is an important aspect of effective protected area management. It is also a requirement in terms of Sections 39(3) and 41(2) (e) of the National Environmental Management: Protected Areas Act (No.57 of 2003). Accordingly, the development of this management plan has been undertaken through a collaborative process, involving local community representatives, and other key stakeholders.

Public consultation has been undertaken through a series of meetings and discussions with key stakeholders culminating in a key stakeholder workshop, held on the 2<sup>nd</sup> of July 2013 and October 2013. Furthermore, the draft management plan has been made available for public review and comment in September 2013 prior to its finalisation. This process has ensured a great deal of valuable input into the development of the management plan, the outcomes of which have been incorporated into it. A detailed public participation report is available upon request from the SNR management.

## **2) DESCRIPTION OF SPIOENKOP NATURE RESERVE AND ITS CONTEXT**

### **2.1 Institutional and administrative framework for the management of SNR**

The KwaZulu-Natal Nature Conservation Board, established in terms of the KwaZulu-Natal Nature Conservation Management Act No.9 of 1997, was appointed by the KwaZulu-Natal MEC: Agriculture and Environmental Affairs as the management authority for all provincial protected areas in KwaZulu-Natal. The Board's implementing agency is Ezemvelo KZN Wildlife (Ezemvelo).

Management of SNR will be undertaken in accordance with relevant legislation and the management policies of Ezemvelo, which includes a commitment to maintain the character and ecological, cultural and aesthetic integrity of the site.

The KwaZulu-Natal Nature Conservation Board will be responsible for reporting on the management of SNR to the designated KwaZulu-Natal Provincial Member of the Executive Committee (MEC) and the Premier thus ensuring coordination of those matters that may affect the nature reserve through the relevant provincial departments, district and local municipalities.

### **2.2 The legislative basis for the management of Spioenkop Nature Reserve**

There is a large body of legislation that is relevant to the management of SNR, but the primary legislation guiding the management of protected areas is the National Environmental Management: Protected Areas Act (No.57 of 2003).

The Protected Areas Act establishes the legal basis for the creation and administration of protected areas in South Africa, as its objectives include provisions "for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes". The Act sets out the mechanisms for the declaration of protected areas and the requirements for their management.

A detailed list of relevant legislation is provided in *Appendix B – List of statutes to which the SNR is subject*. Managers are required to familiarise themselves with the purpose and contents of the statutes and their subsequent amendments and regulations.

### 2.2.1 Proclamation status of Spioenkop Nature Reserve

Spioenkop Nature Reserve was initially proclaimed in Gazette No. 3875 of 1975 as the Spioenkop Public Resort Nature Reserve and included the following farms:

- Sub 14 of Zuurlager No. 1040
- Sub 14 and 15 of Krommedraai No. 1033
- Sub 9 and 10 of Rhenosterfontein No. 1051
- Sub 6,18,17 and 15 of Schoongezicht No. 1088
- Sub 1 of 3 of Bergville
- Sub Patience and Sub Riverdale of Kroomedraai No 1033
- Sub Delta and Sub 21 of Venterslaagte 1291
- Sub Fairview
- Sub 4, 5, D, Rem. And Sub Bedale of Rhenosterfontein 1051
- Sub 7 and 10 of Schoongesicht 1088
- Sub Wairangi and Sub D of Emmadale No. 1211

Proclamation No. 33 of 1988 increased the area to include Subs 5 and 6 (both of 1) of the farm Labuschagnes Kraal No. 905.

*See Appendix C – Proclamation of Spioenkop Nature Reserve.* In terms of Section 12 of the Protected Areas Act, protected areas that were protected in terms of provincial legislation, prior to the commencement of the Protected Areas Act, which would be eligible to be declared as nature reserves in terms of the Act, must be regarded to be a nature reserve for the purposes of the Protected Areas Act. The implication of this is that Spioenkop Nature Reserve is legally considered to be a proclaimed nature reserve in terms of the Protected Areas Act.

### 2.2.2 Invasive species control in terms of the Biodiversity Act

In terms of Section 76 of the National Environmental Management: Biodiversity Act (No.10 of 2004), the management authority of a protected area must incorporate an invasive species control plan in the protected area management plan. This is addressed in *Section 3*.

## **2.3 The policy framework guiding the management of Spioenkop Nature Reserve**

In conserving and managing the biodiversity of KwaZulu-Natal, Ezemvelo KZN Wildlife operations are undertaken within a broad framework of policies. At a national level, overarching policy is set out in:

- i) The White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity of 1997.

- ii) The Bioregional Approach to South Africa's Protected Areas, 2001/2002.
- iii) Community Based Natural Resource Management Guidelines, 2003.
- iv) National environmental management principles set out in section 2 of the National Environmental Management Act.
- v) Relevant norms and standards set by the Minister and MEC in terms of the Protected Areas and Biodiversity Acts.

Within the province, Ezemvelo has adopted a Five Year Strategic Plan and Performance Plan for 2009-2014, which has developed the following corporate strategic profile:

### **VISION**

“To be a world renowned leader in the field of biodiversity conservation”

### **MISSION STATEMENT**

“To ensure effective conservation and sustainable use of KwaZulu-Natal's biodiversity in collaboration with stakeholders for the benefit of present and future generations.”

### **STRATEGIC GOALS**

- i) To conserve indigenous biodiversity in KwaZulu-Natal both within and outside of protected areas.
- ii) To be a sustainable, well-resourced and capacitated biodiversity conservation and ecotourism organisation.
- iii) To foster the value of biodiversity conservation with stakeholders.
- iv) To be an efficient, effective and compliant organisation with good governance.
- v) To effectively promote the mandate of the organisation to stakeholders.

<b>CORE VALUES</b>	
Integrity	At all times we act morally, ethically and with honesty.
Respect	We treat stakeholders with patience, politeness and acknowledge and value their right and those of the environment.
Accountability	We involve stakeholders in the organisation's activities with a culture of openness and are answerable for the outcome of our actions and activities.
Team work	Working together to achieve our vision through goals.
Innovation	An adaptable organisation that embraces the culture of creativity and learning.
Excellence	We are a progressive organisation applying best practices to achieve the highest quality and standards.
Commitment	At all times we undertake our activities with passion, loyalty and dedication.
Productivity	We undertake to produce results timeously, efficiently and effectively.

A number of policies, specific to particular areas of operation, have also been developed by Ezemvelo KZN Wildlife (*Appendix D – List of policies, unpublished documents and supporting documents*). These policies have been considered and applied within the plan, where relevant. The nature reserve's managers are required to be familiar with them and to apply them in managing Spioenkop Nature Reserve.

The management plan has utilised this body of policies to develop a strategic and operational management framework for Spioenkop Nature Reserve that is consistent with the broad goals and specific policy requirements of Ezemvelo KZN Wildlife.

## **2.4 The regional and local planning context of Spioenkop Nature Reserve**

### **2.4.1 The National Protected Area Expansion Strategy**

In an effort to address a lack of effective protection and representation of all vegetation types within the protected areas system, a National Protected Area Expansion Strategy (NPAES, DEAT 2008) has been developed and approved at a national ministerial level. The purpose of the NPAES is to provide a national framework for the expansion and consolidation of the protected area system, focussing on priority areas for representation and persistence of biodiversity.

In terms of the NPAES, areas around the northern boundary of Spioenkop Nature Reserve are identified as priorities for protected area expansion. The nature reserve falls within Region 37 of the National Protected Area Expansion Strategy focus areas, the Thukela Focus Area in KwaZulu-Natal.

On the basis of the NPAES, at a national level, SNR is a strategically important protected area that forms a critical nodal point for the expansion of protected area efforts.

#### 2.4.2 The Provincial Protected Area Expansion Plan

The KwaZulu-Natal Protected Area Expansion Plan (Ezemvelo KZN Wildlife 2010) also identified areas around the borders of SNR as priorities for protected area expansion and the nature reserve forms a key hub in creating a connected protected area system in the region.

Certain areas around SNR are characterised by high levels of irreplaceability, largely due to losses of natural habitat within the grassland biome and the individual vegetation types in which they occur. This is exacerbated as the grassland biome and many of its vegetation types are poorly protected.

Land identified as a priority for protected area expansion may be incorporated into SNR either through land acquisition or through stewardship agreements, established with individual landowners or communities.

In order to capitalize on these opportunities it is of great importance to resolve all issues regarding the settlement of the land claim and co-management of the area.

#### 2.4.3 EIA Regulations in terms of NEMA

In terms of the National Environmental Management Act (No.107 of 1998) environmental impact assessment (EIA) Regulations, various activities require environmental authorisation before they may commence. In addition, in terms of Regulation RN.546, Listing Notice No.3, there are a number of activities that require environmental approval specifically as a result of their proximity to a protected area. The implication of this is that if any of the activities listed in Appendix E - Listed activities Regulation R.546, Listing Notice No. 3, are proposed in the nature reserve, or within five kilometres of it, they will be subject to either a basic assessment or a full scoping and EIA process. A number of general activities and those proposed for either tourism development or operational management within the nature reserve or its buffer areas will thus also require environmental authorisation.

## **2.5 The history of Spioenkop Nature Reserve**

### **2.5.1 Origins of the name of Spioenkop Nature Reserve**

Spioenkop Nature Reserve (SNR) took its name from the nearby mountain, Spioenkop which is the highest landmark in the vicinity situated north-east of the Reserve. This mountain was historically the battlefield between the Afrikaners and the British, known as the Battle of Spioenkop, which took place during the 1900s.

### **2.5.2 History of conservation in Spioenkop Nature Reserve**

The original Spioenkop Dam, which is located at the centre of the Reserve, was developed in the late 60s with the aim of tapping into the hitherto relatively unutilized water resources of the Upper uThukela River for the promotion of industrial expansion in the Ladysmith-Colenso-Bergville area as well as for irrigation expansion along the uThukela River itself, including the Bloukrantz River Valley. It was also to supply supplementary water to the Vaal River basin for urban and industrial use.

In 1975 the former Natal Parks Board (now Ezemvelo KZN Wildlife) took over the management of the narrow strip of land around the Spioenkop Dam from the Department of Water Affairs. The reserve has subsequently been used for conservation purposes whilst the dam is utilised by visitors for recreational purposes.

### **2.5.3 History of eco-tourism in Spioenkop Nature Reserve**

Spioenkop Nature reserve is open to day visitors and there are also camping and picnic facilities as well as a tented camp (north shore) in the reserve. The road network makes provision for game drives and access along the dam to allow for anglers and boating. A Vulture hide, self-guided hiking trail, The Siege of Ladysmith museum and horse trails are additional attractions in the area.

A registered boat club operates at the dam but non-members can also access the dam for boating.

## **2.6 Ecological context of Spioenkop Nature Reserve**

### **2.6.1 Climate**

Spioenkop Nature Reserve lies in the summer rainfall region, receiving most of its rain between November and February, with the peak rainfall experienced in January. Its mean annual precipitation is 725mm.

The mean annual temperature of the area is 17.8°C, with mean summer (January) minimum and maximum temperatures of 16 °C and 29.3 °C and mean winter (July) minimum and maximum temperatures of 1.4 °C and 20.8°C (obtained from the Cedara Bioresource Program). Frost is severe in

this area. On average 24 days of heavy frost may occur during the year within a period of 65 days. This period of heavy frost occurs between the second half of May to second half of July and such frosts are expected in 83% of the years.

### 2.6.2 Topography

SNR is dominated by two physical features namely the Spioenkop Mountain, with a height of 1465.7m above sea level (a.s.l.), and the Spioenkop Dam at a height of 1060m a.s.l. The reserve topography varies from gently undulating along parts of the North-Shore and to the west of the residential/chalet complex, to very steep on the flanks of Spioenkop Mountain. The dam, with its capacity of 282 million m<sup>3</sup>, is fed by the uThukela River which enters the dam from the south-west and exits on the eastern end. Apart from the uThukela, the other major watercourses that enter the dam are Venterspruit from the north-west and an unnamed stream that drains the flanks of the Green Hill. The reserve parallels the dam, which is situated at its center, for much of its distance along the southern and western shores, dividing it into two sections, the North-Shore and the South-Shore. However, on the north and south-east the Reserve boundaries diverge from the Dam and extend to the summits of Green Hill and Spioenkop in the north and the main Winterton/Ladysmith road (i.e. R600) in the south and east. To the north-west of Spioenkop Mountain is the neighboring summit of Green Hill at 1396m a.s.l. Rocky outcrops of dolerite are very common.

### 2.6.3 Geology and Soils

SNR is underlain by shales, mudstones and sandstones of the Beaufort Series (i.e. Estcourt and Adelaide Formations) (Hughes, 1988; Johnson *et al.*, 2006). Many dolerite dykes/outcrops are evident throughout the Reserve, being particularly common in the eastern section and these have a marked influence on the soils found across the Reserve.

The soils of SNR can be categorized into the following six groups for the sake of convenience:

- Shallow soils underlain by rock or saprolite and these include soil forms such as Mispah, Glenrosa and Milkwood.
- Soils with red subsoils which include soil forms such as Hutton and Shortlands.
- Soils with plinthic soil horizons and they include soil forms such as Avalon, Longlands and Westleigh.
- Soils with marked textural differentiation between topsoil and subsoil (i.e. Duplex soils) and they include soil forms such as Swartland, Valsrivier, Sterkspruit and Estcourt.
- Soils of valley sites (i.e. generally poorly drained) and these include soil forms such as Katspruit, Dundee, Oakleaf, Rensburg, Kroonstad and Arcadia.

- Soils with black, structured subsoils which are represented by the soil form Bonheim.

Soil forms such as the Westleigh, Glenrosa, Mispah and Sterkspruit are usually susceptible to erosion and would be expected to be of lower fertility due to greater losses of organic matter over time. It is, therefore, important that the herbivore stocking rate is managed carefully in SNR in order to avoid overgrazing which may exacerbate soil erosion on such soils.

#### 2.6.4 Hydrology

SNR is traversed by a perennial river, the uThukela River, which is serviced by other major watercourses such as Venterspruit as well as an unnamed stream that drains the flanks of the Green Hill. The largest of these tributaries is the Venterspruit River.

The uThukela River is dammed near the eastern boundary of SNR to form the Spioenkop Dam. The dam is the most important source of water for the towns of Ladysmith, Bergville, Winterton and surrounding areas. The water quality is fairly good except for some negligible turbidity, probably originating from cultivated lands on the neighbouring farms, which affects the water quality during the rainy season.

#### 2.6.5 Vegetation

See Map D – *Vegetation of Spioenkop Nature Reserve and Appendix F1 – Plant species of Spioenkop Nature Reserve*. Spioenkop Nature Reserve falls, mainly, within the KwaZulu-Natal Highland Thornveld (i.e. 97% of the PA) (Muchina and Rutherford 2006, vegetation type Gs 6). This vegetation type occurs only in the KwaZulu-Natal Province in both dry valleys and moist upland.

The most extensive area of this vegetation type is found in the region from Ladysmith, Winterton, Estcourt and Colenso, between Mooi River and Greytown, between Pomeroy and Babanango and further north in a triangle between Vryheid, Paulpietersburg and Louwsburg as well as a large patch around Newcastle. Its distribution ranges from an altitude of 920 – 1440 m.a.s.l.

This vegetation is characterized by tall tussock grassland usually dominated by *Hyparrhenia hirta*, with occasional savannoid woodlands with scattered *Acacia sieberiana* var. *woodii* and in small pockets also with *Acacia karroo* and *A. nilotica*. Its conservation status is “*Least Threatened*”, with only 2% statutorily conserved in Spioenkop, Weenen, Ntinini, Wagendrift and Tugela Drift Nature Reserve whereas its conservation target is 23%.

In the north-east of the Reserve there is also a small pocket (i.e. only 3% of the PA) of the Northern KwaZulu-Natal Shrubland (Muchina and Rutherford 2006, vegetation type Gs 5). This vegetation also occurs only in KwaZulu-Natal and it is a widely scattered group of patches, from Ladysmith in the west to Vryheid in the north-east. Large portions of this vegetation are

found in the surrounds of Newcastle and its distribution ranges from an altitude of 1100 – 1540 m.a.s.l. The vegetation is characterized by sparse grass cover and typical occurrence of scattered shrubland pockets (and locally also thickets). The most prominent shrubs and trees include *Acacia caffra*, *A. natalitia*, *Clerodendrum glabrum*, *Diospyros lyciodes*, *Rhus pyroides*, *R. pentheri* and *Scutia myrtina*. Its conservation status is “Least Threatened” and only less than 1% is statutorily conserved in the Spioenkop Nature Reserve whereas its conservation target is 23%.

In total, 207 plant species have to date been recorded at SNR. This includes 1 Red Data Book species (Vulnerable) and four CITES Appendix 2 species. It is critical that the Corporate Ezemvelo Biodiversity Database is updated with new plant species records as they become available.

The following Red Data (VU) listed plant species occur in the Reserve:

- *Merwillia plumbea*

Photographs taken during the Second Anglo Boer War show a very different veld condition than today. The landscape consisted of undulating grass plains with fewer trees. The landscape changed dramatically due to the introduction of cattle and over grazing. The reduced grass cover allowed trees to compete more effectively with grasses and woody vegetation increased over time.

Over-utilised grasslands are sometimes invaded by *Acacia* species. The encroachment of mainly *Acacia karoo*, *Acacia nilotica* and *Acacia sieberiana* is managed through active adaptive management and includes fire management as well as mechanical and chemical treatment of trees.

#### 2.6.7 Fire regime

Fire is a key driver of ecological dynamics in southern African systems, which are largely driven by patterns of disturbance. Fire contributes to patterns of disturbance by removing the vegetative growth of plants, and in contrast to grazing it does this non-selectively, which reduces the competitive advantages of species adapted to grazing.

See also *Section 6.6.1 – Fire management*. According to the draft Fire Management Plan for Spioenkop Nature Reserve (1999) the following objectives have been identified for fire management in Spioenkop Nature Reserve:

- Maintain diversity of species and habitat
- Remove accumulated and/or moribund plant material
- Control of woody plant structure
- Control of bush encroachment
- Control of bush thickening

- Change grass species composition of old lands
- Protect sensitive features, infrastructure, and areas not due for burning
- Exotic plant management
- Soil erosion control (Burning can assist by maintaining a vigorous grass sward with good basal cover)

The reserve is divided into 35 fire management blocks which have its own specific burning requirements that are stipulated in the draft Fire Management Plan.

The management philosophy extracted from the draft Fire Management Plan (1999):

*"It is assumed that by maintaining the ecological processes that were operating before colonisation and the advent of commercial agriculture (i.e. before 1850) the indigenous diversity (functional, structural and compositional) will be maintained. The objective is thus to maintain, re-instate and/or simulate natural ecological processes (process-based management). It is recognised that the activities of man had an influence on the pre-colonial biodiversity, and that to maintain the inherited diversity necessitates re-instating or simulating the activities of man. Financial and manpower considerations, and the need to generate money for the Board, may however limit the extent to which this philosophy can be implemented, and the extent to which processes can be simulated i.e. sell excess animals, do not allow them to die off. (NB Unfenced boundary has an effect on this philosophy). It is recognised that fire (natural and anthropogenic of origin) was an extremely important process shaping the inherited diversity, and that fire is probably the most important and cost-effective tool available for managing and manipulating the biological diversity in Spioenkop Nature Reserve."*

Conservation management is centered on the manipulation of fire and grazing, the key ecological processes influencing the biodiversity and ecosystem processes in the protected area. There is a poor understanding of what the "natural" (historic) fire and herbivory regimes would have been and it is not practical to apply these given the relatively small size of the protected area and surrounding land-use. Management instead aims to promote a shifting mosaic of patches of different age and size - thereby creating a diversity of habitats. This approach will satisfy the known requirements for key species (e.g. black rhino and oribi) while also providing the best insurance policy for the majority of organisms whose habitat requirements and response to fire and herbivory are unknown.

#### 2.6.8 Alien and Invasive species

An invasive species means any species, in terms of section 70 of the National Environmental Management: Biodiversity Act (No. 10 of 2004), who's

establishment and spread occurs outside of its natural distribution range. Alien plant species have been planted or have established themselves within the protected area over time. They can, to varying degrees, impact negatively on water production, the natural environment and biodiversity as well as the natural landscape character of the protected area. Their control and management is considered a management priority. Wherever possible and appropriate these plants should be removed from the protected area.

An on-going time-bound programme to effectively control these alien weeds and invader plants within the protected area and 1km (buffer area) of the protected area boundary must be developed. State poverty relief programs such as 'Landcare', 'Working for Water', "Working on Fire" and 'Working for Wetlands' should be used to full effect to complement the protected area budget for this management task.

Alien animal species can threaten the ecological, genetic or natural aesthetic integrity of the protected area and can be vectors for the spread of diseases. Their control and management are considered a management priority. Wherever possible and appropriate these animals must be removed from the protected area. The most important alien and invasive species currently that needs to be controlled is the Prickley Pear (*Opuntia* spp) and *Lantana camara*.

Alien animals that are present and are a threat / potential threat to the ecological processes / tourism experience in the protected area will be dealt with as necessary according to a control program.

Mallard ducks, alien wild ungulates, "domesticated" guinea fowl and feral species are all potential threats and may be found in the protected area sporadically.

#### 2.6.9 Mammalian fauna

See Appendix F - Species list for SNR. The protected area has been surveyed for faunal diversity by Ezemvelo staff and a species list has been produced, but it needs updating. A protocol for compiling and updating species checklists is in place.

Twenty six mammal species, 20 genera and ten families have been recorded at SNR. These include two Red Data species, the Geoffroy's horseshoe bat (*Rhinolophus clivosus zuluensis*) which is listed as Near Threatened and the white rhinoceros (*Ceratotherium simum simum*) which is listed as Vulnerable and also listed on CITES Appendices 1 and 2, as well as a southern African endemic species, the blesbok (*Damaliscus pygargus phillipsi*).

The African buffalo (*Syncerus caffer caffer*) and the black wildebeest (*Connochaetes gnou*) used to exist in SNR but were later removed for conservation reasons. Buffalo were removed due to not being disease-free whereas black wildebeest were removed to avoid the risk of hybridization with the blue wildebeest which currently still exist in the Reserve.

### 2.6.10 Avifauna

Spioenkop Nature Reserve is an Important Bird Area and provides a variety of habitat for birds. A vulture feeding restaurant is in operation in Spioenkop Nature Reserve and zebra carcasses are utilised, as part of predator simulation, to provide a feeding site mainly for Cape vulture (*Gyps coprotheres*) that regularly visit the protected area. Other species that utilise the feeding site on occasion include Bearded vulture (*Gypaetus barbatus*), Lappetfaced vulture (*Torgos tracheliotus*) and Martial Eagle (*Polemaetus bellicosus*).

About 314 bird species have been recorded at SNR, 27 of which are Red Data species and 21 are endemic to southern Africa. The Red Data species include the Whitebacked night heron (*Gorsachius leuconotus*) [VU<sup>1</sup>], Black stork (*Ciconia nigra*) [NT<sup>2</sup>], Lesser flamingo (*Phoeniconaias minor*) [NT], Secretary bird (*Sagittarius serpentarius*) [NT], Bearded vulture (*Gypaetus barbatus*) [E<sup>3</sup>], Cape vulture (*Gyps coprotheres*) [VU], Lappetfaced vulture (*Torgos tracheliotus*) [VU], Martial eagle (*Polemaetus bellicosus*) [VU], Crowned eagle (*Stephanoaetus coronatus*) [NT], African marsh harrier (*Circus ranivorus*) [VU], Black harrier (*Circus maurus*) [NT], Peregrine falcon (*Falco peregrinus*) [NT], Lanner falcon (*Falco biarmicus*) [NT], Lesser kestrel (*Falco naumanni*) [VU], Blue crane (*Anthropoides paradiseus*) [VU], Crowned crane (*Balearica regulorum*) [VU], Striped flufftail (*Sarothrura affinis*) [VU], Denham's bustard (*Neotis denhami*) [VU], Whitebellied korhaan (*Eupodotis cafra*) [VU], Blue korhaan (*Eupodotis caerulescens*) [NT], Blackbellied korhaan (*Eupodotis melanogaster*) [NT], Black-winged lapwing (*Vanellus melanopterus*) [NT], Caspian tern (*Hydroprogne caspia*) [VU], Grass owl (*Tyto capensis*) [VU], Ground hornbill (*Bucorvus leadbeateri*) [VU], Broadtailed warbler (*Schoenicola brevirostris*) [NT], Shorttailed pipit (*Anthus brachyurus*) [VU]. The southern African endemics include the Cape vulture (*Gyps coprotheres*), Jackal buzzard (*Buteo rufofuscus*), Black harrier (*Circus maurus*), Blue crane (*Anthropoides paradiseus*), Blue korhaan (*Eupodotis caerulescens*), Melodius lark (*Mirafraga cheniana*), Eastern longbilled lark (*Mirafraga curvirostris*), Cape rock thrush (*Monticola rupestris*), Sentinel rock thrush (*Monticola exploratoria*), Buffstreaked chat (*Oenanthe bifasciata*), Cape grassbird (*Sphenoeacus afer*), Drakensberg prinia (*Prinia hypoxantha*), Fiscal flycatcher (*Sigelus silens*), Fairy flycatcher (*Stenostira scita*), Southern tchagra (*Tchagra tchagra*), Pied starling (*Spreo bicolor*), Southern doublecollared sunbird (*Cinnyris chalybeus*), Greater doublecollared sunbird (*Cinnyris afer*), Cape white-eye (*Zosterops virens*), Cape weaver (*Ploceus capensis*) and the Sweet waxbill (*Coccygus melanotis*).

The African grass owl (*Tyto capensis*) favour tall, dense and rank patches of grassland. Nesting takes place on the ground in a tunnel of dense grass from March – April with juveniles fledging 3 months later. Management protocols

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<sup>1</sup> Vulnerable

<sup>2</sup> Near Threatened

<sup>3</sup> Endangered

need to take this breeding cycle into account when planning burning regimes.

Southern ground-hornbill (*Bucorvus leadbeateri*) requires a large area (ca. 100km<sup>2</sup> per group) in which to forage and find suitable breeding trees. The NR has ensured that protection is afforded to this species by safe-guarding a core area of suitable habitat in a locality where habitat alteration due to development and human pressures are high.

Denham's bustard (*Neotis denhami*) favours the grassland biome, preferring high-lying open grassland and frequently on plateaux. Favours cultivated lands for foraging, but strictly natural grassland for breeding. Eggs are laid onto bare ground amongst tall grass tussocks from September – December, with chicks fledging approximately two months after hatching. Primary causes of species decline include habitat loss and human disturbance.

Grey crowned crane (*Balearica regulorum*) maintains the wetlands and the associated grasslands in the reserve in a suitable state for the continued breeding and foraging of Grey crowned cranes. Cranes have large home ranges and the reserve is too small to exclusively support a breeding pair, which will thus be influenced by the surrounding patterns of land use in the nearby areas. SNR provides an important overwintering area for flocks of birds.

Blue crane (*Anthropoedus paradisea*) is the world's most range-restricted crane. This species primarily occupies the grassland biome, though frequently occurs in pastures, and require shallow water or pans in which to roost. However, the species ranges beyond the reserve to forage, and are often short-distance local migrants.

African marsh-harrier (*Circus ranivorus*) prefers wetlands in the Reserve which are necessary for their breeding.

The Reserve contains suitable grassland for foraging of Martial eagle as well as trees to support the nesting of Martial eagle (*Polemaetus bellicosus*). The ability of the region to support a viable population of Martial eagle will depend on future habitat use around the reserve. Lesser kestrel (*Falco naumanni*) is a Palearctic non-breeding migrant to southern Africa and KZN and it forages in grassland areas.

The African crowned eagle (*Stephanoaetus coronatus*) favours tall closed canopy forest, as well as in riparian forest, dense woodland and forested gorges in grassland. It also inhabits gum and pine plantations.

#### 2.6.11 Herpetofauna (reptiles and amphibians)

Reptiles and amphibians form an important part of the ecosystem and certain species serve as bio-indicators due to their sensitivity to environmental factors. Much remains to be discovered about the reptile and amphibian species complement of the area, their life histories, inter-relationships and contributions to the functioning of its ecosystems.

Seven frog species which include two toads, the Guttural toad (*Bufo gutturalis*) and the Red toad (*Schismadema carens*) have been recorded at SNR. The other frog species include the Bubbling kassina (*Kassina senegalensis*), the Boettger's caco (*Cacosternum boettgeri*), the Common river frog (*Afrana angolensis*), the Cape river frog (*Afrana fuscigula*) and the Tremolo sand frog (*Tomopterna cryptotis*). No Red Data species have been recorded at SNR currently.

Twenty two reptile species have been recorded at SNR which include 9 lizards, 12 snakes and 1 terrapin. No Red Data species have been recorded currently. Of the 22 reptiles two are southern African endemics, Distant's ground agama (*Agama aculeata distanti* (R<sup>1</sup>)) and Dusky-bellied water snake (*Lycodonomorphus laevisissimus*) as well as another snake that is also Restricted within KZN, the Van Son's thick-toed gecko (*Pachydactylus vansonii* (R<sup>1</sup>)). Two of the reptiles are CITES Appendix 2 species and these include the Flap-neck chameleon (*Chamaeleo dilepis dilepis*) and the Transvaal girdled lizard (*Cordylus vittifer*).

See *Appendix F – Species List for SNR*. Important reptiles including the Southern African Python (*Python sebae*) are Red Data Book species (Branch, 1988).

#### 2.6.12 Invertebrates

Invertebrate fauna constitutes the greatest component of species diversity in natural systems but it is often poorly understood while their role in ecosystems is important and often overlooked. In terms of biodiversity and the provision of ecosystem services however, it is important to acknowledge that they are fundamentally important. Invertebrates form important components of food webs, assist nutrient cycling and aeration of soil, decomposition and pollination of plants and trees. They play critical roles in the functioning of all ecosystems as they are responsible for maintaining soil fertility, waste disposal, water purification, pest control, pollination and may even influence the structure of plant communities. In some cases the survival of locally endemic plant species may be linked to a single pollinator. For many of these invertebrate species habitat conservation is the most important management intervention required with habitat loss being the biggest threat to their survival.

Corporate Ezemvelo Biodiversity Database contains 37 invertebrate species which have been recorded at SNR, with 1 KZN near-endemic species, the Variable Tiger Beetle (*Dromica variolata*). No Red Data species are currently listed. See *Appendix F1 – Species List of SNR*.

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<sup>1</sup> Restricted within KZN

### 2.6.13 Fish

Seven fish species have been recorded at SNR and they include the Longfin eel (*Anguilla mossambica*), Chubbyhead barb (*Barbus anoplus*), Carp<sup>1</sup> (*Cyprinus carpio*), Bluegill sunfish (*Lepomis macrochirus*), Mozambique tilapia (*Oreochromis mossambicus*) as well as two KZN endemic species, the Tugela labeo (*Labeo rubromaculatus*) and the KwaZulu-Natal yellowfish (*Labeobarbus natalensis*).

## **2.7 Cultural context of Spioenkop Nature Reserve**

The reserve contains Late Iron Age Settlement Sites which also form part of a hiking trail, it allow access to the site and promote understanding through an interpretive booklet. More than 100 round stone structures used that date back to the Late Iron Age can be found in Spioenkop Nature Reserve. Some of these structures were used as cattle pens and some structures form part of hut floors.

Stone Age San inhabited the Upper Tugela region long before the abovementioned structures were built. During this period people lived mostly in caves and some stone tools that were used by them could still be found in these areas. The Nguni people (late Iron Age People) later joined them and started planting crops and extracting metals. They also made and decorated pottery hunted to obtain meat and lived in villages.

One of the cattle pens on the hiking trail has been excavated and reconstructed with stone found in the site to ensure that it will remain authentic. Crops were planted with maize the main crop and cattle and sheep were also kept. The Late Iron Age people were the ancestors of the Zulus.

The well-known battlefield of Spioenkop is situated just outside the reserve but is clearly visible from the reserve. The Battle of Spioenkop took place during the Anglo Boer War on 23 and 24 January 1900 between the British forces and the Boers. The aim of this battle was to relieve the town of Ladysmith and it resulted in a British defeat on the Spioenkop Hill.

A self-guided trail has been established with an interpretive booklet to explain the key features of the site.

## **2.8 Socio-economic context**

The Spioenkop Nature Reserve falls within the Uthukela District Municipality and the oKhahlamba Local Municipality.

The Uthukela District Municipality have as part of their vision the principle to enhance the tourism sector. This vision is supported by specific objectives to enhance tourism linkages along the uKhahlamba Drakensberg Park World Heritage Site and Battlefield routes. They also highlight the need to improve

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<sup>1</sup> Alien invasive species

access roads to tourism centres as well as improved tourism signage. The Uthukela Tourism Strategy 2012 provides opportunities for collaboration in terms of tourism requirements.

The total population of the Uthukela District Municipality based on the 2011 Census is 66 848 and a large proportion of these people are living with insufficient services. A large portion of the population is under the age of 15 and unemployment levels are high.

These factors contribute to increase poaching and or illegal natural resource harvesting which present an increasing threat to biodiversity.

## **2.9 Operational management within Spioenkop Nature Reserve**

### **2.9.1 Infrastructure**

Infrastructure located in SNR is indicated on *Map E – Infrastructure in Spioenkop Nature Reserve*.

#### ***Management Infrastructure:***

- Office
- Office checkpoint
- Workshop
- Storeroom
- Stable
- Field Ranger outpost x 3
- 65 km gravel roads
- 10 km electric fencing

#### ***Staff accommodation:***

- |                              |            |
|------------------------------|------------|
| ▪ Communal kitchen/ bathroom | Staff x4   |
| ▪ Bachelor Flat              | Staff x 30 |
| ▪ House                      | Staff x 7  |

#### ***Tourism Infrastructure:***

- Picnic Site with ablutions x 5
- Camp site with capacity of 60 and one ablution block.
- Slipway x 6
- Squaredavel (4 visitors)

- Tented camp with 2 tents sleeping 2 each

### 2.9.2 Staffing establishment

Currently there are 14 permanent employees based at SNR and temporary workers are occasionally employed as required.

The permanent staff compliment consists of:

- Officer in Charge
- Senior admin clerk
- Principal Field Ranger
- Field Ranger 8
- Tractor Driver X 2
- Heavy Duty Driver
- Supervisor (Vacant)
- General Assistant X 14

*See also Section 5 – Administrative structure for the proposed staffing establishment for SNR.*

There is an urgent need to fill all vacant funded positions and motivate for the required unfunded position as per Section 5.

Carbutt and Goodman (2010) reflect the staffing level of SNR as 0.0045 per hectare. This compares favourably to other protected areas of similar size but there is still a need for a handyman and a supervisor.

*See also Section 5 – Administrative structure for the proposed staffing establishment for SNR.*

### 2.9.3 Funding levels at Spioenkop Nature Reserve

Carbutt and Goodman (2010) indicated the funding levels at SNR for the operational budget and total budget of R 369.47 per hectare. Although this compares favourably with other protected areas of similar size there is a great need for capital investment in the reserve to maintain and upgrade specifically roads, fences and tourism infrastructure. To realise the potential of eco-tourism in this reserve it is important to upgrade and maintain service infrastructure to an acceptable level that will encourage return visits to the reserve.

### 2.9.4 Management effectiveness in Spioenkop Nature Reserve

In 2010 Ezemvelo KZN Wildlife conducted management effectiveness assessments for all of its protected areas (Carbutt and Goodman 2010). This assessment has subsequently been done on an annual basis. Management

effectiveness assessments consider protected area design, the appropriateness of management systems and processes, and delivery of protected area objectives.

Such assessments are intended to enable conservation organisations to refine their conservation strategies, re-allocate budget expenditures, and develop strategic, system-wide responses to the most pervasive threats and management weaknesses (Carbutt and Goodman, 2010). They are not performance assessments of individuals but serve to reflect an organisation's proficiency for protected area management as a whole.

During the 2010 assessment the following Pressures and Threats have been identified:

Pressures:

- Climate change (droughts, flooding, habitat alteration);
- Bush encroachment;
- Erosion (man-induced);
- Alien plants;
- Alien animals.

Threats:

- Climate change (droughts, flooding, habitat alteration);
- Vandalism of cultural heritage assets;
- Bush encroachment;
- Arson/ Uncontrolled fire;
- Purposeful species eradication.

The following issues have been raised during the 2012/2013 Management Effectiveness assessment for Spioenkop Nature Reserve:

- Information Management systems are poor and limit management effectiveness.
- Maintenance of infrastructure and fleet is taking place on an ad hoc basis.
- There is limited ad hoc environmental awareness taking place but no formal, planned programs.
- Neighbouring communities have limited input into decisions relating to the reserve.

The overall score for Spioenkop NR for the 2012/2013 assessment was 68% which mean that they are already achieving the national minimum requirement of 67%.

## 2.10 Summary of management issues, challenges and opportunities

**Table 2.10.1 Management challenges and issues**

Key performance area	Issue that must be addressed
Legal compliance and law enforcement	<ul style="list-style-type: none"> <li>Security of threatened and protected species. This include the risk of poaching, animals escaping and damage to property and human life on the R600 due to animals leaving the reserve being involved in accidents (especially at night time).</li> </ul>
	<ul style="list-style-type: none"> <li>Illegal cattle grazing inside the reserve on the north shore.</li> </ul>
	<ul style="list-style-type: none"> <li>The reserve currently does not have a secured boundary fence and this is continually exacerbated by the stealing and vandalising of the fence.</li> </ul>
	<ul style="list-style-type: none"> <li>Land claim settlement process.</li> </ul>
	<ul style="list-style-type: none"> <li>Public liability of Ezemvelo in terms of disease spread from game to cattle.</li> </ul>
Stakeholder engagement	<ul style="list-style-type: none"> <li>There is a need to improve relationships with communities; improve interaction with local, district municipalities and key stakeholders in general.</li> </ul>
Buffer zone protection and regional management	<ul style="list-style-type: none"> <li>The requirements for the protection of the reserve values must be integrated in municipal planning documents.</li> </ul>
	<ul style="list-style-type: none"> <li>Incompatible land uses in the buffer area of the reserve.</li> </ul>
	<ul style="list-style-type: none"> <li>Service provision, access signage and marketing of the reserve as part of the greater landscape.</li> </ul>
Eco – tourism and Environmental Awareness	<ul style="list-style-type: none"> <li>Development of sustainable tourism infrastructure.</li> </ul>
	<ul style="list-style-type: none"> <li>Tourism infrastructure should be regularly maintained to ensure acceptable standards for roads, buildings and service infrastructure.</li> </ul>
	<ul style="list-style-type: none"> <li>Investigate the possibility to use and market the Vulture restaurant as a tourism activity.</li> </ul>
	<ul style="list-style-type: none"> <li>Internal directional and interpretive signage needs to be replaced.</li> </ul>
	<ul style="list-style-type: none"> <li>Access for school groups for environmental awareness.</li> </ul>
Cultural Conservation Management	<ul style="list-style-type: none"> <li>Management of the museum, battlefield and other cultural heritage sites.</li> </ul>

Conservation management	▪ Bush Encroachment.
	▪ Control of areas of accelerated soil erosion.
	▪ Implementation of procedures for Natural Resource Use.
	▪ Implementation of procedures for Human/Wildlife conflict, this is currently exacerbated by the non-existence and state of disrepair of the fence.
	▪ Fire management that includes controlled fires, arson and compliance with the National Veld and Forest Fire Act.
	▪ Management of threatened and protected species.
	▪ Waste management and removal
	▪ Alien animals and specifically feral cats at offices and tourism facilities.
	▪ Alien and invasive plants and specifically Prickly Pear and Lantana.
	▪ The threat of diseases and specifically TB and Snot Sickness has historically caused friction between farmers and Ezemvelo and is still a concern in the farming community.
Operational management	▪ Sufficient and consistent funding to implement the management plan for Spioenkop Nature Reserve.
	▪ The fence is not sufficient with certain sections in a severe state of disrepair and other sections that are not fenced at all.
	▪ Sustained maintenance of management and tourism infrastructure.

### 3) STRATEGIC MANAGEMENT FRAMEWORK

In an effort to ensure that SNR is effectively managed, the following strategic framework has been developed. It is aimed at providing the strategic basis for the protection, development and operation of the nature reserve over the next five years and has been prepared collaboratively through a process involving stakeholders within Ezemvelo KZN Wildlife, the communities around the nature reserve, local and provincial government departments and other stakeholders.

The vision describes the overall long-term goal for the operation, protection and development of SNR. The objectives and strategic outcomes that follow are intended to provide the basis for the achievement of the vision. The objectives provide a broad description of the goals for each key performance area. The strategic outcomes, which flow from the objectives, set out what is needed to achieve the objectives, based on the management challenges, issues and opportunities described in Section 2 above.

#### 3.1 Spioenkop Nature Reserve vision

***Conservation of the Spioenkop Nature Reserve biodiversity and cultural assets through creative partnerships with neighbouring communities and economically sustainable eco-tourism***

To achieve the vision and objectives of SNR and to manage the reserve effectively, adequate human and financial resources are critical issues that need to be addressed.

#### 3.2 Objectives and strategic outcomes

An objective has been identified for each of SNR key performance areas, which follow from the management challenges, issues and opportunities, and relate to the important functions and activities necessary to protect, develop and manage it effectively. The objectives have then been translated into strategic outcomes, which form the basis for the management activities and targets set out in the operational management framework, described in Section 6 below. Table 3.1 sets out the key performance areas, the objective for each key performance area and the strategic outcomes, required to realise the objectives.

**Table 3.1 Objectives and strategic outcomes for Spioenkop Nature Reserve**

Key performance area	Objective	Strategic outcome
Legal compliance and law enforcement	Comply with and enforce legislation pertaining to the protection, development and management of SNR and the threatened and protected species within it.	<ul style="list-style-type: none"> <li>▪ Ensure there is adequate law enforcement within the nature reserve.</li> <li>▪ Securing and demarcation of the boundary fence.</li> <li>▪ Implement the outcome of the land claim settlement process.</li> </ul>
Stakeholder engagement	Enable and maintain effective stakeholder relations by building communication, collaboration and creative partnerships with neighbouring communities.	<ul style="list-style-type: none"> <li>▪ Constructive community involvement in the nature reserve's management through an effectively functioning liaison forum.</li> <li>▪ Promote an understanding of the nature reserve values, importance and ecosystem goods and services.</li> <li>▪ Investigate and implement creative partnerships with neighbouring community to achieve the Spioenkop Nature reserve's objectives and vision.</li> </ul>
Buffer zone protection and regional management	Protect the biodiversity and cultural assets of SNR by promoting compatible land-use in areas surrounding the nature reserve and sustainable integrated tourism in the region.	<ul style="list-style-type: none"> <li>▪ Determination and prioritisation of the buffer zone requirements around the nature reserve.</li> <li>▪ Investigate opportunities for expansion of the reserve and prioritise these through the stewardship programme.</li> <li>▪ Capture the buffer zone considerations in municipal IDP's and SDF's.</li> </ul>
Eco- tourism and Environmental awareness	Maintain sustainable eco- tourism in SNR to provide a high quality visitor experience and promoting the natural and cultural values of the	<ul style="list-style-type: none"> <li>▪ Develop and enhance the eco-tourism facilities of the reserve to a level where it can be marketed as a provincial and national destination.</li> </ul>

	reserve.	<ul style="list-style-type: none"> <li>▪ Collaborate with district and local municipality to link Spioenkop NR with the regional tourism initiatives.</li> <li>▪ Development and implementation in collaboration with stakeholders of an environmental interpretation and awareness programme.</li> </ul>
Cultural heritage management	Ensure the protection and public appreciation of cultural and heritage resources within the reserve in accordance with statutory regulations.	<ul style="list-style-type: none"> <li>▪ Ensure the protection and the improved awareness of the Cultural heritage values and Living heritage of SNR.</li> </ul>
Conservation management	Protect the ecological integrity of SNR through active interventions based on principles of adaptive management.	<ul style="list-style-type: none"> <li>▪ Implement a comprehensive fire management plan for the nature reserve.</li> <li>▪ Adequate fire safety within the nature reserve is ensured.</li> <li>▪ Develop and implement an on-going time-bound program to effectively control declared alien plants, alien weeds and invader plants (especially Prickly pear and lantana) within the protected area and 1 km (buffer area) of the protected area boundary.</li> <li>▪ Implementation of measures to control bush encroachment in the reserve.</li> <li>▪ Implementation of procedures to identify, rehabilitate and manage areas that have been significantly impacted by accelerated soil erosion.</li> <li>▪ Implementation of procedures to manage alien animals found within the nature reserve.</li> <li>▪ If extractive resource use is undertaken, it is done legally, sustainably and conforms to Ezemvelo KZN Wildlife Norms and</li> </ul>

		<p>Standards.</p> <ul style="list-style-type: none"> <li>▪ If bioprospecting is undertaken, it is done legally and conforms to national legislation (NEMBA Act No 10 of 2004 Chapter 6).</li> <li>▪ Development and implementation of a strategy for the introduction and management of wildlife into the nature reserve in accordance with Ezemvelo KZN Wildlife Norms and Standards.</li> <li>▪ Development and implementation of measures for human/wildlife conflict based on Ezemvelo KZN Wildlife policy.</li> <li>▪ Processes are established to determine the success of management interventions in protecting the ecosystems, communities and species of the nature reserve.</li> <li>▪ Rare and endangered species management is undertaken using the best available scientific knowledge.</li> <li>▪ Implementation of procedures to manage and monitor through surveillance potential diseases.</li> </ul>
Operational management	Provide adequate human resources, equipment, infrastructure and funding to enable the effective protection, development and management of Spioenkop Nature Reserve.	<ul style="list-style-type: none"> <li>▪ Development and implementation of a five-year financial plan that identifies the resource needs to achieve the objectives for the nature reserve.</li> <li>▪ Ensure that the nature reserve is adequately staffed for its effective management and operation.</li> <li>▪ Ensure that all facilities and infrastructure in the nature reserve are adequately maintained.</li> </ul>

## 4) ZONATION PLAN

The purpose of zonation within a protected area is to identify types and levels of usage that are acceptable based on an area's sensitivity and resilience, and to manage visitor experience and inter-user conflict. Zonation is used to identify areas in which infrastructure may be located.

### 4.1 Zonation of Spioenkop Nature Reserve

A standardised zonation system has been developed for all of Ezemvelo KZN Wildlife's protected areas (Goosen, 2011). This system enables a protected area to be zoned according to six categories, which are spread along a continuum, from pristine wilderness to higher intensity nature-based uses. The zonation system recognises and reflects:

- Sensitive features associated with a protected area (i.e. biophysical, cultural and sense of place).
- A general gradation in the zonation categories, in which the next use level provides a buffer to the lower use level.
- Influence of existing and historic facilities, infrastructure and use.
- Opportunities and constraints (biophysical, social or managerial constraints) for use.

Zonation is a composite of ecological zonation (based on natural resource sensitivity), sense of place, cultural features, patterns of environmental settings, and existing development and use patterns. The final zonation map is represented as a desired state, i.e. directing management towards a vision for each zone, which reflects and respects the broader conservation and eco-cultural tourism objectives for the protected area.

#### General principles of zonation

- There is a general gradation in the zonation categories ranging from high to low protection.
- An overlay zone provides additional protection and may be overlaid onto another zone in order to strengthen the protection e.g. Key Feature Protection Zone.
- A node is an area where tourism, management and service infrastructure can be developed and that has a specified footprint.
- The Wilderness Zone will be buffered by the Low Use Zone.
- Where possible both management and tourism infrastructure should be developed outside the protected area.
- Development of infrastructure should preferably be on the periphery of the zone towards a higher impact/less sensitive adjacent zone.
- Deviations or exceptions in all zones require approval from the management authority. (Operations Committee level)

- Any activities permitted in a category of higher protection are also permitted in a category of lower protection, e.g. activities permitted in the Low Use Zone can also be permitted in the Moderate Use Zone.
- All activities will take place in accordance with the local protected area rules and regulations.

Any application for activities that are not recommended for a specific zone will have to be approved by the Operations Committee: West and if necessary would be referred to the Executive Director Operations. The criteria used to determine each zone are described as:

<b>Key feature protection overlay</b>	<ul style="list-style-type: none"> <li>▪ An area that is vulnerable or scientifically important where specific additional controls are imposed in order to prevent undesirable impacts.</li> <li>▪ This zone overlay other zones instituting site specific rules and regulations in addition to the restrictions of the underlying zone.</li> </ul>
<b>Low use zone</b>	<ul style="list-style-type: none"> <li>▪ An area where the ecotourism principles of low human impact will prevail.</li> <li>▪ This area is characterised by facilities of a rustic nature such as overnight hiking huts.</li> <li>▪ Motorised access is low key and there are limited management roads and tracks.</li> </ul>
<b>Moderate use zone</b>	<ul style="list-style-type: none"> <li>▪ This is also an area in which the ecotourism principles of low human impact will prevail, but higher levels of usage are permitted.</li> <li>▪ This area includes the main tourism road network, including access and game viewing roads.</li> <li>▪ Infrastructure is accessible by motorised access in this area.</li> </ul>
<b>Tourism development node</b>	<ul style="list-style-type: none"> <li>▪ This is a node within the moderate use zone, which includes commercial tourism developments such as lodges, picnic and camping sites.</li> </ul>
<b>Park management node</b>	<ul style="list-style-type: none"> <li>▪ This is a node within the moderate use zone, which includes facilities for staff accommodation, administrative offices and operational infrastructure.</li> </ul>
<b>Preliminary buffer zone</b>	<ul style="list-style-type: none"> <li>▪ This is outside of a protected area, where actions and agreements are</li> </ul>

	<p>taken to protect its integrity.</p> <ul style="list-style-type: none"> <li>▪ It is an area in which the protected area managers work collaboratively with neighbours and municipalities to try to ensure land uses that are compatible with the protected area.</li> </ul>
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## 4.2 Concept development guidelines

The purpose of the zonation of SNR is to control the intensity and type of use within it, in efforts to ensure the overriding goals of biodiversity conservation are met whilst enabling acceptable levels of eco-cultural tourism and other resource use. On this basis, within some zones, the permissible intensity of use will be relatively higher than in others. See *Map F – Zonation of SNR*.

### 4.2.1 Key Feature Protection Overlay

#### **Description:**

An area that is vulnerable and / or scientifically important where specific additional controls are imposed in order to prevent undesirable impacts on identified sensitive or threatened species, habitats, ecosystems, bio-control release sites, research sites, archaeological, living heritage and paleontological sites.

#### **Objective:**

This zone is for permanent, temporary or seasonal protection of important core protected area values. *It aims to provide additional protection for the integrity of key areas.*

**Permissible activities:** (Activities that could be allowed subject to the management unit standard rules and regulation in terms of authorisation)

1. The zone may overlay other zones so a range of infrastructure may already exist.
2. In addition to restrictions of the underlying zone site specific rules and regulations will apply.

#### **Constraints and implementation:**

- This is a protection zone and would only allow for access and development under site specific constraints. (Does not cater for further developments or resource utilization)
- This zone provides a higher level of protection than the underlying zone.
- Could be permanent, temporary or seasonal overlay.
- Changes to this overlay can be implemented through the Park planning committee and the annual management meeting and recorded as such.

The Key Feature Protection Overlay in *Map F – Zonation of SNR* indicates areas of erosion in various stages of rehabilitation. Any activities taking place in this area needs to be assessed in terms of its potential impact on these areas.

#### 4.2.2 Low Use Zone

**Description:**

An area where there is little evidence of modification of natural processes and landscapes, that is more sensitive than the moderate use zone and where the ecotourism principles of low human impact will prevail. The zone also serves as a buffer to the wilderness zone.

**Objective:**

To designate an area for tourism experiences and management activities that are focused primarily on low impact activities and where general sensitivity requires that management and tourism impacts on the natural landscape should be mitigated.

**Permissible activities:** (Activities that could be allowed subject to the management unit standard rules and regulation in terms of authorisation)

- Facilities of a rustic nature such as small bush camps, rustic overnight hiking huts, hides and trails.
- Motorized access is low key and 4 x 2 access is provided to points where trails start or to tourist facilities.
- 4 x 4 tracks are allowed in this zone (limit to number of tracks and frequency of use) as per site specific rules and regulations.
- Hiking and formalised trails. Management activities must focus on protecting park resources and core values.
- Limited management roads and tracks.
- Controlled extractive resource use in line with Ezemvelo KwaZulu-Natal Wildlife policies and norms and standards.

**Constraints and implementation:**

- Activities are mostly low impact and low density.
- No modern facilities such as restaurants and shops are permissible in this zone.
- Where possible, facilities should be developed on the periphery of the zone towards the less sensitive adjacent zone.

#### 4.2.3 Moderate Use Zone

**Description:**

An area where natural processes and the landscape may be altered to support protected area operations. This zone is less sensitive than the low use zone and this is where experiences, facilities, infrastructure and services

are provided to visitors and where general park management activities can take place.

**Objective:**

To designate a tourism area that is primarily focused on visitor experience while still securing the values of the protected area and an area that serves the operational and support functions of the protected area.

**Permissible activities:** (Activities that could be allowed subject to the management unit standard rules and regulation in terms of authorisation)

- Management roads and tracks.
- Management activities are directed to maintaining park infrastructure for biodiversity conservation, park operations, equipment and material storage.
- Controlled extractive resource use.
- Hiking on formalised trails.
- The tourism road network including access roads and game viewing roads.
- Traditional game viewing routes with associated more formalised infrastructure.
- Infrastructure is accessible by motorised access.

**Constraints and implementation:**

- Within the moderate use zone a specific **Tourism Development Node** will be defined which could include areas of commercial use.
- Where possible this node should be outside the protected area.
- The node should preferably be on the periphery of the Moderate and Low Use Zones, to ensure a quality visitor experience in the lower use zone but with the bulk of the impact *e.g.* access roads and services in the higher use zone.
- This node should be developed in the less sensitive part of the Moderate Use Zone.
- The Tourism Development Node can only be developed in areas where it does not compromise the values of the protected area.
- The node must have a specified footprint.
- Examples of developments in a Tourism development node include:
  - Picnic Areas
  - Camping sites
  - Interpretation centre.

**Park Administrative Node** (within the Moderate use zone) cater for facilities such as staff accommodation, administrative offices, other operational required infrastructure, waste handling sites *etc.*

- Wherever possible, facilities and infrastructure related to park operations should be located outside of the protected area. If not possible they will form part of this node.
- The node must have a specified area as a footprint.

#### 4.2.4 Protected Area Buffer Zone

**Description:**

An area outside the boundary of the protected area where actions are taken and agreements are made to protect the integrity of the protected area and to enhance the livelihoods of protected area neighbours.

**Objective:**

An area outside the boundary of the protected area where actions are taken and agreements are made to protect the integrity of the protected area and to enhance the livelihoods of protected area neighbours. To influence land use adjacent to the protected area to manage external pressures and threats that may threaten its values and objectives.

**Permissible activities:**

The Park management must define these activities in terms of its specific values and objectives and taking into consideration the following:

- Alien and invasive species management
- Pollution control and prevention
- Impact on sense of place
- Habitat fragmentation and isolation
- Water resource protection
- Human/ Wildlife conflict
- Climate change adaptation
- Compatible land use
- Priority species management

**Constraints and implementation:**

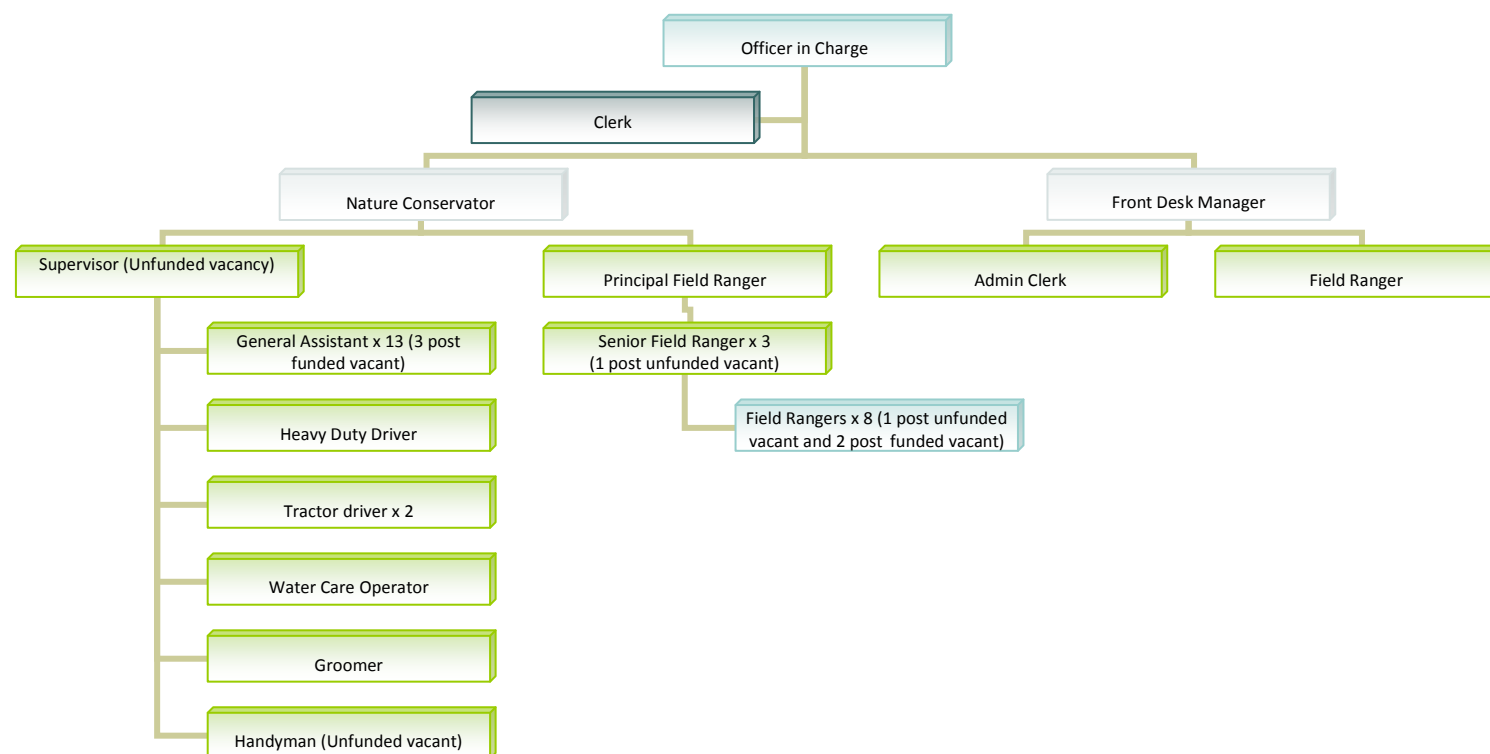
- It is desirable for the intensity of land use to decrease closer to the nature reserve.
- Discourage activities that are not compatible with the adjacent reserve zonation.

Management activities will focus on:

- Strategically promoting and monitoring compatible land-use and land-care on adjacent lands and upstream catchments
- Integrated alien species control
- Biodiversity stewardship and environmental awareness
- Working collaboratively with neighbours to secure sensitive sites that contribute to the protection of values and objectives of the protected area.
- Influencing and input into the municipal and regional planning tools such as SDFs, Schemes, IDPs and Bioregional Plans.
- The Buffer should spatially reflect the 5 km border of listed activities as per National Environmental Management Act No. 107 of 1998 Notice 3 of 2010.

## 5) ADMINISTRATIVE STRUCTURE

A recommended organisational structure for SNR is set out in *Figure 5.1*. The figure represents the staff complement and positions that are required to enable the effective operation, management and protection of SNR.



**Figure 5.1 Recommended organisational structure for Spioenkop Nature Reserve**

## 6) OPERATIONAL MANAGEMENT FRAMEWORK

This section translates the strategic framework described in Section 3 above into management activities and targets, which will be used to inform annual plans of operation and the resources required to implement them. The management targets will form the basis for monitoring of performance in implementing the plan and are thus measurable.

### 6.1 Determination of priorities for strategic outcomes

In the tables that follow in this section, a column has been included entitled “Priority”, which is intended to convey the level of priority attached to its management target. The purpose of prioritising activities is to direct funds and resources to the most important activities, in the event that there are insufficient funds or resources to undertake all of the activities outlined in a particular year. Priorities are ordered in three categories, which have been determined on the following basis:

Priority 1:	A management target that is central to the responsibilities and mandate of Ezemvelo KZN Wildlife or that addresses an aspect of management that is fundamental to the protection of the values and purpose of SNR.
Priority 2:	A management target that addresses an aspect of management that contributes towards community involvement and support for the conservation of SNR, which is a key principle of effective protected area management.
Priority 3:	A management target that indirectly contributes towards the protection of biodiversity or the development of social and/or economic benefits and opportunities for SNR and/or its surrounding local communities.

The priorities are presented in the tables below using the colour system above, which depicts the level of priority shown for the particular management target. In addition, a date is indicated in the priorities column, which is intended to convey the end date by which the management target must have been achieved.

## **6.2 Legal compliance and law enforcement**

Through its mandate to undertake the conservation and management of protected areas in KwaZulu-Natal, Ezemvelo KZN Wildlife must ensure that the province's protected areas are appropriately legally protected and that the laws governing the use of protected areas and the prohibition of particular activities are enforced. Illegal activities within the protected area and illegal utilization of the protected area's natural resources are realities that are present, but not well quantified (e.g. illegal hunting along the national road). It must be assumed that these threats have the potential to increase significantly.

In fulfilling this role, the managers of SNR will adhere to the following guiding principles:

- All reasonable efforts must be made to ensure the effective conservation of biodiversity within and on the boundaries of the nature reserve.
- Cooperative structures should be established to enable participation by key stakeholders such as local communities and the South African Police Service in addressing offences and breaches of the law.
- Law enforcement within the nature reserve will be undertaken through surveillance, monitoring and appropriate reaction in the event of an offence.
- The main effort towards resolving illegal utilization of natural resources by neighbouring communities for purposes of subsistence will be to create understanding and awareness through pro-active education amongst these communities. Management will however take strong legal action against those that illegally utilize natural resources for commercial or other purposes.

## **6.3 Stakeholder engagement**

Constructive relationships with adjacent landowners and communities are an important aspect of the effective conservation of protected areas. Stakeholder engagement should be aimed at developing a strong sense of partnership between the neighbours and communities around the nature reserve and its managers. The following guiding principles should be adhered to:

- Efforts should be made to ensure that the communities living around the nature reserve are aware of the role that it fulfils in biodiversity protection and the provision of ecosystem services to the region.
- Stakeholder engagement should be undertaken to engender a sense of ownership of the nature reserve, within the communities, and support for its biodiversity conservation objectives.

- A common understanding of the issues that affect both the nature reserve and the surrounding communities should be developed and efforts to resolve them should be undertaken cooperatively.

The operational requirements for legal compliance and enforcement, and stakeholder engagement are set out in Table 6.1 below.

**Table 6.1 Framework for legal compliance and law enforcement, and stakeholder engagement**

Strategic outcome	Management activities	Management targets	Indicators of Concern	Priority	Responsibility
<b>LAW ENFORCEMENT</b>					
Ensure there is adequate law enforcement within the nature reserve.	<ul style="list-style-type: none"> <li>Develop an integrated security strategy linked to the contingency plan for the nature reserve, which ensures collaboration with all relevant institutions.</li> </ul>	<ul style="list-style-type: none"> <li>Creation of cooperative structures with local communities and law enforcement officials.</li> </ul>	<ul style="list-style-type: none"> <li>Frequent recovery of snares.</li> <li>Arson fires.</li> <li>Recorded losses of game species.</li> <li>Recorded losses of known rare and endangered plant species.</li> </ul>	<b>Year 1</b>	Officer in Charge
	<ul style="list-style-type: none"> <li>Ensure that staff are equipped and trained to undertake patrols within the nature reserve for law enforcement purposes.</li> <li>Implement a programme of patrols of the nature reserve and its boundaries, with specific focus on poaching hotspots.</li> <li>Ensure security of infrastructure and equipment by incorporating them into the programme patrol.</li> <li>Ensure security of visitors to the reserve by maintaining effective law enforcement and access control.</li> </ul>	<ul style="list-style-type: none"> <li>Regular patrols covering the full extent of the nature reserve.</li> <li>Prosecution of any offender caught committing an offence.</li> </ul>		<b>On-going</b>	Officer in Charge

Securing and demarcation of boundary fence.	<ul style="list-style-type: none"> <li>Replace sections of unfenced and dilapidated fencing to secure the reserve and its natural resources, facilitate effective law enforcement and keep livestock out of the reserve.</li> </ul>	<ul style="list-style-type: none"> <li>Appropriately secured boundary fence.</li> </ul>	<ul style="list-style-type: none"> <li>Increased grazing by livestock inside the reserve.</li> <li>Continued escape the game assets of SNR.</li> <li>Ineffective law enforcement due to lack of a demarcated, secured boundary.</li> </ul>	<b>Year 1</b>	Officer in Charge
Implement the outcome of the land claim settlement process.	At this stage the outcome of the land claim is uncertain and therefore the activities required at the stage of settlement will only be identified once settlement is reached.			<b>Upon settlement</b>	Officer in Charge and Community Conservation
<b>STAKEHOLDER ENGAGEMENT</b>					
Constructive community involvement in the nature reserve's management through an effectively functioning liaison forum.	<ul style="list-style-type: none"> <li>Ensure open lines of communication through the implementation of an effective Stakeholder Liaison forum that maintains regular meetings.</li> </ul>	<ul style="list-style-type: none"> <li>Annual meetings of the Stakeholder Liaison forum.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of regular meetings and community/ stakeholder dissatisfaction with the nature reserve.</li> </ul>	<b>Year 1 and then on-going</b>	Officer in Charge
Promote an understanding of the nature reserve values, importance and ecosystem goods and	<ul style="list-style-type: none"> <li>Include the value and importance as per the management plan into the Environmental awareness programme as well as meetings with stakeholders.</li> <li>Initiate a study to identify, assess and value</li> </ul>	<ul style="list-style-type: none"> <li>Minutes of stakeholder meetings.</li> <li>Records of Environmental</li> </ul>	<ul style="list-style-type: none"> <li>Lack of understanding of the importance of conserving the</li> </ul>	<b>Year 2 then on-going</b>	Officer in Charge, Community Conservation and Resource

services.	ecosystem goods and services of SNR.	<p>Awareness programmes.</p> <ul style="list-style-type: none"> <li>▪ Ecosystem goods and services report.</li> </ul>	Spioenkop NR		Use Ecologist
Investigate and implement creative partnerships with neighbouring communities to achieve the Spioenkop Nature reserve's objectives.	<ul style="list-style-type: none"> <li>▪ Identify focus areas for key partnerships. (Environmental awareness, skills development, job creation, security of natural resources etc.)</li> <li>▪ Implement the outcomes of key focus area assessments through joint partnerships.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Key partnerships with neighbouring communities.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Isolation of efforts to achieve joint objectives of Spioenkop Nature Reserve</li> </ul>	<b><i>Year 1 and then on-going</i></b>	Nature Reserve Planning Committee

## **6.4 Buffer zone protection and regional management**

### **6.4.1 Protected area expansion and buffer zone management**

In terms of Ezemvelo KZN Wildlife's protected area expansion strategy, it has identified a number of areas as priorities for protected area expansion around the nature reserve. In order to safeguard the biodiversity within the nature reserve and to counter any threatening processes or edge effects, suitable buffer zones and appropriate land uses in these zones should be identified. Appropriate actions may then be taken to secure these buffer zones through protected area expansion mechanisms and local planning tools, as described in Section 6.4.2 below. In ensuring the protection of its biodiversity, the following guiding principles will be adopted in terms of protected area expansion and buffer zone management:

- If under threat, efforts must be made to formally protect the areas of critical habitat, located outside of the nature reserve.
- Threatening processes and edge effects on the nature reserve's boundary and beyond it must be identified.
- Appropriate actions must be taken to manage threatening processes and edge effects on the nature reserve's boundary and beyond it.

### **6.4.2 Local and regional planning**

It is important, in managing the buffer areas around the nature reserve, that Ezemvelo KZN Wildlife work with local government authorities to ensure that their land use planning considers the biodiversity conservation imperatives of SNR. In this regard it is necessary to ensure that buffer zone considerations are captured in planning tools such as IDPs and SDFs. In developing relationships with the local and district municipality, Ezemvelo KZN Wildlife will adhere to the following guiding principles:

- Relationships with local government and other provincial and national departments will be developed in the spirit of cooperative governance.
- Ezemvelo KZN Wildlife will endeavour to assist the local and district municipality in determining appropriate land uses and development strategies in the areas surrounding the nature reserve.
- Ezemvelo KZN Wildlife will endeavour to align its plans and strategies with the programmes and strategies of the local and district municipality, where appropriate.

The detailed operational requirements for buffer zone protection and regional management are set out in Table 6.2 below.

**Table 6.2 Framework for buffer zone protection and regional management**

Strategic outcome	Management activities	Management targets	Indicators of Concern	Priority	Responsibility
<b>PROTECTED AREA EXPANSION</b>					
Determination and prioritisation of the buffer zone requirements around the nature reserve.	<ul style="list-style-type: none"> <li>Determine the ecological impacts and edge effects influencing the biodiversity of the nature reserve on its boundary and negotiate (mitigate and formalise) these with stakeholders.</li> </ul>	<ul style="list-style-type: none"> <li>Identification of key threatening processes on the nature reserve's boundary.</li> </ul>	<ul style="list-style-type: none"> <li>Edge effects such as invasive plant encroachment along the nature reserve's boundary.</li> </ul>	<b>Year 1</b>	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge.
Facilitate the expansion of the reserve through the incorporation of key buffer areas.	<ul style="list-style-type: none"> <li>Identify key areas for protected Area Expansion and collaborate with Stewardship and Protected Area Expansion Unit on securing these areas.</li> </ul>	<ul style="list-style-type: none"> <li>Priority map and report indicating key areas for incorporation/ formal protection.</li> <li>Formal protection/ incorporation of key buffer areas.</li> </ul>	<ul style="list-style-type: none"> <li>Loss of opportunity to protect key buffer areas around Spioenkop NR</li> </ul>	<b>Year 1</b>	Nature Reserve Planning Committee and Stewardship programme
<b>LOCAL AND REGIONAL PLANNING</b>					
Capture the buffer zone considerations in municipal IDP's and SDF's.	<ul style="list-style-type: none"> <li>Make inputs into the development of local and district municipality IDPs and SDFs in an effort to avoid environmentally harmful land uses in SNR's buffer zones.</li> </ul>	<ul style="list-style-type: none"> <li>Adoption of environmentally appropriate land uses in IDPs and SDFs in the areas immediately surrounding the nature reserve.</li> <li>Retention of existing benign land uses in the</li> </ul>	<ul style="list-style-type: none"> <li>Identification/approval of environmentally harmful land uses on the boundaries of the nature reserve.</li> </ul>	<b>Annually</b>	Ezemvelo KZN Wildlife Planning Unit, Officer in Charge and Ecological Advice Unit

		areas immediately surrounding the nature reserve.			
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## **6.5 Eco- tourism and Environmental awareness**

### **6.5.1 Eco-tourism management**

Ezemvelo KZN Wildlife has the mandate to sustainably develop and manage SNR to fully realise its eco-cultural tourism and associated income-generating potential, within the context of protecting its biodiversity and cultural values. In further developing tourism within the nature reserve, the following guiding principles should be adhered to:

- Tourism products developed within the nature reserve must be appropriate to the values and purpose for which the nature reserve has been proclaimed and must not threaten its biodiversity, cultural heritage or ecological function.
- In managing and developing tourism products, requirements for environmental authorisation must be considered and adhered to.
- Tourism products should be designed to capitalise on the unique beauty and biodiversity features of the nature reserve.
- Tourism products should be developed in response to tourism market demands and opportunities within the nature reserve and should be carefully assessed to determine their viability.
- The development of tourism products within the nature reserve must be integrated with tourism strategies and plans in the region.
- Tourism should be used as a tool for the generation of economic activity and employment in the communities surrounding the nature reserve.

### **6.5.2 Environmental awareness**

Environmental awareness of SNR will be aimed at creating awareness, understanding and appreciation of its biodiversity, cultural heritage and ecological function, and their significance. In developing an environmental interpretation and education programme, the following guiding principles should be adhered to:

- There should be a strong focus on neighbouring communities, in efforts to engage, inform and benefit them.
- Wherever possible, local community members should be trained to assist and operate environmental interpretation and education tours.

The detailed operational requirements for eco-cultural tourism development and environmental interpretation and education are set out in Table 6.3 below.

**Table 6.3 Framework for eco- tourism and Environmental awareness**

Strategic outcome	Management activities	Management targets	Indicators of Concern	Priority	Responsibility
<b>TOURISM</b>					
Develop and enhance the eco-tourism facilities of the reserve to a level where it can be marketed as a provincial and national destination.	<ul style="list-style-type: none"> <li>Facilitate a feasibility study to determine appropriate sustainable tourism developments for Spioenkop Nature Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Appropriate tourism developments.</li> </ul>	<ul style="list-style-type: none"> <li>Unsustainable tourism in the reserve.</li> </ul>	<b>Year 2</b>	Reserve Planning g Committee
	<ul style="list-style-type: none"> <li>Update the old information brochure that will serve to inform and direct tourist.</li> </ul>	<ul style="list-style-type: none"> <li>An updated brochure providing information on the reserve, its values and activities.</li> </ul>	<ul style="list-style-type: none"> <li>Out-dated or lack of relevant information for tourist.</li> </ul>	<b>Year 2</b>	Officer in Charge
	<ul style="list-style-type: none"> <li>Develop and install directional and interpretive signage for visitors.</li> </ul>	<ul style="list-style-type: none"> <li>Improve visitor orientation and disseminate important information.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of tourist orientation and awareness.</li> </ul>	<b>Year 1</b>	Officer in Charge
	<ul style="list-style-type: none"> <li>Develop and implement a maintenance schedule for all tourism facilities.</li> </ul>	<ul style="list-style-type: none"> <li>Regular Inspection and maintenance reports.</li> <li>Well maintained and safe tourism facilities.</li> </ul>	<ul style="list-style-type: none"> <li>Dilapidated and unsafe tourism infrastructure.</li> </ul>	<b>On-going</b>	Officer in Charge
Collaborate with district and local municipality to link Spioenkop NR with the regional tourism initiatives.	<ul style="list-style-type: none"> <li>Directional signage from major towns to Spioenkop NR.</li> <li>Incorporate the Spioenkop Nature reserve information into municipal tourism marketing initiatives.</li> </ul>	<ul style="list-style-type: none"> <li>Increased tourism market share through increased awareness of the Spioenkop Nature Reserve.</li> </ul>	<ul style="list-style-type: none"> <li>Visitors to the area are not aware of the Spioenkop Nature Reserve.</li> </ul>	<b>Year 2</b>	Officer in Charge in collaboration with municipalities

## ENVIRONMENTAL INTERPRETATION AND AWARENESS

Develop and implement in collaboration with stakeholders an environmental interpretation and awareness programme.	<ul style="list-style-type: none"> <li>Evaluate and do a need assessment for the environmental awareness programme of the reserve.</li> <li>Collaborate with municipal and other partners to increase the numbers of local school children that are exposed to the reserve environment.</li> </ul>	<ul style="list-style-type: none"> <li>Report indicating requirements for the environmental awareness programme</li> <li>Number of school groups per year visiting the reserve and taken through an environmental awareness program.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of understanding of the reserve, its values and general environmental issues.</li> </ul>	<b>Year 1</b>	Officer in Charge and Community Conservation Officer
	<ul style="list-style-type: none"> <li>Establish an environmental interpretation and awareness program in the reserve.</li> </ul>	<ul style="list-style-type: none"> <li>Planned programme for Environmental awareness.</li> </ul>		<b>Year 2</b>	

## 6.6 Conservation management

Spioenkop Nature Reserve conserves key examples of the three vegetation types within its boundaries and surrounding buffer that are poorly or not represented elsewhere in protected areas. In addition, the protected area contains populations of numerous Endangered and Endemic animal and plant species, some of which are not formally conserved elsewhere. Management of these habitats and species is strongly influenced by the disturbance history of this protected area and the need to promote its continuing reclamation.

Conservation management is conducted in an active-adaptive manner. This includes identifying conservation targets, implementing best management practice, monitoring the progress towards addressing these targets, and adapting the management strategy accordingly. This is done using a participatory, team approach and making use of the best scientific understanding in collaboration with partners and stakeholders.

Conservation management is centred on the manipulation of fire and grazing, the key ecological processes influencing the biodiversity and ecosystem processes in the protected area. There is a poor understanding of what the “natural” (historic) fire and herbivory regimes would have been and it is not practical to apply these given the relatively small size of the protected area and surrounding land-use. Management instead aims to promote a shifting mosaic of patches of different age and size - thereby creating a diversity of habitats. This approach will satisfy the known requirements for key species while also providing the best insurance policy for the majority of organisms whose habitat requirements and response to fire and herbivory are unknown.

The other key interventions required to conserve biodiversity are the control of invasive species and man-induced soil erosion, as well as minimising illegal activities (e.g. illegal hunting and plant collecting).

### 6.6.1 Fire management

*See also 2.6.7 - Fire Regime of Spioenkop Nature Reserve.*

Fire plays an important role in the ecological dynamics of grasslands and wetlands, and has important effects on vegetation composition, primary productivity and nutrient cycling. In developing burning and fire management strategies for the nature reserve, the following guiding principles should be adhered to:

- Burning should be undertaken in such a way that it maintains spatial and temporal heterogeneity within the landscape.
- The burning of areas should be undertaken in such a way that promotes patchy burns (i.e. within the block being burnt, some patches will remain un-burnt rather than aiming for a complete burn).
- Burning must be undertaken with due consideration to the biodiversity conservation requirements of the nature reserve and the need to protect rare and endangered species.
- The extent and nature of both planned and unplanned fires must be reported by protected area management to Eco Advice using the official format as part of

their Monthly Biological Returns, with all submission for the year due by the end of November that year.

- The protected area is obligated in terms of the National Veld and Forest Fire Act 101 of 1998 to be a member of the local Fire Protection Association (FPA). In this regard protected area Management will actively champion the maintenance of an FPA, should one start up in the area, to gain the full legal advantages of being a member of the FPA. Management should use the FPA to influence fire management regimes in the lands surrounding the protected area to promote the conservation of biodiversity and ecological processes.
- Burning and fire management must be undertaken in a safe manner that is legally compliant with the National Veld and Forest Fire Act (No.101 of 1998).

In terms of Section 17 of the National Veld and Forest Fires Act, a landowner (in this case the nature reserve) must have such equipment, protective clothing and trained personnel for extinguishing fires as may be prescribed or, if not prescribed, reasonably required in the circumstances. It is therefore necessary to consider the following in relation to fire fighting:

- The budgeting process should reflect that adequate resources to address fire management requirements in the protected area have been considered.
- The need to maintain a system of firebreaks to enable the management of controlled burns and to effectively fight wildfires.
- The size of the nature reserve and the requirements necessary to access different areas in the event of a wildfire. This relates to both roads and vehicles.
- The number of personnel necessary to effectively fight wildfires.
- The equipment necessary to effectively fight wildfires. This would include:
  - Water tankers and pressure pumps mounted on or pulled behind tractors.
  - Fire fighting equipment mounted on the backs of vehicles.
  - Backpack sprayers.
  - Beaters.
  - Safety equipment for personnel involved in fire fighting.

The detailed operational requirements for fire management are set out in Table 6.4 below.

**Table 6.4 Framework for conservation management – fire management**

Strategic outcome	Management activities	Management targets	Indicators of Concern	Priority	Responsibility
<b>FIRE MANAGEMENT</b>					
Implement a comprehensive fire management plan for the nature reserve.	<ul style="list-style-type: none"> <li>Implement a Fire Management Plan for the protected area to outline: fire management objectives, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required.</li> <li>Protected area Management will conduct a pre-burn field inspection with Eco Advice to agree upon the areas that are to be scheduled for burning each year. This inspection must occur by the end of May each year, prior to the establishment of trace-lines and fire breaks, and be based on at least the last three years fire history and the Fire Management Plan for the protected area. Any changes to this fire program for the year need to be agreed upon by both the management and Eco Advice.</li> </ul>	<ul style="list-style-type: none"> <li>Burning according to annual planning and compliant with National Veld and Forest Fires Act.</li> </ul>	<ul style="list-style-type: none"> <li>Burning regimes that result in ecological degradation of the nature reserve or unplanned fires.</li> </ul>	<b>Year 1 and then annually</b>	Officer in Charge and Ecological Advice Unit
Adequate fire safety within the nature reserve is ensured.	<ul style="list-style-type: none"> <li>Maintain a system of firebreaks within the nature reserve that are of adequate extent, which are prepared at the correct time of the year under the appropriate weather conditions.</li> <li>Ensure that staff is trained and that adequate fire fighting equipment is available within the nature reserve.</li> <li>Maintain membership of the relevant Fire</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with the National Veld and Forest Fires Act.</li> </ul>	<ul style="list-style-type: none"> <li>Inadequate personnel, equipment or an inability to communicate effectively in fighting fires.</li> <li>Wildfires spreading from</li> </ul>	<b>On-going</b>	Officer in Charge

	Protection Association.		the nature reserve to neighbouring properties.		
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### 6.6.2 Alien and Invasive plant control

A listed invasive species means any species, which is listed in terms of section 70 of the Biodiversity Act, whose establishment and spread occurs outside of its natural distribution range. Such plants are considered to be a serious threat to the ecological functioning of natural systems and to water production, and must be strictly controlled. In undertaking invasive plant control, the following guiding principles will be adhered to:

- Invasive plant control will require an on-going programme that prioritises key infestations along water courses, drainage lines and upper catchment areas.
- Initial clearing efforts should focus on containing infestations that are most likely to spread into new areas.
- All follow-up requirements must be strictly adhered to otherwise the problem will be exacerbated.
- Strategic partnerships and poverty relief programmes such as the Working for Water programme should be utilised in controlling invasive plants.

### 6.6.3 Soil erosion control

The protected area has been severely eroded in the past and has a legacy of effective erosion control measures and other appropriate management interventions that need to be maintained and promoted. In addressing soil erosion, the following guiding principles should be adhered to:

- Areas impacted by soil erosion should be stabilised and re-vegetated with indigenous plant species to prevent the spread of listed invasive plant species.
- In all instances, infrastructure (e.g. roads) or human activities that are increasing the natural rate of soil loss from the protected area need to be prioritised for attention.
- Similarly, fire and wildlife population management should take its potential impacts on accelerated soil loss into consideration (e.g. the protected area should not be overstocked with concentrate grazers such as impala [*Aepyceros melampus*]).
- Areas susceptible to soil erosion, or showing early signs of soil erosion such as loss of vegetation cover, must be managed to prevent soil erosion.

Soil erosion control and rehabilitation measures may include the need to re-vegetate disturbed areas. A detailed assessment of the nature and extent of soil erosion within the nature reserve will determine the appropriate responses required and the costs associated with them.

The detailed operational requirements for invasive plant and soil erosion control are set out in Table 6.5 below.

**Table 6.5 Framework for conservation management – Alien and invasive plant control and soil erosion control**

Strategic outcome	Management activities	Management targets	Indicators of Concern	Priority	Responsibility
<b>INVASIVE PLANT CONTROL</b>					
Develop and implement an on-going time-bound program to effectively control declared alien plants, alien weeds and invader plants (especially <i>Opuntia</i> spp.) within the protected area and 1 km (buffer area) of the protected area boundary.	<ul style="list-style-type: none"> <li>Develop a phased five year plan to address the existing alien and invasive plants in the protected area.</li> <li>Implement the control plan in collaboration with IASP for the nature reserve.</li> <li>Implement concerted, sustained control efforts in identified areas of heavy invasive plant infestation.</li> <li>Undertake suitable rehabilitation measures, including re-vegetation using indigenous plant species, to prevent soil erosion, following clearing of invasive plant species.</li> <li>Maintain vigilance for any emerging invasive and alien species.</li> </ul>	<ul style="list-style-type: none"> <li>Achieve maintenance level within 5 years for all species.</li> </ul>	<ul style="list-style-type: none"> <li>Emerging weeds establishing in the reserve.</li> <li>Increased levels of invasive species in the reserve.</li> </ul>	<b>Year 1 and then on-going</b>	Ezemvelo KZN Wildlife Alien Plant Control Unit and Officer in Charge
Implementation of measures to control bush encroachment in the reserve.	<ul style="list-style-type: none"> <li>Implement a program for the management of invasive <i>Acacia</i> species in the grassland by incorporation into the fire management plan and incorporation into the natural resource use program with proper procedures to treat any trees that are removed.</li> <li>Monitoring and reporting on the management interventions relating to bush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Restoration of invaded areas to open savannah/grassland.</li> </ul>	<ul style="list-style-type: none"> <li>Bush thickening in previous open areas.</li> </ul>	<b>On-going</b>	Officer in Charge and Ecological Advice Unit
<b>SOIL EROSION CONTROL</b>					
Implementation of procedures to identify,	<ul style="list-style-type: none"> <li>Undertake a detailed survey of the nature reserve to identify the extent and severity of</li> </ul>	<ul style="list-style-type: none"> <li>A detailed map depicting areas of soil erosion</li> </ul>	<ul style="list-style-type: none"> <li>Further erosion of impacted areas.</li> </ul>	<b>Year 5</b>	Officer in Charge and

rehabilitate and manage areas that have been significantly impacted by accelerated soil erosion.	<p>soil erosion.</p> <ul style="list-style-type: none"> <li>▪ Implement soil erosion control and rehabilitation measures, focussing strategically on key areas such as those impacting on watercourses or that are growing larger.</li> <li>▪ Undertake preventative measures in areas with low plant cover that may be at risk of soil erosion.</li> </ul>	<p>within the nature reserve.</p> <ul style="list-style-type: none"> <li>▪ Monitoring report of soil erosion control measures that are implemented.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increased siltation.</li> </ul>		Ecological Advice Unit
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#### 6.6.4 Alien animal control

Alien animal species can threaten the ecological, genetic or natural aesthetic integrity of SNR and can be vectors for the spread of diseases. In dealing with the control of alien animals, procedures to deal with animals that stray into the nature reserve should be developed. In addressing alien animal control, the following guiding principles should be adhered to:

- Domestic animals such as horses and donkeys will only be allowed if kept at the nature reserve for official purposes such as patrolling. It is critically important that these exceptions do not negatively influence the integrity and sustainability of the protected area's biodiversity and ecological processes.
- Feral animal species that pose a threat to indigenous species will be destroyed (as humanely and practicably possible with due regard to the tourist experience).

#### 6.6.5 Resource utilisation

It is an accepted tenet of biodiversity conservation in South Africa and KwaZulu-Natal that the sustainable use of natural and biological resources may be undertaken within a protected area, provided that it does not compromise its ecological functioning or biodiversity conservation imperatives.

Protected area Management, in conjunction with Eco Advice and the Resource Use Ecologist, will consider requests for extractive use of plant and animal resources provided that the biodiversity objectives are not compromised, and there is no long term detrimental effect on the ecological and managerial functioning of the protected area.

Accordingly, applications for the extractive use of resources within the nature reserve will be considered, based on the following guiding principles:

- The context of the nature reserve's zonation plan, in particular the ecological sensitivity of particular areas.
- The benefits that such resource use will provide to the neighbouring communities around the nature reserve.
- The equitable access of members of the neighbouring communities to such resource use opportunities.
- Whether activities such as the collection of biological materials/samples are for legitimate scientific purposes, are from *bone fide* South African research institutions and are undertaken in accordance with relevant Ezemvelo KZN Wildlife policies.
- The ability of the nature reserve's managers to effectively control and monitor such resource use.

Furthermore, extractive resource use applications must be considered within the framework of Ezemvelo KZN Wildlife policies:

- Precautionary principle (July 1999, corporate policy 3.06)
- Sustainable use of wildlife resources (April 1997, corporate policy 3.13)
- Freshwater species utilization (February 2000, corporate policy 3.23)

- Use of plant resources from protected areas (January 2001, corporate policy 3.27)
- Use of doomed biological material (February 2000, corporate policy 3.5)

Applications must be evaluated according to accepted guidelines that ensure:

- Sustainable and wise use of the resource
- Ecological and social acceptability
- Benefit to neighbouring communities
- Equitable access to the resource
- That the transaction is within the PFMA framework
- That the harvesting operations are effectively controlled and monitored
- A written agreement stipulating resource price and conditions of harvest
- Due consideration of alternatives.

The detailed operational requirements for alien animal control and resource utilisation are set out in Table 6.6 below.

**Table 6.6 Framework for conservation management – alien animal control and resource utilisation**

Strategic outcome	Management activities	Management targets	Indicators of Concern	Priority	Responsibility
<b>ALIEN ANIMAL CONTROL</b>					
Implementation of procedures to manage alien animals found within the nature reserve.	<ul style="list-style-type: none"> <li>Develop a new, equitable policy for keeping personal and official domestic animals and livestock in the protected area that includes procedures for dealing in a consistent manner with alien animals that stray into the protected area. This policy must, inter alia clearly address: <ul style="list-style-type: none"> <li>Threats to biodiversity conservation as a priority</li> <li>Reducing the numbers of such animals to an absolute minimum</li> <li>Designating areas where these animals must be kept and may be taken (e.g. where people may walk their dogs)</li> <li>The proper and hygienic care of these animals</li> <li>Minimum standards (aesthetic acceptability, sizes, neatness and cleanliness) of facilities housing these animals (e.g. stables, camps, cages)</li> <li>Disciplinary measures for staff transgressing these regulations</li> </ul> </li> <li>Develop an active control program for alien animals (specifically feral cats at the office and tourism facilities) present in or entering into the protected area</li> </ul>	<ul style="list-style-type: none"> <li>Management of domestic animals that are kept for official purposes and as pets.</li> <li>Control of any alien animals found within the nature reserve.</li> </ul>	<ul style="list-style-type: none"> <li>Uncontrolled access of domestic animals or livestock within the nature reserve.</li> </ul>	<b>On-going</b>	Officer in Charge

## RESOURCE UTILISATION

Ensure that if extractive resource use is undertaken, it is done legally, sustainably and conforms to Ezemvelo KZN Wildlife Norms and Standards.	<ul style="list-style-type: none"> <li>Develop and implement a Natural Resource Use Plan for SNR.</li> <li>Consider, with relevant scientific and management staff, requests for extractive use in accordance with accepted norms and standards and resource use guidelines.</li> <li>If extractive use is approved, agree on the approach to sustainably extract resources from nature reserve with applicants.</li> <li>Ensure that any approved extractive resource use is managed, monitored and reported on.</li> <li>Ensure that any approved extractive resource use is in line with the concept development guidelines and zonation of the reserve.</li> </ul>	<ul style="list-style-type: none"> <li>An agreed upon approach to any extractive resource use.</li> <li>Approved extractive resource use is managed, monitored and reported on.</li> </ul>	<ul style="list-style-type: none"> <li>Uncontrolled or unsustainable resource extraction</li> </ul>	<b>Year 2 thereafter on-going</b>	Officer in Charge, Ecological Advice Unit and Resource Use Ecologist
Ensure that if bioprospecting is undertaken, it is done legally and conforms to national legislation (NEMBA Act No 10 of 2004 Chapter 6).	<ul style="list-style-type: none"> <li>Only allow the collection of biological materials or samples if the appropriate written permission has been given in accordance with national legislation (NEMBA Act No. 10 of 2004, Chapter 6) and appropriate permit/s issued by Ezemvelo KZN Wildlife.</li> </ul>	<ul style="list-style-type: none"> <li>No illegal collection of biological material or samples.</li> </ul>	<ul style="list-style-type: none"> <li>Illegal collection of biological material or samples.</li> </ul>	<b>If required</b>	Officer in Charge, Ecological Advice Unit and Resource Use Ecologist

#### 6.6.6 Wildlife management

Management interventions related to indigenous wildlife will be limited to those that are for the purposes of safeguarding populations of rare and endangered species or to meet set conservation targets. Interventions may also be required for human wildlife conflict management. In addressing wildlife management, the following guiding principles should be adhered to:

- Wildlife management must be focussed primarily on protecting the ecological functioning of the nature reserve and meeting set provincial conservation targets for species and vegetation types.
- The introduction of indigenous species into the nature reserve must be undertaken in accordance with relevant Ezemvelo KZN Wildlife policies.
- Population management of wildlife species may be required to ensure that such species are not causing ecological degradation of the nature reserve.
- Animals that become a danger or excessive nuisance to persons and property due to either habituation or aberrant behaviour must be managed in accordance with relevant Ezemvelo KZN Wildlife policies.
- To minimize the need to control such problem animals, pro-active and preventative measures (e.g. appropriate fencing) should be considered a priority, while affected public or neighbours need to be informed appropriately regarding the relevant animal behaviour and / or dangers. Where the only solution to the problem lies in destroying or capturing animals, the methods decided upon must be applied with due regard for animal welfare and possible public criticism.
- Control of problem animals in and on the boundaries of the protected area needs to be in line with any Ezemvelo KZN Wildlife Problem Animal Management Manual that is developed and take into consideration the National Policy and Strategy for Problem Animal Control in South Africa (January 1998).

#### 6.6.7 Conservation targets

The EKZNW (2010) Terrestrial Systematic Conservation Plan identifies the provincial conservation targets referred to in Section 6.6.6, above. Vegetation type targets are based on Scott-Shaw & Escott (2011). The conservation of SNR contributes towards the achievement of a portion of some of these targets. Targets will continue to be updated as knowledge develops about the ecology of areas, connectivity between them, and other process requirements for ecosystems, communities and species. On this basis, the conservation targets should be viewed as a set of working hypotheses around which conservation planning and evaluation can take place. An advantage of developing strategies around targets is that this process highlights critical knowledge deficits thus guiding future research.

**Table 6.7                      Systematic biodiversity planning conservation targets to which Spioenkop contributes**

Feature	Description	Percentage of target located within Spioenkop Nature Reserve	Notes
Northern KwaZulu-Natal Moist Grassland	Vegetation Type	0	VU
Temperate Alluvial vegetation: Midland Floodplain Grassland	Vegetation Type	0.02	VU
KwaZulu-Natal Highland Thornveld	Vegetation Type	3	LT
<i>Pachydactylus vansonii</i>	Reptile	33.33	
<i>Gulella orientalis</i>	Mollusc	6.63	
<i>Cochlitoma simplex</i>	Mollusc	35.83	
<i>Doratogonus falcatus</i>	Millipede	24.34	
<i>Whitea alticeps</i>	Grasshopper	6.60	

The detailed operational requirements for wildlife management and the achievement of conservation targets are set out in Table 6.8 below.

**Table 6.8 Framework for conservation management – wildlife management and conservation targets**

Strategic outcome	Management activities	Management targets	Indicators of Concern	Priority	Responsibility
<b>WILDLIFE MANAGEMENT</b>					
Development and implementation of a strategy for the introduction and management of wildlife into the nature reserve in accordance with Ezemvelo KZN Wildlife Norms and Standards.	<ul style="list-style-type: none"> <li>Ensure that any proposals for the introduction of wildlife species conform to Ezemvelo KZN Wildlife Norms and Standards.</li> <li>For future introductions only species known to have historically occurred in the nature reserve will be considered.</li> <li>Ensure that species introductions are adequately documented.</li> </ul>	<ul style="list-style-type: none"> <li>An agreed upon approach to future wildlife species introductions.</li> </ul>	<ul style="list-style-type: none"> <li><i>Ad hoc</i> introductions of species, particularly those that may not have historically occurred in the nature reserve.</li> </ul>	<b>Year 2</b>	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge
	<ul style="list-style-type: none"> <li>An annual game census is to be conducted by the protected area Management in September of each year and the results submitted to Eco Advice prior to the annual Animal Population Control workshop. These figures will be added to and used with the historical game count data to advise planned game removals.</li> </ul>	<ul style="list-style-type: none"> <li>Game census data and report to inform population management decisions.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of information to inform management decisions.</li> </ul>	<b>Annually</b>	
	<ul style="list-style-type: none"> <li>To monitor game populations, introductions, mortalities and removals are to be reported by protected area Management to Eco Advice using the official format as part their Monthly Biological Returns.</li> </ul>	<ul style="list-style-type: none"> <li>Up to date monthly biological returns.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of information to inform management decisions.</li> </ul>	<b>Monthly</b>	Officer in Charge
	<ul style="list-style-type: none"> <li>Ensure that adequate population control measures are included in the strategy for the</li> </ul>	<ul style="list-style-type: none"> <li>Control of population numbers of species that</li> </ul>	<ul style="list-style-type: none"> <li>Ecological degradation as a</li> </ul>	<b>On-going</b>	

	management of wildlife in the nature reserve.	are exceeding identified carrying capacities.	result of over-stocking of wildlife species		
	<ul style="list-style-type: none"> <li>Update animal species list of Spioenkop Nature Reserve in the Biodiversity Database.</li> </ul>	<ul style="list-style-type: none"> <li>Updated information available for decision-making.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of information to base management decisions on.</li> </ul>	<b>Year 1</b>	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge
Implementation of procedures to manage and monitor through surveillance potential diseases.	<ul style="list-style-type: none"> <li>Develop and implement a disease management protocol/ Standard Operating Procedures.</li> <li>Regular TB testing and communicating of test results to neighbouring farmers and communities.</li> <li>Implementation of the Ezemvelo KZN Policy on hybridization of Black and Blue wildebeest.</li> <li>Investigate public liability clause for insurance in terms of spread of disease from Ezemvelo KZN Wildlife animals to livestock of communities and neighbouring farmers against potential claims for damage.</li> </ul>	<ul style="list-style-type: none"> <li>Protocol / Standard Operating Procedure for disease control.</li> </ul>	<ul style="list-style-type: none"> <li>Spread of disease and claims against Ezemvelo KZN Wildlife</li> </ul>	<b>Year 1 and then on-going</b>	Officer in Charge and Ecological Advice Unit
Development and implementation of measures for human/wildlife conflict based on Ezemvelo KZN Wildlife policy.	<ul style="list-style-type: none"> <li>Communicate the Standard Operating Procedures for human/wildlife conflict to reserve neighbours and stakeholders.</li> <li>Provide advice and assistance to reserve stakeholders and neighbours to deal with human/wildlife conflict.</li> <li>Apply appropriate humane methods, if animals</li> </ul>	<ul style="list-style-type: none"> <li>Effective procedures and relationships with neighbours in dealing with human/wildlife conflict.</li> </ul>	<ul style="list-style-type: none"> <li>Frequent complaints from neighbours with no clear response.</li> </ul>	<b>Year 1 and then On-going</b>	Officer in Charge

	must be destroyed or captured.				
CONSERVATION TARGETS					
Processes are established to determine the success of management interventions in protecting the ecosystems, communities and species of the nature reserve.	<ul style="list-style-type: none"> <li>Develop surveillance and monitoring plans for key management interventions in accordance with the Ezemvelo KZN Wildlife policies and norms and standards.</li> </ul>	<ul style="list-style-type: none"> <li>Surveillance and monitoring plans for key threatening processes.</li> <li>Monitoring plans for key rare and endangered species.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of awareness of the status of key threatening processes including infestations of invasive plant species and severity and extent of soil erosion.</li> </ul>	<b>Year 3</b>	Ezemvelo KZN Wildlife Ecological advice unit
Rare and endangered species management is undertaken using the best available scientific knowledge.	<ul style="list-style-type: none"> <li>Adopt procedures for the management of rare and endangered species within the nature reserve, particularly those for which specific conservation targets have been set, based on available literature and known best practices.</li> <li>Ear-notch and take tissue and blood samples from all unmarked adult white rhino females for DNA testing to determine population lineage and genetic diversity.</li> </ul>	<ul style="list-style-type: none"> <li>Maintenance of optimum population numbers of rare and endangered species within the nature reserve.</li> <li>Improved understanding of biodiversity research and monitoring requirements.</li> </ul>	<ul style="list-style-type: none"> <li>Declining numbers of rare and endangered species that occur within the nature reserve.</li> </ul>	<b>On-going</b>	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge
	<ul style="list-style-type: none"> <li>Undertake active monitoring of key, rare and endangered species as per Ezemvelo KZN Wildlife guidelines</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring of flagship species.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of understanding of the status of flagship species.</li> </ul>	<b>Annually</b>	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge
	<ul style="list-style-type: none"> <li>Monitor the status of fish species, particularly</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring of endemic</li> </ul>	<ul style="list-style-type: none"> <li>Lack of understanding of</li> </ul>		Ezemvelo KZN Wildlife

	the KZN endemic species occurring in SNR and develop and implement species specific management plans if necessary.	species.	the status of flagship species.		Ecological Advice Unit and Officer in Charge
	<ul style="list-style-type: none"> <li>Monitor the status of the southern African endemic and KZN restricted herpetofauna occurring in SNR.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring of endemic species.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of understanding of the status of flagship species.</li> </ul>	<b>Annually</b>	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge
	<ul style="list-style-type: none"> <li>Monitor the status of the Red Data as well as the endemic bird species and ensure that all the bird species recorded at SNR are captured into the Corporate Biodiversity Database.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring of flagship species.</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Lack of understanding of the status of flagship species.</li> </ul>	<b>Annually</b>	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge

#### 6.6.8 Cultural heritage management

According to the National Heritage Resources Act No. 25 of 1999 the “conservation, in relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance.”

The SNR has both natural and cultural values that need to be protected. In addressing Cultural heritage management, the following guiding principles should be adhered to:

- Access to cultural heritage sites must be of a nature that considers the safety of the visitors.
- The cultural heritage sites including grave sites needs to be properly demarcated in order to prevent accidental damage by fire or other means.
- Sites (if required and based on the AMAFA recommendation) must be cleared of excess vegetation to reduce fire risk.

In managing the cultural assets of Spioenkop Nature Reserve, in accordance with the National Heritage Resources Act the following guiding principles will apply:

- All Cultural resources must be carefully managed to ensure their survival.
- Heritage resources contribute significantly to research, education and tourism and must be managed and used in a way that ensures respect for cultural values.
- Promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs.
- Heritage resources must be researched, documented and recorded.

The detailed operational requirements for wildlife management and the achievement of conservation targets are set out in Table 6.9 below.

**Table 6.9 Framework for conservation management – Cultural Heritage Management**

Strategic outcome	Management activities	Management targets	Indicators of Concern	Priority	Responsibility
<b>CULTURAL HERITAGE MANAGEMENT</b>					
Ensure the protection and improved awareness and appreciation of the cultural heritage and living heritage values of SNR.	<ul style="list-style-type: none"> <li>Development and implementation of site specific operational plan for the protection of all cultural heritage in SNR.</li> </ul>	<ul style="list-style-type: none"> <li>Site specific operational plan for cultural heritage.</li> <li>Safeguarded cultural assets.</li> </ul>	<ul style="list-style-type: none"> <li>Loss of cultural heritage and lack of awareness of the importance of cultural assets.</li> </ul>	<b>Year 2</b>	Officer in Charge with AMAFA.
	<ul style="list-style-type: none"> <li>Include the cultural values of the reserve in interpretation, awareness and marketing programs through strategic partnerships.</li> </ul>	<ul style="list-style-type: none"> <li>Increased awareness of cultural values.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of understanding of the importance of the reserve cultural heritage values.</li> </ul>	<b>Year 2</b>	Officer in Charge Community Conservation Officer
	<ul style="list-style-type: none"> <li>Identify research priorities and encourage tertiary students to address these priorities in the protected area.</li> </ul>	<ul style="list-style-type: none"> <li>Prioritised research list that are communicated to the relevant tertiary institutions.</li> </ul>	<ul style="list-style-type: none"> <li>Ad hoc research that is not relevant to the management of the reserve's cultural assets.</li> </ul>	<b>On-going</b>	Park Management Committee

## 6.7 Operational management

### 6.7.1 Financial and human resources

SNR cannot be effectively managed without adequate sustained funding and sufficient human resources. In addressing the financial and human resource needs of the nature reserve, the following guiding principles should be adhered to:

- Adequate funding must be provided for the management of the nature reserve to ensure the protection of its biodiversity and cultural values and the continued provision of its ecosystem services.
- Commercial operations within the nature reserve must be self-sufficient and, if profitable, should be used to subsidise its conservation and community programmes.
- Adequate, properly trained and experienced staff must be employed at the nature reserve to undertake the operations required for its effective management.

Management Effectiveness of protected areas relates directly to the availability of financial resources to achieve biodiversity conservation objectives. It is recognised that most protected areas do not have adequate financial resources to achieve their vision and stated objectives. The IUCN Best Practice Protected Area Guideline Series No 5: Financing Protected Areas; define a financial plan as a tool to determine the protected area's funding requirement and to match that with appropriate income sources.

“Ensuring effective management and securing sufficient financial resources are vital if protected areas are to continue to provide benefits and fulfil their role in biodiversity conservation.”

The guidelines also indicate that the Financial Plan should be developed in the context of the management plan and should be tied in with management priorities.

The Department of Environmental Affairs' Guidelines for the Development of a Management Plan for Protected Areas in terms of the National Environmental Management: Protected Areas Act requires the costing of the plan to reflect capital cost, operational cost as well as financial resources and shortfalls that needs to be addressed.

Current income generating activities include:

- Horse trails
- Camp site
- Day visitor site
- Bush Camp

- Angling and boating

#### 6.7.2 Facilities and infrastructure

In order for SNR to operate appropriately, adequate facilities and infrastructure need to be developed and maintained both for management and eco-cultural tourism purposes. In addressing facilities and infrastructure needs in the nature reserve, the following guiding principles will be adhered to:

- Facilities and infrastructure must be maintained to avoid any damage to the environment and ensure the safety of staff and visitors to the nature reserve.
- Facilities and infrastructure must be provided to ensure the effective management and operation of the nature reserve.
- Practical solutions to the provision of electricity should be sought at the nature reserve based on available renewable energy technologies.
- Facilities and infrastructure must be provided to support the eco-cultural tourism activities in the nature reserve.

The detailed operational requirements for financial and human resource, and facilities and infrastructure development and management are set out in Table 6.10 below.

**Table 6.10 Framework for operational management – financial and human resources, and facilities and infrastructure**

Strategic outcome	Management activities	Management targets	Indicators of Concern	Priority	Responsibility
<b>FINANCIAL RESOURCES</b>					
Development and implementation of a five-year financial plan that identifies the resource needs to achieve the objectives for the nature reserve.	<ul style="list-style-type: none"> <li>Undertake an assessment of past income and expenditure trends in the nature reserve.</li> <li>Develop a five-year projection of income and expenditure targets that will allow for the effective achievement of the nature reserve's objectives.</li> </ul>	<ul style="list-style-type: none"> <li>Adequate funding to achieve the objectives of the nature reserve.</li> </ul>	<ul style="list-style-type: none"> <li>Inadequate funding to effectively protect and operate the nature reserve.</li> </ul>	<b>Year 1</b>	Ezemvelo KZN Wildlife Regional Management Unit
<b>HUMAN RESOURCES</b>					
Ensure that the nature reserve is adequately staffed for its effective management and operation.	<ul style="list-style-type: none"> <li>Employ sufficient, appropriately skilled staff to meet the management and operational requirements of the nature reserve. All funded vacant positions needs to be filled as a matter of urgency.</li> <li>Motivate for key unfunded positions to effectively manage the nature reserve.</li> <li>Undertake regular training and skills development to ensure that staff is able to effectively complete their duties.</li> </ul>	<ul style="list-style-type: none"> <li>Appointment of staff in all positions in the nature reserve.</li> </ul>	<ul style="list-style-type: none"> <li>Inadequate staff numbers or skills for the effective management of the nature reserve.</li> </ul>	<b>Year 2</b>	Ezemvelo KZN Wildlife Regional Management Unit and Officer in Charge
<b>FACILITIES AND INFRASTRUCTURE</b>					
Ensure that all facilities and infrastructure in the	<ul style="list-style-type: none"> <li>Develop and implement a schedule maintenance programme to maintain facilities and infrastructure in a condition that meets</li> </ul>	<ul style="list-style-type: none"> <li>Regular scheduled maintenance of all facilities and</li> </ul>	<ul style="list-style-type: none"> <li>Environmental, health or safety incidents</li> </ul>	<b>On-going</b>	Officer in Charge

nature reserve are adequately maintained.	relevant environmental, health and safety requirements.	infrastructure.	associated with inadequately maintained facilities and infrastructure.		
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## 7) MONITORING AND REPORTING

Monitoring and reporting is a critical component of the adaptive management cycle. It enables the effective assessment of management interventions and, if necessary, can be used to direct modifications of management in an effort to achieve the outcomes required.

### 7.1 Annual monitoring

The annual monitoring schedule should be designed to monitor the implementation of aspects of the management plan. It should be designed to be straightforward and relatively easy to implement by on-site staff. In accordance with the Ezemvelo KZN Wildlife norms and standards for surveillance and monitoring (Goodman 2011), monitoring is characterised by:

- An objective, target or desired state of the attribute or resource (as described in the management targets in Section 6 above).
- Being part of a formalised adaptive management cycle.
- Establishing and repeatedly evaluating the measures of success of conservation project or management intervention.

Records should be maintained of all key management interventions and of problem events or incidents such as uncontrolled access, poaching, illegal plant collection or uncontrolled/arson fires. In terms of the norms and standards set for surveillance and monitoring (Goodman 2011) these incidents would be deemed to be surveillance.

Scientific monitoring programmes may be established to monitor specific management interventions such as measures for the protection of flagship species. Not all of the management interventions will be monitored through the monitoring schedule. Most of the outcomes of the monitoring process will be captured in an annual report, which will be used to inform the following year's annual plan of operation.

On this basis, a monitoring schedule for SNR is set out in Table 7.1.

**Table 7.1 Annual surveillance and monitoring schedule for Spioenkop Nature Reserve**

Management issue	Parameters to be monitored	Monitoring measures	Monitoring frequency	Responsibility	Reporting requirements
Law enforcement	Schedule of patrols	Written record	Weekly	Officer in Charge	Annual report
	Recovery of snares	Photographs/written record	Weekly		Annual report
	Illegal incidents	Photographs/written record	Per event		Record of event
Stakeholder engagement	Minutes of meetings of the liaison forum	Written record	Bi-annually	Officer in Charge	Annual report
Buffer zone management	Influx of listed invasive vegetation on the nature reserve's boundaries.	Surveillance plan	To be determined	Officer in Charge supported by Ecological Advice Unit	Annual report
Local and regional planning	Land uses that are approved in the areas around the nature reserve in local and regional IDPs and SDFs	Written record	Annually	Regional Management Level	Annual report
Eco- tourism	Visitor statistics	Completion of questionnaire/entry form	On-going	Officer in Charge	Annual report
Fire management	Burning of firebreaks as part of fire management	Written record/map/photography	Annually	Officer in Charge	Annual report
	Burning of blocks as part of controlled burning		Annually		Annual report
	Unplanned wildfires	Written record/map/photography	Per event		Record of event
Invasive plant control	Areas subject to invasive plant control	Monitoring plan	To be determined	Officer in Charge supported by Ecological Advice Unit	Annual report
	State of areas in which invasive plants have been eradicated				
	Records of labour hours/days	Written record	Annually		Annual report
	Herbicide usage	Written record	Annually		Annual report

**Table 7.1 (cont.)**

Management issue	Parameters to be monitored	Monitoring measures	Monitoring frequency	Responsibility	Reporting requirements
Soil erosion control	Areas subject to erosion control	Monitoring plan	To be determined	Officer in Charge supported by Ecological Advice Unit	Annual report
	State of rehabilitated areas of erosion				Annual report
Conservation targets	Incidents related to flagship species	Photographs/written record	Per event	Officer in Charge	Record of event
	Status of key rare and endangered species, particularly those for which conservation targets have been set	Monitoring plan	To be determined	Officer in Charge supported by Ecological Advice Unit	Annual report
Resource utilisation	Extraction of resources from the nature reserve	Photographs/written records	Per event	Officer in Charge	Annual report
Human resources	Staffing levels	Number of full-time staff	Annually	Officer in Charge	Annual report
Facilities and infrastructure	State of roads, 4x4 tracks and paths	Photographs/written records	Quarterly	Officer in Charge	Annual report
	State of facilities and service infrastructure	Maintenance schedule/written records	Monthly		Annual report
	Pollution events	Photographs/written records	Per event	Officer in Charge	Record of event

As set out in Table 7.1 the following issues require a surveillance plan:

- The influx of listed invasive vegetation on the nature reserve's boundaries.

In addition, the following issues require a monitoring plan:

- Measures taken to control invasive plant species.
- Measures taken to control soil erosion.
- Measures taken to control bush encroachment.
- Measures taken to manage rare and endangered species, particularly Oribi and Bearded Vulture and those for which conservation targets have been set.

These surveillance and monitoring plans must be developed and implemented in accordance with the Ezemvelo KZN Wildlife Norms and Standards: Surveillance and Monitoring Plans for Biodiversity (Goodman 2011).

The preparation of these plans must be undertaken by the Ezemvelo KZN Wildlife Ecological Advice Unit with the support of the Surveillance and Monitoring Working Group of Ezemvelo KZN Wildlife.

## **7.2 Annual protected area management plan implementation review**

The purpose of undertaking an annual performance review of implementation of the protected area management plan will be to:

- Determine how effectively the management plan has been implemented.
- Assist in determining the focus for the annual plan of operation and the setting of appropriate time frames and budgets.
- Enable effective adaptive management by identifying changes and modifying management interventions.

The report produced from the annual protected area management plan implementation review should be submitted to the Operations Committee: West, prior to the annual management meeting for Spioenkop Nature Reserve, for its review and comment. Records of recommendations for update/changes to the plan should be kept so that when the plan is revised, these recommendations can be assessed and included where necessary. This should be undertaken in the form of a running list, which is updated in each annual report so that the final annual report before the review of the management plan contains the complete list of recommendations. The review process should include:

- Any recommended minor amendments to the management plan that do not affect the substance of the vision, objectives or zonation.

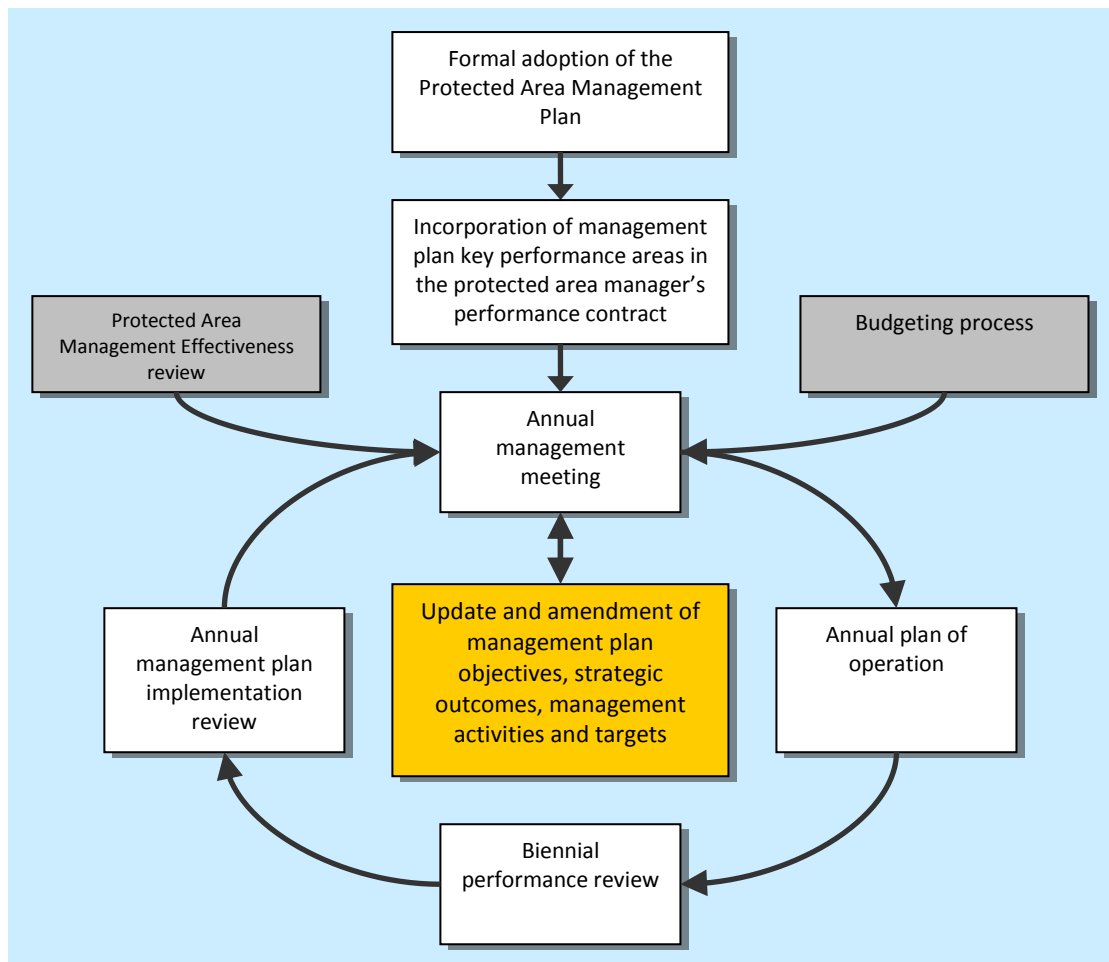
- The results of an evaluation of the management effectiveness achieved for the protected area, calculated using the WWF and World Bank Protected Area Management Effectiveness Tool (Stolton *et al.* 2007).

Any proposed significant changes to the management plan that are likely to result in amendment to the vision, objectives and zonation must be supported by the Regional Operations Committee and the Operations Committee (OPSCOM) before being subjected to the appropriate stakeholder participation process and before OPSCOM recommends that the proposed amended protected area management plan be submitted for authorisation to the Ezemvelo KZN Wildlife Board and to the MEC.

## 8) SPIOENKOP NATURE RESERVE ANNUAL PLAN OF OPERATION

Each year an annual plan of operation will be prepared, based on the objectives, strategic outcomes, management activities and targets contained in the protected area management plan.

### 8.1 Implementation of the protected area management plan



**Figure 8.1 Process for the implementation of Protected Area Management Plans**

Each year an annual management meeting is held for each protected area managed by Ezemvelo KZN Wildlife. In terms of the implementation of the protected area management plan, the purpose of the annual management meeting for SNR will be to:

- Finalise the annual report, as part of the annual protected area management plan implementation review described in Section 7.2 above.

- As part of the annual performance review, determine the need to modify or change any of the management plans objectives, strategic outcomes, management activities or targets.
- Determine management activities for the coming year and to set goals for the year, based on the key performance areas set out in the management plan, in accordance with the SNR manager's performance contract.
- Determine how budgets will be spent in an effort to achieve the goals for each of the quarters of the coming year.

The minutes and notes of the annual management meeting will be compiled in an annual plan of operation, which will include all of the information, set out above, and will determine what management activities need to be completed for the coming year, based on the management plan. The annual plan of operation will be tied to staff performance contracts, and goals set in them will be categorised within the same key performance areas as the integrated management plan. A pro forma annual plan of operation is set out in Appendix G.

## **8.2 Responsibilities in implementing the protected area management plan**

In the tables in the operational management framework, the responsibilities for the completion of management activities are identified. In many cases the people responsible for implementing the activities will be in attendance at the annual management meeting and the requirements for the achievement of the management activities can be discussed and agreed to at the meeting. In some cases, however, the management activities may be required to be referred to the Operations Committee: West and the Operations Committee (OPSCOM) in order to assign responsibility for the completion of the management activity. In this instance an action of the annual management meeting would be to refer this management activity to the OPSCOM so that the correct unit can be assigned responsibility to complete the management activity.

## **8.3 Spioenkop Nature Reserve resource requirements**

In developing annual plans of operation for Spioenkop Nature Reserve the resource requirements, associated with management activities and targets set out in the operational management framework must be considered and budgeted for. The following section broadly identifies the issues that must be considered in determining adequate human resources, funds and equipment for the nature reserve.

### 8.3.1 Staff and equipment

Annual plans of operation must consider the staff and equipment needs to undertake the following activities:

- Administration and management of the nature reserve.
- Patrolling of the nature reserve and its boundaries.
- An annual burning programme and fire fighting response to wildfires.
- An on-going invasive plant species control programme.
- An on-going soil erosion control and rehabilitation programme.
- Ecological monitoring and data capture.
- Maintenance of roads, paths and fences within the nature reserve.
- Maintenance of facilities and infrastructure within the nature reserve.
- Capture of visitor information and statistics.
- Admitting visitors to the nature reserve and charging entrance fees.
- Community liaison and cooperation.
- Environmental interpretation and education.

### 8.3.2 Projects

In addition to the requirements for annual recurrent funding for the issues outlined above, there will be a need to identify funding requirements for the following capital projects:

- Replace and maintain the SNR fence to secure the boundary of the protected area.
- Upgrade of all building infrastructure (management and tourism)
- Repair of tourism and management roads.
- Installation of signage directing tourists to the nature reserve.
- Installation of directional and interpretive signage within the nature reserve.

## **8.4 Annual financial plan**

The annual plan of operation must contain a financial plan, which must be approved by the Operations Committee: West. The annual goals, contained in the annual plan of operation, will be prioritised with the approved budget and guided by the strategic direction of the protected area management plan.

## **8.5 Financial accounting system**

It is accepted that all fiscal management will be guided by the Public Finance Management Act (No.1 of 1999) and the Ezemvelo KZN Wildlife Financial Policy and Procedures directive. Funding sources not generated internally will be accounted for in the prescribed process as determined by the donor source.

## **8.6 Financial reporting**

Annual and quarterly fiscal reports will be submitted as directed by the Operations Committee.

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## DEFINITIONS OF TERMS

Alien species	Species or genotypes, which are not indigenous to Spioenkop Nature Reserve and the surrounding area including hybrids and genetically altered organisms.
Biodiversity	The variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and also includes diversity within species, between species, and of ecosystems (as per the National Environmental Management: Biodiversity Act, 2004 [Act No. 10 of 2004]).
Bioprospecting	In relation to indigenous biological resources, means any research on, or development or application of, indigenous biological resources for commercial or industrial exploitation, and includes – the systematic search, collection or gathering of such resources or making extractions from such resources for purposes of such research, development or application (as per the National Environmental Management: Biodiversity Act, 2004 [Act No. 10 of 2004])
Board	The KwaZulu-Natal Nature Conservation Board as defined by the KwaZulu-Natal Nature Conservation Management Act, 1997 (Act No.9 of 1997).
Buffer zone	An area surrounding Spioenkop Nature Reserve that has restrictions placed on its use or where collaborative projects and programmes are undertaken to afford additional protection to the nature reserve.
Co-management	The term 'Co-management' must be understood within the context of Section 42 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).
Cultural heritage	As defined in Article 1 of the World Heritage Convention (UNESCO) 1972 , 'cultural heritage' is considered as "monuments, architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of (...) value from the point of view of history, art or science, groups of buildings, groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of significance from the point of view of history, art or science, sites, works of man or the combined works of nature and man, and areas including archaeological sites which are of (...) value from the historical, aesthetic, ethnological or anthropological point of view." For the purpose of this IMP, living heritage features such as mountains, pools, rivers, boulders, etc. as well as palaeontological features are included under this definition.
Eco-cultural Tourism (ecotourism):	The travel to natural areas to learn about the way of life and cultural history of people, the natural history of the environment, while taking care not to change the environment and contributing to the economic welfare of the local people (adapted from a definition of ecotourism by Hecto Ceballos Lascurain).
Ecological integrity	The sum of the biological, physical and chemical components of an ecosystem and its products, functions and attributes (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
Ecosystem	A dynamic complex of animal, plant and micro-organism communities and their non-living environment interacting as a functional unit (as per the National

Ecosystem services	<p>Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).</p> <p>As defined in Section 1 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) as “environmental goods and services” meaning:</p> <ol style="list-style-type: none"> <li>Benefits obtained from ecosystems such as food, fuel and fibre and genetic resources.</li> <li>Benefits from the regulation of ecosystem processes such as climate regulation, disease and flood control and detoxification.</li> <li>Cultural non-material benefits obtained from ecosystems such as benefits of a spiritual, recreational, aesthetic, inspirational, educational, community and symbolic nature;”</li> </ol> <p>For the purposes of this IMP, sustainable water production is also specifically included under this definition.</p>
Environmental degradation	<p>The deterioration of the environment through depletion of resources such as air, water and soil; the destruction of ecosystems and the loss of species or undesirable reduction of species population numbers from a specific area from an environmental health perspective</p>
Ezemvelo KZN Wildlife	<p>Nature Conservation Service as established in terms of the KwaZulu-Natal Nature Conservation Management Act No. 9 of 1997.</p>
Indigenous species	<p>In relation to a specific protected area, means a species that occurs, or has historically occurred, naturally in a free state of nature within that specific protected area, but excludes a species introduced in that protected area as a result of human activity (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).</p>
Invasive species	<p>Means any species whose establishment and spread outside of its natural distribution range –</p> <ol style="list-style-type: none"> <li>Threaten ecosystems, habitats or other species or have a demonstrable potential to threaten ecosystems, habitats or other species.</li> <li>May result in economic and environmental harm or harm to human health.</li> </ol> <p>(As per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).</p>
Joint management	<p>The agreed co-ordination of management and/or management actions by landowners and/or mandated managers on their individual or combined properties in order to achieve common management objectives.</p>
Local community	<p>Any community of people living or having rights or interests in a distinct geographical area (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).</p>
Management	<p>In relation to a protected area, includes control, protection, conservation, maintenance and rehabilitation of the protected area with due regard to the use and extraction of biological resources, community-based practices and benefit sharing activities in the area in a manner consistent with the Biodiversity Act (as per the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)).</p>

Management authority	In relation to a protected area, means the organ of state or other institution or person in which the authority to manage the protected area is vested (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
Monitoring	The collection and analysis of repeated observations or measurements to evaluate change in status, distribution or integrity in order to track the impacts of directed management implemented to achieve a stated management objective.
Nature conservation	The conservation of naturally occurring ecological systems, the sustainable utilisation of indigenous plants and animals therein, and the promotion and maintenance of biological diversity (as per the KwaZulu-Natal Nature Conservation Management Act, 1997 [Act No.9 of 1997]).
Neighbouring community	the communities and people permanently living in the local municipal area/s bordering onto the Nature Reserve.
Natural heritage	As defined in Article 2 of the World Heritage Convention (UNESCO) 1972 ‘natural heritage’ is as: “natural features consisting of physical and biological formations or groups of such formations, which are of (...) value from the aesthetic or scientific point of view, geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of (...) value from the point of view of science or conservation, natural sites or precisely delineated natural areas of (...) value from the point of view of science, conservation or natural beauty.” For the purposes of this IMP, this would include the required ecological integrity of the protected area for the production of ecosystem services.
Partnerships	A co-operative and / or collaborative arrangement between the Game Reserve management / Ezemvelo and a third party that supports the achievement of the Game Reserve management objectives.
Protected areas	<ul style="list-style-type: none"> <li>Means any area declared or proclaimed as such in terms of section 3 or listed in the Second Schedule to the KwaZulu-Natal Nature Conservation Management Act, 1997 (Act No. 9 of 1997); or</li> <li>Means any of the protected areas referred to in section 9 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).</li> </ul>
Protected area management committee	Is the management body that deals with the day-to-day management of the protected area and is chaired by the OIC.
Ramsar Convention	Means: “The Convention on Wetlands of International Importance, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty, which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.” (There are presently 158 Contracting Parties to the Convention, the Convention has broadened its scope to cover all aspects of wetland conservation and wise use, recognising wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities.)

Stakeholders/ interested parties	These are interested individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public. According to the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), “stakeholder” means a person, an organ of state or a community contemplated in section 82 (1) (a), or an indigenous community contemplated in section 82(1) (b).
Surveillance	The collection and analysis of single or repeated measurements to establish status or distribution or integrity at a point in time in the absence of a specific management context or objective.
Sustainable	In relation to the use of a biological resource, means the use of such resource in a way and at a rate that would not lead to its long-term decline; would not disrupt the ecological integrity of the ecosystem in which it occurs; and would ensure its continued use to meet the needs and aspirations of present and future generations of people (as per National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
Wilderness area	Means an area designated in terms of section 22 or 26 for the purpose of retaining an intrinsically wild appearance and character, or capable of being restored to such and which is undeveloped and roadless, without permanent improvements or human habitation (as defined by the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
World heritage site	Means a World Heritage Site as defined in the World Heritage Convention Act, No. 49 of 1999 under Chapter 1, section 1 subsection (xxiv).

## LIST OF STATUTES TO WHICH THE SPIOENKOP NATURE RESERVE IS SUBJECT

### Biodiversity and Cultural Resource Management and Development:

- Animals Protection Act [No. 71 of 1962]
- Atmospheric Pollution Prevention Act [No. 45 of 1965]
- Conservation of Agricultural Resources Act [No. 43 of 1983]
- Constitution of the Republic of South Africa [No. 108 of 1996]
- Criminal Procedures Act [1977]
- Environment Conservation Act [No. 73 of 1989]
- Forest Act [No. 122 of 1984]
- Hazardous Substances Act [No. 15 of 1973]
- KwaZulu Nature Conservation Act [No. 8 of 1975]
- KwaZulu-Natal Heritage Management Act [No. 10 of 1997]
- KwaZulu-Natal Nature Conservation Management Act [No. 9 of 1997]
- National Environmental Management Act [No. 107 of 1998]
- National Environmental Management: Biodiversity Act [No. 10 of 2004]
- National Environmental Management: Protected Areas Act [No. 57 of 2003]
- National Forests Act [No. 84 of 1998]
- National Heritage Resources Act [No. 25 of 1999]
- National Water Act [No. 36 of 1998]
- National Water Amendment Act [No. 45 of 1999]
- National Veld and Forest Fire Act [No 101 of 1998]
- Nature Conservation Ordinance [No. 15 of 1974]

### General Management:

- Development Facilitation Act [No. 67 of 1995]
- Disaster Management Act [No. 57 of 2002]
- Fire Brigade Services Act [No. 99 of 1987]
- Local Government: Municipal Systems Act [No. 32 of 2000]
- National Road Traffic Act [No. 93 of 1996]
- National Building Standards Act [No. 103 of 1977]
- Natal Town Planning Ordinance [No. 27 of 1949]
- Occupational Health and Safety Act [No. 85 of 1993]
- KwaZulu-Natal Planning and Development Act [No. 5 of 1998]
- Water Services Act [No. 108 of 1997]

### Financial Management:

- Public Finance Management Act [No. 1 of 1999]

**Human Resource Management:**

- Basic Conditions of Employment Act [No. 75 of 1997]
- Broad-Based Black Economic Empowerment Act [No. 53 of 2003]
- Compensation for Occupational Injuries and Diseases Act [No. 130 of 1993]
- Employment Equity Act [No. 55 of 1998]
- Labour Relations Act [No. 66 of 1995]
- Occupational Health and Safety Act [No. 85 of 1993]
- Pension Funds Act [No. 24 of 1956]
- Skills Development Act [No. 97 of 1998]
- Skills Development Levies Act [No. 9 of 1999]
- Unemployment Insurance Act [No. 63 of 2001]

## SPIOENKOP NATURE RESERVE PROCLAMATION

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Die Offisiële Koerant van die Provinsie Natal

21 Julie 1988

\*†No. 33, 1988

[Engelse teks deur die  
Administrateur onderteken]

## PROKLAMASIE

van die Administrateur van die Provinsie Natal

**K**RAGTENS die bevoegdhede aan my verleen by artikel 2 (3) van die Ordonnansie op Natuurbewaring, 1974 (Ordonnansie 15 van 1974), vergroot ek hierby die gebied van die Openbare Natuurtuin Spioenkop-oord soos geproklameer by Proklamasie No. 101 van 1975 deur die insluiting daarby van die grond omskryf as Onds 5 en 6 (albei van 1) van die plaas Labuschaghes Kraal No. 905, geleë in die Administratiewe Distrik van Natal, onderskeidelik een-en-veertig komma drie nul nul sewe (41,3007) en eenhonderd en sestion komma twee vyf drie nege (116,2539) hektaar groot.

Gegee onder my handtekening te Pietermaritzburg op hierdie 29ste dag van Junie 1988.

R. M. CADMAN  
Administrateur

\*†No. 33, 1988

[English text signed by  
the Administrator]

## PROCLAMATION

by the Administrator of the Province of Natal

**U**NDER the powers vested in me by section 2 (3) of the Nature Conservation Ordinance, 1974 (Ordinance 15 of 1974), I hereby increase the area of the Spioenkop Public Resort Nature Reserve as proclaimed under Proclamation No. 101 of 1975 by the inclusion therein of the land described as Subs 5 and 6 (both of 1) of the Farm Labuschaghes Kraal No. 905, situate in the Administrative District of Natal, measuring forty-one comma three nought nought seven (41,3007) and one hundred and sixteen comma two five three nine (116,2539) hectares, respectively.

Given under my hand at Pietermaritzburg, this 29th day of June 1988.

R. M. CADMAN  
Administrator

Gazette 3875 (31 July 1975)

†\*No. 101, 1975.

[Afrikaanse teks deur die  
Administrateur onderteken.]

## PROKLAMASIE

van die Administrateur van die provinsie Natal

**K**RAGTENS my bevoegdhede ingevolge artikel 2 van die Ordonnansie op Natuurbewaring, 1974 (Ordonnansie No. 15 van 1974), proklameer, verklaar en maak ek hierby op raad en met die toestemming van die Uitvoerende Komitee van die provinsie Natal bekend dat die gebied wat op die aangehegte plan aangetoon word en in die bylae hiervan omskryf word, met ingang van die publikasiedatum hiervan 'n Natuurtuin is en as die openbare Natuurtuin Spioenkop-oord bekend moet staan.

Gegee onder my handtekening te Pietermaritzburg, Natal, op hede die 9de dag van Julie eenduiseend negenhonderd vyf-en-sewentig.

W. W. B. HAVEMANN,  
Administrateur.

BYLAE

Openbare Natuurtuin Spioenkop-oord bestaande uit die volgende eiendomme of gedeeltes van eiendomme:

- A. Die eiendomme omskryf as—
- (i) Ond. 14 van Zuurlager No. 1040 groot 92,0920 Ha.
  - (ii) Ond. 14, groot 17,7157 Ha.
  - (iii) Ond. 15, groot 10,3419 Ha.  
albei van Krommedraai No. 1033.
  - (iv) Ond. 9, groot 1,3995 Ha.
  - (v) Ond. 10, groot 1,0084 Ha.  
albei van Rhenosterfontein No. 1051.
  - (vi) Ond. 6 (van 3) groot 308,0922 Ha.
  - (vii) Ond. 18, groot 21,3182 Ha.
  - (viii) Ond. 17, groot 252,6065 Ha.
  - (ix) Ond. 15, groot 284,0000 Ha.  
albei van Schoongezicht No. 1088.

B. Daardie gedeeltes van die volgende eiendomme wat binne die gearseerde grens val, soos aangetoon op die plan wat hierby aangeheg is:

- (i) Ond. 1 van 3 van Bergville.
- (ii) Ond. Patience.
- (iii) Ond. Riverdale.  
albei van Krommedraai No. 1033.
- (iv) Ond. Delta.
- (v) Ond. 21.  
albei van Venterslager 1291.
- (vi) Ond. Fairview.
- (vii) Ond. 4.
- (viii) Ond. 5.
- (ix) Ond. D.
- (x) Restant.
- (xi) Ond. Bedale.  
albei van Rhenosterfontein 1051.
- (xii) Ond. 7.
- (xiii) Ond. 10.  
albei van Schoongezicht 1088.
- (xiv) Ond. Wairangi.
- (xv) Ond. D.  
albei van Emmadale No. 1211.

†\*No. 101, 1975.

[Afrikaans text signed by  
the Administrator.]

## PROCLAMATION

by the Administrator of the Province of Natal

**U**NDER and by virtue of the powers vested in me by Section 2 of the Nature Conservation Ordinance, 1974 (Ordinance No. 15 of 1974), I, acting on the advice and with the consent of the Executive Committee of the Province of Natal, do hereby proclaim, declare and make known that the area shown on the attached plan and described in the schedule hereto shall be a nature reserve with effect from date of publication hereof and shall be known as the Spioenkop Public Resort Nature Reserve.

Given under my hand at Pietermaritzburg, Natal, this 9th day of July, One Thousand Nine Hundred and Seventy-five.

W. W. B. HAVEMANN,  
Administrator.

## SCHEDULE

Spioenkop Public Resort Nature Reserve comprises the following properties or portions of properties:

- A. The properties described as—
- (i) Sub 14 of Zuurlager No. 1040 in extent 92,0920 Ha.
  - (ii) Sub 14, in extent 17,7157 Ha.
  - (iii) Sub 15, in extent 10,3419 Ha.  
both of Krommedraai No. 1033.
  - (iv) Sub 9, in extent 1,3995 Ha.
  - (v) Sub 10, in extent 1,0084 Ha.  
both of Rhenosterfontein No. 1051.
  - (vi) Sub 6 (of 3) in extent 308,0922 Ha.
  - (vii) Sub 18, in extent 21,3182 Ha.
  - (viii) Sub 17, in extent 252,6065 Ha.
  - (ix) Sub 15, in extent 284,0000 Ha.  
all of Schoongezicht No. 1088.

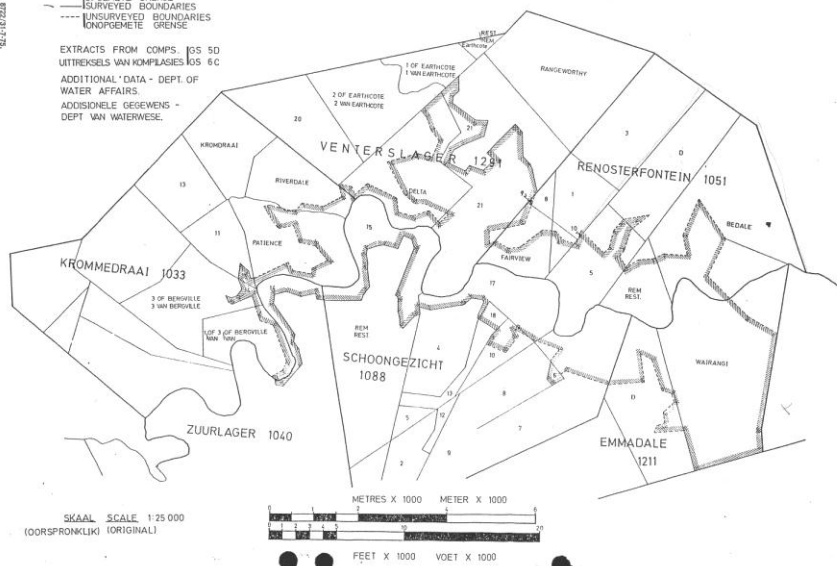
B. Those portions of the following properties, which fall within the hatched boundary as shown on the plan attached hereto:

- (i) Sub 1 of 3 of Bergville.
- (ii) Sub Patience
- (iii) Sub Riverdale  
all of Krommedraai No. 1033.
- (iv) Sub Delta.
- (v) Sub 21.  
both of Venterslager 1291.
- (vi) Sub Fairview.
- (vii) Sub 4.
- (viii) Sub 5.
- (ix) Sub D.
- (x) Rem.
- (xi) Sub Bedale.  
all of Rhenosterfontein 1051.
- (xii) Sub 7.
- (xiii) Sub 10.  
all of Schoongezicht 1088.
- (xiv) Sub Wairangi.
- (xv) Sub D.  
both of Emmadale No. 1211.

SPIOENKOP DAM, PUBLIC RESORT NATURE RESERVE  
SPIOENKOPDAM, OPENBARE OORDRESERVE

———| OPGEMETE GRENSE  
 ———| SURVEYED BOUNDARIES  
 ----| UNSURVEYED BOUNDARIES  
 ----| IONPGEMETE GRENSE

EXTRACTS FROM COMPS. GS 5D  
UITREKSELS VAN KOMPILASIES GS 6C  
ADDITIONAL DATA - DEPT. OF  
WATER AFFAIRS.  
ADISONIELE GEGEWENS -  
DEPT VAN WATERWEE.



**LIST OF POLICIES, UNPUBLISHED AND SUPPORTING DOCUMENTATION**

Copies available from: a) Reserve Management and / or,  
b) Regional Ecologist

Item:

1. Ezemvelo Corporate Strategic Plan and Performance Plan for 2009 - 2014.
2. Ezemvelo Corporate Policies and Procedures (Norms & Standards) listed in the table below.
3. Ezemvelo Biodiversity Database Checklists for Spioenkop Nature Reserve.
4. Proclamations of Spioenkop Nature Reserve
5. Spioenkop Nature Reserve Public Participation Report, November 2013.

The table below lists the Ezemvelo KZN Wildlife corporate policies (norms and standards) referenced from the intranet that are most relevant to Ezemvelo KZN Wildlife protected area management. It is the responsibility of all management and other personnel associated with management of protected areas to ensure that they familiarise themselves and comply with the most recent versions of all Ezemvelo KZN Wildlife Board Approved Policies.

<b><u>EZEMVELO CORPORATE POLICIES (NORMS &amp; STANDARDS)</u></b>	
<b><u>Policy File No.</u></b>	<b><u>CORPORATE AFFAIRS</u></b>
B 2	➤ Access to Ezemvelo KZN Wildlife Areas and Employment.
B 5	➤ Outsourcing of Functions and Services
B 7	➤ Monuments, Memorials and Names of Protected Areas under the control of Ezemvelo.
B 8	➤ Restricted use of Board Theatres, Halls and Conference Facilities etc.
B 9	➤ Code of Ethics / Conduct.
B 10	➤ Photography in Board Protected Areas.
B 13	➤ Mission Statement
B 14	➤ Access to Information.
<b><u>Policy File No.</u></b>	<b><u>INTERNAL AUDIT</u></b>
C 5	➤ Management Control
<b><u>BIODIVERSITY CONSERVATION OPERATIONS</u></b>	
<b><u>1. NATURAL RESOURCE SUSTAINABILITY</u></b>	
<b><u>Policy File No.</u></b>	<b><u>Threatened Species and Ecosystems</u></b>
D 1.1	➤ Disposal of Black Rhino.
D 1.2	➤ Disposal of Surplus White Rhino.
D 1.3	➤ Strategy for the Management of Southern White Rhino in KwaZulu-Natal.
D 1.4	➤ Strategy for the Biological Management of Black Rhino in KwaZulu-Natal.
D 1.5	➤ Rhinoceros Products.
D 1.6	➤ Crocodilians
D 1.7	➤ Cycads.
D 1.8	➤ Disposal of Threatened Species.

<b>EZEMVELO CORPORATE POLICIES (NORMS &amp; STANDARDS)</b>	
<b>BIODIVERSITY CONSERVATION OPERATIONS</b>	
<b>1. NATURAL RESOURCE SUSTAINABILITY</b>	
<b>Policy File No.</b>	<b>Exotic and Invasive Species</b>
D 1.9	➤ Release of Alien Species.
D 1.10	➤ Control Measures for Red-billed Quelea.
D 1.12	➤ Grass Carp.
D 1.13	➤ Establishment of Alien Plantations.
	➤
<b>Policy File No.</b>	<b>Migratory Species</b>
D 1.14	➤ Black Wildebeest and Blue Wildebeest Hybridization and Conservation.
D 1.15	➤ Permit authorising the collection of Biological Material within Board Areas.
<b>2. CONSERVATION EFFECTIVENESS</b>	
<b>Policy File No.</b>	<b>Strategic Applications</b>
D 2.1	➤ Involvement of the KwaZulu-Natal Nature Conservation Board in Project 8 of the MAB (Man and Biosphere) Programme.
<b>Policy File No.</b>	<b>Conservation Management: Protected Area Management</b>
D 2.2	➤ Management of Wilderness Areas.
D 2.3	➤ Protected Area Development.
D 2.4	➤ Prohibition of Works and Servitudes in Board Areas.
D 2.5	➤ Zonation and Regulations for the control of off-road vehicles on beaches controlled by the Board.
D 2.6	➤ Quarries in KZN Protected Areas.
D 2.7	➤ Re-establishment and Management of Vegetation on Development Sites in the Ezemvelo KZN Wildlife Protected Areas.
D 2.8	➤ Ecotourism and Protected Areas.
D 2.9	➤ Solid Waste Management within Protected Areas.
D 2.10	➤ State Security Service Activities within Board Areas.
D 2.11	➤ Shark Nets in or bordering KwaZulu-Natal Nature Conservation Board Controlled Areas.
<b>Policy File No.</b>	<b>Integrated Environmental Management</b>
D 2.12	➤ Integrated Environmental Management - incorporating the procedure for the assessment of the impact of proposed development projects on nature conservation concerns.
D 2.13	➤ Precautionary Principle.
D 2.14	➤ Shark Net Installations.
D 2.15	➤ Bioprospecting in KwaZulu-Natal.
D 2.17	➤ Use of Pesticides by the Ezemvelo KZN Wildlife: Safety to Humans and the Environment.
D 2.18	➤ Interference with the Mouth of a Lagoon or River (Breaching).
<b>Policy File No.</b>	<b>Ex Situ Wild Animal Management</b>
D 2.21	➤ Re-establishment of Terrestrial Mammals in Board Areas.
D 2.22	➤ Translocation of Animals.
D 2.25	➤ Elephant Introductions and Elephant in Enclosures.
D 2.27	➤ Introduction and Keeping of Large Predators in Enclosures in KZN.

D 2.28	➤ Use of Narcotic Drugs.
D 2.29	➤ Falconry.
<b><u>EZEMVELO CORPORATE POLICIES (NORMS &amp; STANDARDS)</u></b>	
<b>BIODIVERSITY CONSERVATION OPERATIONS</b>	
<b>2. CONSERVATION EFFECTIVENESS</b>	
<b>Policy File No.</b>	<b>Human Animal Conflict - Inside and Outside Protected Areas</b>
D 2.30	➤ Disposal of Leopard from Ezemvelo KZN Wildlife Protected Areas.
D 2.31	➤ Problem Animal Control.
D 2.32	➤ Compensation claims in respect of damage caused by Lion, Cheetah, Wild Dog and Elephant to Stock and Crops.
D 2.33	➤ Instances of Death as a result of an Unprovoked Attack by a Wild Animal Normally contained and originating from within a Fenced Protected Area under the Control of the KwaZulu-Natal Nature Conservation Board.
<b>Policy File No.</b>	<b>Environmental Awareness</b>
D 2.34	➤ Environmental Education Policy.
<b>3. BIODIVERSITY PROTECTION</b>	
<b>Policy File No.</b>	<b>Co-management</b>
D 3.1	➤ Supply of Game to Conservancies, Community Conservation Areas and Biosphere Reserves in KwaZulu-Natal
D 3.2	➤ Establishment and Management of Community Conservation Reserves (CCR)
D 3.4	➤ Community Conservation Programmes
D 3.5	➤ Neighbours' Access to Board Protected Areas
D 3.6	➤ Relationship with Local Boards
D 3.7	➤ Conservation Partnerships Between KwaZulu-Natal Nature Conservation Board and Adjacent Landowners
D 3.8	➤ Community Trust
D 3.9	➤ Community Levy Policy and Guidelines
D 3.10	➤ Land Claims on Proclaimed and Unproclaimed Provincial and Assigned National Protected areas in KwaZulu-Natal
D 3.11	➤ Amafa Policy Guidelines for the access of rock art sites in KwaZulu Natal
<b>Policy File No.</b>	<b>Resource-use benefits</b>
D 3.12	➤ Disposal of Venison from Ezemvelo KZN Wildlife Management Operations.
D 3.13	➤ Sustainable use of wildlife resources.
D 3.14	➤ Freshwater Angling.
D 3.15	➤ Freshwater species utilisation.
D 3.16	➤ Use of plant resources from protected areas.
D 3.17	➤ Use of doomed biological material.
D 3.19	➤ Provision of hunting by Ezemvelo KZN Wildlife.
<b>Policy File No.</b>	<b>4. RELATIONSHIPS</b>
D 4.1	➤ Neighbour Relations.
D 4.2	➤ Participation - Non Government Organisations.
D 4.3	➤ Data Access.
D 4.4	➤ Consultation and Communication with Stakeholders: Policy and Guidelines.

<b>EZEMVELO CORPORATE POLICIES (NORMS &amp; STANDARDS)</b>	
<b>Policy File No.</b>	<b>COMMERCIAL OPERATIONS</b>
E 1	➤ Concessions for Welfare Groups.
E 2	➤ Hiking and Mountaineering.
E 3	➤ Educational Concessions.
E 4	➤ Club Facilities within Board Areas.
E 5	➤ Hutted Camps.
E 6	➤ Joint Venture Scheme.
E 7	➤ Allocation of Sites in terms of the Joint Venture Scheme.
E 8	➤ Access to Protected Areas through Unofficial Entry Points.
E 9	➤ Visitor Facilities Management by Ezemvelo KZN Wildlife.
E 10	➤ Lease of Lakeshore at State Dam Protected Areas.
E 11	➤ Execution, Control and Management of Leases and Concession Contracts (excluding Biodiversity Conservation Partnerships and Leases of Wildlife).
E 12	➤ Private Sector Reservations Policy.
E 13	➤ Partnerships for Eco-Tourism Development within or Adjacent to Protected Areas.
E 14	➤ Discounting of Tariffs for Walk-in Guests.
E 15	➤ Ecotourism Discounting Strategy.
E 16	➤ Travel Trade Commissions: Tour Operator/ Travel Agency.
E 17	➤ Policy and Procedure for the establishment and monitoring of Commercial Operations Public Private Partnership (PPP) Agreements.
E 18	➤ Administrative and operational policy on Professional hunting in South Africa.
E 19	➤ Commercialisation.

## LISTED ACTIVITIES REQUIRING ENVIRONMENTAL AUTHORISATION IN TERMS OF REGULATION R.546, LISTING NOTICE NO.3

If any of the following activities are proposed in a protected area, proclaimed in terms of the Protected Areas Act, or within five kilometres of one, they will be subject to either a basic assessment or full scoping and environmental impact assessment process:

- The construction of billboards exceeding 18 square metres in size.
- The construction of reservoirs for bulk water supply with a capacity of more than 250m<sup>3</sup>.
- The construction of masts or towers of any material or type used for telecommunication broadcasting or radio transmission purposes where the mast:
  - Is to be placed on a site not previously used for this purpose.
  - Will exceed 15 metres in height but excluding attachments to existing buildings and masts on rooftops.
- The construction of a road wider than four metres with a reserve less than 13.5 metres.
- The construction of resorts, lodges or other tourism accommodation facilities.
- The conversion of existing structures to resorts, lodges or tourism accommodation facilities that sleep 15 people or more.
- The construction of aircraft landing strips and runways.
- The construction of above ground cableways and funiculars.
- The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good.
- The construction of tracks or routes for the testing, recreational use or outdoor racing of motor powered vehicles excluding conversion of existing tracks or routes for the testing, recreational use or outdoor racing of motor powered vehicles.
- The clearance of an area of 1ha or more of vegetation where 75% of the vegetative cover constitutes indigenous vegetation, except where such removal is required for:
  - The undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list.
  - The undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No.544 of 2010
- The construction of facilities and infrastructure or structures of any size for any form of aquaculture (*this applies only inside a protected area, not within five kilometres of it*).

- The construction of:
  - Jetties exceeding 10m<sup>2</sup> in size.
  - Slipways exceeding 10m<sup>2</sup> in size.
  - Buildings with a footprint exceeding 10m<sup>2</sup> in size.
  - Infrastructure covering 10m<sup>2</sup> or more.

Where such construction occurs within a watercourse or within 32 metres of watercourse, measured from the edge of the watercourse, excluding where such construction will occur behind the development setback line.

- The expansion of reservoirs for bulk water supply where the capacity will be increased by more than 250m<sup>3</sup>.
- The expansion of a resort, lodge, hotel and tourism or hospitality facilities where the development footprint will be expanded.
- The widening of a road by more than four metres or the lengthening of a road by more than one kilometre.
- The expansion of runways or aircraft landing strips where the expanded runways or aircraft landing strips will be longer than 1.4 kilometres in length.
- The expansion of above ground cableways and funiculars where the development footprint will be increased.
- The expansions of tracks or routes for the testing, recreational use or outdoor racing of motor powered vehicles excluding conversion of existing tracks or routes for the testing, recreational use or outdoor racing of motor powered vehicles, where the development footprint will be expanded.
- The expansions of facilities or infrastructure for the storage, or storage and handling of a dangerous good.
- The expansion of:
  - Jetties where the jetty will be expanded by 10m<sup>2</sup> in size or more.
  - Slipways where the slipway will be expanded by 10m<sup>2</sup> or more.
  - Buildings where the buildings will be expanded by 10m<sup>2</sup> or more in size.
  - Infrastructure where the infrastructure will be expanded by 10m<sup>2</sup> or more.

Where such construction occurs within a watercourse or within 32 metres of watercourse, measured from the edge of the watercourse, excluding where such construction will occur behind the development setback line.

- The expansion of facilities, infrastructure or structures of any size for any form of aquaculture (*this applies only inside a protected area, not within five kilometres of it*).
- Phased activities for all activities listed in the Schedule and as it applies to a specific geographical area, which commenced on or after the effective date of the Schedule, where any phase off the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.

## SPECIES LISTS

## Plant species list of Spioenkop Nature Reserve

Taxon Name	English Name	South Africa Red Data Book	CITES	Ordinance
<i>Acacia caffra</i>	Common Hook Thorn	Least Concern		Controlled
<i>Acacia karroo</i>		Least Concern		
<i>Acacia nilotica</i>				
<i>Acacia robusta clavigera</i>		Least Concern		
<i>Acacia schweinfurthii</i> var. <i>schweinfurthii</i>		Least Concern		
<i>Acacia sieberiana</i>	Paperbark Acacia	Not Evaluated		Controlled
<i>Acacia</i> sp.				
<i>Acalypha peduncularis</i>		Least Concern		
<i>Acalypha punctata</i>				
<i>Acalypha schinzii</i>				
<i>Acalypha</i> sp.				Protected
<i>Achyranthes</i> sp.				
<i>Ajuga ophrydis</i>		Least Concern		
<i>Albucca setosa</i>		Least Concern		
<i>Alepidea longifolia angusta</i>				
<i>Alloteropsis semialata</i>				
<i>Aloe cooperi</i>			Appendix II	
<i>Aloe dominella</i>		Near Threatened	Appendix II	
<i>Alysicarpus rugosus</i>				
<i>Anthospermum herbaceum</i>		Least Concern		
<i>Argyrolobium harveyanum</i>		Least Concern		
<i>Aristea woodii</i>				
<i>Aristida junciformis</i>				
<i>Aristida monticola</i>		Least Concern		
<i>Asclepias multicaulis</i>		Least Concern		
<i>Athrixia phyllicoides</i>		Least Concern		
<i>Barleria obtusa</i>		Least Concern		

Taxon Name	English Name	South Africa Red Data Book	CITES	Ordinance
<i>Berkheya robusta</i>		Least Concern		
<i>Blepharis integrifolia</i>				
<i>Boscia albitrunca</i> var. <i>albitrunca</i>	Shepherd's Tree	Not Evaluated		Controlled
<i>Bothriochloa insculpta</i>		Least Concern		
<i>Brachiaria serrata</i>		Least Concern		
<i>Brachylaena ilicifolia</i>		Least Concern		
<i>Buchnera</i> sp.				
<i>Buddleja auriculata</i>		Least Concern		
<i>Bulbostylis</i> sp.				
<i>Calpurnia aurea aurea</i>		Least Concern		
<i>Canthium gilfillanii</i>				
<i>Canthium mundianum</i>				
<i>Cephalanthus natalensis</i>		Least Concern		Protected
<i>Chaetacanthus burchellii</i>		Least Concern		
<i>Chamaecrista mimosoides</i>		Least Concern		
<i>Chloris virgata</i>		Least Concern		
<i>Chlorophytum krookianum</i>		Least Concern		
<i>Cirsium</i> sp.				
<i>Clematis brachiata</i>	Old Man's Beard, Traveller's Joy	Least Concern		Controlled
<i>Clerodendrum glabrum</i> var. <i>glabrum</i>				
<i>Coddia rudis</i>		Least Concern		
<i>Combretum erythrophyllum</i>	River Bushwillow	Least Concern		Controlled
<i>Commelina</i> sp.				
<i>Corchorus asplenifolius</i>		Least Concern		
<i>Crabbea acaulis</i>		Least Concern		
<i>Crassula rubicunda</i>				
<i>Cucumis zeyheri</i>	Wild Cucumber	Least Concern		Controlled
<i>Cuscuta</i> sp.				
<i>Cyanotis speciosa</i>	Doll's Powderpuff	Least Concern		Controlled
<i>Cymbopogon excavatus</i>	Broad-leaved Turpentine Grass	Not Evaluated		Controlled
<i>Cymbopogon validus</i>				

Taxon Name	English Name	South Africa Red Data Book	CITES	Ordinance
<i>Cyphostemma lanigerum</i>		Least Concern		
<i>Dais cotinifolia</i>		Least Concern		
<i>Dicoma anomala</i>				
<i>Digitaria debilis</i>		Least Concern		
<i>Digitaria tricholaenoides</i>		Least Concern		
<i>Diheteropogon amplexans</i>				
<i>Diheteropogon filifolius</i>		Least Concern		
<i>Dioscorea retusa</i>		Least Concern		
<i>Diospyros dichrophylla</i>		Least Concern		
<i>Diospyros lycioides guerkei</i>		Least Concern		
<i>Diospyros lycioides sericea</i>		Least Concern		
<i>Diospyros whyteana</i>		Least Concern		
<i>Dipcadi marlothii</i>		Least Concern		
<i>Dipcadi viride</i>		Least Concern		
<i>Elephantorrhiza elephantina</i>		Least Concern		
<i>Elionurus muticus</i>		Least Concern		
<i>Eragrostis capensis</i>		Least Concern		
<i>Eragrostis chloromelas</i>		Least Concern		
<i>Eragrostis curvula</i>		Least Concern		
<i>Eragrostis heteromera</i>		Least Concern		
<i>Eragrostis racemosa</i>		Least Concern		
<i>Eriosema cordatum</i>		Least Concern		
<i>Eriosema salignum</i>	Brown Bonnet, Narrow-leaved Salignum	Least Concern		Controlled
<i>Euclea crispa crispa</i>		Least Concern		
<i>Eucomis autumnalis</i>		Declining		
<i>Eucomis humilis</i>		Least Concern		
<i>Eulalia villosa</i>		Least Concern		
<i>Eulophia sp.</i>			Appendix II	
<i>Euphorbia clavarioides var. clavarioides</i>		Least Concern	Appendix II	
<i>Felicia muricata</i>				
<i>Ficinia sp.</i>				

Taxon Name	English Name	South Africa Red Data Book	CITES	Ordinance
<i>Ficinia stolonifera</i>		Least Concern		
<i>Gazania krebsiana</i>				
<i>Gerbera ambigua</i>		Least Concern		
<i>Gladiolus longicollis</i> var. <i>longicollis</i>				
<i>Gladiolus</i> sp.				
<i>Gnidia capitata</i>		Least Concern		
<i>Gomphrena celosioides</i>		Not Evaluated		
<i>Haplocarpha scaposa</i>		Least Concern		
<i>Helichrysum pallidum</i>		Least Concern		
<i>Helichrysum rugulosum</i>		Least Concern		
<i>Helictotrichon turgidulum</i>		Least Concern		
<i>Hermannia depressa</i>		Least Concern		
<i>Hermannia woodii</i>		Least Concern		
<i>Heteropogon contortus</i>		Least Concern		
<i>Hibiscus aethiopicus</i>				
<i>Hibiscus pusillus</i>		Least Concern		
<i>Hibiscus</i> sp.				
<i>Hyparrhenia hirta</i>		Least Concern		
<i>Hypericum lalandii</i>		Least Concern		
<i>Hypochaeris radicata</i>		Not Evaluated		
<i>Hypoxis colchicifolia</i>	Broad-leaved Hypoxis	Least Concern		Controlled
<i>Hypoxis costata</i>		Least Concern		
<i>Hypoxis hemerocallidea</i>	Star Flower	Declining		Specially protected
<i>Hypoxis rigidula</i>				
<i>Imperata cylindrica</i>		Least Concern		
<i>Indigofera zeyheri</i> var. <i>leptophylla</i>				
<i>Ipomoea obscura</i> var. <i>fragilis</i>				
<i>Ipomoea simplex</i>		Least Concern		
<i>Ipomoea</i> sp.				
<i>Ischaemum fasciculatum</i>		Least Concern		
<i>Juncus rostratus</i>				

Taxon Name	English Name	South Africa Red Data Book	CITES	Ordinance
<i>Kniphofia</i> sp.	Red Hot Poker	Not Evaluated		Protected
<i>Kohautia amatymbica</i>		Least Concern		
<i>Kyllinga odorata</i>		Least Concern		
<i>Lactuca inermis</i>		Least Concern		
<i>Ledebouria cooperi</i>		Least Concern		
<i>Ledebouria ovalifolia</i>		Least Concern		
<i>Leonotis dysophylla</i>				
<i>Leonotis ocymifolia</i> var. <i>ocymifolia</i>				
<i>Lippia javanica</i>	Fever Tea, Lemon Bush	Least Concern		Controlled
<i>Maytenus heterophylla heterophylla</i>				
<i>Maytenus senegalensis</i>				
<i>Mohria caffrorum</i>		Least Concern		
<i>Monsonia angustifolia</i>		Least Concern		
<i>Moraea inclinata</i>		Least Concern		
<i>Moraea</i> sp.				
<i>Ochna natalitia</i>		Least Concern		
<i>Ornithogalum</i> sp.				
<i>Otholobium polystictum</i>		<i>Least Concern</i>		
<i>Oxalis semiloba</i>				
<i>Pachycarpus campanulatus</i>				
<i>Panicum deustum</i>		Least Concern		
<i>Panicum ecklonii</i>		Least Concern		
<i>Pappea capensis</i>		Least Concern		
<i>Paspalum dilatatum</i>		Not Evaluated		
<i>Pentanisia angustifolia</i>		Least Concern		
<i>Phyllanthus glaucophyllus</i>		Least Concern		
<i>Phyllanthus reticulatus</i> var. <i>reticulatus</i>		Least Concern		
<i>Pogonarthria squarrosa</i>		Least Concern		
<i>Polygala gracilentia</i>		Least Concern		
<i>Polygala hottentotta</i>	Small Purple Broom	Least Concern		Controlled
<i>Polygonum pulchrum</i>				

Taxon Name	English Name	South Africa Red Data Book	CITES	Ordinance
<i>Potamogeton pusillus</i>		Least Concern		
<i>Premna mooiensis</i>		Least Concern		
<i>Pygmaeothamnus chamaedendrum</i>				
<i>Rendlia altera</i>		Least Concern		
<i>Rhamnus prinoides</i>		Least Concern		
<i>Rhoicissus tridentata cuneifolia</i>		Not Evaluated		
<i>Rhus dentata</i>				
<i>Rhus discolor</i>				
<i>Rhus discolor</i> var. <i>forma latifolia</i>				
<i>Rhus gerrardii</i>				
<i>Rhus lucida</i> var. <i>forma scoparia</i>				
<i>Rhus lucida</i> var. <i>outeniquensis</i>				
<i>Rhus pentheri</i>				
<i>Rhus pyroides</i> var. <i>dinteri</i>				
<i>Rhus pyroides</i> var. <i>pyroides</i>				
<i>Rhus rehmanniana</i> var. <i>glabrata</i>				
<i>Rhus rehmanniana</i> var. <i>rehmanniana</i>				
<i>Rhynchelytrum nerviglume</i>				
<i>Rhynchelytrum repens</i>				
<i>Rhynchosia adenodes</i>		Least Concern		
<i>Rhynchosia minima</i>				
<i>Rhynchosia totta</i>				
<i>Ruellia cordata</i>		Least Concern		
<i>Scabiosa columbaria</i>		Least Concern		
<i>Schkuhria pinnata</i>		Not Evaluated		
<i>Scilla natalensis</i>	Large blue scilla, blue hyacinth, Blue Squill	Vulnerable		Specially protected
<i>Scolopia zeyheri</i>		Least Concern		
<i>Senecio digitalifolius</i>		Least Concern		
<i>Senecio</i> sp.				
<i>Setaria nigrirostris</i>		Least Concern		
<i>Setaria pallide-fusca</i>				

Taxon Name	English Name	South Africa Red Data Book	CITES	Ordinance
<i>Setaria sphacelata</i>				
<i>Setaria sphacelata aquamontana</i>				
<i>Sida dregei</i>		Least Concern		
<i>Solanum incanum</i>				
<i>Solanum panduriforme</i>		Least Concern		
<i>Solanum pseudocapsicum</i>		Not Evaluated		
<i>Sonchus nanus</i>		Least Concern		
<i>Sphenostylis angustifolia</i>		Least Concern		
<i>Sporobolus africanus</i>		Least Concern		
<i>Stachys aethiopica</i>		Least Concern		
<i>Striga asiatica</i>	Witchweed	Least Concern		Controlled
<i>Striga bilabiata</i>				
<i>Striga elegans</i>		Least Concern		
<i>Tagetes minuta</i>		Not Evaluated		
<i>Talinum caffrum</i>	Porcupine Root	Least Concern		Controlled
<i>Tephrosia capensis</i> var. <i>acutifolia</i>		Least Concern		
<i>Themeda triandra</i>		Least Concern		
<i>Thesium pallidum</i>		Least Concern		
<i>Thunbergia atriplicifolia</i>		Least Concern		
<i>Thunbergia venosa</i>		Rare		
<i>Trachypogon spicatus</i>		Least Concern		
<i>Tragia meyeriana</i>		Least Concern		
<i>Trimeria trinervis</i>		Least Concern		
<i>Tristachya leucothrix</i>		Least Concern		
<i>Verbena bonariensis</i>		Not Evaluated		
<i>Vernonia capensis</i>				
<i>Vernonia oligocephala</i>				
<i>Vigna</i> sp.				
<i>Vigna vexillata</i>				
<i>Wahlenbergia grandiflora</i>		Least Concern		
<i>Watsonia lepidia</i>		Least Concern		

Taxon Name	English Name	South Africa Red Data Book	CITES	Ordinance
<i>Ziziphus mucronata mucronata</i>	Buffalo Thorn	Least Concern		Controlled
<i>Zornia capensis</i>				

## Fauna species list of Spioenkop Nature Reserve

Taxon Name	English Name	South Africa Red Data Book	CITES	ToPS Category	Alien Status
<b>Amphibians</b>					
<i>Bufo gutturalis</i>	Guttural toad				
<i>Schismaderma carens</i>	Red toad				
<i>Tomopterna natalensis</i>	Natal sand frog				
<b>Bony Fish</b>					
<i>Anguilla mossambica</i>	Longfin eel	Not Evaluated			
<i>Anguilla sp.</i>					
<i>Barbus anoplus</i>	Chubbyhead barb				
<i>Cyprinus carpio</i>	Carp				Alien invasive to KZN
<i>Labeo rubromaculatus</i>	Tugela labeo				
<i>Labeobarbus natalensis</i>	KwaZulu-Natal yellowfish				
<i>Lepomis macrochirus</i>	Bluegill sunfish				Alien invasive to KZN
<i>Micropterus salmoides</i>					
<i>Oreochromis mossambicus</i>	Mozambique tilapia				
<b>Insects</b>					
<i>Aconurella sp.</i>					
<i>Aeshna minuscula</i>	Friendly hawker				
<i>Africallagma glaucum</i>	Common African blue				
<i>Anax imperator</i>	Blue emperor				
<i>Anax speratus</i>	Orange emperor				
<i>Balclutha sp.</i>					
<i>Ceratogomphus pictus</i>	Common African clubtail				
<i>Cicadulina sp.</i>					

Taxon Name	English Name	South Africa Red Data Book	CITES	ToPS Category	Alien Status
<i>Crocothemis erythraea</i>	Scarlet darter				
<i>Crocothemis sanguinolenta</i>	Stream darter				
<i>Dromica variolata</i>	Variable tiger beetle			Protected	
<i>Elatoneura glauca</i>	Common pinfly				
<i>Eriesthis guttata</i>	Spotted leaf chafer				
<i>Exitianus sp.</i>					
<i>Ischnura senegalensis</i>	Marsh bluetail				
<i>Jannius mecus</i>					
<i>Lestes ochraceus</i>	Pale yellow emerald damselfly				
<i>Lestes plagiatus</i>	Highland emerald damselfly				
<i>Nesiothemis farinosa</i>	Ashen black-tailed skimmer				
<i>Nesocluthia erythrocephala</i>					
<i>Notogomphus praetorius</i>	Yellowjack				
<i>Orthetrum abbotti</i>	Abbott's orthetrum				
<i>Orthetrum caffrum</i>	Mountain marsh orthetrum				
<i>Orthetrum chrysostigma</i>	Cryptic orthetrum				
<i>Orthetrum trinacria</i>	Marsh orthetrum				
<i>Palpopleura jucunda</i>	Lesser widow				
<i>Platycypha caligata</i>	Glade jewel				
<i>Pravistylus sp.n. 4</i>					
<i>Pseudagrion kersteni</i>	Kersten's sprite				
<i>Pseudagrion massaicum</i>	Massai sprite				
<i>Pseudagrion salisburyense</i>	Salisbury's sprite				
<i>Sympetrum fonscolombii</i>	Red-veined darter				
<i>Trithemis arteriosa</i>	Red-veined dropwing				
<i>Trithemis dorsalis</i>	Upland spectrum-blue dropwing				
<i>Trithemis furva</i>	Lowland spectrum-blue dropwing				

Taxon Name	English Name	South Africa Red Data Book	CITES	ToPS Category	Alien Status
<i>Trithemis kirbyi ardens</i>	Kirby's dropwing				
<i>Trithemis stictica</i>	Jaunty dropwing				
<b>Mammals</b>					
<i>Aepyceros melampus melampus</i>	Impala				
<i>Aethomys chrysophilus</i>	Red veld rat				
<i>Alcelaphus buselaphus caama</i>	Red hartebeest				
<i>Antidorcas marsupialis marsupialis</i>	Springbok				
<i>Aonyx capensis capensis</i>	Cape clawless otter, African clawless otter		Appendix II	Protected	
<i>Atilax paludinosus paludinosus</i>	Water mongoose				
<i>Canis mesomelas mesomelas</i>	Black-backed jackal				
<i>Caracal caracal caracal</i>	Caracal		Appendix II		
<i>Ceratotherium simum simum</i>	White rhinoceros		Appendix II	Protected	
<i>Connochaetes gnou</i>	Black wildebeest			Protected	
<i>Connochaetes taurinus taurinus</i>	Blue wildebeest				
<i>Cynictis penicillata</i>	Yellow mongoose				
<i>Damaliscus pygargus phillipsi</i>	Blesbok				
<i>Equus quagga antiquorum</i>	Plains Zebra				
<i>Felis silvestris cafra</i>	African wild cat		Appendix II		
<i>Galerella sanguinea</i>	Slender mongoose				
<i>Genetta tigrina</i>	South African large-spotted genet				
<i>Giraffa camelopardalis capensis</i>	Giraffe				
<i>Ichneumia albicauda grandis</i>	White-tailed mongoose				
<i>Ictonyx striatus</i>	Striped polecat		Appendix III		
<i>Kobus ellipsiprymnus ellipsiprymnus</i>	Waterbuck				
<i>Lemniscomys rosalia</i>	Single-striped grass mouse	Data Deficient			
<i>Mus minutoides</i>	Pygmy mouse				

Taxon Name	English Name	South Africa Red Data Book	CITES	ToPS Category	Alien Status
<i>Neoromicia capensis</i>	Cape serotine bat				
<i>Otomys angoniensis</i>	Angoni vlei rat				
<i>Phacochoerus aethiopicus</i>	Warthog				
<i>Proteles cristatus cristatus</i>	Aardwolf		Appendix III		
<i>Raphicerus campestris</i>	Steenbok				
<i>Redunca arundinum arundinum</i>	Southern reedbuck			Protected	
<i>Redunca fulvorufula fulvorufula</i>	Mountain reedbuck				
<i>Sylvicapra grimmia</i>	Common duiker, Grey duiker				
<i>Syncerus caffer caffer</i>	African Buffalo				
<i>Tragelaphus oryx oryx</i>	Eland				
<i>Tragelaphus scriptus</i>	Bushbuck				
<i>Tragelaphus scriptus sylvaticus</i>	Bushbuck				
<i>Tragelaphus strepsiceros strepsiceros</i>	Greater Kudu				
<i>Vulpes chama</i>	Cape Fox			Protected	
<b>Reptiles</b>					
<i>Acanthocercus atricollis atricollis</i>	Southern tree agama				
<i>Agama aculeata distantii</i>	Distant's ground agama				
<i>Atractaspis bibronii</i>	Bibron's burrowing asp				
<i>Bitis arietans arietans</i>	Puff adder				
<i>Leptotyphlops scutifrons scutifrons</i>	Peter's thread snake				
<i>Python sebae natalensis</i>	Southern African Python	Vulnerable	Appendix II	Protected	
<i>Trachylepis varia</i>	Variable skink				
<b>Slugs, snails, limpets</b>					
<i>Gulella orientalis</i>	Eastern hunter snail				

## Bird species list of Spioenkop Nature Reserve

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## SPIOENKOP NATURE RESERVE BIRD LIST

30.03.2007

8	Dabchick <i>Tachybaptus ruficollis</i>	107	Hottentot Teal <i>Anas hottentota</i>	169	Gymnogene <i>Polyboroides typus</i>
55	Whitebreasted Cormorant <i>Phalacrocorax carbo</i>	108	Redbilled Teal <i>Anas erythrorhynchos</i>	170	Osprey <i>Pandion haliaetus</i>
58	Reed Cormorant <i>Phalacrocorax africanus</i>	112	Cape Shoveller <i>Anas smithii</i>	171	Peregrine Falcon <i>Falco peregrinus</i>
60	Darter <i>Anhinga melanogaster</i>	113	Southern Pochard <i>Netta erythrophthalma</i>	172	Lanner Falcon <i>Falco biarmicus</i>
62	Grey Heron <i>Ardea cinerea</i>	115	Knobbilled Duck <i>Sarkidiornis melanotos</i>	180	Eastern Redfooted Kestrel <i>Falco amurensis</i>
63	Blackheaded Heron <i>Ardea melanocephala</i>	116	Spurwinged Goose <i>Plectropterus gambensis</i>	181	Rock Kestrel <i>Falco tinnunculus</i>
64	Goliath Heron <i>Ardea goliath</i>	118	Secretary Bird <i>Sagittarius serpentarius</i>	183	Lesser Kestrel <i>Falco naumanni</i>
65	Purple Heron <i>Ardea purpurea</i>	119	Bearded Vulture <i>Gypaetus barbatus</i>	191	Shelley's Francolin <i>Francolinus shelleyi</i>
66	Great White Egret <i>Egretta alba</i>	122	Cape Vulture <i>Gyps coprotheres</i>	196	Natal Francolin <i>Francolinus natalensis</i>
67	Little Egret <i>Egretta garzetta</i>	124	Lappetfaced Vulture <i>Torgos tracheliotus</i>	199	Swainson's Francolin <i>Francolinus swainsonii</i>
68	Yellowbilled Egret <i>Egretta intermedia</i>	126	Black (Yellowbilled) Kite <i>Milvus migrans</i>	200	Common Quail <i>Coturnix coturnix</i>
71	Cattle Egret <i>Bubulcus ibis</i>	127	Blackshouldered Kite <i>Elanus caeruleus</i>	201	Harlequin Quail <i>Coturnix delegorguei</i>
72	Squacco Heron <i>Ardeola ralloides</i>	128	Cuckoo Hawk <i>Aviceda cuculoides</i>	203	Helmeted Guineafowl <i>Numida meleagris</i>
76	Blackcrowned Night Heron <i>Nycticorax nycticorax</i>	131	Black Eagle <i>Aquila verreauxii</i>	205	Kurichane Buttonquail <i>Tumix sylvatica</i>
77	Whitebacked Night Heron <i>Gorsachius leuconotus</i>	133	Steppe Eagle <i>Aquila nipalensis</i>	208	Blue Crane <i>Anthropoides paradiseus</i>
81	Hamerkop <i>Scoopus umbretta</i>	135	Wahlberg's Eagle <i>Aquila wahlbergi</i>	209	Crowned Crane <i>Balearia regulorum</i>
83	White Stork <i>Ciconia ciconia</i>	136	Booted Eagle <i>Hieraaetus pennatus</i>	213	Black Crane <i>Amurornis flavirostris</i>
84	Black Stork <i>Ciconia nigra</i>	139	Longcrested Eagle <i>Lophaelagus occipitalis</i>	221	Striped Flufftail <i>Sarothrura affinis</i>
89	Marabou Stork <i>Leptoptilos crumeniferus</i>	140	Martial Eagle <i>Polemaetus bellicosus</i>	223	Purple Gallinule <i>Porphyrio porphyrio</i>
91	Sacred Ibis <i>Threskiornis aethiopicus</i>	141	Crowned Eagle <i>Stephanoaetus coronatus</i>	226	Moorhen <i>Gallinula chloropus</i>
93	Glossy Ibis <i>Plegadis falcinellus</i>	148	African Fish Eagle <i>Haliaeetus vocifer</i>	228	Redknobbed Coot <i>Fulica cristata</i>
94	Hadedda Ibis <i>Bostrychia hagedash</i>	149	Steppe Buzzard <i>Buteo buteo</i>	231	Stanley's Bustard <i>Neotis denhami</i>
95	African Spoonbill <i>Platalea alba</i>	152	Jackal Buzzard <i>Buteo rufofuscus</i>	233	Whitebellied Korhaan <i>Eupodotis cafra</i>
97	Lesser Flamingo <i>Phoeniconaias minor</i>	155	Redbreasted Sparrowhawk <i>Accipiter rufiventris</i>	234	Blue Korhaan <i>Eupodotis caerulescens</i>
99	Whitefaced Duck <i>Dendrocygna viduata</i>	157	Little Sparrowhawk <i>Accipiter minullus</i>	238	Blackbellied Korhaan <i>Eupodotis melanogaster</i>
101	Whitebacked Duck <i>Thalassornis leuconotus</i>	158	Black Sparrowhawk <i>Accipiter melanoleucus</i>	240	African Jacana <i>Actophilornis africanus</i>
102	Egyptian Goose <i>Alopochen aegyptiacus</i>	160	African Goshawk <i>Accipiter tachiro</i>	248	Kittlitz's Plover <i>Charadrius pecuarius</i>
103	South African Shelduck <i>Tadorna cana</i>	161	Gabar Goshawk <i>Micronisus gabar</i>	249	Threebanded Plover <i>Charadrius tricoloris</i>
104	Yellowbilled Duck <i>Anas undulata</i>	165	African Marsh Harrier <i>Circus ranivorus</i>	255	Crowned Plover <i>Vanelius coronatus</i>
105	African Black Duck <i>Anas sparsa</i>	168	Black Harrier		

257	Blackwinged Plover <i>Vanelius melanopterus</i>	392	Barn Owl <i>Tyto alba</i>	474	Greater Honeyguide <i>Indicator indicator</i>
258	Blacksmith Plover <i>Vanelius armatus</i>	393	Grass Owl <i>Tyto capensis</i>	476	Lesser Honeyguide <i>Indicator minor</i>
260	Wattled Plover <i>Vanelius senegalensis</i>	395	Marsh Owl <i>Asio capensis</i>	478	Sharpbilled Honeyguide <i>Prodotiscus regulus</i>
264	Common Sandpiper <i>Actitis hypoleucos</i>	397	Whitefaced Owl <i>Otus leucotis</i>	483	Goldentailed Woodpecker <i>Campethera abingoni</i>
266	Wood Sandpiper <i>Tringa glareola</i>	401	Spotted Eagle Owl <i>Bubo africanus</i>	486	Cardinal Woodpecker <i>Dendropicos fuscescens</i>
270	Greenshank <i>Tringa nebularia</i>	405	Fierynecked Nightjar <i>Caprimulgus pectoralis</i>	487	Bearded Woodpecker <i>Thripas namaquus</i>
274	Little Stint <i>Calidris minuta</i>	408	Freckled Nightjar <i>Caprimulgus tristigma</i>	488	Olive Woodpecker <i>Mesopicos griseocephalus</i>
281	Sanderling <i>Calidris alba</i>	411	European Swift <i>Apus apus</i>	489	Redthroated Wryneck <i>Jynx ruficollis</i>
284	Ruff <i>Philomachus pugnax</i>	412	Black Swift <i>Apus barbatus</i>	492	Melodious Lark <i>Mirafra cheniana</i>
286	Ethiopian Snipe <i>Gallinago nigripennis</i>	415	Whiterumped Swift <i>Apus cafer</i>	494	Rufousnaped Lark <i>Mirafra africana</i>
294	Avocet <i>Recurvirostra avosetta</i>	416	Horus Swift <i>Apus horus</i>	495	Clapper Lark <i>Mirafra apiata</i>
297	Spotted Dikkop <i>Burhinus capensis</i>	417	Little Swift <i>Apus affinis</i>	498	Sabota Lark <i>Mirafra sabota</i>
300	Temminck's Courser <i>Cursorius temminckii</i>	418	Alpine Swift <i>Apus melba</i>	500	Longbilled Lark <i>Mirafra curvirostris</i>
303	Bronzewinged Courser <i>Rhinoptilus chalcopterus</i>	424	Speckled Mousebird <i>Colius striatus</i>	506	Spikeheeled Lark <i>Chersomanes albobasica</i>
322	Caspian Tern <i>Hydroprogne caspia</i>	426	Redfaced Mousebird <i>Urocolius indicus</i>	507	Redcapped Lark <i>Calandrella cinerea</i>
348	Feral Pigeon <i>Columba livia</i>	428	Pied Kingfisher <i>Ceryle rudis</i>	509	Botha's Lark <i>Spizocorys fringillaris</i>
349	Rock Pigeon <i>Columba guinea</i>	429	Giant Kingfisher <i>Megaceryle maxima</i>	518	European Swallow <i>Hirundo rustica</i>
350	Rameron Pigeon <i>Columba arquatrix</i>	431	Malachite Kingfisher <i>Alcedo cristata</i>	520	Whitethroated Swallow <i>Hirundo albicollis</i>
352	Redeyed Dove <i>Streptopelia semitorquata</i>	432	Pygmy Kingfisher <i>Ispidina picta</i>	526	Greater Striped Swallow <i>Hirundo cucullata</i>
354	Cape Turtle Dove <i>Streptopelia capicola</i>	435	Brownhooded Kingfisher <i>Halcyon albiventris</i>	527	Lesser Striped Swallow <i>Hirundo abyssinica</i>
355	Laughing Dove <i>Streptopelia senegalensis</i>	444	Little Bee-eater <i>Merops pusillus</i>	528	South African Cliff Swallow <i>Hirundo spodiopoda</i>
356	Namaqua Dove <i>Oena capensis</i>	446	European Roller <i>Coracias garrulus</i>	529	Rock Martin <i>Hirundo fuligula</i>
358	Greenspotted Dove <i>Turtur chalcospilos</i>	451	Hoopoe <i>Upupa epops</i>	530	House Martin <i>Delichon urbica</i>
375	African Cuckoo <i>Cuculus gularis</i>	452	Redbilled Woodhoopoe <i>Phoeniculus purpureus</i>	532	Sand Martin <i>Riparia riparia</i>
377	Redchested Cuckoo <i>Cuculus solitarius</i>	454	Scimitar-billed Woodhoopoe <i>Rhinopomastus cyanomelas</i>	533	Brownthroated Martin <i>Riparia paludicola</i>
378	Black Cuckoo <i>Cuculus clamosus</i>	455	Trumpeter Hornbill <i>Bycanistes bucinator</i>	534	Banded Martin <i>Riparia cincta</i>
380	Great Spotted Cuckoo <i>Clamator glandarius</i>	463	Ground Hornbill <i>Bucorvus leadbeateri</i>	536	Black Sawwing Swallow <i>Psilidoprocne holomelas</i>
381	Striped Cuckoo <i>Clamator leuallantii</i>	464	Blackcollared Barbet <i>Lybius torquatus</i>	538	Black Cuckooshrike <i>Campephaga flava</i>
382	Jacobin Cuckoo <i>Clamator jacobinus</i>	465	Pied Barbet <i>Tricholaema leucomelas</i>	541	Forktailed Drongo <i>Dicrurus adsimilis</i>
385	Klaas's Cuckoo <i>Chrysococcyx klaas</i>	469	Redfronted Tinkerbarbet <i>Pogoniulus pusillus</i>	545	Blackheaded Oriole <i>Oriolus larvatus</i>
386	Diederik Cuckoo <i>Chrysococcyx caprius</i>	473	Crested Barbet		

547	Black Crow <i>Corvus capensis</i>	645	Barthroated Apalis <i>Apalis thoracica</i>	718	Plainbacked Pipit <i>Anthus leucophrys</i>
548	Pied Crow <i>Corvus albus</i>	651	Longbilled Crombec <i>Sylvietta rufescens</i>	719	Buffy Pipit <i>Anthus vaalensis</i>
550	Whitenecked Raven <i>Corvus albicollis</i>	657	Bleating Warbler <i>Cameroptera brachyura</i>	723	Bushveld Pipit <i>Anthus caffer</i>
554	Southern Black Tit <i>Parus niger</i>	659	Stierling's Barred Warbler <i>Calamonastes stierlingi</i>	724	Shorttailed Pipit <i>Anthus brachyurus</i>
560	Arrowmarked Babbler <i>Turdoides jardineii</i>	661	Grassbird <i>Sphenoeacus afer</i>	727	Orangethroated Longclaw <i>Macronyx capensis</i>
568	Blackeyed Bulbul <i>Pycnonotus barbatus</i>	664	Fantailed Cisticola <i>Cisticola juncidis</i>	731	Lesser Grey Shrike <i>Lanius minor</i>
572	Sombre Bulbul <i>Andropadus importunus</i>	665	Desert Cisticola <i>Cisticola aridula</i>	732	Fiscal Shrike <i>Lanius collaris</i>
576	Kurrichane Thrush <i>Turdus libonyana</i>	666	Cloud Cisticola <i>Cisticola textrix</i>	733	Redbacked Shrike <i>Lanius collurio</i>
577	Olive Thrush <i>Turdus olivaceus</i>	667	Ayres' Cisticola <i>Cisticola ayresii</i>	736	Southern Boubou <i>Laniarius ferrugineus</i>
580	Groundscraper Thrush <i>Turdus litsitsirupa</i>	668	Palecrowned Cisticola <i>Cisticola brunnescens</i>	740	Puffback <i>Dryoscopus cubla</i>
581	Cape Rock Thrush <i>Monticola rupestris</i>	670	Wailing Cisticola <i>Cisticola lais</i>	741	Brubru <i>Ninia afer</i>
582	Sentinel Rock Thrush <i>Monticola explorator</i>	672	Rattling Cisticola <i>Cisticola chiniana</i>	742	Southern Tchagra <i>Tchagra tchagra</i>
586	Mountain Chat <i>Oenanthe monticola</i>	677	Levaillant's Cisticola <i>Cisticola tinnis</i>	744	Blackcrowned Tchagra <i>Tchagra senegala</i>
588	Buffstreaked Chat <i>Oenanthe bifasciata</i>	678	Croaking Cisticola <i>Cisticola natalensis</i>	746	Bokmakierie <i>Telophorus zeylonus</i>
589	Familiar Chat <i>Cercomia familiaris</i>	679	Lazy Cisticola <i>Cisticola aberrans</i>	747	Gorgeous Bush Shrike <i>Telophorus quadricolor</i>
593	Mocking Chat <i>Thamnolaea cinnamomeiventris</i>	681	Neddicky <i>Cisticola fulvicapilla</i>	748	Orangebreasted Bush Shrike <i>Telophorus sulfureopectus</i>
595	Anteater Chat <i>Myrmecocichla formicivora</i>	683	Tawnyflanked Prinia <i>Prinia subflava</i>	750	Olive Bush Shrike <i>Telophorus olivaceus</i>
596	Stonechat <i>Saxicola torquata</i>	686	Spotted Prinia <i>Prinia hypoxantha</i>	751	Greyheaded Bush Shrike <i>Malacotus blanchoti</i>
601	Cape Robin <i>Cossypha caffra</i>	689	Spotted Flycatcher <i>Muscicapa striata</i>	758	Indian Myna <i>Acridotheres tristis</i>
602	Whitethroated Robin <i>Cossypha humeralis</i>	690	Dusky Flycatcher <i>Muscicapa adusta</i>	759	Pied Starling <i>Spreo bicolor</i>
613	Whitebrowed Robin <i>Erythropgia leucophrys</i>	694	Black Flycatcher <i>Melaenornis pammelaina</i>	760	Wattled Starling <i>Creatophora cinerea</i>
620	Whitethroat <i>Sylvia communis</i>	696	Pallid Flycatcher <i>Melaenornis pallidus</i>	761	Plumcoloured Starling <i>Cinnyricinclus leucogaster</i>
621	Titbabbler <i>Parisoma subcaeruleum</i>	698	Fiscal Flycatcher <i>Sigelus silens</i>	764	Glossy Starling <i>Lamprolornis nitens</i>
625	Icterine Warbler <i>Hippolais icterina</i>	700	Cape Batis <i>Batis capensis</i>	769	Redwinged Starling <i>Onychognathus morio</i>
628	Great Reed Warbler <i>Acrocephalus arundinaceus</i>	701	Chinspot Batis <i>Batis molitor</i>	772	Redbilled Oxpecker <i>Buphagus erythrorhynchus</i>
631	African Marsh Warbler <i>Acrocephalus baeticatus</i>	706	Fairy Flycatcher <i>Stenostira scita</i>	774	Gurney's Sugarbird <i>Promerops gurneyi</i>
633	European Marsh Warbler <i>Acrocephalus palustris</i>	710	Paradise Flycatcher <i>Terpsiphone viridis</i>	775	Malachite Sunbird <i>Nectarinia famosa</i>
635	Cape Reed Warbler <i>Acrocephalus gracilirostris</i>	711	African Pied Wagtail <i>Motacilla aguimp</i>	783	Lesser Doublecollared Sunbird <i>Nectarinia chalybea</i>
637	Yellow Warbler <i>Chloropeta natalensis</i>	713	Cape Wagtail <i>Motacilla capensis</i>	785	Greater Doublecollared Sunbird <i>Nectarinia atra</i>
642	Broadtailed Warbler <i>Schoenicola brevirostris</i>	716	Grassveld Pipit <i>Anthus cinnamomeus</i>	787	Whitebellied Sunbird <i>Nectarinia talatala</i>
643	Willow Warbler <i>Phylloscopus trochilus</i>	717	Longbilled Pipit		

792	Black Sunbird <i>Nectarinia amethystina</i>	862	Paradise Whydah <i>Vidua paradisaea</i>
796	Cape White-eye <i>Zosterops pallidus</i>	864	Black Widowfinch <i>Vidua funerea</i>
799	Whitebrowed Sparrowweaver <i>Plocepasser mahali</i>	869	Yelloweyed Canary <i>Serinus mozambicus</i>
801	House Sparrow <i>Passer domesticus</i>	870	Blackthroated Canary <i>Serinus atrogularis</i>
803	Cape Sparrow <i>Passer melanurus</i>	872	Cape Canary <i>Serinus canicollis</i>
804	Greyheaded Sparrow <i>Passer diffusus</i>	877	Bully Canary <i>Serinus sulphuratus</i>
805	Yellowthroated Sparrow <i>Petronia supercilialis</i>	881	Streakyheaded Canary <i>Serinus gularis</i>
810	Spectacled Weaver <i>Ploceus ocularis</i>	884	Goldenbreasted Bunting <i>Emberiza flaviventris</i>
811	Spottedbacked Weaver <i>Ploceus cucullatus</i>	885	Cape Bunting <i>Emberiza capensis</i>
813	Cape Weaver <i>Ploceus capensis</i>	886	Rock Bunting <i>Emberiza tahapisi</i>
814	Masked Weaver <i>Ploceus velatus</i>		
815	Lesser Masked Weaver <i>Ploceus intermedius</i>	Sources:	NPB Files
820	Cuckoo Finch <i>Anomalospiza imberbis</i>	G. Nichols	
821	Redbilled Quelea <i>Quelea quelea</i>	D.N. Johnson	
824	Red Bishop <i>Euplectes orix</i>	G.L. Maclean	
826	Golden Bishop <i>Euplectes afer</i>	I. Trench	
827	Yellowrumped Widow <i>Euplectes capensis</i>	A. Marchant	
828	Redshouldered Widow <i>Euplectes axillaris</i>	A. Haliburton	
829	Whitewinged Widow <i>Euplectes albonotatus</i>	D. Osborne	
831	Redcollared Widow <i>Euplectes ardens</i>	K. Gordon	
832	Longtailed Widow <i>Euplectes progne</i>	C. Mackenzie	
834	Melba Finch <i>Pytilia melba</i>	A. Clarkson	
840	Bluebilled Firefinch <i>Lagonosticta rubricata</i>	R. Dicks	
844	Blue Waxbill <i>Uraeginthus angolensis</i>	P. Thompson	
846	Common Waxbill <i>Estrilda astrild</i>	G. Smith	
850	Swee Waxbill <i>Estrilda melanotis</i>	P. Coulon	
852	Quail Finch <i>Ortygospiza atricollis</i>	L. Steyn	
854	Orangebreasted Waxbill <i>Sporaeiginthus subflavus</i>	A. Berutti	
856	Redheaded Finch <i>Amadina erythrocephala</i>	W. Howells	
857	Bronze Mannikin <i>Spermestes cucullatus</i>	A. Jacobs	
860	Pintailed Whydah	C. Sanford	
		J. Smart	
		B. Taylor	
		M. Lawes	
		A. McClelland	
		G. Schutte	
		D. Hoddinot	
		R. Boon	
		S. Johnson	

### Vulture feeding site and hide management guidelines

The use of supplementary feeding sites for vultures (also known as “vulture restaurants”) is widely acknowledged as an important tool to assist with the provision of a sufficient, safe and reliable source of food for these scavengers. Vultures are an important element of the environment because they recycle the flesh and bones of dead animals into living tissue, thereby completing the cycle-of-life. Vultures are an important component of ecotourism since increasing numbers of eco-tourists come to see African vultures, and are making an increasing contribution to rural and local economies through their use of local supplies, accommodation facilities and guides (job creation). In Africa, the populations of several species have declined significantly and some may now only be found in protected areas. In addition to large scale transformation of natural habitat, resulting in reduced availability of food and breeding sites, factors such as direct persecution, poisoning, collisions with, and electrocution by, electricity infrastructure, and the trade in vultures, either as live birds or for their body parts, have been responsible for this situation.

Vultures that may use the Spioenkop feeding site include; the Cape Vulture (*Gyps coprotheres*) and African White-backed Vulture (*Gyps africanus*) which are ‘bulk’ or inside feeders and take muscle and internal organs of large carcasses and the Lappet-faced Vulture (*Aegypius tracheliotus*) which eat flesh, sinew and skin and also feed on small mammal carcasses (e.g. mongooses).

A supplementary feeding site is a place where carcasses of domestic stock, game and excess meat are put out, specifically to provide an additional food source for vultures.

Supplementary feeding sites are important for vultures since they:

- supplement the ever-decreasing natural food base (carrion),
- provide a source of food for the vultures that is free of poisons, agro-chemicals and, harmful veterinary drugs; provide safe places for vultures to feed,
- improve the breeding success of vultures by providing additional food items, such as fat and bone fragments (for calcium),
- increase the survival rate of vultures, especially within their first year of leaving the nest,
- can be used to attract vultures back to areas where they used to occur, and
- assist with the provision of a safe source of food during the re-introduction of vultures to certain areas.

Supplementary feeding sites are important for protected area managers since they:

- prevent the spread of fly-borne diseases, through the rapid consumption of carcasses,
- when managed properly, contribute to the conservation of vultures,
- provide an opportunity for eco-tourists and photographers to see and photograph these majestic birds,
- provide an additional source of income, from tourism and photography.
- provide an ideal location for scientists to study the biology and ecology of these threatened species, and
- provide the public with an opportunity to participate in the conservation of vultures by recording and reporting observations of marked vultures.

### Managing a supplementary feeding site

- Do not provide animals that have been put down using drugs such as barbiturates, or that have been treated with non-steroidal anti-inflammatory drug such as sodium diclofenac (also known as Voltaren), ketaprofen, phenylbutozone, carprofen, flunixin etc. To date, Meloxicam is the only safe NSAID registered for vulture consumption. If you do not know the treatment histories of a dead animal do not make the carcass available to vultures in any way.
- Do not put out carcasses that have been shot with lead bullets. If the animal has been killed using a lead bullet to the head then first remove the entire head. Avoid putting carcasses out where they have been killed using a body shot, or at least remove all the internal organs and all tissue within 20 cm of the lead bullet path. Ideally, ammunition should be changed to non-lead bullets. Where possible, kill domestic animals using a bolt gun.
- Keep the vulture feeding site and its surrounds clear of all items such as plastic cattle ear-tags, bullets, pieces of glass, china, porcelain, pottery, plastic, bailing twine, string etc. Vultures often ingest these or, in the case of bailing twine and string, get tangled in them with fatal results. Remove ear tags prior to putting the carcass out, and preferably remove the stomach (which often contains bailing twine), liver and kidneys (this is where toxic compounds accumulate).
- Do not let the grass in and around the vulture feeding site grow more than 10cm high as this makes it difficult to locate and remove the above-mentioned items from a site.
- Any alien vegetation that may emerge at a site should also be removed.
- Once a quarter, break up the bones from carcasses into pieces about 10 cm long and leave them scattered at the restaurant for the vultures to ingest. Fragmenting the bones makes it easier for the vultures to swallow them.
- The skin of the carcasses must be slit open along the belly and chest, and along the inner sides of the legs, to facilitate access by the vultures.
- Remove old carcasses and hides as often as possible and at least once every two months.
- A freezer room nearby will allow for stockpiling of carcasses (e.g. after a die-off during an extreme weather event), thereby facilitating a more regular supply of carrion, or provisioning, to the feeding site in important periods.

### Monitoring at supplementary feeding sites

It is good practice to keep records of:

- the numbers, types of animals, causes of death and dates of carcass provision,
- the sources and contact details of persons providing carcasses, and
- the numbers of vultures of each species that are observed, together with the dates of the observations and the names of the observers.

It may be interesting to note how long after death a carcass was put out and to keep a record of which carcasses do, or do not, get fed on by the vultures. Likewise, where possible record the age classes of vultures feeding at the site.

A Vulture Count Day is held on the first Saturday in September each year as part of International Vulture Awareness Day. All vulture feeding site managers are encouraged to ensure that carcasses are provided and to record all vultures arriving between sunrise and midday on this day.

## Colour-marking of vultures

Ringling and colour marking have been used in southern Africa for almost 60 years as a cost-effective method to study many aspects of the biology and ecology of a wide range of bird species, including raptors. Colour-marking a bird enables researchers to individually identify birds in the field after release. The colour-marking method that is currently in use for vultures is known as “patagial tagging”. Patagial tagging refers to the fitting of a plastic tag to the “patagium”, (or frontal flap of skin on the wing of a bird). A smaller number of vultures has been marked with colour leg bands consisting of two types: coloured PVC bands with white or black alphanumeric codes and colour combination rings.

## What to do when you see a marked vulture

Because vultures regularly re-visit well managed supplementary feeding sites, these sites play a vital role in contributing to our knowledge of bird movements, through people reporting marked birds sighted there. Should a marked bird be seen or found dead at the site or nearby, the observer should record the following details:

- Date
- Time
- Locality
- GPS co-ordinates
- Species of vulture
- Habitat
- Type of marking (ring, patagial tag, transmitter)
- Tag/ring number
- Tag/ring colour/combination
- Condition of the bird

Information can be reported to Ezemvelo KZN Wildlife at [vulture@kznwildlife.com](mailto:vulture@kznwildlife.com)

Carcasses containing any of the following products should NEVER be left where they are available to vultures:

- Barbiturates (used for euthanasing animals e.g. Phenobarbitone, Pentobarbital etc.).
- Sodium Monofluoroacetate – a natural toxin contained in some plants, e.g. Gifblaar (*Dichapetalum cymosum*) that may be ingested by livestock or game causing death.
- Non-steroidal anti-inflammatory drugs [NSAIDs] (used to treat a variety of ailments but lethal to vultures; Sodium Diclofenac (active ingredient of Voltaren®) caused a 99.5% crash in the vulture populations in Asia; there is only one registered NSAID in South Africa that is safe for vultures - Meloxicam (also known as Metacam). This drug was previously unavailable for large animals but is now in production and available).
- Antibiotics (especially Tetracycline or Penicillin).
- Lead (the main source of lead is from animals shot with lead-containing bullets which fragment on impact into many small (often microscopic) pieces; vulture mortality has been linked to lead ingestion).
- Dips (any animal recently dipped in an organophosphate dip should not be accessible to vultures; the skin should be removed from livestock recently dipped against ticks using externally applied sprays or pour-on treatments).
- Other agricultural products that are deadly to vultures and should not be used in vulture areas include Strychnine, Aldicarb, Monocrotophos, Methamidophos, Diazinon and Ethylfenthion.

**PRO FORMA ANNUAL PLAN OF OPERATION****NOTES OF A MANAGEMENT MEETING FOR SPIOENKOP NATURE RESERVE HELD AT ...  
OFFICE ON ...**

Present:

Apologies:

CC:

In the notes set out below two separate tables are presented. The first sets out all of the management targets, which are the responsibility of the SNR Conservation Manager and the second sets out all of the management targets that are the responsibility of other units or individuals.

**Table 1 Progress and goals set for the Spioenkop Nature Reserve Conservation Manager**

Management target	2012/13 Progress	2014/15 goals	Completion date	Responsibility	Action
<b>LEGAL COMPLIANCE AND ENFORCEMENT</b>					
Creation of cooperative structures with local communities and law enforcement officials.		▪	Year 1	Officer in Charge	
Regular patrols covering the full extent of the nature reserve.		▪	On-going	Officer in Charge	
Prosecution of any offender caught committing an offence.		▪	On-going	Officer in Charge	
Appropriate signage before entering the reserve.		▪	Year 1	Officer in Charge	
Regular enforcement operations as per targets set in the annual plan of operation.		▪	On-going	Officer in Charge	
Co-management and potential expansion of SNR.		▪	Upon settlement	Officer in Charge and Community Conservation	
<b>STAKEHOLDER ENGAGEMENT</b>					
Annual meetings of the liaison forum.		▪	Year 1 - On-going	Officer in Charge	
Minutes of stakeholder meetings. Records of Environmental Awareness.		▪	On-going	Officer in Charge and Community Conservation	
<b>BUFFER ZONE PROTECTION AND REGIONAL MANAGEMENT</b>					
Identification of threats on the nature reserve's boundary.		▪	Year 1	Ezemvelo KZN Wildlife Ecological Advice Unit	
Legal protection of key buffer zone areas through establishment of biodiversity management plans or		▪	On-going	Ezemvelo KZN Wildlife Stewardship Unit and DCO	Refer management activity to

Management target	2012/13 Progress	2014/15 goals	Completion date	Responsibility	Action
protected environments.					Stewardship Unit
Awaiting the outcome of land claim settlement		▪	Year 1	Community Conservation and SCM	
Adoption of environmentally appropriate land uses in IDPs and SDFs in the areas immediately surrounding the nature reserve.		▪	Annually	Ezemvelo KZN Wildlife Planning Unit, Officer in Charge and Ecological Advice Unit	Refer management activity to Planning Unit
Retention of existing benign land uses in the areas immediately surrounding the nature reserve.		▪	Annually	Ezemvelo KZN Wildlife Planning Unit, Officer in Charge and Ecological Advice Unit	
<b>ECO-TOURISM</b>					
Feasibility study indicating appropriate eco-tourism facilities.		▪			
An updated brochure providing information on the reserve, its values and activities.		▪	Year 2	Officer in Charge	
Improve visitor orientation and disseminate important information.		▪	Year 1	Officer in Charge	
Regular Inspection and maintenance reports.  Well maintained and safe tourism facilities.		▪	On-going	Officer in Charge	
Increased tourism market share through increased awareness of the Spioenkop Nature Reserve.		▪	Year 2	Officer in Charge with municipalities	
<b>ENVIRONMENTAL INTERPRETATION AND AWARENESS</b>					
Report indicating requirements for the environmental and awareness programme.		▪	Year 2	Officer in Charge and CCO	

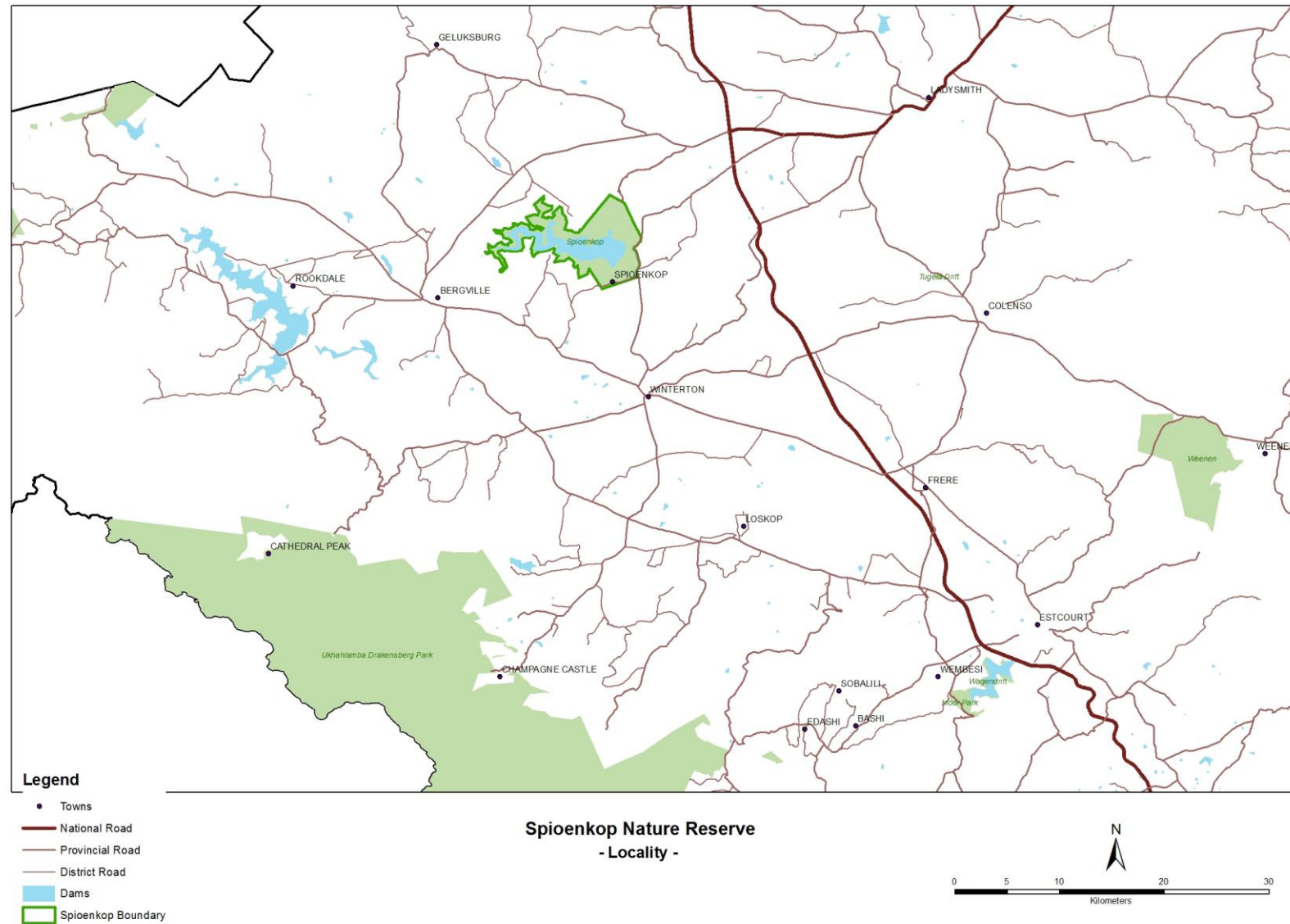
Management target	2012/13 Progress	2014/15 goals	Completion date	Responsibility	Action
Number of school groups per year visiting the reserve and taken through an environmental awareness programme.		▪	Annually	Community Conservation Officer	
Environmental awareness programme.		▪	Year 2	Community Conservation Officer	
<b>CONSERVATION MANAGEMENT</b>					
Burning according to annual planning and compliant with National Veld and Forest Fires Act.		▪	Year 1 and on-going	Ecological Advice Unit	With Officer in Charge
Compliance with the National Veld and Forest Fires Act.		▪	On-going	Ezemvelo KZN Wildlife Ecological Advice Unit	
Co-operative management agreements with surrounding community conservation areas.		▪	Year 1	Ezemvelo KZN Wildlife Ecological Advice Unit	With Officer in Charge
Achieve maintenance level within 5 years for all listed invasive species.		▪	Year 1 - 5	Ezemvelo KZN Wildlife Ecological Advice Unit	With Alien and Invasive Species Unit
A detailed map depicting areas of soil erosion within the nature reserve.  Implementation of soil erosion control measures in areas in which plant cover is low, which are susceptible to erosion.		▪	Year 1 - 5	Ezemvelo KZN Wildlife Ecological Advice Unit	
An agreed upon approach to any extractive resource use.  Approved extractive resource use is managed, monitored and reported on.		▪	If required	Officer in Charge, Ecological Advice Unit and Resource Use Ecologist	
No illegal collection of biological material or samples.		▪	If required	Officer in Charge, Ecological Advice Unit and Resource Use	

Management target	2012/13 Progress	2014/15 goals	Completion date	Responsibility	Action
				Ecologist	
Control of any alien animals found within the nature reserve.		▪	On-going	Officer in Charge	
An agreed upon approach to future wildlife species introductions.		▪	On-going	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge	
Game census data and report to inform population management decisions.		▪	Annually	Ezemvelo KZN Wildlife Ecological Advice Unit	
Up to date monthly biological returns.		▪	Monthly	Officer in Charge	
Control of population numbers of species that are exceeding identified carrying capacities.		▪	On-going		
Updated information available for decision-making. (Species lists)		▪	Year 1		
Standard operating procedure communicated to neighbours to deal with human/wildlife conflict.		▪	Year 1 and then on-going	OIC and DCO	
Surveillance and monitoring plans for key threatening processes.  Monitoring plans for key rare and endangered species.		▪	Year 3	Ezemvelo KZN Wildlife Ecological advice unit	
Maintenance of optimum population numbers of rare and endangered species within the nature reserve.  Improved understanding of biodiversity research and monitoring requirements.		▪	On-going	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge	
Monitoring of flagship species.		▪	Annually	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge	

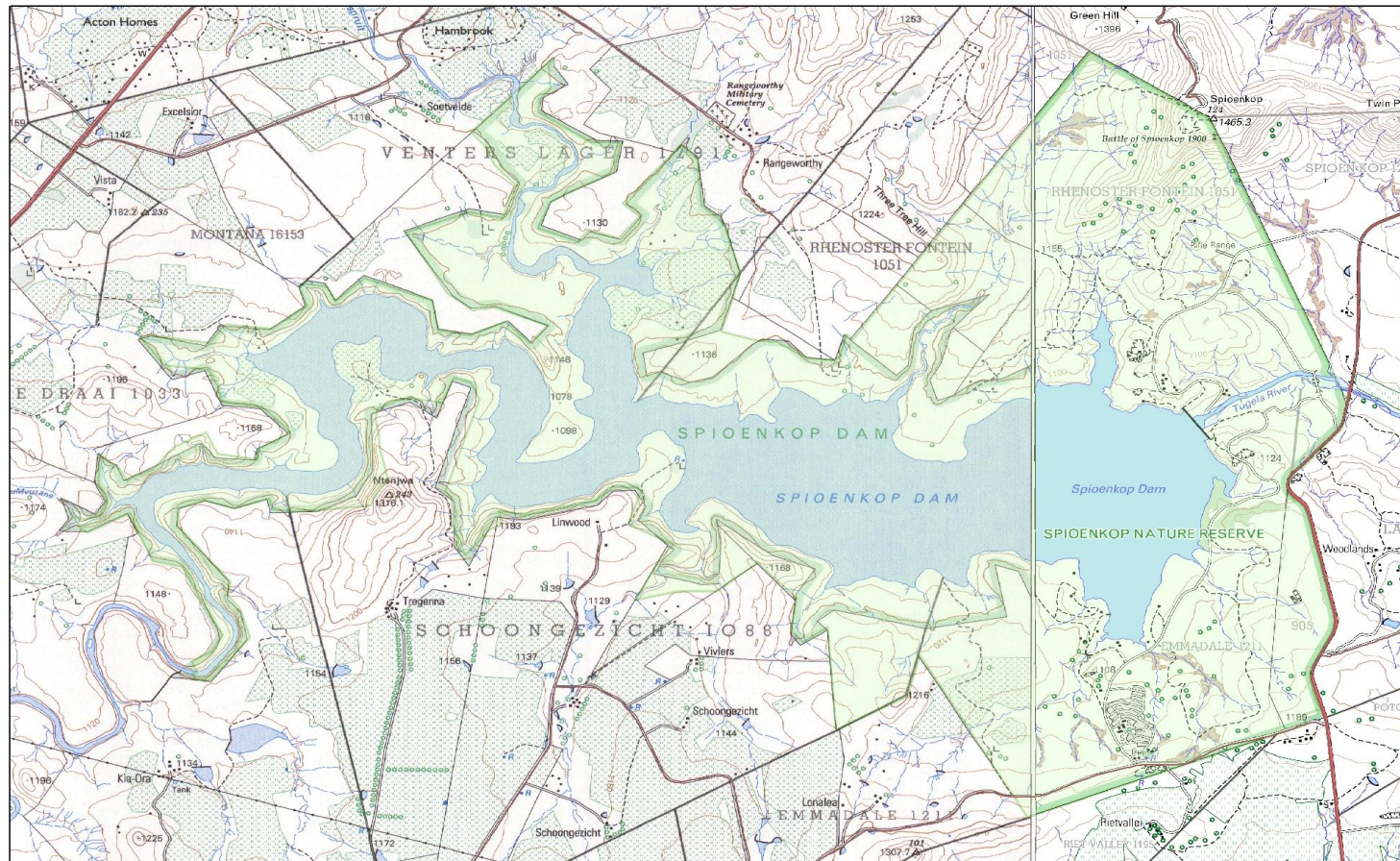
Management target	2012/13 Progress	2014/15 goals	Completion date	Responsibility	Action
Secure and protected cultural heritage sites.		▪	Year 1 and on-going	Officer in Charge	
Increased awareness of cultural values.		▪	On-going	Officer in Charge Community Conservation Officer	
Prioritised research list that are communicated to the relevant tertiary institutions.		▪	On-going	Ezemvelo KZN Wildlife Ecological Advice Unit and Officer in Charge	
<b>OPERATIONAL MANAGEMENT</b>					
Adequate funding for completion of the actions set out in the annual plan of operation.		▪	Annually	Ezemvelo KZN Wildlife Regional management	Refer management activity to Operations Committee: West
Appointment of staff in all positions in the nature reserve.		▪	Year 2	Ezemvelo KZN Wildlife Regional management	Refer management activity to Operations Committee: West
Appropriately functioning service infrastructure and systems that do not cause harm to the environment.		▪	On-going	Officer in Charge	

**FINANCIAL PLAN OF SPIOENKOP NATURE RESERVE**

## MAP A – LOCATION OF SPIOENKOP NATURE RESERVE



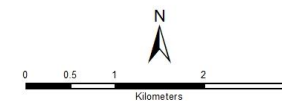
## MAP B - TOPOGRAPHY OF SPIOENKOP NATURE RESERVE



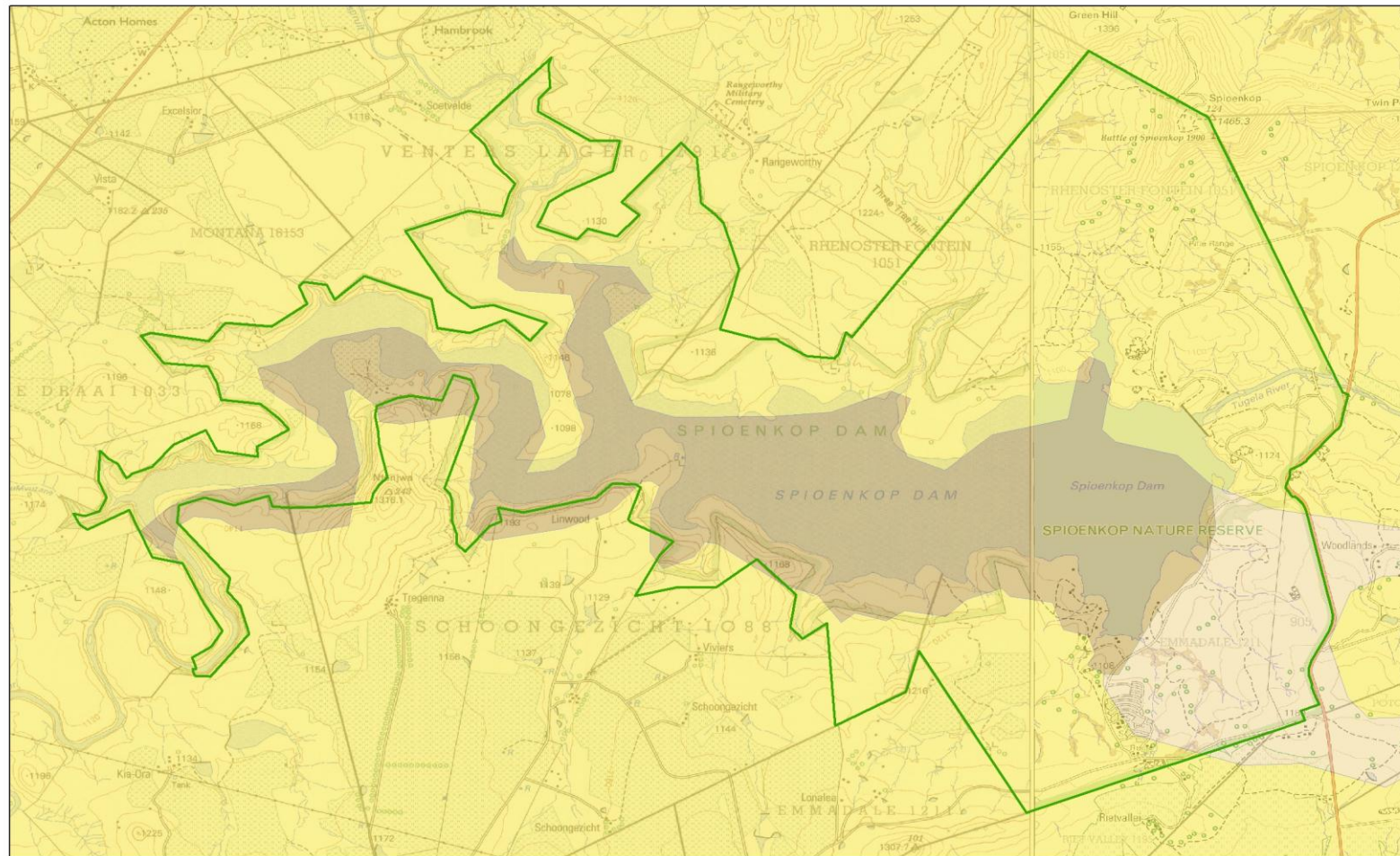
### Legend

- National Road
- Provincial Road
- District Road
- Spioenkop Boundary

### Spioenkop Nature Reserve - Topography -



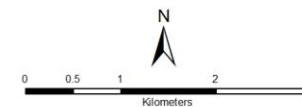
## MAP C – GEOLOGY OF SPIOENKOP NATURE RESERVE



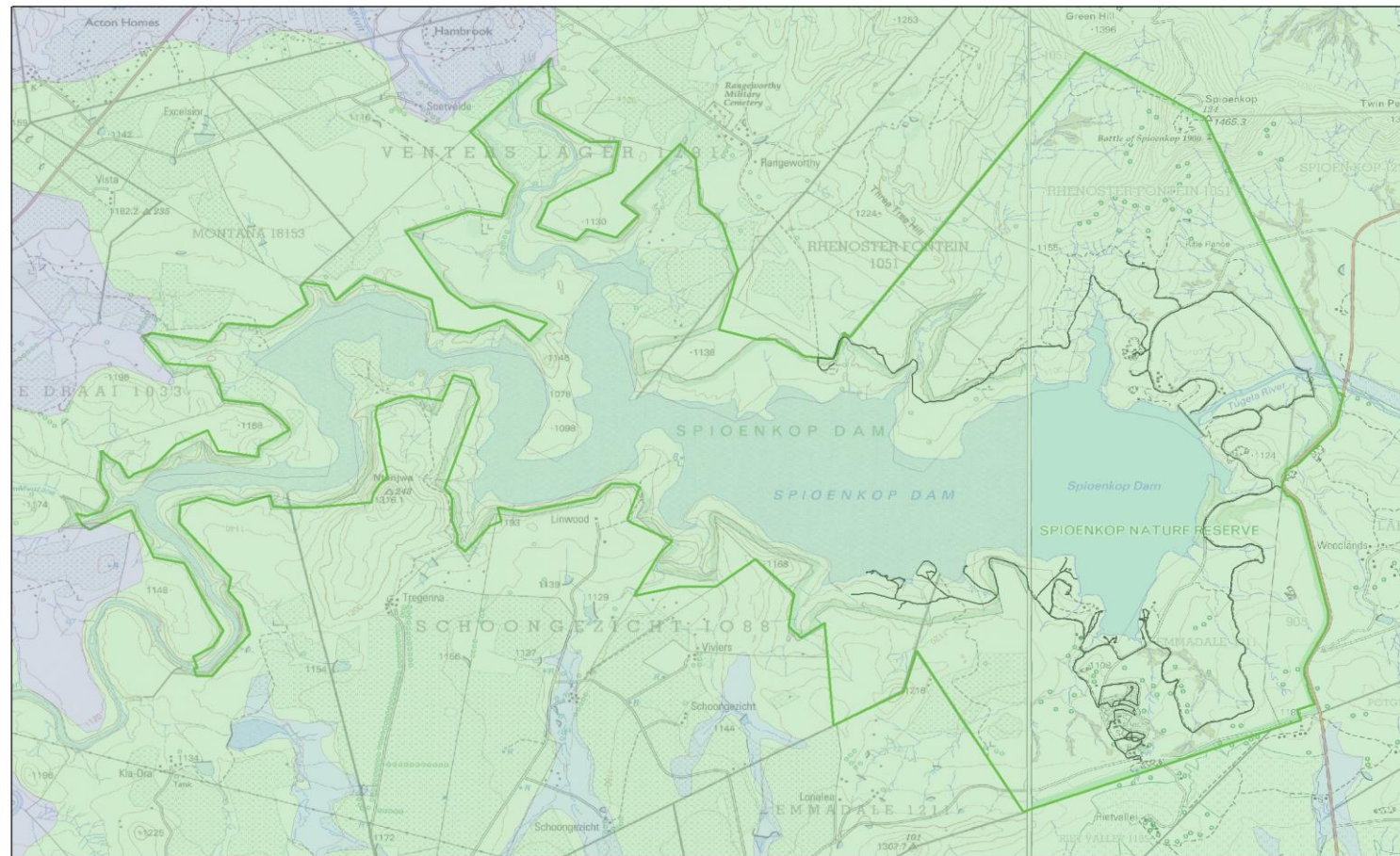
### Legend

- Spioenkop Boundary
- Dolerite
- Mudstone
- Waterbody

### Spioenkop Nature Reserve - Geology -



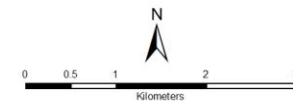
## MAP D – VEGETATION OF SPIOENKOP NATURE RESERVE



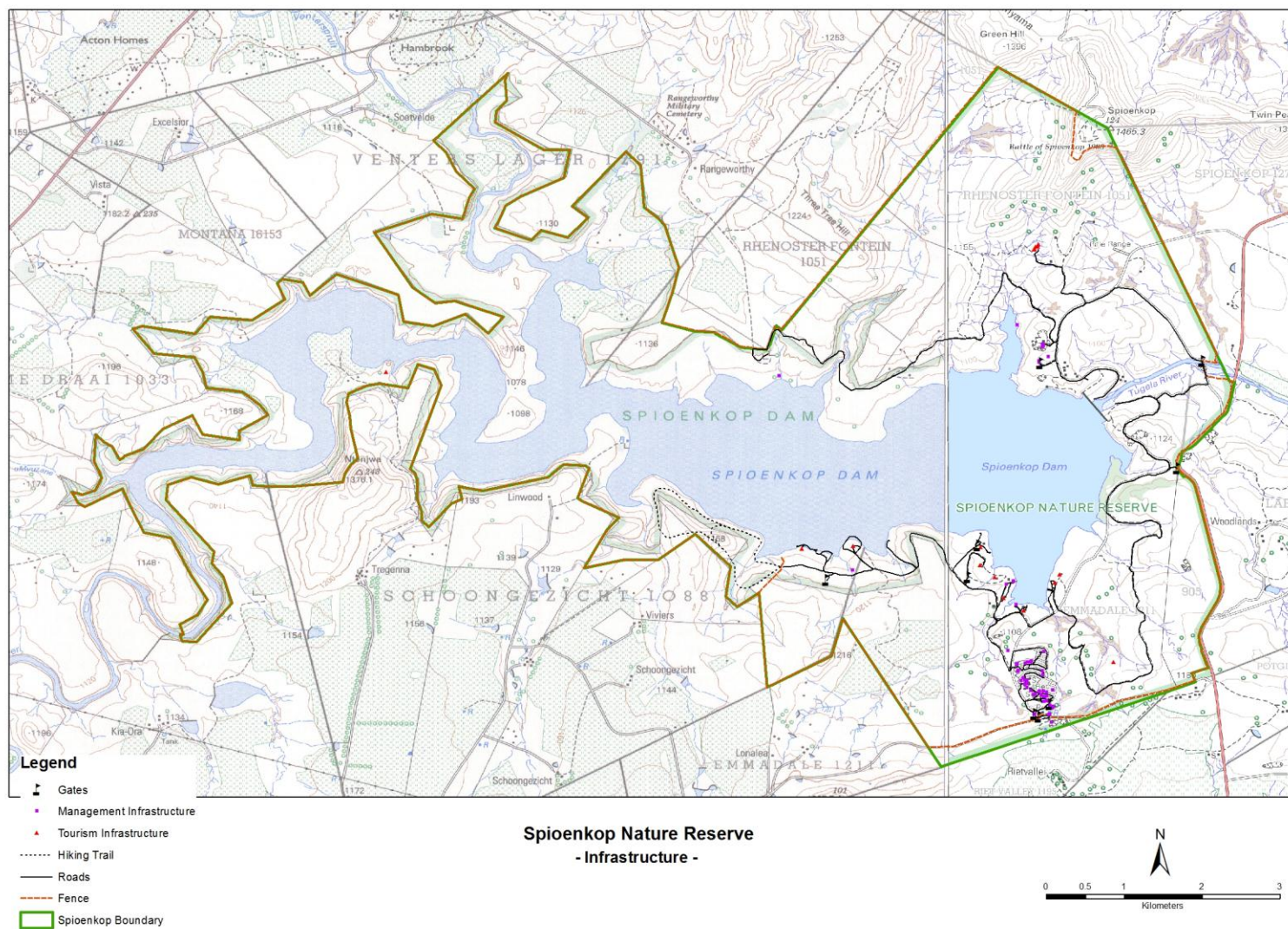
### Legend

- Alluvial Wetlands : Temperate Alluvial Vegetation
- KwaZulu-Natal Highland Thornveld
- Northern KwaZulu-Natal Moist Grassland
- Roads
- Spioenkop Boundary

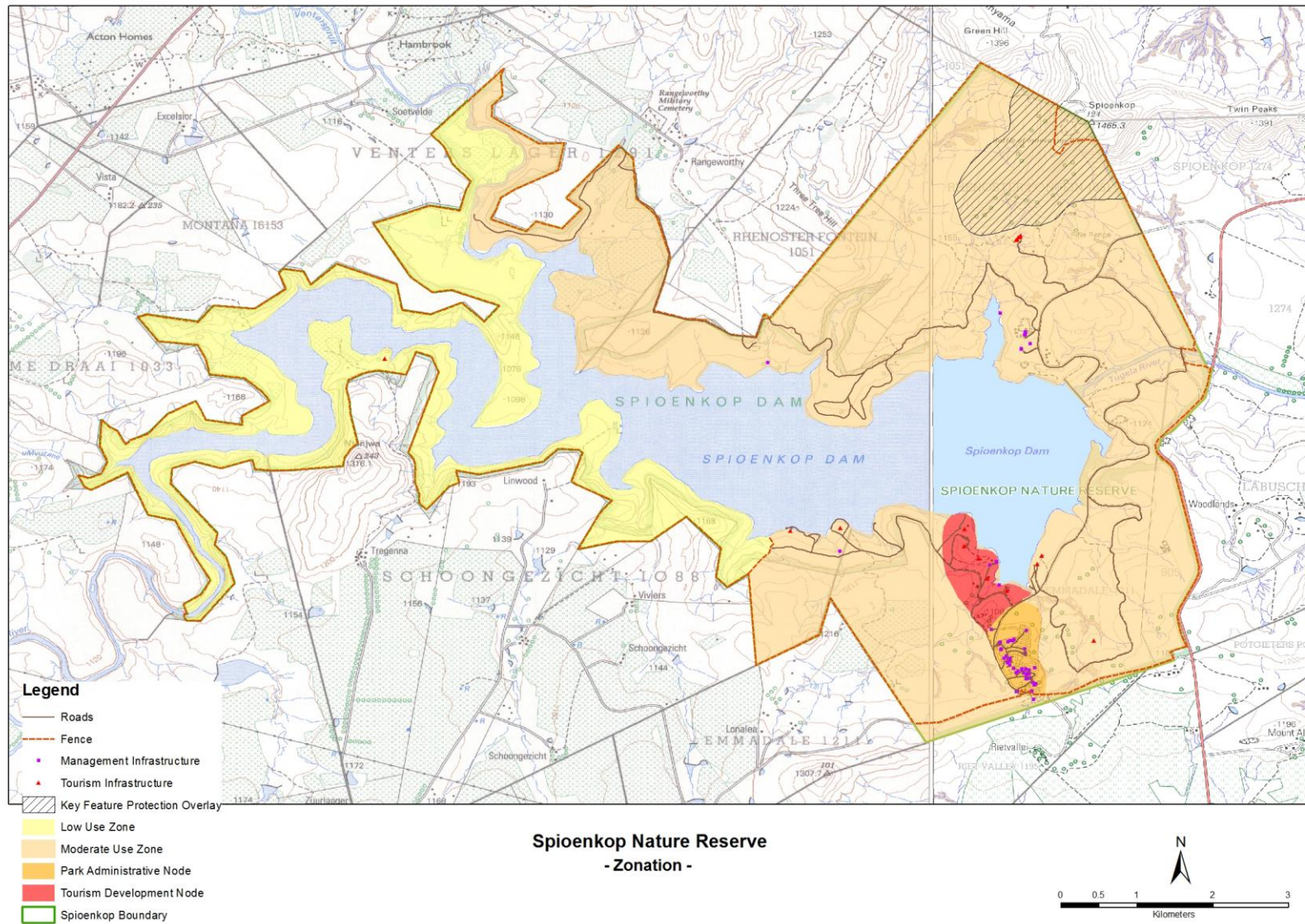
### Spioenkop Nature Reserve - Vegetation -



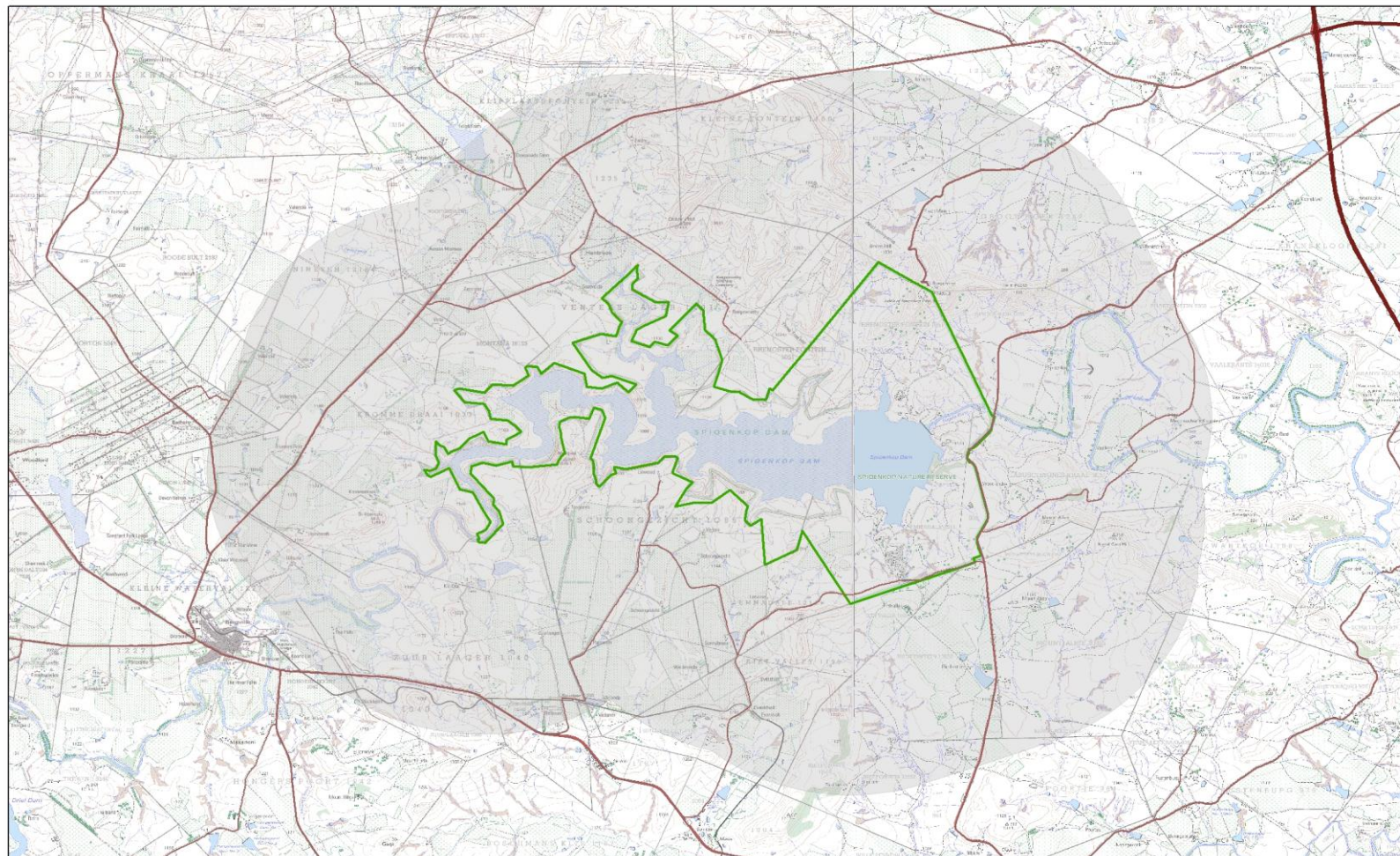
## MAP E – INFRASTRUCTURE OF SPIOENKOP NATURE RESERVE



## MAP F – ZONATION



## MAP G – BUFFER ZONE



### Legend

- National Road
- Provincial Road
- District Road
- Spioenkop Boundary
- 5 km Buffer

### Spioenkop Nature Reserve - Buffer -

