EZEMVELO KZN WILDLIFE™

Conservation, Partnerships & Ecotourism

KARKLOOF NATURE RESERVE

Protected Area

MANAGEMENT PLAN

KARKLOOF NATURE RESERVE MANAGEMENT PLAN

Prepared by: Ezemvelo KZN Wildlife Protected Area Management Planning Unit &
Karkloof Nature Reserve Co-Management Committee
Developed 2021/2022 (Based on the management plan developed in 2011 by Dr R Lechmere-Oertel)

Citation:

Ezemvelo KZN Wildlife. 2021. Karkloof Nature Reserve Management Plan, Version 2, Ezemvelo KZN Wildlife, P.O Box 13053, Cascades, Pietermaritzburg, 3202, 117 pp.

RECOMMENDATION

The revised protected area management plan for Karkloof Nature Reserve Version 2 (2022) is recommended by the Karkloof Nature Reserve Co-Management Committee, a multi-disciplinary team consisting of:

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I Rushworth	Manager: Ecological Advice West
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J Mazibuko	Officer-in-Charge
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This revised protected area management plan for Karkloof Nature Reserve Version 2 (2022) is approved by:

TITLE	NAME	SIGNATURE	DATE
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EXECUTIVE SUMMARY

Introduction

Karkloof Nature Reserve is located in the midlands of KwaZulu-Natal, approximately 30 km north of Howick in the district of Mgungundovu, straddling the Mpofana and uMngeni local municipalities and bordering onto uMshwathi local municipality. The nature reserve is 3 655.33 ha, consisting of several land parcels owned or assigned to Ezemvelo KZN Wildlife and private individuals incorporated into the protected area. Two additional properties, Nyamvubu and Voëlvlei, have been incorporated and declared as part of Karkloof Nature Reserve in 2021. It is anticipated that the reserve size may increase as there are various opportunities to incorporate additional conservation-worthy areas into the reserve.

Karkloof Nature Reserve is a key component of the protected area system in the midlands region of KwaZulu-Natal, primarily for its role in securing indigenous Eastern Mistbelt Forest and its surrounding grassland-wetland continuum. It lies within the uMgeni and uTukhela Rivers' upper catchments, which are critically important in supplying water to large cities in the region.

Vision and objectives of Karkloof Nature Reserve

Ensure that Karkloof Nature Reserve is resourced to protect and enhance its ecosystems, species and sense of place, supported by sustainable tourism and stakeholder participation through cooperative management, environmental awareness and research.

Objectives of the Karkloof Nature Reserve

Legal Context:

Ensure that the protected area has secure legal status and is appropriately demarcated to facilitate the effective conservation of the area and implement all legal agreements.

Conservation beyond boundaries:

Protect the biodiversity and cultural assets by promoting compatible land use, activities and water use in areas surrounding the reserve and facilitating the inclusion of habitats critical for ecological integrity through site expansion and/or creation of corridors.

Management plan:

Ensure the approved management plan of the protected area remains up to date, that threats and risks are identified annually and mitigated continuously and that the Annual Operations Plan (AOP) is linked to the management plan and available budget to facilitate adaptive management.

Organisational structure and procedures:

Ensure that organisational structure and procedures contribute to the management effectiveness of the area.

Financial management:

Provide adequate, secure, accessible, and well-managed funding to enable the reserve's effective protection, development, and management.

Human resource management:

Ensure that staff capacity, capability and support contribute directly to management effectiveness.

Biodiversity resource management:

Protect the reserve's ecological integrity through active interventions based on adaptive and ecosystem-based management principles, contribute to provincial and national biodiversity targets, and maintain ecological processes to maximise ecosystem service delivery.

Cultural heritage resource management:

Ensure the protection and public appreciation of all cultural and heritage resources within the reserve as per statutory requirements. Ensure that cultural assets are known, targets are set, processes are established to achieve targets, threats are identified and mitigated, and public access and appreciation of the cultural assets are maintained.

Compliance:

Ensure sufficient staff capacity and capability to effectively control legal and illegal access to the reserve and its resources.

Public education and awareness:

Implement an awareness approach that reaches a broad range of clearly identified target audiences and focuses on the reserve's values.

Operational equipment and infrastructure:

Ensure adequate, suitable, and well-maintained equipment and infrastructure to support reserve operations.

Socio-economic:

Focussed interaction and consistent stakeholder involvement to ensure positive relations and support for the reserve whilst facilitating sustainable economic benefits.

Tourism:

Maintain sustainable nature-based tourism to provide a high-quality visitor experience whilst promoting the reserve's natural and cultural values. Ensure well-maintained tourism infrastructure that is in line with responsible tourism practices.

Critical outcomes of the SWOT Analysis and risk assessment for Karkloof Nature Reserve

In managing the reserve, the following key issues need to be addressed as identified through a SWOT analysis:

- There is no permanent manager and staff located on the reserve; this is a great hindrance to the reserve's effective management (including security, fire protection and other operational issues).
- There are insufficient human and financial resources to manage the reserve effectively. Furthermore, there is no consolidated budget for all land parcels comprising the site and its management.
- Access to the nature reserve is limited and is across various landowner properties. Servitude issues need to be assessed as part of the access requirements for tourism purposes, and recommendations must be implemented.
- Adequate protection of commercial assets around the reserve is an essential part of legal compliance in fire management that must be addressed.
- Labour tenants living at Middeldraai and Dartmoor do not have formalised agreements that deal with, amongst others, access to the area and livestock.
- There is old infrastructure in Karkloof Nature Reserve that is a legacy of the commercial farming era, including stock enclosures, fence lines, stock handling facilities, tanks and others. Much of this is derelict and needs to be dismantled and systematically removed.
- A lack of facilities and procedures for waste management has led to inappropriate waste disposal within Karkloof Nature Reserve.
- Poaching and illegal intrusions from neighbouring areas into the reserve are threatening biodiversity.
- Bramble, wattle, and other invasive species are invading many areas across the grasslands of Karkloof Nature Reserve, and although a comprehensive spraying programme has been implemented, ongoing efforts are required.
- Grazing by livestock and baling of arable land are currently taking place in the Karkloof Nature Reserve. A process to establish current livestock numbers was undertaken in 2021; with the aim of determining the carrying capacity for the reserve (game and livestock numbers). An initial visual inspection raised concern about the condition of the veldt which was subsequently substantiated through a veld assessment undertaken in 2022 in areas that had been

grazed. Following the 2022 veld assessment, the practise of grazing by livestock and baling needs to be reassessed and a decision needs to be taken on the future of these practises; namely to either phase out or mitigate the impact of these activities on the affected areas. This decision must take into account specialist consultation and any future grazing would be subject to a Grazing Plan that will be finalised within one year and subject to approval by the co-management committee and the Regional Operations Committee (ROC) of Ezemvelo KZN Wildlife.

- Illegal grazing and the presence of stolen cattle is an ongoing problem on the grassland plateau due to inadequate enforcement.
- Fire management is limited to the most basic fire protection and extensive block burns, which deviate significantly from the ecological requirements. Arson fires prevented management from fully implementing the fire management plan.
- There are large areas where alien trees have been cleared and need active rehabilitation to prevent re-infestation from weeds, severe erosion and fire risk.
- The lack of housing, office facilities and equipment has hampered efforts to ensure adequate staffing levels and management expertise within Karkloof Nature Reserve.
- A lack of equipment, staff and supervision within Karkloof Nature Reserve has hampered efforts to patrol and undertake effective law enforcement and fire management within its boundaries adequately.

This management plan and its associated Annual Operations Plan address the abovementioned issues. Without the relevant human and financial resources to implement the plan, there will be no increase in the reserve's effective management.

Key management interventions

Key strategic aspects that were identified for Karkloof Nature Reserve include:

- Establish the Landowner Association for Karkloof Nature Reserve with associated staff structure and combined financial resources to facilitate co-management and integration of new properties into the protected area.
- Establish a secure budget covering joint operations in the Karkloof Nature Reserve.
- Develop an alien and invasive species control plan for the Greater Karkloof Nature Reserve.
- Develop and implementation of an agreed-upon grazing agreements.
- Implementation of the Karkloof Security Strategy developed in 2021.
- Securing sufficient staff complement and providing appropriate and safe infrastructure for such staff.
- Investigating the potential for the Karkloof Nature Reserve to be declared as a Ramsar site.

ABBREVIATIONS

AOP	Annual Operations Plan
CEO	Chief Executive Officer
CMC	Co-management Committee
DCO	District Conservation Officer
DEVCO	Ezemvelo KZN Wildlife Development Committee
DFFE	Department: Forestry, Fisheries and the Environment
DWAS	Department of Water Affairs and Sanitation
EDTEA	Department of Economic Development, Tourism and Environmental 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
GIS	Geographical Information System
IDP	Municipal Integrated Development Plan
KNR	Karkloof Nature Reserve
KNRCMC	Karkloof Nature Reserve Co-management Committee
KNRLOA	Karkloof Nature Reserve Land Owners Association
KZN	KwaZulu-Natal Province of the Republic of South Africa
KZNCMA	KwaZulu-Natal Nature Conservation Management Act No. 9 of 1997
KZNHRA	KwaZulu-Natal Heritage Resources Act No. 10 of 1997
LUMS	Land Use Management Scheme
MEC	Member of the Executive Council
METT	Management Effectiveness Tracking Tool
MoA	Memorandum of Agreement
MoU	Memorandum of Understanding
MP	Management Plan
NEMA	National Environmental Management Act No. 107 of 1998
NEMBA	National Environmental Management: Biodiversity Act No. 10 of 2004

NEMPAA	National Environmental Management: Protected Areas Act No. 57 of 2003
NHRA	National Heritage Resources Act No. 25 of 1999
NPAES	National Protected Area Expansion Strategy
NR	Nature Reserve
PA	Protected Area
PFMA	Public Finance Management Act No. 1 of 1999
SA	Republic of South Africa
SAHRA	South African Heritage Resources Agency
SAPPI	South African Pulp and Paper Industry
SAPS	South African Police Service
SDF	Municipal Spatial Development Framework
SWOT	Strengths, weaknesses, opportunities and threats analysis
ZoI	Zone of Influence

DEFINITIONS OF TERMS

Alien species	Species or genotypes, which are not indigenous to the protected area 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	Concerning 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 protected area 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 this management plan, living heritage features such as mountains, pools, rivers, boulders, etc. as well as palaeontological features are included under this definition.
Eco-cultural tourism:	'Minimal impact tourism' or 'environmentally sound tourism' includes responsible tourist travel and appreciation of natural and cultural areas; typically benefits local or hosting communities and increases conservation awareness for both the tourist and local communities affected.
Ecological integrity	The sum of an ecosystem's biological, physical and chemical components 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 Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
Ecosystem services	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: a. Benefits obtained from ecosystems such as food, fuel and fibre and genetic resources.

	b. Benefits from the regulation of ecosystem processes such as climate regulation, disease and flood control and detoxification. c. Cultural non-material benefits obtained from ecosystems such as benefits of a spiritual, recreational, aesthetic, inspirational, educational, community and symbolic nature;" For this management plan, sustainable water production is also specifically included under this definition.
Environmental degradation	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
Ezemvelo KZN Wildlife	Nature Conservation Service established in terms of the KwaZulu-Natal Nature Conservation Management Act No. 9 of 1997, trading as Ezemvelo KZN Wildlife.
Indigenous species	Concerning 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]).
Invasive species	Means any species whose establishment and spread outside of its natural distribution range – a. Threaten ecosystems, habitats or other species or have a demonstrable potential to threaten ecosystems, habitats or other species. b. May result in economic and environmental harm or harm to human health. (As per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).
Joint management	The agreed coordination of management and/or management actions by landowners and/or mandated managers on their individual or combined properties to achieve common management objectives.
Local community	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]).
Management	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).
Management authority	Means the organ of the 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 the change in status, distribution or integrity 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 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 KZN Wildlife and a third party that supports the achievement of the Game Reserve management objectives.
Protected areas	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 Any protected areas referred to in section 9 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).
The protected area management committee	The management body that deals with the day-to-day management of the protected area and are chaired by the Conservation Manager
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 critical ecosystems for biodiversity conservation in general and 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, workforce, 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	Concerning 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 to retain 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]), or an area designated as such in the management plan zonation, with the purpose to manage the area to retain its wilderness character.
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).
Zone of influence	the area outside the boundary of a protected area where activities of people or other influences may negatively impact the purpose, values or objectives and/or efficient and effective management of the protected area and/or continued delivery of tourism and other societal benefits from the protected area, and consequently where protected area management seeks to actively engage with stakeholders to promote and retain compatible, and prevent or mitigate incompatible, activities and use of land.

LIST OF STATUTES FOR PROTECTED AREA MANAGEMENT[1]

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-Natal Amafa and Research Institute Act [No. 5 of 2018]
- 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]
- Marine Living Resources Act [No. 18 of 1998]
- National Environmental Management Act [No. 107 of 1998]
- National Environmental Management: Biodiversity Act [No. 10 of 2004]
- National Environmental Management Integrated Coastal Management Act [No. 24 of 2008]
- National Environmental Management: Protected Areas Act [No. 57 of 2003]
- National Environmental Management Waste Act [No. 59 of 2008]
- 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]
- World Heritage Convention Act [No. 49 of 1999]

General Management:

- Development Facilitation Act [No. 67 of 1995]
- Disaster Management Act [No. 57 of 2002]
- Fire Brigade Services Act [No. 99 of 1987]
- KwaZulu-Natal Planning and Development Act [No. 5 of 1998]
- Land Reform Labour Tenant Act [No. 3of 1996]
- 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]
- Promotion of Access to Information Act [No. 2 of 2000]
- Promotion of Administrative Justice Act [No.3 of 2000]
- Restitution of Land Rights Act [No.22 of 1994]
- Spatial Planning and Land Use Management Act [No.16 of 2013]
- Water Services Act [No. 108 of 1997]
- National Tourism Act [No. 3 of 2014]
- Promotion of Access to Information Act [No. 2 of 2000]
- Promotion of Administrative Justice Act [No. 3 of 2000]

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]
- 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]

[1] As at 2022, but includes any subsequent amendments, regulations or new relevant legislation promulgated under these acts or seperately.

1 CONTEXT

1.1 INTRODUCTION TO THE MANAGEMENT PLAN

1.1.1 Purpose of the management plan

Management plans are high-level, strategic documents that provide the direction for the development and operations of protected areas. They inform management at all levels, from the staff on-site to the Chief Executive Officer (CEO), the Board and the Member of Executive Council (MEC). The purpose of the management plan is to:

- facilitate compliance with the National Environmental Management: Protected Areas Act No. 57 of 2003 and other relevant legislation;
- provide the primary strategic tool for managing protected areas, informing the need for specific programmes and operational procedures;
- offer motivations for budgets and provide indicators that the budget is spent correctly;
- build accountability into the management of protected areas;
- provide for capacity building, future thinking, continuity of management; and
- enable Ezemvelo KZN Wildlife and the co-management committee to develop and manage the reserve so that its values and the purpose for which it was established are protected.

1.1.2 Structure of the management plan

Table 1: Structure of the management plan

CONTEXT (SECTION 1)	
Section 1 deals with contextual issues; it sets the scene for the management plan and deals with the protected area's current status. Changes to this section can be recorded at the Annual Operations Plan (AOP) meeting and recorded in the AOP.	
Section 1.1	Introduction to the management plan: This section explains the purpose of the plan, the plan structure, the process followed to develop the management plan, the implementation, monitoring and reporting and review of the management plan.
Section 1.2	Planning approach: This section deals with the primary planning principles that were incorporated into the management plan, and in the management of the protected area and includes the public trust, ecosystem-based management, adaptive management and collaboration and transparency.
Section 1.3	Legal, policy and institutional frameworks: This section sets out the legislative basis and policy framework for the management of protected areas in KZN; it also includes the institutional framework of the management authority.
Section 1.4	Description of the protected area: This section provides the contextual information relating to the protected area, it includes the background of the protected area, record boundary deviations, proclamations, servitudes and any co-management agreements as well as the protected area expansion opportunities. Furthermore, all ecological, cultural, financial, socio-economic, human resources, infrastructure and detailed risk assessment aspects are covered in this section.
Section 1.5	Ecological aspects: This section provides the contextual information relating to the ecological aspects of the reserve, including climate, topography, hydrology and species information
Section 1.6	Cultural Heritage aspects: This section provides the contextual information relating to the cultural heritage aspects of the reserve, including management guidelines to be implemented by management.
Section 1.7	Socio-economic aspects: Describe the area surrounding the reserve including land and water – use as well as other socio-economic aspects.
Section 1.8	Staff and funding: Describe the current financial and human resources available to manage the reserve, if possible, comparing it to other protected areas off similar size.

Section 1.9	Infrastructure of the protected area: Describe the existing and historic infrastructure that exist in the protected area.
Section 1.10	Management effectiveness: Describes the latest management effectiveness assessment and discuss possible critical next steps identified through the assessment.
Section 1.11	Risk assessment: A SWOT analysis is used to describe risks, threats and opportunities that needs to be addressed in the management plan and Annual Operations Plan (AOP).
STRATEGY (SECTION 2)	
This section provides a framework for the strategic direction of the protected area adopted by the MEC. It aims to provide the strategic basis for the protection, development and operation of the protected area. It will be prepared collaboratively by involving stakeholders within Ezemvelo KZN Wildlife, the communities around the protected area, local and provincial government departments and other key stakeholders. Should significant changes to this component be required public consultation and adoption by the MEC/Minister will be required.	
Section 2.1	Sets out the values of the protected area, providing the basis for the management of the area. The values of a place are those remarkable attributes that exemplify it and are the primary reason for its declaration as a protected area. The values are essential in planning and management, as they are the aspects of the place that must be protected.
Section 2.2	In terms of the National Environmental Management: Protected Area Act (NEMPAA), Section 40 prescribes that the protected area must be managed exclusively for the purpose it was declared, per the management plan and other relevant legislation. This section deals explicitly with the purpose of the protected area and are based on the values of the site.
Section 2.3	Section 2.3 sets out the long-term vision or desired state of the protected area. This vision will be derived through a consultative process and will provide a road map for managing the protected area.
Section 2.4	Sets out the protected area's strategic objectives that must be achieved to conserve the protected area effectively. These strategic objectives will contribute to the achievement of the protected area vision. An objective has been identified for each of the protected area management spheres and is based on the critical functions and activities necessary to protect, develop and manage it effectively. The protected area's strategic objectives are translated into site-specific goals, actions, timeframes, responsibility, and budgets in the AOP.
Section 2.5	Conservation framework: Sets out the development framework and zonation of the protected area, outlining the permissible land uses in particular zones. It also establishes principles for the buffer/ Zone of influence contiguous to the protected area.
Section 2.6	The administrative structure describes the staff required to manage the protected area effectively.
Section 2.7	The Financial Section deals with budgets, budget shortfalls and funding requirements of the protected area.
Section 2.8	Conservation targets provide for the provincial and national targets towards which the protected area contributes.
GUIDING PRINCIPLES (SECTION 3)	
This section provides the guiding principles based on the policy framework of Ezemvelo KZN Wildlife and best practice that will be used to manage the protected area.	
ANNUAL OPERATIONS PLAN	
The Annual operations plan will be compiled on an annual basis, with quarterly reviews. It will contain specific goals and actions required for the implementation of the management plan. The AOP combines site-specific goal setting, management interventions required to achieve objectives set out in the management plan, and the next steps required to improve the protected area's management effectiveness. It furthermore provides a mechanism to review the management plan, assess the requirement for a full review process should substantial changes be required, and record minor revisions for updating the management plan. See Figure 1.	

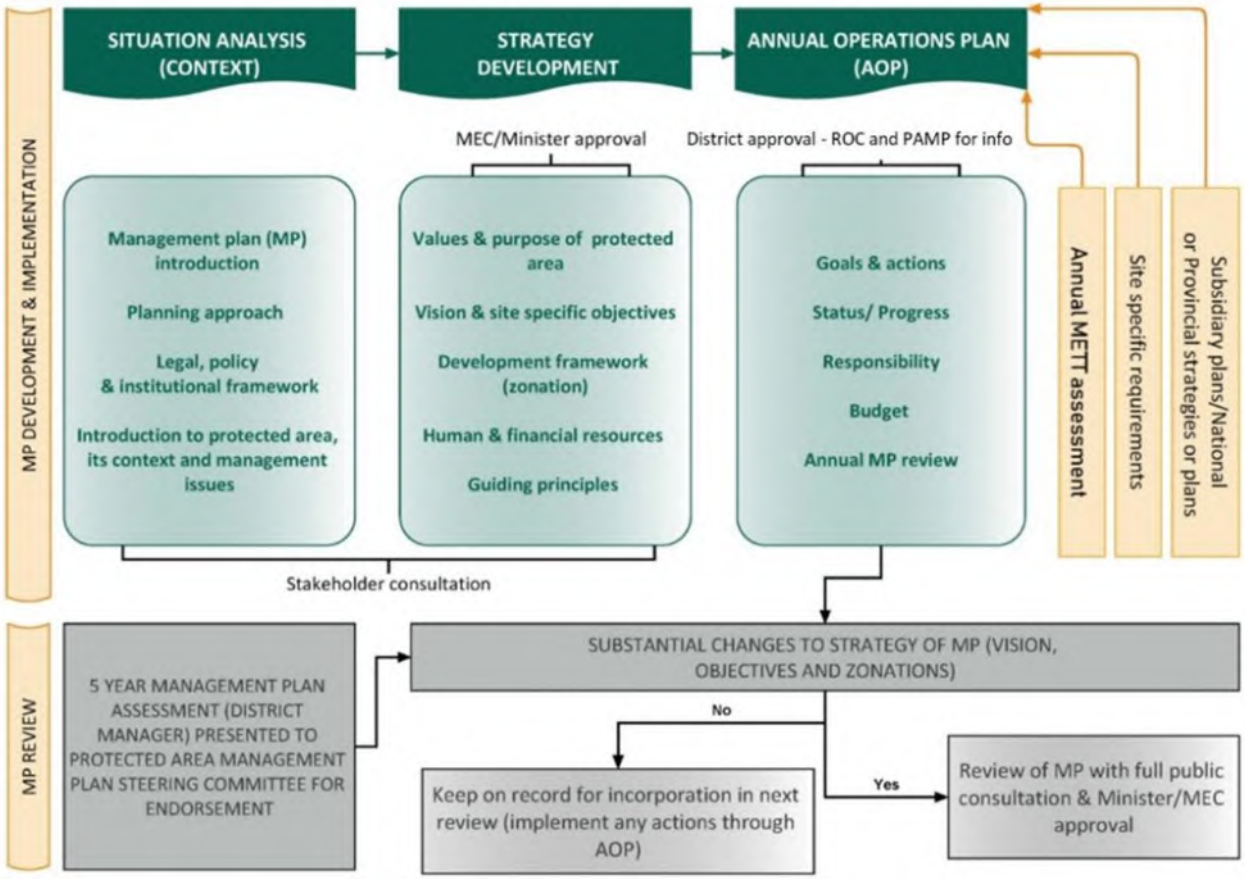


Figure 1: The protected area management planning and implementation process

1.1.3 Management plan development

The development of a management plan consists of three main steps (as indicated in Figure 1 and Table 2):

Table 2: Summary of the process to develop a protected area management plan

Situational analysis	Preparation of draft management plan	Finalisation and adoption of the management plan
Identify stakeholders of the protected area	Develop vision and site-specific objectives	Internal review of the management plan
Information gathering and review – internal and external	Develop goals and actions linked to the vision, objectives and management issues identified in the SWOT analysis.	Finalisation of the management plan
Identify key management issues through a SWOT analysis that will need to be addressed in the plan (usually in the form of a management meeting and a stakeholder workshop that is advertised in provincial and/or local newspapers)	Prepare the draft management plan	Submission to internal committees for approval
	Public review of the management plan	Submit to MEC/ Minister for approval
		Make the adopted plan available to stakeholders and the broader public

1.1.4 Management plan implementation

Each year an Annual operations plan (AOP to be completed before the new financial year) will be prepared for each protected area managed by Ezemvelo KZN Wildlife. The AOP will be based on the vision, objectives and risk assessment in the management plan or identified by site management, the METT assessment, and any other relevant

subsidiary plan or strategy. The AOP provides for the implementation, revision, monitoring and reporting of the management plan. Furthermore, the plan allows site managers to set goals and actions to support the management plan objectives, respond to emerging threats and opportunities, increase management effectiveness, and ensure that financial resources are allocated based on the protected area priorities.

The Karkloof Nature Reserve Management Committee that will develop the AOP consist of:

- District Manager
- Conservation Manager
- Ecologist
- Co-management members

The purpose of the annual management meeting for the protected area is to:

- assess changes to the strategic direction and the context of the management plan.
- determine management activities for the coming year, set goals and actions based on the management plan and METT outcomes, and align with the protected area manager's performance contract.
- determine how budgets will be spent to achieve the goals for the coming year. The resource requirements associated with management activities and targets set out in the AOP must be considered and budgeted according to organisational procedures. The following aspects must be considered in determining adequate human resources, funds, and equipment for the protected area:
    - administration and management of the protected area;
    - patrolling of the protected area and its boundaries;
    - an annual burning programme and firefighting response to wildfires;
    - an ongoing invasive plant species control programme;
    - ongoing soil erosion control and rehabilitation programme;
    - ecological monitoring and data capture.
    - maintenance of roads, paths, and fences within the protected area;
    - maintenance of facilities and infrastructure within the protected area;
    - community liaison and cooperation; and
    - environmental awareness.

1.1.5 Review of the management plan

The Karkloof Nature Reserve Co-management Committee will revise and update the AOP annually. Reporting and status updates will be facilitated every quarter to provide for Ezemvelo's high-level reports; a copy of the AOP that includes a review component for the management plan will be submitted to the Protected Area Management Planning Unit annually as part of the management plan review assessment and implementation tracking. If a substantial change to the strategic direction of the protected area is deemed necessary, stakeholder consultation and MEC approval will be required.

The process to maintain and update the management plan can be summarised as follows:

- The management plan will be developed for a minimum of 10 years.
- An annual assessment by the Karkloof Nature Reserve Co-Management Committee will determine if substantial changes are required to the plan's strategic component (Section 2).
- If no substantial changes are required, the Karkloof Nature Reserve Co-Management Committee will record such minor revisions as may arise and keep this on record for incorporation upon the following review. Any actions required from these minor revisions must be incorporated in the AOP

for implementation. This amendment must be copied to the Protected Area Management Planning Unit for recordkeeping purposes.

- Should substantial changes be required, the Co-Management Committee must describe these and refer to the Protected Area Management Plan Steering Committee for review prioritisation.
- The District Manager must assess the review requirements 5-yearly and submit this assessment to the Protected Area Management Planning unit for recordkeeping purposes.

1.2 PLANNING APPROACH

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

1.2.1 Public trust doctrine

Section 3 of the National Environmental Management: Protected Areas Act, No. 57 of 2003, mandates the State, hence Ezemvelo KZN Wildlife, to act as the trustee of protected areas. This trusteeship is derived from the Public Trust Doctrine, which obligates Ezemvelo KZN Wildlife to support the management of all protected areas and the resources therein to benefit current and future generations (the beneficiaries of the Public Trust). Thus, it is incumbent on Ezemvelo KZN Wildlife to use all practical means to fulfil its responsibilities as trustee of the protected areas for current and succeeding generations [See White Paper on Environmental Management — Policy for South Africa GG 749 of 1998].

1.2.2 Ecosystem-based management

Decision-making associated with protecting ecosystems in protected areas will be scientifically based on internationally accepted principles and concepts of conservation biology. The protected area ecosystems will be managed with minimal interference to natural processes. Specific management interventions may be desirable when human-induced impacts or previous management actions have significantly altered the structure or function of a habitat or ecosystem. Specific management will only be considered when this option is the only possible alternative to restore ecological integrity.

Provided that ecosystems will not be impaired, the manipulation of naturally occurring processes (e.g. creation of firebreaks, damage-causing animals) may take place when no reasonable alternative exists and when monitoring has demonstrated, that without direct intervention:

- there will be severe adverse effects on neighbouring lands; or
- protected area facilities, public health or safety will be threatened; or
- the objectives of a protected area management plan prescribing how certain natural features or cultural resources are maintained cannot be achieved.

Where directed management is required, it will be based on scientific research and employ techniques that emulate natural processes as closely as possible. Ezemvelo KZN Wildlife will strive to be exemplary in implementing conservation and other environmental legislation, including but not limited to environmental impact assessments and reviews.

Within the protected area, effort must be directed at maintaining ecosystems in as natural a state as possible, and human-induced disturbance must primarily be avoided. In those rare circumstances, avoidance cannot be achieved, and the disturbance must be mitigated and ameliorated in compliance with Ezemvelo KZN Wildlife's conservation policies and norms and standards, particularly the Integrated Environmental Management Policy.

It is recognised that protected areas do not contain complete or unaltered ecosystems, combined with increasing and cumulative disturbances from external sources such as adjacent land use, effects of pollution, colonisation of invasive and alien species, and visitor use, this may result in irreversible degradation of ecosystems, the loss of biodiversity and impoverishment of gene pools.

Ecosystem management in protected areas must be derived from a conceptual and strategic basis for protecting ecosystems based on sound research and monitoring. It must involve a holistic view of the natural environment to

ensure that all management decisions consider the ecosystems' complex interactions and dynamic nature and their limited capacity to withstand and recover from human-induced disturbance.

It is recognised that the Ezemvelo KZN Wildlife protected areas are becoming increasingly important, if not vital, in national and international efforts to maintain the biodiversity and genetic resources of South Africa. Thus, the management of protected area ecosystems must be credible and solidly based on science and best management practice. A rigorous application of conservation science in collecting and interpreting research and monitoring data must be achieved.

It is further recognised that cumulative, human-induced disturbance or poor management practices have far-reaching, long-lasting, and potentially irreversible negative impacts on species, habitats, ecosystems, and the protected area. It is thus recognised that a cautious and risk-averse approach must be exercised.

1.2.3 Adaptive management

Adaptive management is a structured, iterative process in which decisions are made using the best available information to obtain better information through monitoring performance (Figure 2). In this way, decision-making aims to achieve the best outcome based on current understanding while accruing the information needed to improve future management. Adaptive management can lead to the revision of a part or, if necessary, the whole management plan.

Adaptive management enables protected area managers to:

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

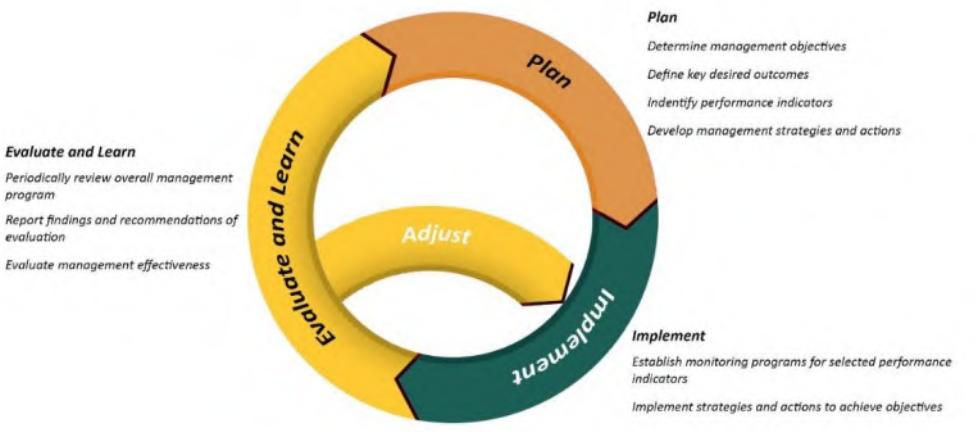


Figure 2: The adaptive management cycle

1.2.4 Collaboration and transparency

Stakeholder involvement and support are essential aspects 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 (Republic of South Africa 2003). Accordingly, this management plan has been developed through a collaborative process involving key stakeholders.

A detailed public participation report is available upon request from the protected area management.

1.3 LEGAL, POLICY & INSTITUTIONAL FRAMEWORK

1.3.1 The legislative basis for the management of protected areas

There is a large body of legislation relevant to managing protected areas in South Africa. However, the primary legislation guiding the management of protected areas is the National Environmental Management: Protected Areas Act No. 57 (Republic of South Africa 2003).

The Act establishes the legal basis for creating and administering 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"*. It sets out the mechanisms for the declaration of protected areas and the requirements for their management. A detailed list of relevant legislation is provided on Page xiii. Managers must familiarise themselves with the purpose and contents of the statutes and their subsequent amendments and regulations.

In Section 76 of the National Environmental Management: Biodiversity Act No. 10 (South Africa 2004), the management authority must incorporate an invasive species control and eradication strategy in the protected area management plan.

In terms of the National Environmental Management Act No. 107 (Republic of South Africa 1998) environmental impact assessment (EIA) Regulations, various activities require environmental authorisation before they commence. In Regulation R.985, Listing Notice No.3, several activities require environmental approval, specifically due to their proximity to a protected area. If any of the activities listed are proposed in the protected area or within five kilometres of it, they will be subject to either a basic assessment or a full scoping and EIA process. Several general activities and those proposed for either tourism development or operational management within the protected area or its buffer areas will also require environmental authorisation.

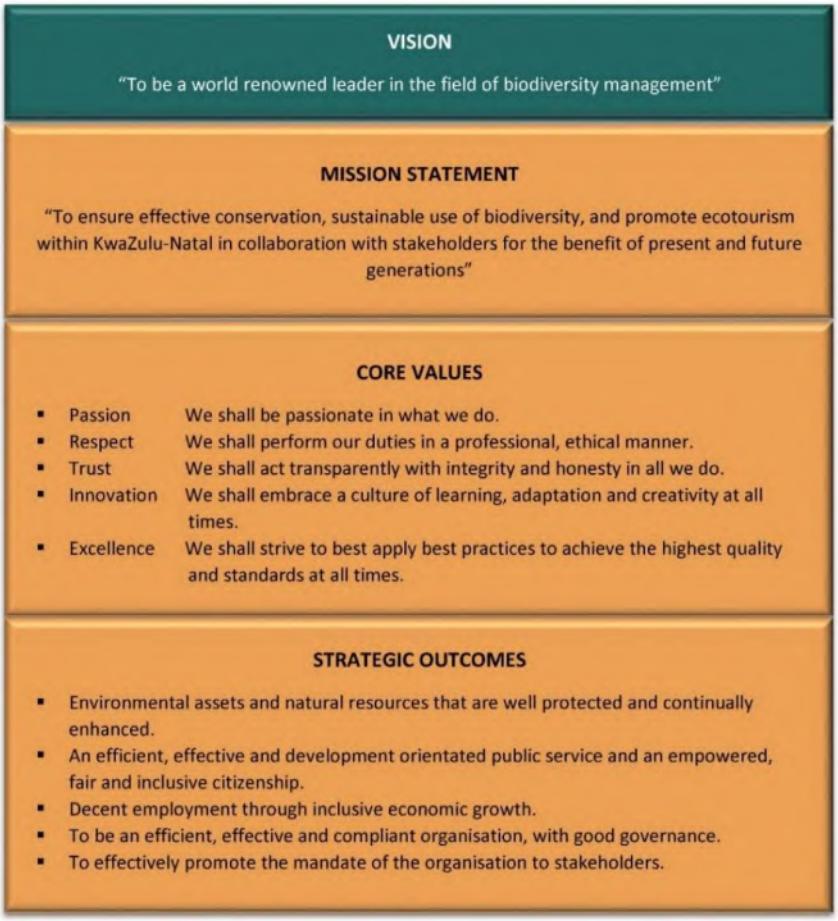
1.3.2 The policy framework guiding the management of protected areas

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, the overarching policy is set out in:

- White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity of 1997.
- Bioregional Approach to South Africa's Protected Areas, 2001/2002.
- Community-Based Natural Resource Management Guidelines, 2003.
- National environmental management principles are set out in section 2 of the National Environmental Management Act.

Within the province, Ezemvelo KZN Wildlife has adopted a Five-Year Strategic Plan and Performance Plan for 2015-2020, which has developed the following corporate strategic profile[2] :

[2] It should be noted that the Board, in the 2022/2023 Annual Performance Plan, is in process of adopting a new draft vision which is to be 'a leader in connecting people and nature for a better world'.



This management plan has utilised the abovementioned body of policies and is consistent with the broad goals and specific policy requirements of Ezemvelo KZN Wildlife.

1.3.3 Institutional framework

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

Management of the protected area will be undertaken per relevant legislation and the management policies of Ezemvelo KZN Wildlife, which includes a commitment to maintaining 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 the protected area to the designated KwaZulu-Natal Provincial MEC and the Premier, thus ensuring coordination of those matters that may affect the protected area through the relevant provincial departments, district and local municipalities.

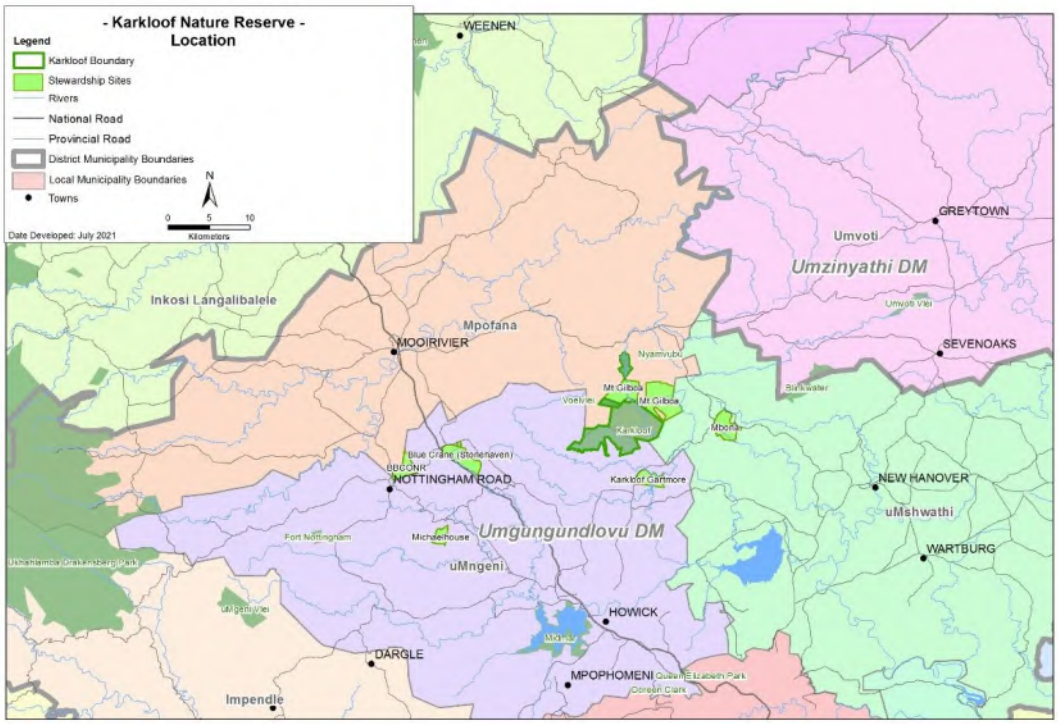
1.4 BACKGROUND TO KARKLOOF NATURE RESERVE AND ITS CONTEXT

1.4.1 Background, Locality and Extent of Karkloof Nature Reserve

Karkloof Nature Reserve (KNR) is located in the midlands of KwaZulu-Natal, approximately 30 km north of Howick, straddling the Mpofana and uMngeni local municipalities within the uMgungundlovu district and bordering onto the uMswathi local municipality. The nature reserve is 3 655.33 ha in extent, which combines land parcels owned or

assigned to and private individuals incorporated through the Ezemvelo KZN Wildlife biodiversity stewardship or expansion programme.

Karkloof Nature Reserve is a key component of the protected area system in the midlands region of KwaZulu-Natal, primarily for its role in securing indigenous Eastern Mistbelt Forest and its surrounding grassland-wetland continuum. The reserve lies within the upper catchments of the uMgeni and uThukela Rivers, which are of critical strategic importance in supplying water to the large cities in the region.



Map 1: Location of Karkloof Nature Reserve

1.4.2 Boundary deviation

Currently, there are no boundary deviations in Karkloof Nature Reserve.

1.4.3 Declaration status

Historically various components of the Karkloof Nature Reserve (KNR) have been proclaimed in Gazette Notice 76 of 1980, with additional portions of land incorporated into the reserve; there was a need to consolidate the declaration. Therefore in 2012, a consolidated declaration was published in Gazette Notice 799. Furthermore, the Karkloof Nature Reserve was extended in 2021 by declaring two additional properties, namely Nyamvubu and Voëlvlei (Map 2). Appendix 1 contains the record of the declaration of Karkloof Nature Reserve.

1.4.4 Co-management

Management of KNR is undertaken by a Co-Management Committee comprising representative private landowners incorporated into the reserve and Ezemvelo KZN Wildlife.

Karkloof Nature Reserve consists of land parcels owned or assigned to Ezemvelo KZN Wildlife and agreements with private landowners. These include:

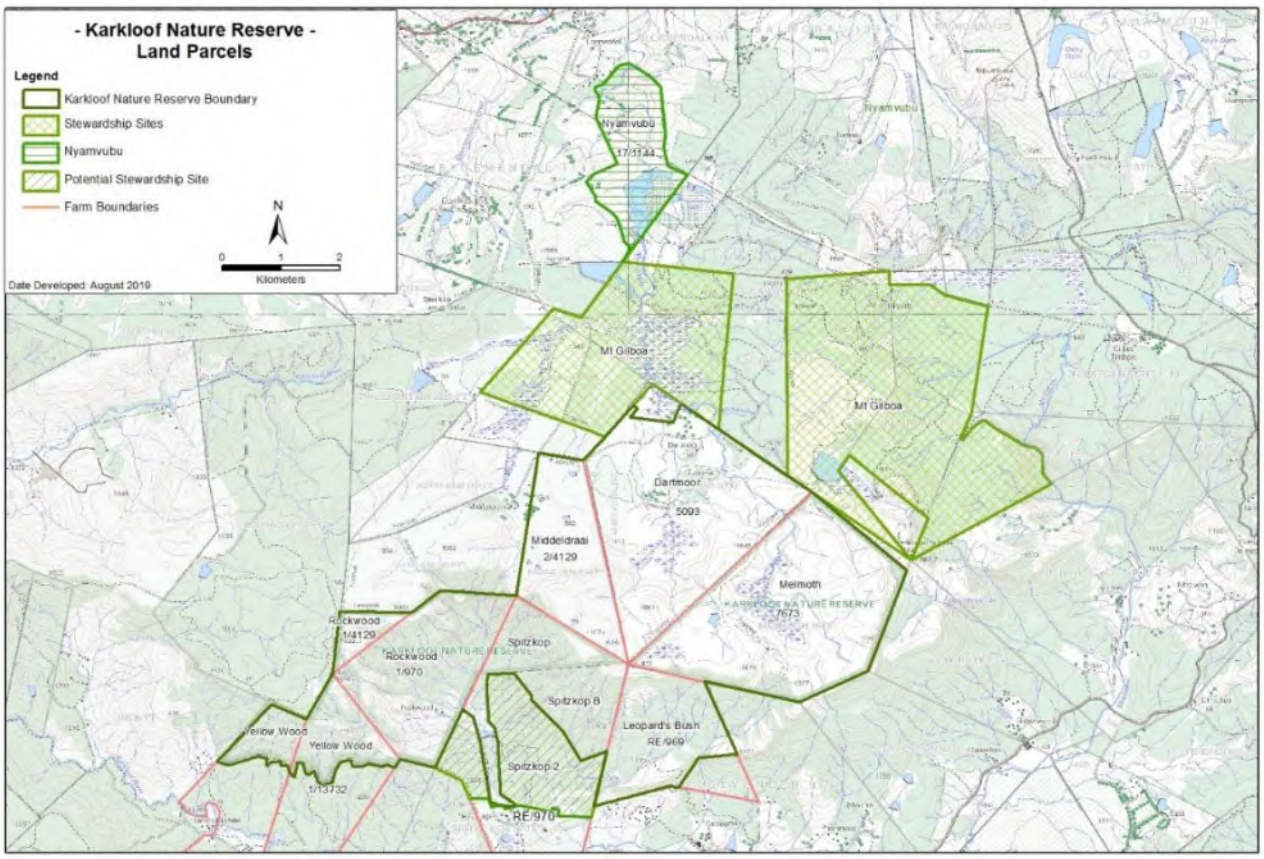
- **Sappi Southern Africa Limited**. The original Karkloof Nature Reserve consisted of two land parcels, Yellow Wood sub 0 no. 13732 (69.3 ha) and the remainder of sub 1 of Yellow Wood no. 13732 (127.9 ha), both owned by Sappi Southern Africa Limited and proclaimed via Government Gazette notice no. 1485, dated 3/7/1980.
- **Thomas Hancock Children's Family Trust**

- Per Title Deed – T04 47199 (commonly known as Rockwood)
- The remainder of portion 1 of the farm Spitze Kop No. 970, Registration Division FT, Province of KwaZulu-Natal, in extent 407,9551 hectares

and

- Portion 1 of the farm Middle Drai No. 14, Registration Division FT, Province of KwaZulu-Natal (extent 53,631 hectares).
- Per Title Deed – T04 47198 (commonly known as Leopards Bush) Remainder of the Farm Welgevonden No. 969, Registration Division FT, Province of KwaZulu-Natal, in extent 300, 1501 Hectares.

- **Tim Hancock Family Trust**
  - Spitzkop 1 and 2 (Spitzkop Nature Reserve Area No. 2, in the process of declaration)
- **Land owned by Ezemvelo KZN Wildlife**
  - Ezemvelo has been donated the land parcel Middeldraai by Wildlands Conservation Trust (WCT).
- **Wildlands Conservation Trust**
  - Dartmoor
- **Land owned by the State**
  - The property Melmoth is owned by the Department of Public Works and is assigned to Ezemvelo.
- **Nyamvubu**
  - Portion 17 of the Farm Bloemendal No 1144, 255.42 ha in extend, situated in the Mooi Mpofana Local Municipality. The Nyamvubu Conservation Trust purchased the Nyamvubu property in 2004 to establish a site for recreational use by the beneficiaries of the Trust, namely the trustees. The Nyamvubu Conservation Trust has nine trustees, each owning and having access to a small residential dwelling. The use of the site and the property is governed by a Use and Occupation Agreement between the Trust and the Trustee. The nine dwellings on the property are centred around an extensive irrigation and fishing dam. The property has an external boundary fence and is bordered by dairy agriculture and timber plantations.
- **Voëlvlei**
  - Voëlvlei Farm, Portion 1 of the farm Burnside No. 4117 (141.6249 ha).



Map 2: Land parcels comprising Karkloof Nature Reserve

1.4.5 Protected area expansion

Karkloof Nature Reserve is a critical component of the protected area system in the midlands region of KwaZulu-Natal, with the potential to form an anchor for further conservation initiatives in the region. Such conservation initiatives must be consistent with national, provincial, and local planning mechanisms.

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) (epartment of Environmental Affairs 2016) 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.

Based on the NPAES, at a national level, Karkloof Nature Reserve is a strategically important protected area that forms a critical nodal point to expand protected area efforts.

The KwaZulu-Natal Protected Area Expansion Plan (2010) identified several un-proclaimed areas within and around the borders of Karkloof Nature Reserve as priorities for protected area expansion (Carbutt & Escott 2010). Many areas around the nature reserve are characterised by high levels of irreplaceability, primarily due to losses of natural habitat within the grassland biome and the individual vegetation types in which they occur. This irreplaceability is also due to the grassland biome, and many of its vegetation types being poorly protected.

Land identified as a priority for protected area expansion may be incorporated into Karkloof Nature Reserve through land acquisition, or it may be statutorily protected through stewardship agreements established with individual landowners. The model applied to the management of Karkloof Nature Reserve is based on a joint venture between private landowners, Ezemvelo KZN Wildlife as the management authority and Non-governmental Organisations.

In principle there are currently two different mechanisms available for private landowners or NGOs to incorporate additional land into the Karkloof Nature Reserve, thereby allowing for expanding the reserve's boundaries. The first method is through the Biodiversity Stewardship process or alternatively the second method entails making a direct application through to the Co-Management Committee, Ezemvelo's Regional Operational Committee and Executive Committee for consideration. Figure 3 outlines the first methodology, namely through the Stewardship process. Alternatively, applications can be submitted through the Co-management Committee to Ezemvelo KZN Wildlife's regional and executive committees.

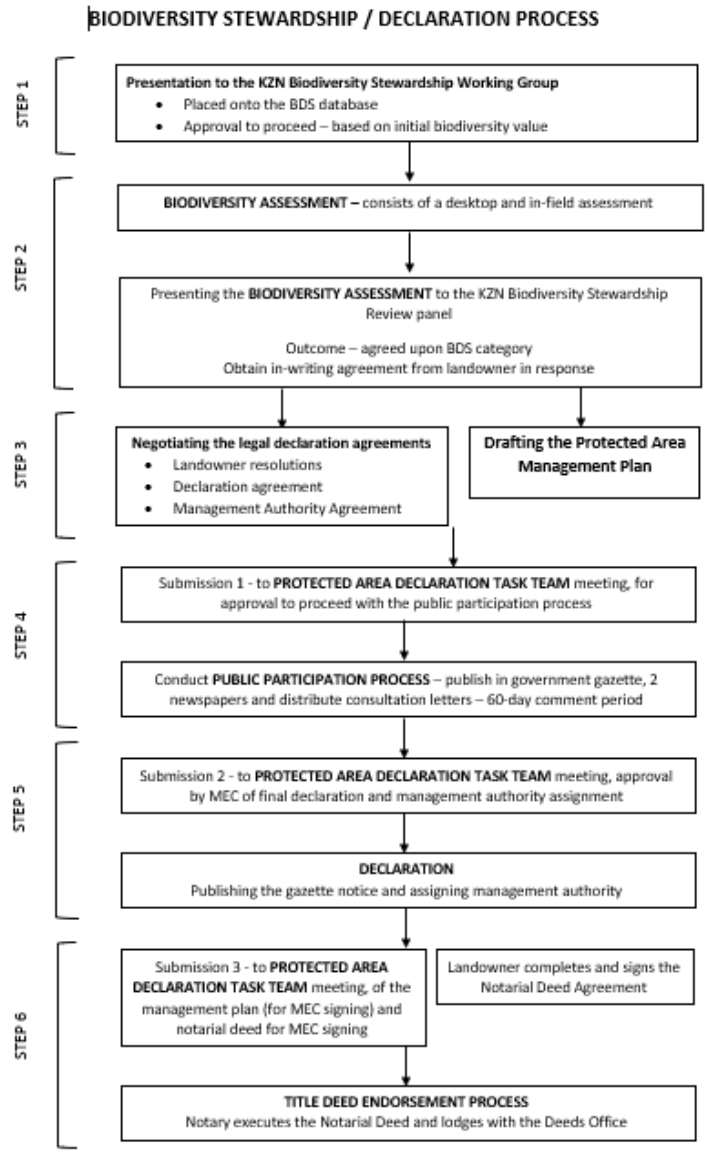


Figure 3: The process Biodiversity Stewardship process[3]

1.5 ECOLOGICAL ASPECTS

1.5.1 Climate

The Karkloof area has very defined seasonal climatic patterns with significant ecological and management implications. Rainfall (average is approximately 900 mm per year) mainly occurs during the spring and summer seasons (Figure 4). It is associated with frontal conditions that lead to gentle soaking rains in spring. In summer, rain

[3] Provided by the Director of Conservation Outcomes

is associated with large convectional storms and is often very intense and accompanied by hail. It is not uncommon for more than 50 mm of rain to fall in an hour. Such rain can be very destructive in areas where the vegetation cover has been lost, leading to significant episodic soil erosion. This emphasises the importance of sound management and the role that wetlands play in moderating episodic river flow.

Winters are generally very stable climatically, characterised by cold, dry conditions and heavy frosts as temperatures regularly sink several degrees below zero. These conditions lead to a near-complete die-off of all above-ground plant material in the grasslands, resulting in a large amount of flammable material.

The primary management concern in winter is the strong frontal systems that push in from the south-west of the country. These fronts are preceded by powerful pre-frontal winds that warm as they descend from the Drakensberg escarpment and, because of the dominance of dead grass in the area, create a very significant fire risk across this part of the province (low humidity, high temperature, high oxygen (wind, dry fuel). A system of firebreaks is required to be established in autumn to meet legal and practical requirements for fire protection, especially in the context of Karkloof Nature Reserve, which is surrounded by commercial timber estates that are prone to fire damage. Negligence in fire protection can lead to massive lawsuits if neighbouring properties suffer losses.

Importantly, although significant effort must be made to ensure fire risk is minimised, fire is a crucial aspect of the ecology of these grasslands and must be considered a legitimate management tool to ensure their continuous function.

The frontal systems, when they arrive, result temporarily in very cold conditions and occasional snow. Depending on the intensity of the front, livestock and game animals, already in poor condition due to the winter nutritional bottleneck, can suffer significant mortality if they do not have access to sheltered habitats to escape these conditions.

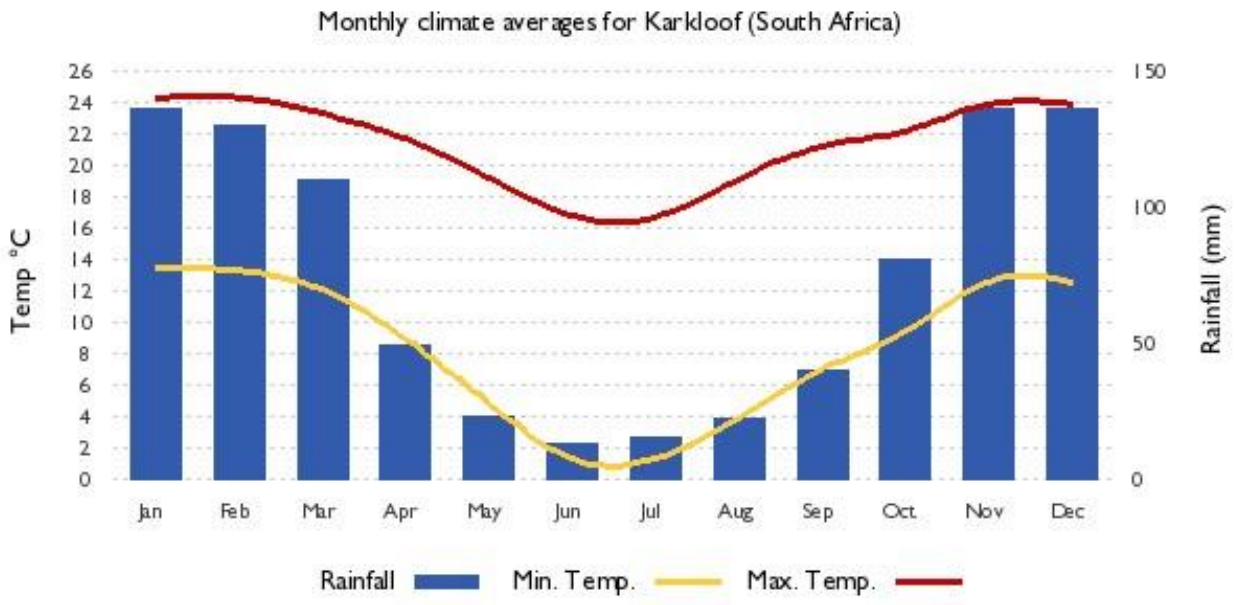


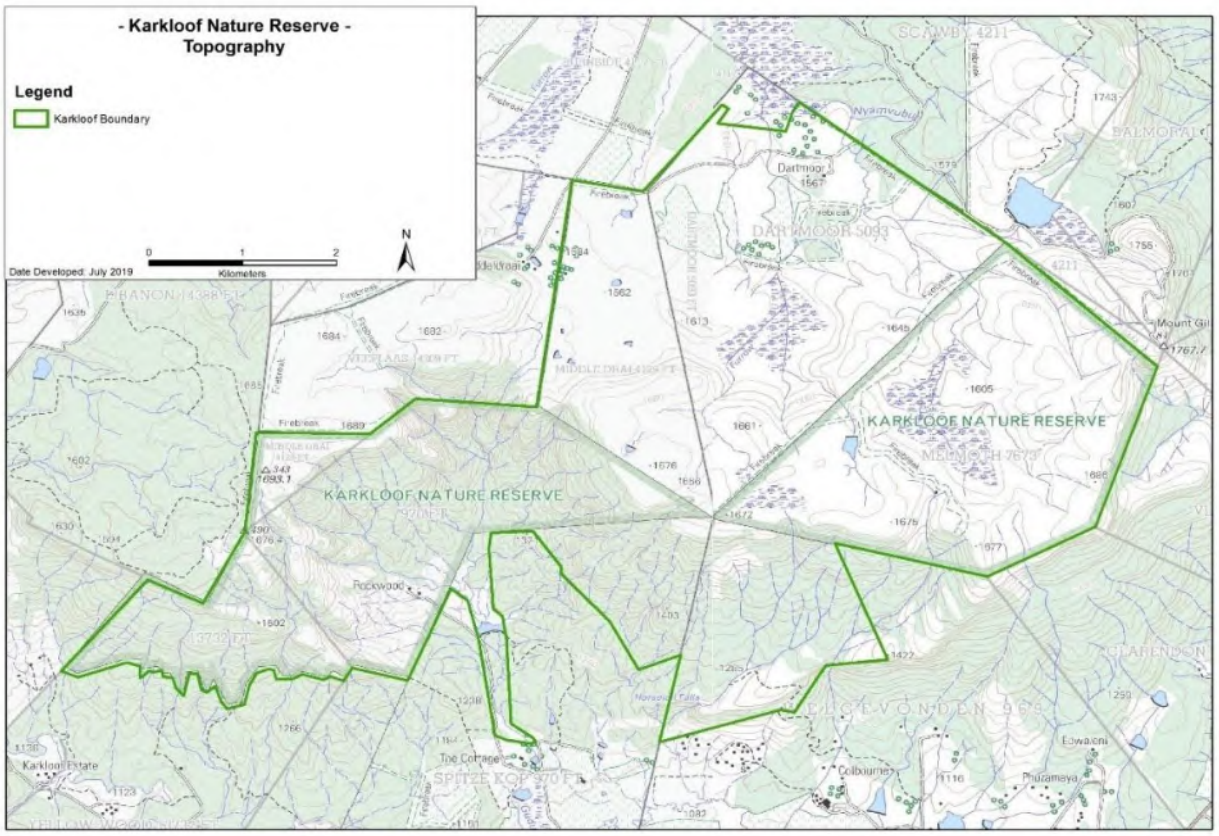
Figure 4: Monthly climate averages

1.5.2 Topography

Karkloof Nature Reserve is characterised by a large diversity of habitat split between a moderately undulating grassland plateau (about 1 500 m) that slopes gently upwards towards an east-west orientated ridge (about 1 600 m) that descends very steeply to about 1 200 m through heavily forested south-facing slopes (Map 3). At 1 725m, the highest point is near the peak of Mount Gilboa, on the eastern border and falls just outside of the nature reserve boundary.

The nature of the topography essentially splits Karkloof Nature Reserve into two primary management zones: a northern grassland plateau and a southern forest section. This natural split has significant implications for

management as it prevents adequate staff mobility across the reserve and forces a 1.5-hour drive out from the south section to access the northern section.



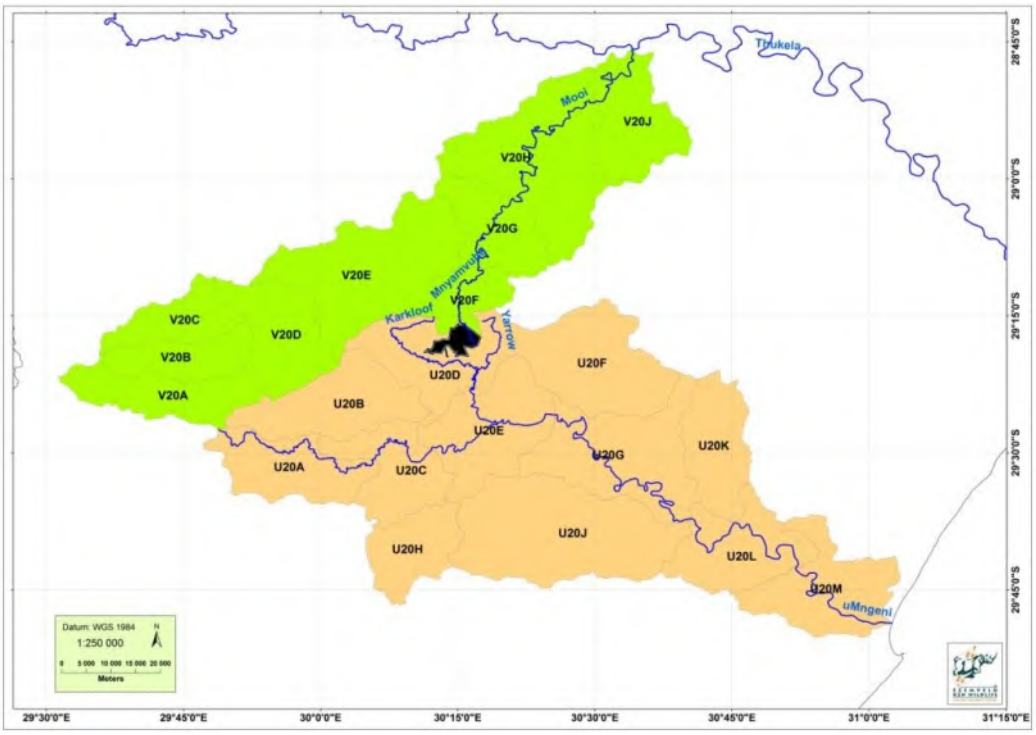
Map 3: Topography of Karkloof Nature Reserve

1.5.3 Hydrology

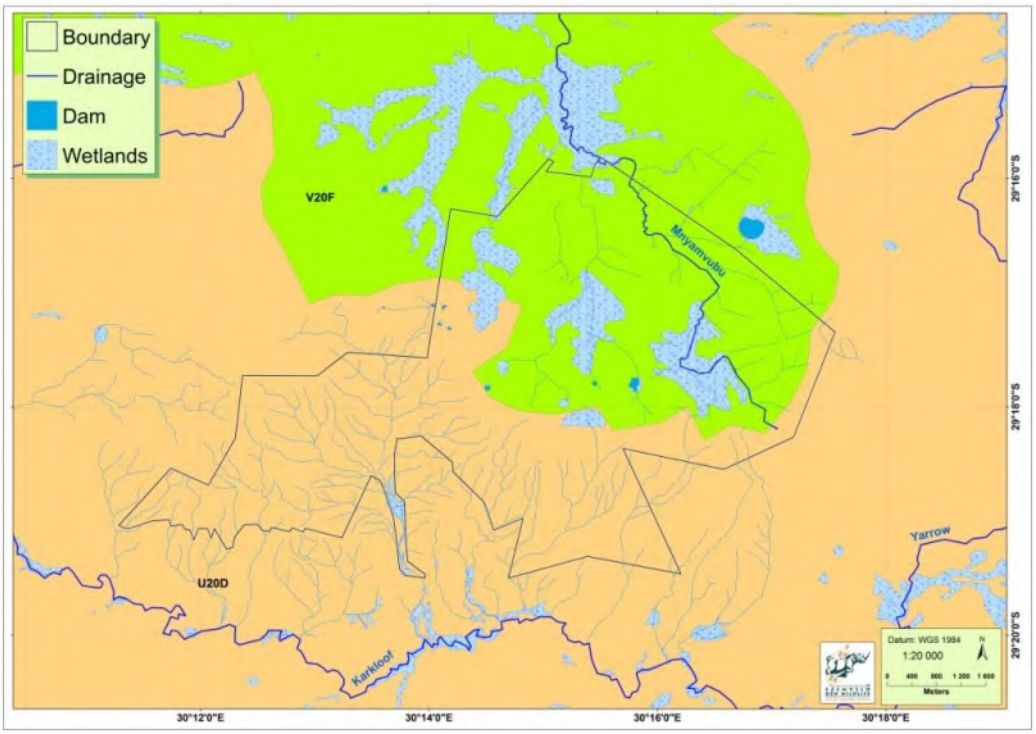
Karkloof Nature Reserve lies in the upper catchments of two provincially strategic river systems, the uMngeni and uThukela, which have many downstream users, including the major urban centres Hillcrest, Pinetown and Durban (Map 4). The hydrological security of these systems is of vital importance as water resources become increasingly pressurised. The northern plateau of the nature reserve drains northwards into the mNyamvula River, which flows into the Mooi River and then into the uThukela River.

South of the central ridge of Karkloof Nature Reserve, the drainage flows into the Karkloof River, which joins with the Yarrow River and then into the uMngeni River that discharges into the Indian Ocean north of Durban. Several major dams along the uMgeni River (below where the Karkloof water enters the uMgeni) provide water for the major urban centres, including Albert Falls, Nagle, Shongweni and Inanda.

Within the northern plateau of Karkloof Nature Reserve, several large wetlands, including unique peat bogs in the Nyumbhakazi Vlei (Melmoth section), provide the stable hydrological flow in the Nyamvubu River and vlei (Maps 4 & 5). The wetlands within the nature reserve cover a combined area of almost 300 ha, which is very significant.



Map 4: Regional drainage in Karkloof Nature Reserve



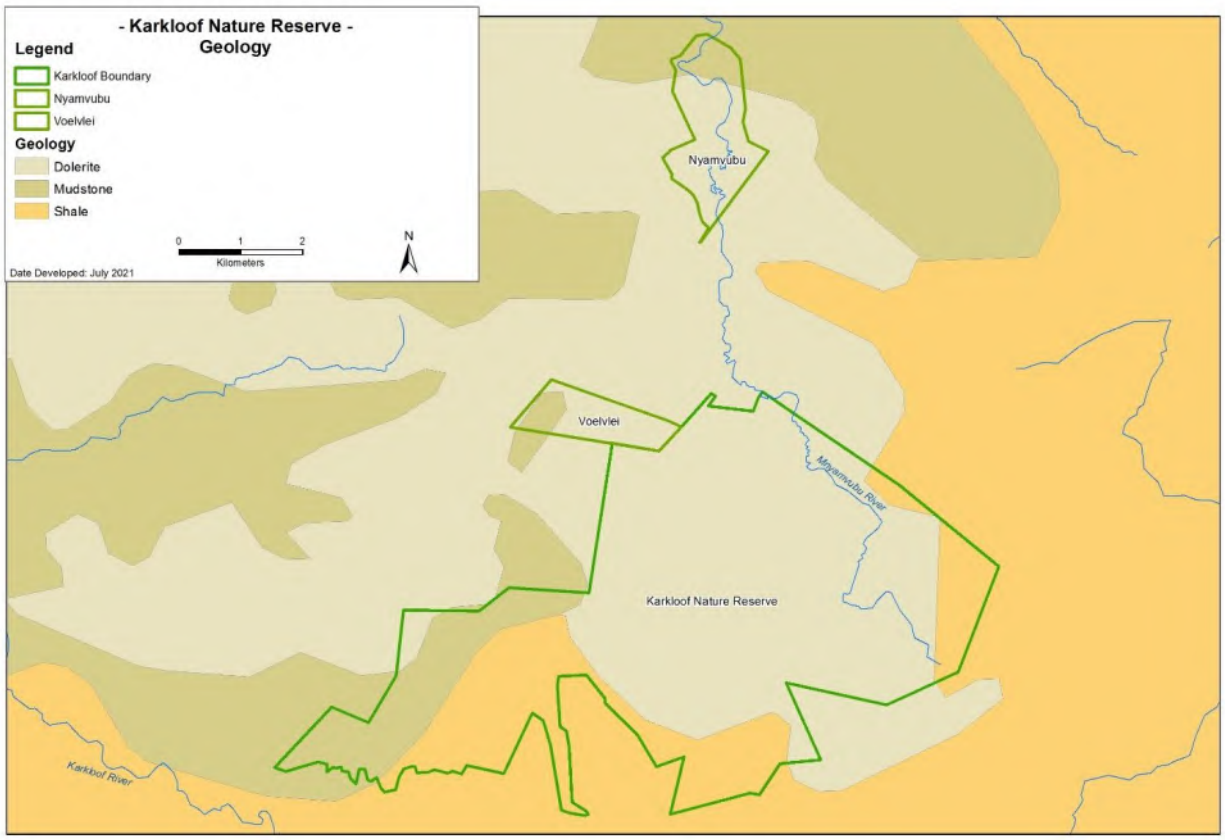
Map 5: Hydrology of Karkloof Nature Reserve[4]

[4] Light green is part of the uThukela catchment; light brown is part of the uMngeni catchment.

1.5.4 Geology and soils

Karkloof Nature Reserve has three different rock types that lead to significantly different soil types (Map 6). This diversity of underlying rock and soil is essential as it allows a greater diversity of plant and animal species to coexist within the nature reserve.

On the plateau to the north, the soils are derived primarily from the fine-grained doleritic rocks of igneous origin. These soils are generally very fertile and stable. There will be shifts from deeper soils in the lower-lying areas to shallower and rocky soils near the ridges. There are large areas where the bedrock is exposed, leading to very rocky grasslands. These are very important as refugia from fire and grazing due to their inaccessibility and natural fire protection. The remainder of the reserve, and especially the lower-lying areas, are dominated by shales and mudstones of sedimentary origin.



Map 6: Geology of Karkloof Nature Reserve

1.5.5 Vegetation

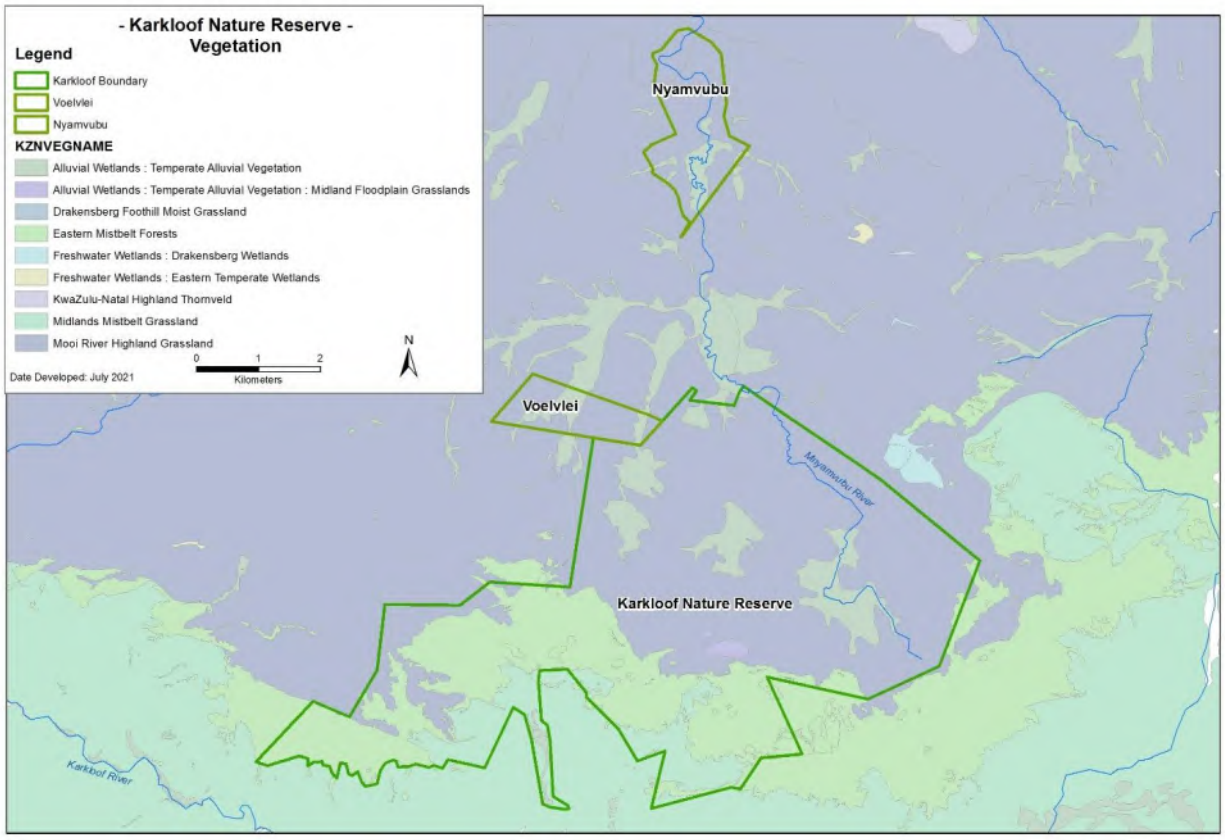
Karkloof Nature Reserve has three main vegetation types: two grassland types and one forest type, according to the KZN Vegetation map 2009 (Map 7) developed by Ezemvelo KZN Wildlife, based on the National vegetation map (Mucina, Rutherford & Powrie 2018).

The Midlands Mistbelt Grassland is an Endangered grassland type that has lost almost 80 % of its original extent. The remainder is highly fragmented due to development pressure, and any remaining portions are of high conservation significance. Karkloof Nature Reserve has approximately 430 ha, comprising 32 patches in and around the indigenous forests on the south-facing slopes below the escarpment. The largest patch is 187 ha, and the average patch size is 13.5 ha.

The Mooi River Highland Grassland (Vulnerable) occurs in KwaZulu-Natal and the Eastern Cape in a broad arc of Drakensberg piedmonts (gentle slopes leading from the foot of mountains) that includes areas such as Bergville, Nottingham Road, Impendle, Bulwer, Kokstad, Mount Currie, Underberg, the surrounds of Mount Fletcher, Ugie,

Maclear and Elliot at altitudes between 880-1 860 m (Mucina et al. 2018). Karkloof Nature Reserve contributes a large contiguous portion of this grassland type (ca. 1881.34 ha) and adds almost 1.5 % to the provincial target. Appendix 3 contains the species list for plants in Karkloof Nature Reserve.

The Eastern Mistbelt Forest (Endangered) has a limited distribution in South Africa. Karkloof Nature Reserve contains a very large patch of this forest and sits squarely across the line of forest patches that stretch from SW to NE of the province, providing security to a significant portion of this linkage. The nature reserve contributes over 3% to the provincial target.



Map 7: Vegetation of Karkloof Nature Reserve

Both grassland types are considered sourveld. Most sourveld communities are thought to be relatively ecologically stable, generally having a dense grass cover, soils that are not particularly susceptible to erosion and a relatively high and reliable rainfall regime (O'Connor & Bredenkamp 1997).

Although sourveld grasslands are now primarily utilised for livestock farming, it is unlikely that grazing was historically a significant factor affecting the plant dynamics of these areas (Hardy et al. 1999). This is because the density of herbivores before European colonisation was in all likelihood substantially lower than it is today, primarily because of the poor quality of forage during the winter months (Hardy et al. 1999). O'Connor (2005) estimates that current stocking rates in these areas are six to 20 times greater than during pre-settlement times, and grazing regimes are no longer dominated by small-bodied antelope species but by substantially larger livestock spatially restricted in their movements in the landscape. As a result, most sourveld areas of grassland now experience markedly greater grazing and trampling pressure than would previously have been the case (O'Conner 2005). Due to increased grazing pressures, and possibly altered frequencies and intensities of fires, the community composition and ecological structure of many sourveld areas may have been significantly altered (Hardy et al. 1999).

It is noted that localised historical grazing by livestock (prior to the establishment of Karkloof Nature Reserve) may have negatively impacted on the reserve's species composition and ecological processes of the veldt. Any discussions

about the future use of livestock in the nature reserve must therefore take this into consideration and such activities must only be permitted if the impact can be fully mitigated with the overriding principle being to re-establish the species composition and ecological processes.

1.5.6 Fire regime

Several plant species in areas prone to frequent intense fires have evolved adaptations in response to fire, indicating its historical evolutionary role (O'Conner 2005). Fire appears to affect many aspects of the ecology of grasslands, including seedling establishment and survival, and the effects of fire appear not only to be short-term but may be longer-lasting, depending on subsequent climatic conditions and grazing regimes (Snyman & Cowling 2004).

It appears that the frequency, intensity, seasonality and spread of fires in Karkloof Nature Reserve have increased in recent years. Currently, extensive unplanned fires occur across much of the grassland plateau every year, leading to a homogenous burnt state, which is ecologically undesirable. In contrast, on the Nyamvubu portion of the reserve, fire has been infrequently used, with very few, if any, uncontrolled fires. This is likely to have had detrimental effects on the ecology of the grasslands and may have led to altered vegetation species composition and abundance. Furthermore, such unplanned fires pose a significant risk for neighbouring properties, particularly the forestry estates. Therefore, it is desirable to ensure a less frequent and more intensive burning regime in the future, with the Nyamvubu portion implementing a planned burning programme, in line with the broader reserve management. The reserve developed and are currently implementing Fire Guidelines for Karkloof Nature Reserve (2018) to ensure effective burning and legislative compliance. This subsidiary document provides for a process to facilitate specialist input into the burning programme with Ezemvelo's Ecological-Advice staff assessing conditions and areas to be burnt through an annual pre-burn inspection.

1.5.7 Alien and invasive species

There are significant challenges for invasive plant species control in Karkloof Nature Reserve. In the grassland plateau, there are small areas of wattle concentrated in the northeast section of the nature reserve, some of which have been cleared but not restored and rehabilitated to grassland. Invasives in the un-cleared areas should be eradicated as soon as possible to prevent their expansion down the river system.

However, the primary problems in the grassland plateau lie with the more insidious American Bramble (*Rubus cuneifolius*) that invades grasslands that have been disturbed or degraded. It is very difficult to delineate the extent of this infestation from aerial photography, and the management implications are thus unknown until ground-mapping has been done.

The alien infestations are much more severe in the forest/grassland section to the south of the central ridge. There are many forest glades (small patches of grassland surrounded by forest) that have not been burnt and are currently heavily infested with woody invasive species such as gums, pines, wattle, blackwood, bramble, bugweed and others. These areas are difficult to access and monitor and are largely ignored. The proximity of these areas to commercial timber plantations makes the likelihood of ongoing infestation very high.

The presence of Wandering Jew (*Tradescantia fluminensis*) within the forest represents a significant threat to the long-term ecological dynamics of the forest ecosystem. Pom pom weed (*Eupatorium macrocephalum*) occurs in the valley below the reserve and represents a significant risk to the reserve.

Although efforts have been made to control alien invasive plants within the nature reserve, which have included the involvement of Working for Water, a concerted, systematic programme to control invasive vegetation has not yet been implemented. This results from the staff capacity issues, and the reserve manager has not been appointed. As a result, it is most likely that the infestations of invasive plant species are spreading, and unless an intensive control programme is initiated and implemented, the problem will continue to grow and ultimately become prohibitively expensive.

A recently identified threat is the presence of fallow deer and this will be taken up with the unit dealing with alien and invasive species.

Process for permission to release biocontrol agents.

Biocontrol is a method of controlling pests such as insects, mites, weeds and plant diseases using other organisms. It relies on predation, parasitism, herbivory, or other natural mechanisms but typically involves an active human management role.

The process for permission to release biocontrol agents requires one to contact the responsible Authority, such as the Agricultural Research Council (ARC) Plant Health and Protection Programme (PHP) - www.arc.agric.za/arc-ppri/Pages/ARC-PPRI-Homepage.aspx in Pretoria but they also have an office at Cedara. The ARC would provide expert guidance regarding the necessary process to be followed regarding the use of biocontrol agents. There is also a Centre for Biological Control (CBC) which is based at Rhodes University in Grahamstown. Before biocontrol agents are released at any site, they are studied for an extended period by the responsible Authority to ensure that they only target the invasive vegetation concerned and not indigenous vegetation.

1.5.8 Mammalian fauna

The significant diversity of habitats provides for various mammal species in Karkloof Nature Reserve. The Endangered Oribi (*Ourebia ourebi*), Least Concern Common Reedbuck (*Redunca arundinum*), Mountain Reedbuck (*Redunca fulvorufula*), Grey Rhebuck (*Pelea capreolus*), Bushbuck (Tragelaphus sylvaticus), Grey Duiker (*Sylvicapra grimmia*), the Vulnerable Blue Duiker (*Philantomba monticola*), the Vulnerable Tree Hyrax (*Dendrohyrax arboreus arboreus*), and the Vulnerable Samango Monkey (*Cercopithecus albogularis*) occur within the reserve. However, uncontrolled hunting in the past has led to a depletion of their numbers or even extirpation. Although this is not part of their natural range, blesbok (*Damaliscus pygargus*) has been introduced into Karkloof Nature Reserve.

Mammalian Herbivore Management in Karkloof Nature Reserve

Except for the Blesbok and the Oribi, the other large mammals should be managed according to a "***No Management***" Management Strategy at Karkloof Nature Reserve. The population numbers of these mammalian species can be allowed to achieve ecological carrying capacity without knowingly endangering other important biodiversity components in the protected area. This is because it is believed that the essential ecological processes responsible for establishing the equilibrium between these species (e.g. Reedbuck, Serval, Caracal, Genets, Jackals, Samango Monkey, Leopard, Aardwolf, Brown Hyena, Blue Duiker, Honey Badger, African Striped Weasel, etc.) and their resources are primarily intact at Karkloof Nature Reserve.

In terms of the blesbuck numbers, the maximum saturation number of Blesbok within Karkloof Nature Reserve is 158 individuals (in accordance with Ezemvelo Stocking Rate guidelines). However, due to the sensitive nature of this grassland (because of historical grazing by livestock) and the selective feeding behaviour of this species, the Blesbok population numbers should be managed according to a "***Biodiversity Management***" Management Strategy, which entails a Fixed Upper Limit (FUL) of 100 individuals. Whenever the Blesbok population exceeds 100 individuals, it should be harvested, either dead or alive. The removal of such game would need to consider surrounding landowner upon which the animals moved and be through the Co-management Committee, Ezemvelo KZN Wildlife's Regional and Executive Committees. Currently a process has been initiated to re-evaluate the management of the blesbok population with due consideration of game and livestock numbers as well as potential impacts on important species such as Oribi.

The Oribi should be managed according to a "***Conservation Management***" Management Strategy, whereby live removal of a proportion of a population may be undertaken explicitly for establishing additional populations within the species' natural range once the numbers have exceeded the conservation target. The removal of such game would need to consider surrounding landowner upon which the animals moved and be through the Co-management Committee, Ezemvelo KZN Wildlife's Regional and Executive Committees.

Due to the poor forage quality of this sourveld grassland (i.e. Mooi River Highland Grassland) on the plateau of Karkloof Nature Reserve, it is envisaged that the population performance of Oribi will be limited by the forage quality and availability of preferred forage. In the absence of reliable population monitoring data at present, it is suggested that an initial conservation target for the species be conservative and set at 20 individuals, followed by annual population monitoring, which would provide sufficient data over time to enable an adaptive management approach for this species. Such data would indicate whether the initial target should be adjusted upwards or downwards.

Predators include the Vulnerable Leopard, Near Threatened Serval, Near Threatened Brown Hyena, Least Concern Caracal, Black-backed Jackal and the Large-spotted Genet. Sightings have also been reported of the Aardwolf along the boundary of Karkloof Nature Reserve by Donna Lay of the Wildlands Trust.

Warthog, African Striped Weasel and Bushpig have also been recorded in the Nature Reserve. Warthog would not have occurred naturally at Karkloof Nature Reserve, so their presence in the Nature Reserve would have resulted from their introduction on the neighbouring farms. Sightings of alien species such as Fallow Deer (e.g. more than seven individuals) has been reported in the vicinity of Middeldraai and Dartmoor sections of Karkloof Nature Reserve[5].

Appendix 3 contains the species list for mammals in Karkloof Nature Reserve. The strategies to manage these animal species are contained in Table 10.

1.5.9 Fish

The Nyamvubu Dam has been reported to be stocked with alien fish species such as the Bluegill (*Lepomis macrochirus*), Largemouth Bass (*Micropterus salmoides*) and both Brown Trout (*Salmo trutta*)as well as Rainbow Trout (*Oncorhynchus mykiss*)[6]. These fish species are highly likely to be present in the Nyamvubu River.

Bluegill, which is also known as "Bream/Brim", is an omnivorous fish native to North America and lives in streams, rivers, lakes, and ponds, whereas the Largemouth Bass is a predatory freshwater gamefish that is native to the eastern and central United States, south-eastern Canada and northern Mexico, but widely introduced elsewhere.

The Rainbow Trout is native to the cold-water tributaries of the Pacific Ocean in Asia and North America, whereas the Brown Trout is a European species of salmonid fish that has been widely introduced into suitable environments globally. Both the Rainbow Trout and the Brown Trout are carnivorous. Stocking of alien fish will not be permitted in future.

1.5.10 Herpetofauna

Karkloof Nature Reserve is likely to provide habitat for several frog species, and six species have been recorded there. There are four species of fish recorded, although one is the alien invasive Brown Trout. Three snakes and four other reptiles have been recorded, including the natal midlands dwarf chameleon. However, Rinkhals (*Hemachatus haemachatus*), Puff Adder (*Bitis arietans*), Boomslang (*Dispholidus typus*) and the Mozambique Spitting Cobra (*Naja mossambica*) have been sighted at Karkloof Nature Reserve, although their records have not been captured into the Biodiversity Database yet.

1.5.11 Avifauna

Karkloof Nature Reserve provides an important breeding site for the Critically Endangered Wattled Crane (*Bugeranus carunculatus*), with no fewer than three breeding sites within the boundary (five historic). The Nature Reserve also provides foraging habitat for the Endangered Grey Crowned (*Balearica regulorum*) and the Blue Cranes (*Anthropoides paradiseus*), according to the Endangered Wildlife Trust (EWT) Breeding, Sighting & Mortality Databases, March 2011.

The Karkloof Nature Reserve also provides the opportunity to rehabilitate previously drained wetlands to attempt to attract new breeding pairs of Wattled Cranes to use the five historic breeding sites. Active rehabilitation of these nests may also need to be explored. The Critically Endangered Cape Parrot (*Poicephalus robustus*) and the Vulnerable Grass Owl (*Tyto capensis*) have also been recorded in the Karkloof Nature Reserve. There are over 185 bird species listed for Karkloof Nature Reserve, making the area a likely hotspot for birders. A detailed bird species list is contained in Appendix 3.

1.5.12 Invertebrates

Invertebrate fauna constitutes the most significant species diversity component in natural systems, but they are usually poorly understood. However, in terms of biodiversity and the provision of ecosystem services, it is essential

[5] Gavin Hill *pers. comm*. 2021
[6] Clark *pers. comm*. 2021

to acknowledge that invertebrates are fundamentally important. Among the most critical invertebrates recorded at Karkloof Nature Reserve are Three-coloured millipede, Silver-barred Charaxes (*Charaxes druceanus*), Natal Amakosa Rocksitter, Karkloof Pondoland wingless Grasshopper, Karkloof forest wingless grasshopper, Ornate woolly fruit chafer, KwaZulu-Natal fungus gnat, Harrison's small canthonine dung beetle, Armstrong's corrugated-wing robberfly, Harrison's small canthonine dung beetle (KZN Endemic & Restricted in KZN), and Pennington's Forest-king Charaxes (KZN Endemic), to mention just a few.

Over 80 species of invertebrates have been recorded in Karkloof Nature Reserve, although there are likely to be a great many more as the sampling effort is quite limited presently. The diverse habitats in the Nature Reserve will provide an opportunity for a very high diversity of grassland, wetland and forest species. Although conservation management may not focus on any of these species, it is essential to note that broad management activities, especially fire, have great potential to cause local extirpation of some narrow-distribution invertebrate species.

1.6 CULTURAL ASPECTS OF KARKLOOF NATURE RESERVE AND SURROUNDS

The KwaZulu-Natal Amafa and Research Institute conducted a cultural heritage survey to identify the cultural heritage features in the Karkloof Nature Reserve and determine their importance and provide guidelines for the effective management of these cultural heritage resources. The Institute developed the Karkloof Nature Reserve Cultural Management Plan in 2020, and the plan is currently in the process of internal consultation. Upon adoption, this plan will be a subsidiary plan to the management plan and will guide cultural heritage management in the protected area. Management recommendations are incorporated in the monitoring schedule (See Appendix 4) and the Annual Operations Plan (AOP). The following is an extract from this plan highlighting the cultural heritage features of the area.

The survey found that the majority of the heritage sites centred around the forestry industry. The following aspects were highlighted in the cultural heritage plan for Karkloof Nature Reserve:

- *Any collection of artefacts (potsherds, pots, upper- and lower grinding stones from the Iron Age; pieces of broken saucers, cups, cutlery, pieces of broken farming equipment of the settler period; old building material such as mud/green bricks) will require a permit from the KZN Amafa & Research Institute.*
- *No metal detector, ground penetrating radar or any instrument may be used to find and collect artefacts without a permit from the Institute's Council.*
- *Contact/Historical archaeological sites such as yellowwood saw-pits and draglines must be conserved cognizant of the role that commercial forestry played in the founding and development of the Karkloof and Howick areas.*
- *No planting of trees may take place within a yellowwood saw pit or on a dragline.*
- *Trees adjacent to saw pits should not be removed as the roots stabilise the yellowwood pit, and removal could lead to walls collapsing.*
- *A future endeavour to be investigated could be developing a brochure on the yellowwood sawpits and draglines or adding information regarding the historical significance of these features to relevant websites for educational purposes. A further phase could be to develop a historical meander for vis*
- *The condition of the sawpits and draglines must be incorporated in the monitoring programme for Karkloof Nature Reserve and into the Annual Operations Plan to be implemented on a bi-annual basis.*

There are informal graves and graveyards inside the Karkloof Management Nature Reserve on Middle Draai farm. The following graves were found in the boundaries of Karkloof Nature Reserve:

- *Seven informal graves at the Mchunu family house on the farm Dartmoor. A buffer of 5metres must be implemented around the site.*
- *The informal grave of one of the first Vermaaks on the property Middle Drai.*

The built environment in Karkloof Nature Reserve consists of:

- *The old ruin on the farm Dartmoor belonging to Wildlands Conservation Trust, and the school and mill ruin on the farm Rockwood belonging to the Hancock family.*
- *Dam walls of rock or concrete older than 60 years.*

1.7 SOCIO-ECONOMIC ASPECTS

The area surrounding Karkloof Nature Reserve is entirely privately owned, with a combination of individual landowners and corporate timber growers (Sappi and Mondi). Farming in the area relies primarily on livestock, with limited arable land being used for growing fodder. Timber plantations, mostly gum and pine, have also been planted.

Commercial livestock farming is generally compliant with grassland conservation objectives, except where over-stocking and poor rotation practices cause degradation of the grasslands. Thus, the neighbouring farms represent a significant opportunity to extend the boundary of Karkloof Nature Reserve through a stewardship approach or the incorporation of private land through internal Ezemvelo processes. A Zone of Infuence (ZoI) has been developed as part of the conservation development framework and zonation of the reserve that will facilitate sound neighbour relations and appropriate land use and water use on the periphery of the reserve.

Timber growing and arable practices have a significant impact within their footprint (i.e. complete transformation from grassland). However, their influence can extend some distance from the footprint through the effects of shading, alien plant infestations and general disturbance associated with their management. Furthermore, the implications of having timber-growing neighbours are significant when it comes to being legally compliant regarding the use and control of fire. Negligence can quickly lead to legal action.

Currently, there are two labour tenants with their families living in Karkloof Nature Reserve for which formal agreements do not yet exist.

As provided for in the Spatial Planning Land Use Management Act (SPLUMA) No. 16 of 2013, the municipalities of Mpofana, uMgeni and uMswathi are currently in process of developing Land Use Management Schemes.

Ezemvelo and the Co-management Committee of the Karkloof Nature Reserve have developed a Zone of influence as indicated in Maps 9 - 12 under the reserve zonation. The purpose of the Zone of influence is to identify an external planning domain where management of Karkloof NR must be involved in land and water use planning. It indicates an area where land use can potentially impact on the values of the protected area and where interaction with stakeholders is required to ensure compatible land use. The Zone of influence was delineated based on the following information:

- Threatened ecosystems
- Treatened species
- Critical biodiversity areas
- Corridors
- Crane sites
- Aquatic biodiversity
- Water catchments

The committee, together with Ezemvelo's Bioregional Planner, will engage further with these municipalities to ensure that the requirements for the Karkloof Nature Reserve are incorporated in the schemes.

1.8 STAFF AND FUNDING

Effective operational management within Karkloof Nature Reserve is dependent on its staff and the facilities and infrastructure within the nature reserve. As with most protected areas, the effective management and operation of the nature reserve are dependent on an adequate budget and staff numbers. Karkloof Nature Reserve is currently managed by a District Conservation Officer based in Pietermaritzburg, responsible for two additional nature reserves. The absence of a full-time reserve manager located at the nature reserve raises challenges for the effective management of the nature reserve.

The movement and operations of staff within Karkloof Nature Reserve are made difficult by its topography, which effectively cuts it into two areas accessed by separate entrances over 1.5 hours' drive apart. Furthermore, there is no staff accommodation in Karkloof Nature Reserve, and field rangers and other temporary staff (for example, for fire management) are brought in as required. There is a need for a staff complement and budget for joint operations in the Karkloof Nature Reserve, whilst Ezemvelo needs to provide staff for law enforcement and other critical biodiversity functions. There is a need to do a full assessment in determining the human resource needs for the reserve, find funding to fill vacant positions in order to manage the Karkloof Nature Reserve effectively.

The budget allocation for Karkloof Nature Reserve has diminished substantially over the last three years, and this, with the cumulative impact of lack of staff to manage the area, has an enormous impact on the management of the reserve, as well as reserve management's ability to comply with legislation and implement this management plan. The operational budget varied from R 58 743 in 2016/2017, R 29 005 in 2017/2018, R 101 057 in 2018/2019 to R 2 726 in 2019/2020. This reserve is under-staffed and under-funded, and this presents the biggest threat to the protected area.

1.9 INFRASTRUCTURE

Current management infrastructure in KNR consists of two outposts:

- Qedinsila outpost
- Melmoth outpost comprises four old staff accommodation units (rondawel-type) that are in a state of advanced disrepair and would require significant upgrading to be habitable again.

Bulk infrastructure consists of:

- Approximately 9 km of gravelled road and 18 km of 4x4 tracks.
- Approximately 25 km of 6-strand barbed wire fence 1.2 m high.
- No waste management site – solid waste is burnt and buried at a site near the staff quarters.
- No sewage treatment plant – sewage is processed through septic tanks.
- No water treatment plant – water is pumped from dams into storage tanks.

The current eco-tourism infrastructure consists of two self-catering cottages on the Hancock's Rockwood and Leopard's Bush properties. There are plans for more of these cottages, this will follow the required legislative and internal Ezemvelo processes. Ezemvelo currently has no tourism infrastructure and no plans to develop any.

Nyamvubu portion:

The Nyamvubu portion of the reserve has nine separate residential dwellings, with no intention to construct any further dwellings.

The Voëlvlei portion has a residence and various outbuildings and stables.

1.10 MANAGEMENT EFFECTIVENESS

As with all Ezemvelo protected areas, the intention is to continually improve the management effectiveness of protected areas in line with the levels adopted for all protected areas within the KZN protected area network. In 2010 Ezemvelo KZN Wildlife conducted management effectiveness assessments for all of its protected areas (Carbutt & Goodman 2010), and these assessments have 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. These assessments assist with the following:

- Promote adaptive management
- Improve project planning
- Promote accountability

Such assessments are intended to enable conservation organisations to refine their strategic, system-wide responses to the most pervasive threats and management weaknesses (Carbutt & Goodman 2010). They are not performance assessments of individuals but serve to reflect an organisation's proficiency for protected area management as a whole. The assessments for the Karkloof Nature Reserve are peer-reviewed and evidence-based. During the 2019 METT Assessment, the Karkloof Nature Reserve was scored at 41,61%, which is substantially below the national requirement of 67%.

All properties forming part of the Karkloof Nature Reserve was assessed in 2022 with the following scores:

Management Unit		KZN Wildlife	Thomas Hancock Childrens Family	Wildlands Trust	Sappi	Hancock Family Trust	Nyamvubu	Voelvlei
Area (ha)	3671,9	1118,9	838,1	790,5	197,2	330,2	255,4	141,6
TOTAL (%)	100,00%	50,77%	53,42%	51,52%	65,04%	48,87%	32,65%	20,45%

The issues that have been identified during the METT assessment has been incorporated into the Annual Operations Plan and some of the critical aspects that needs to be addressed include:

- The lack of sufficient financial and human resources and infrastructure and to manage the reserve.
- The above influences several operational areas including fire management, law enforcement and other critical aspects that has been included in the risk assessment below.

1.11 RISK ASSESSMENT

A SWOT analysis was done to establish issues that need to be addressed in the management plan.

Table 3 summarises key management issues, strengths, weaknesses, opportunities, and threats, which will be addressed through this management based on the descriptions and issues highlighted in the sections above.

Table 3: SWOT Analysis for Karkloof Nature Reserve

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
An area of outstanding natural beauty.	No permanent manager on the reserve.	Protected area expansion opportunities exist in the area buffering the reserve.	Encroaching developments on the periphery of the protected area.
Protection of a relatively large proportion of the Endangered Eastern Mistbelt Forest.	Insufficient human and financial resources.	Two wetlands have been previously ploughed using ridge-and-furrows. These should be rehabilitated in partnership with the SANBI Working for Wetlands Programme.	Poaching and illegal intrusions from neighbouring areas.
Conservation of representative portions of Mooi River Highland Grassland (Vulnerable) and Midlands Mistbelt Grassland (Endangered)	Access into the nature reserve is limited and is across various landowner properties. The issue of servitudes needs to be assessed as part of the access requirements for tourism purposes and		Bramble is invading many areas across the grasslands of Karkloof Nature Reserve and although a comprehensive spraying programme has been implemented, ongoing efforts are required.

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
	recommendations must be implemented.		
Protection of several large wetlands, some of which are currently used by cranes for nesting.	Adequate protection of commercial assets around the reserve is an important part of legal compliance in terms of fire management that must be addressed.		Illegal grazing and the presence of stolen cattle is an ongoing problem on the grassland plateau due to inadequate enforcement, although there is some reduction of the issue after negotiations with Mondi.
A diversity of habitat supporting several globally threatened and endemic species, including all three cranes species.	Labour tenants at Middeldrai and Dartmoor do not have formalised agreements in terms of access and livestock.		The management of fire is limited to the most basic of fire protection and large block burns, which deviate significantly from the ecological requirements. Arson fires prevented management from fully implementing the fire management plan.
A large peat bog wetland, which is very rare in South Africa.	Due to inadequate equipment, such as hand-held radios, the ability of Ezemvelo staff to communicate within the nature reserve, with other Ezemvelo operations and neighbouring stakeholders has severely hampered management effectiveness within Karkloof Nature Reserve.		There are large areas where alien trees have been cleared and need active rehabilitation to prevent re-infestation from weeds, severe erosion and fire risk.
Water storage and streamflow regulation functions of the large wetland systems, which are strategically important for the sub-region.	There is a lot of old infrastructure in Karkloof Nature Reserve that is a legacy of the commercial farming era, including stock enclosures, fence lines, stock handling facilities, tanks, etc. Much of this is derelict and needs to be dismantled and removed.		Lack of housing, office facilities and equipment have hampered efforts to ensure adequate staffing levels and management expertise within Karkloof Nature Reserve.

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
Provide opportunities for research.	A lack of facilities and procedures has led to the inappropriate disposal of waste within Karkloof Nature Reserve.		A lack of equipment, staff and supervision within Karkloof Nature Reserve has hampered efforts to properly patrol and undertake effective law enforcement within it and on its boundaries.
A diverse landscape of natural beauty and tranquillity which provide opportunities for low impact tourism e.g. hiking and birding. The area is already recognised as a tourism area but with the potential to become better known.	Lack of strategic partnerships to assist with resources to support the conservation outcomes of the reserve.		The presence of fallow deer in the reserve.
Potential to form an important local destination for species-interest tourists in combination with other protected areas in the surrounding areas.	Lack of a grazing management plan to guide grazing in the reserve.		
Historic value from the recent settler era (1800-1900s) and the pre-colonial area.			

2 STRATEGY

To ensure that the Karkloof Nature Reserve is effectively managed, the following strategic framework has been developed. It aims to provide the strategic basis for the protection, development and operation of the protected area over the next five years. It has been prepared collaboratively by involving stakeholders within Ezemvelo KZN Wildlife, the communities around the protected area, local and provincial government departments and other stakeholders.

The vision describes the overall long-term goal for the operation and is based on the values and the purpose of the reserve. The objectives and goals 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 management sphere. The goals and actions in the Annual Operations Plan set out what is required to achieve the objectives, based on the management issues, strengths, weaknesses, opportunities and threats and described in the section above.

2.1 VALUES

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

The protected area's values, in particular those that underlie the functioning of its ecosystems, will be given the highest degree of protection to ensure the persistence of these systems. Table 5 indicates the values of the Karkloof Nature Reserve.

Table 4: **Values of Karkloof Nature Reserve**

Natural Values	▪ An area of outstanding natural beauty; ▪ Protection of relatively large portion of the vulnerable Eastern Mistbelt Forest; ▪ Conservation of representative portions of t**he Mooi River Highland** Grassland (vulnerable) and Midlands Mistbelt Grassland (Endangered) that are poorly protected throughout t**heir** range; ▪ Protection of several large wetlands, some of which are currently used by cranes for nesting; ▪ A diversity of habitats supporting several globally threatened and endemic species, including all three indigenous crane species; and ▪ A large peat bog wetland, which is rare in South Africa.
Water Security	Water storage and streamflow regulation functions of the large wetland systems, which are strategically important for the sub-region
Eco-tourism	▪ A diverse landscape of natural beauty and tranquillity with low-impact tourism opportunities, e.g. hiking and birding. The area is already recognised as a tourism area but with the potential to become better known; ▪ Potential to form an important local destination for species-interest tourist in combination with other protected areas in the surrounding area; and
Cultural	Historic value from the recent settler era (1800-1900s) as well as the pre-colonial era.
Scientific	Provide research opportunities.

2.2 PURPOSE

The National Environmental Management: Protected Areas Act makes provision for protected areas to be managed for the purpose for which they were established (South Africa 2003). Consistent with Section 17 of the Protected Areas Act, the purpose of Karkloof Nature Reserve is to:

- Contribute to the achievement of Provincial and National protected area targets through protecting a representative portion of the Mooi River Highland Grassland, Midlands Mistbelt Grassland and Eastern Mistbelt Forest, and their associated biodiversity.
- Protect the ecological functioning of the large wetland systems.
- Protect endangered, rare and endemic species indigenous to the area, particularly cranes and oribi.
- Protect the ecological integrity of the area.
- Promote awareness of the beauty and aesthetic value of the area.
- Provide controlled access by the public to the area.
- Provide an eco-tourism destination that contributes to local economic development.

2.3 VISION

Ensure that Karkloof Nature Reserve is recourced to protect and enhance its ecosystems, species and sense of place, supported by sustainable tourism and stakeholder participation through cooperative management, environmental awareness and research.

2.4 OBJECTIVES

A strategic objective has been identified for each of the Karkloof Nature Reserve management spheres. These objectives form the basis for the goals and activities set out based on available resources in the Annual Operations Plan. Table 5 sets out the management spheres and strategic objectives required to realise the vision for Karkloof Nature Reserve.

Table 5: Strategic Objectives to Achieve the Vision of the Karkloof Nature Reserve

Management Sphere	Site-Specific Objective	Objective ID
Legal Context	Ensure that the protected area has secure legal status and is appropriately demarcated to facilitate the effective conservation of the area and implement all legal agreements.	OBJ1
Conservation Beyond Boundaries	Protect the biodiversity and cultural assets by promoting compatible land use, activities and water use in areas surrounding the reserve and facilitating the inclusion of habitats critical for ecological integrity through site expansion and/or creation of corridors.	OBJ2
Integrated Management Planning	Ensure the approved management plan of the protected area remains up to date, that threats and risks are identified annually and mitigated continuously and that the AOP is linked to the management plan and available budget to facilitate adaptive management.	OBJ3
Organisational Structure and Procedures	Ensure that organisational structure and procedures contribute to the management effectiveness of the area.	OBJ4

Financial Management	Provide adequate, secure, accessible, and well-managed funding to enable the reserve's effective protection, development, and management.	OBJ5
Human Resource Management	Ensure that staff capacity, capability and support contribute directly to management effectiveness.	OBJ6
Biodiversity Resource Management	Protect the reserve's ecological integrity through active interventions based on adaptive and ecosystem-based management principles, contribute to provincial and national biodiversity targets, and maintain ecological processes to maximise ecosystem service delivery.	OBJ7
Cultural Heritage Resource Management	Ensure the protection and public appreciation of all cultural and heritage resources within the reserve as per statutory requirements. Ensure that cultural assets are known, targets are set, processes are established to achieve targets, threats are identified and mitigated, and public access and appreciation of the cultural assets are maintained.	OBJ8
Operational Equipment and Infrastructure	Ensure adequate, suitable and well-maintained equipment and infrastructure to support protected area operations.	OBJ9
Compliance	Ensure sufficient staff capacity and capability to effectively control legal and illegal access to the reserve and its resources.	OBJ10
Public Education and Awareness	Implement an awareness approach that reaches a broad range of clearly identified target audiences and focuses on the reserve's values.	OBJ11
Socio-Economic	Focussed interaction and consistent stakeholder involvement to ensure positive relations and support for the reserve whilst facilitating sustainable economic benefits.	OBJ12
Tourism	Maintain sustainable nature-based tourism to provide a high-quality visitor experience whilst promoting the reserve's natural and cultural values. Ensure well-maintained tourism infrastructure that is in line with responsible tourism practices.	OBJ13

2.5 CONSERVATION DEVELOPMENT FRAMEWORK

The purpose of the zonation of Karkloof Nature Reserve is to control the intensity and type of use to ensure the overriding goals of biodiversity conservation are met whilst enabling acceptable levels of eco-cultural tourism and activities. On this basis, the permissible intensity of use within some zones will be relatively higher than in others.

2.5.1 General principles of zonation and development:

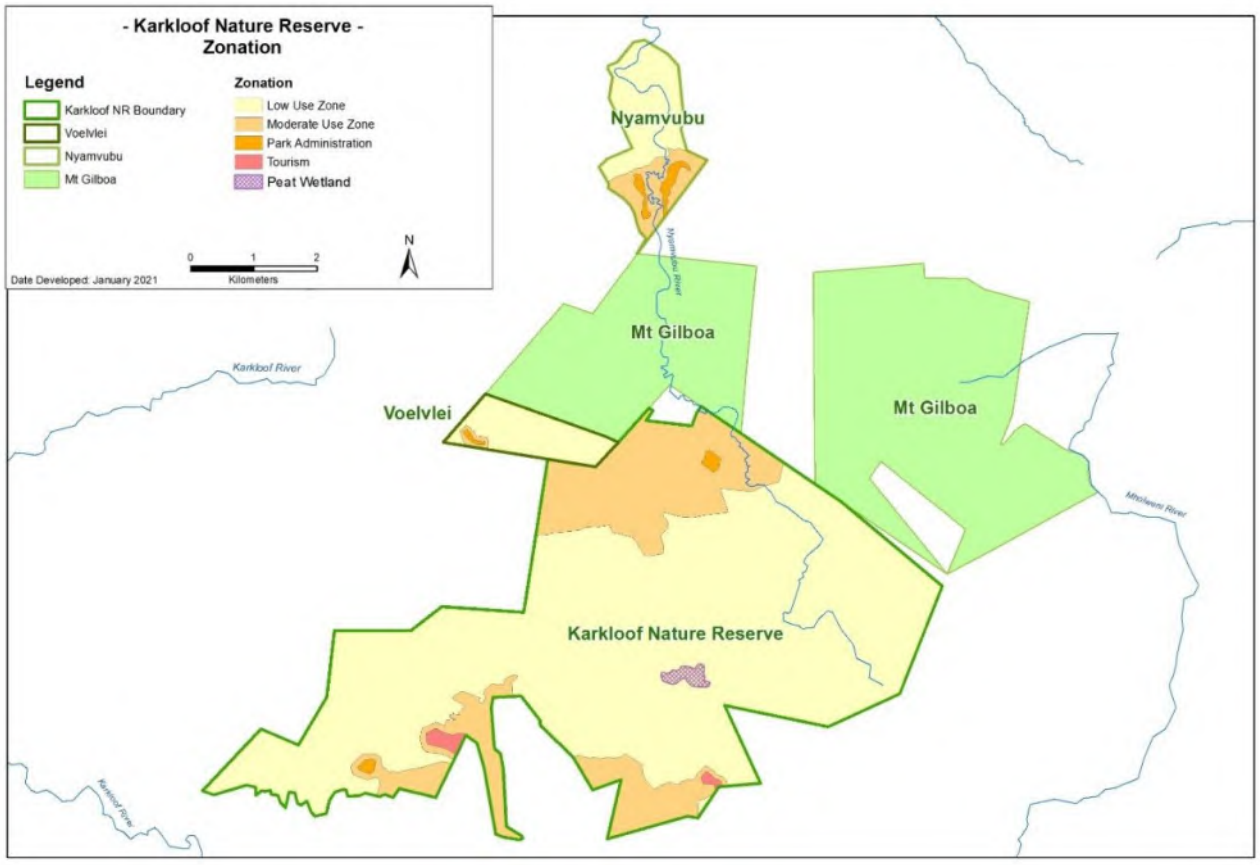
- There is a general gradation in the zonation categories ranging from high to low protection;
- An overlay zone provides additional protection and may be overlaid onto another zone to strengthen the protection, e.g. Key Feature Protection Zone;
- A sub-zone is an area where tourism, management and service infrastructure can be developed, with a specified footprint. In certain circumstances, there may be a need to surgically incise a specific development outside a node based on specific approved (As per deviation process) requirements;
- 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 any zones require approval from the management authority. (DevCo and Operations Committee level);
- Any development/activity and or event request must be assessed for compatibility with the zonation in general and specifically with the conservation objective in the relevant zone;
- Any event request or infrastructure development must be scoped through the internal Ezemvelo DevCo process;
- All activities and/or developments must be per the legislative framework, Ezemvelo KZN Wildlife policies, norms and standards and the local protected area rules and regulations.

Zonation must consider:

- 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 subsequent use level provides a buffer to the lower use level;
- Influence of existing and historic facilities, infrastructure and use; and
- Opportunities and constraints (biophysical, social or managerial constraints) for use.

Zonation (Map 8) 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, reflecting and respecting the reserve's broader conservation and eco-cultural tourism objectives.



Map 8: Zonation Map of Karkloof Nature Reserve

Table 6: Zonation categories for Karkloof Nature Reserve

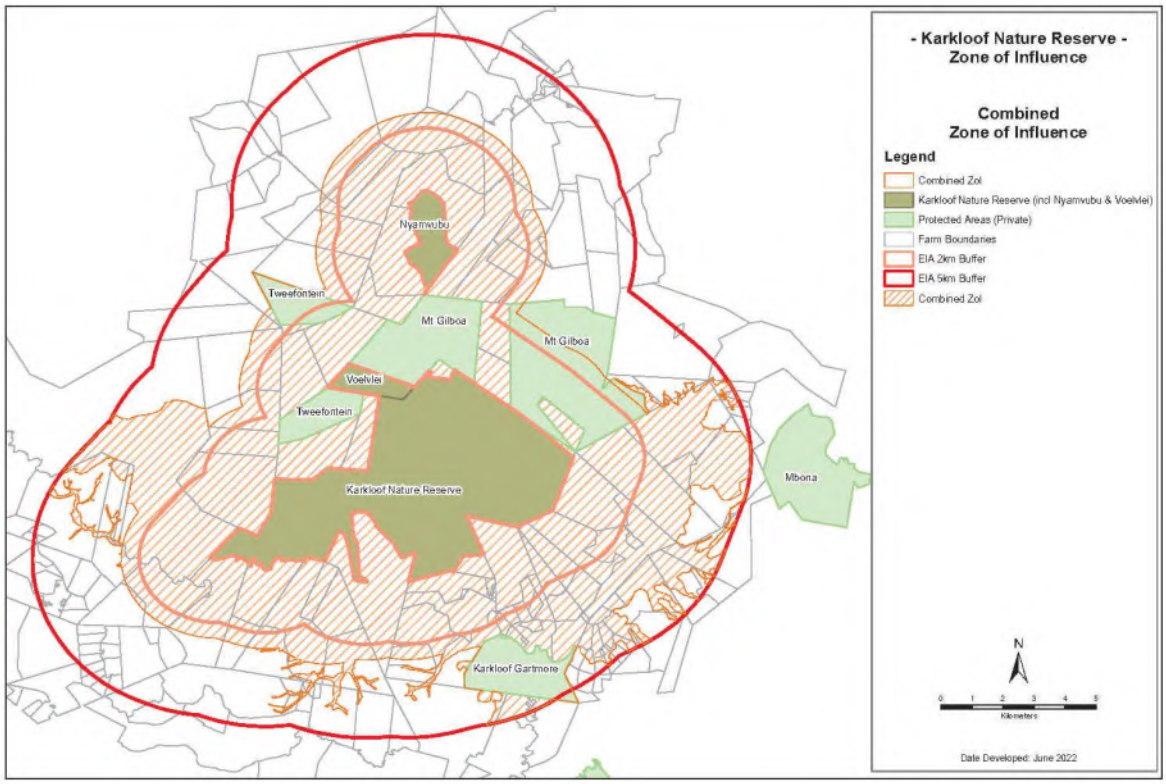
Low use zone	
Description	An ecologically sensitive area where there is little evidence of modification of natural processes and landscapes and where the principles of low human impact will prevail.
Objective	To protect ecologically sensitive areas, undisturbed habitat for wildlife and ecosystem functioning allow limited access and use of the zone whilst limiting its impact.
Activities and infrastructure	▪ Low-intensity self-guided hiking and cycling demarcated by minimal directional signage on formalised but natural pathways and existing roads, provided they are marked and maintained; ▪ Vehicular access exclusively for conservation management purposes and kept to an absolute minimum, e.g. burning fire breaks, or game capture.
Constraints	▪ Departure from the formal trail network; ▪ No vehicular access for recreation; and ▪ Uncontrolled access by livestock.
Moderate use zone	
Description	This zone is less sensitive ecologically or already transformed by historical or current activities and may need to be rehabilitated.
Objective	The overall purpose of this zone is to protect the natural and cultural landscape and allow for the management of the reserve, and the rehabilitation of areas where required.
Activities and infrastructure	▪ Development of ecotourism facilities, comprising rustic or low-level tourism; ▪ Development of Karkloof Nature Reserve's Park Management facilities comprising infrastructure such as entrance gates, staff housing, offices, workshops and storehouses; ▪ House and gardens of existing tenants; ▪ Vehicular access for management and recreational purposes; ▪ Medium intensity self-guided hiking, cycling and nature trails demarcated by minimal directional signage on formalised but natural pathways and existing roads; ▪ Controlled extractive resource use as approved by management.
Constraints and implementation	▪ Unplanned or ad hoc development or management activity; ▪ Vehicles leaving the road network; ▪ 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 zone.
Zone of Influence (ZoI)	
Description	A Zone of Influence is the area outside the boundary of a protected area where activities of people or other influences may negatively impact the purpose, values or objectives and/or efficient and effective management of the protected area and/or continued delivery of tourism and other societal benefits7 from the protected area, and consequently where protected area management seeks to actively engage with stakeholders to promote and retain compatible and prevent or mitigate incompatible activities and use of land.
Objective	▪ Actively promoting and supporting compatible/complimentary land and water uses and activities; ▪ active engagement with relevant stakeholders;

[7] One of the objectives of protected areas, as aligned to government priorities, is to enhance socioeconomic and maintain ecosystem service contribution, particularly for neighbouring communities but to society at large.

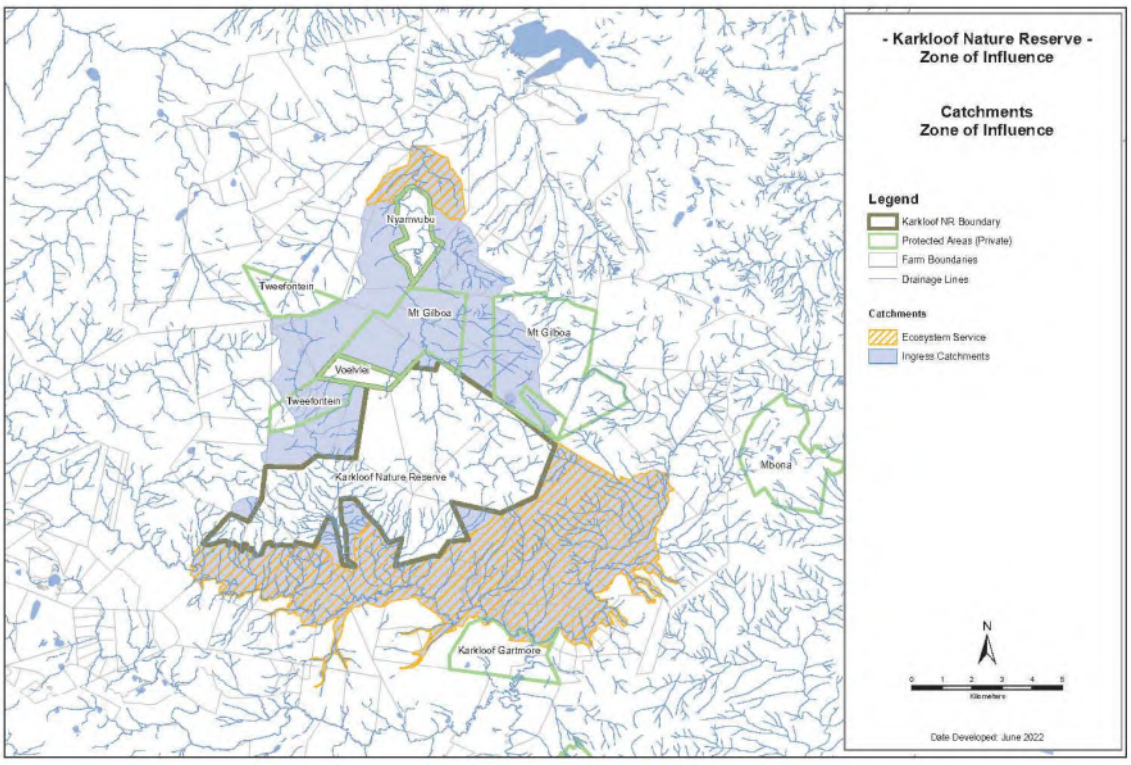
	▪ developing a positive working relationship with municipal planners to achieve sustainable development; ▪ Providing mitigation options for existing incompatible land uses and activities, and alternative development options for planned incompatible land uses and activities; ▪ active engagement with landowners, developers, industry and municipalities; ▪ Foster community/neighbour and stakeholder support for the protected area; ▪ active awareness, education and promotion of the protected area with the relevant stakeholders; ▪ Facilitating sustainable benefits to neighbouring communities and landowners;
Technical delineation	The Zone of Influence has been identified for Karkloof Nature Reserve, including Nayamvubu and Voelvlei properties recently incorporated in the Karkloof Nature Reserve. Critical external influences (activities and land use) that may threaten the achievement of the purpose, values and management objectives of the Karkloof Nature Reserve protected area and/or may impact on management effectiveness. **Site-Specific delineation:** ***Catchment*** Catchments which have influence on or are influenced by the KNR, via surface water flow were identified as an area that needed to be influenced by the KNR management. In this regard catchments which feed surface water flow into the NR and catchments which flow out of the nature reserve were identified and mapped. ***Species habitat*** Cranes Nest points taken from various wattle crane datasets and buffered with 2km. All areas which intersected with core conservation area were included in coverage. Non-applicable crane habitat namely, plantation and forest were not removed from the coverage. Wattle crane coverage used as a surrogate for the other crane data, and coverage is to be used for Wattle, Grey Crowned and Blue Cranes. Oribi Reflects the areas in which oribi species may interact with KNR. Area delineated through a 2km buffer around core conservation area which then excluded plantations, forests, and buildings/structures but retained natural grassland and cultivated areas (exclusion based on ESRI imagery and national 2020 landcover). Tweefontein NR was also added to coverage as outside the 2 km buffer area but operating as part of the Karkloof complex. Long Toed Tree Frog Areas delineated for Long Toed Tree Frog habitat were the wetland (extracted from national wetland map version 5) and surrounding grassland (extracted from KZN vegetation layer) within the Mt Gilboa NR based on GPS point of the frog species. Used 2020 national landcover and ESRI aerial imagery to removed modified areas. Grasshopper Areas delineated for grasshopper species and several beetle species was the grassland (extracted from KZN vegetation layer) immediately to the northeast of the core conservation area, largely within the Mt Gilboa NR. Guineafowl Area delineated was the forest (extracted from KZN vegetation layer), with forest area within 500m buffered residential areas removed. Residential areas extracted from the 2020 National Landcover dataset.

	Robberfly Areas delineated for habitat were the forest grassland interface, reflected by a 100m buffer around forest ((extracted from KZN vegetation layer). Removed modified areas and bush from extracted area using ESRI imagery. Sections of interface which were located south of the forest area were removed as being not directly related to core conservation area. ***Adjacent Habitat*** Species would use adjacent habitat as part of their home range. Condition of adjacent vegetation would also contribute to the condition of habitat within KNR and the functionality of available habitat. Vegetation contiguous with or forming natural extensions from the KNR were extracted from the 2016 KZN vegetation coverage. Vegetation types extracted were Eastern Mistbelt Forest, Midlands Mistbelt Grassland and Mooi River Highland Grassland. Modified areas were removed using ESRI imagery and national 2020 landcover. ***Wetland habitat*** Wetlands extracted from the national wetland map version 5 dataset. Wetlands within 5km of KNR as well as wetlands that were contiguous with those within the 5km were selected and extracted. ***Combined species habitat*** The adjacent vegetation and wetland coverage included the identified specific habitats for the Robberfly, grasshopper, Long toed Tree frog, and Guinea fowl. The Oribi habitat covered a wider area as it included cultivated land, as did the crane habitat which had no modified areas removed. To ensure ease of use a combined species map was therefore reflected in the ZoI made up of the of forest, grassland and wetland and the oribi and crane coverage. ***Surrounding Conservation Areas*** Conservation areas, namely gazetted protected areas and biodiversity agreements, within 5km of KNR were selected. Mt Gilboa Nature Reserve; Tweefontein Nature Reserve; Karkloof Gartmore Biodiversity Agreement. ***Alien plant species*** *Bramble* Area covers a 2.5km radius around KNR. Wattle Area covers a 500m radius around KNR and the catchment areas flowing into KNR (taken from the catchment component coverage). *Pompom weed* Area covers a 2km radius around KNR. ***Land uses*** Land uses and land use change can be managed via the municipal planning in the Spatial Development Frameworks (SDFs) and land use schemes. Mapping the entire municipality as part of the ZoI does not make sense and thus this requirements is part of the unmapped ZoI. For decision making around change of land uses the following decision support information has beenmapped for the ZoI. ***EIA*** 2km buffer around KNR which reflects the area within which the Ezemvelo: IEM unit reviews and provides comments on EIAs and other development application processes.

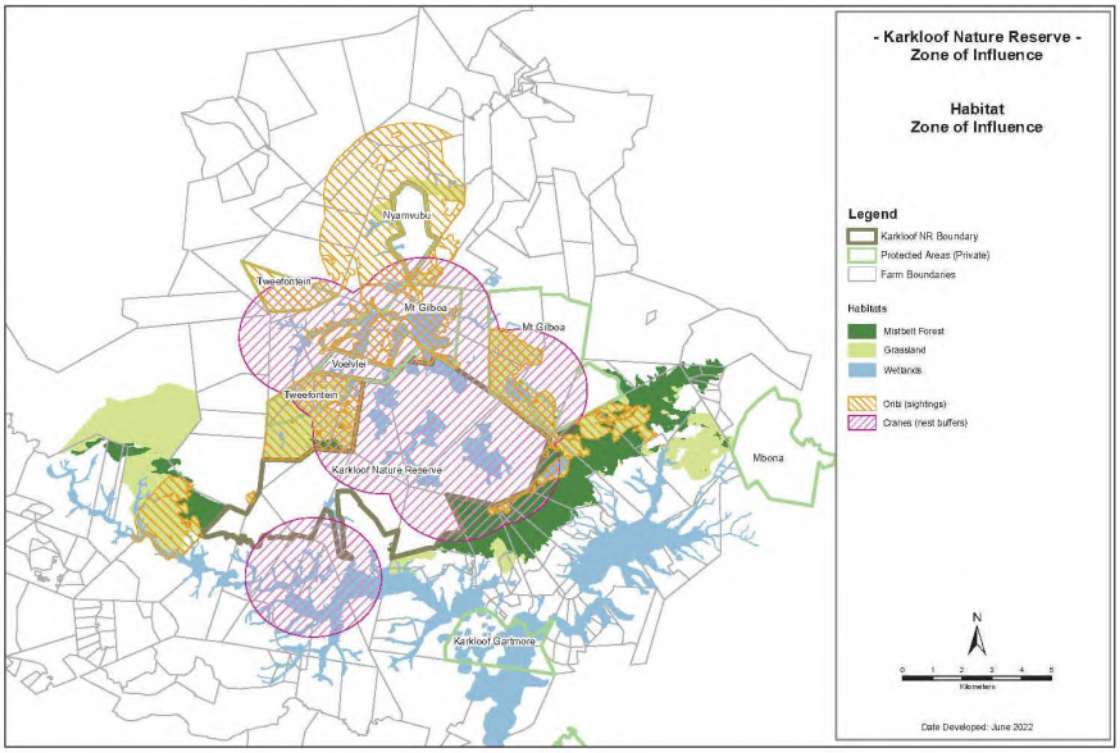
	5km buffer around KNR which reflects the EIA listing notice 3 geographic area trigger of 5km form a protected area. Landcover reflecting the land uses which are currently occurring in the surrounding area of the KNR. ***Infrastructure*** Powerlines Eskom powerlines with 400, 275, 33 and 11 kilovoltage lines. Viewshed Two viewsheds were undertaken one for the combined Karkloof Nature Reserve and Voelvlei Nature Reserve and one for the Nyamvubu Nature Reserve. ***Operation*** Firebreaks / Fire protection association Immediate surrounding landowners to KNR. Fire management relates to a fire protection association which is noted but not mapped. ***Combined zone of influence area*** Coverage reflects the outer boundary line of the ZoI. Outer line was compiled through merging of species habitat, catchment, vegetation habitat and alien invasive species ZoI components. All previously excluded areas within the outer line were removed to form the one outer boundary.
Implementation	▪ Incorporate Zone of Influence into relevant spatial planning processes; ▪ Identify stakeholders and maintain an up-to-date contact list; ▪ Ongoing proactive engagement with stakeholders (including Biodiversity Stewardship and land use planning) to ensure threats are mitigated and land use and water use do not negatively affect the reserve's values and purpose; ▪ Monitoring of land use and activities and providing reactive comments (EIA process); ▪ See maps 9 to 11 below.



Map 9: Zone of influence of Karkloof Nature Reserve - Combined



Map 10: Zone of influence of Karkloof Nature Reserve - Catchments



Map 11: Zone of influence of Karkloof Nature Reserve - habitats

Map 12: Zone of influence of Karkloof Nature Reserve - Alien and invasive plants

2.5.2 Grazing by Livestock and baling

It is noted that historical grazing by livestock (prior to the establishment of Karkloof Nature Reserve) may have negatively impacted the reserve's species composition and ecological processes of the veldt. A process to establish current livestock numbers was undertaken in 2021 to determine the carrying capacity for the reserve (game and livestock numbers). An initial visual inspection raised concern about the condition of the veldt, which was subsequently substantiated through a veld assessment undertaken in 2022 in areas that had been grazed. Following the 2022 veld assessment, the practise of grazing by livestock and baling needs to be reassessed and a decision needs to be taken on the future of these practises; namely to either phase out or mitigate the impact of these activities on the affected areas. This decision must consider specialist consultation and any future grazing and or baling would be subject to a Grazing Plan and Baling Plan that will be finalised within one year and subject to approval by the co-management committee and the Regional Operations Committee (ROC) of Ezemvelo KZN Wildlife. Once this process is concluded, livestock management agreements or plans will be drafted, adopted, and implemented.

It is noted that the 2022 veld assessment recorded that localised erosion within Karkloof Nature Reserve is associated with historical and current cattle paths and licks. It is noted that the removal of livestock from some properties/ sections of the nature reserve (that had been formally grazed) means that the impacts are unlikely to increase in these areas. The continued presence of livestock in certain sections of the reserve will require careful and ongoing monitoring and management of the eroded/ effected area; however, there are areas in which active erosion control and rehabilitation measures may be required.

Table 7: Current livestock stocking relative to 50% of the potential cattle carrying capacities of the respective sections

SECTION OF KARKLOOF	CURRENT STOCKING RATE
Middeldraai (332 ha)	53 (Mchunu)
Dartmoor (820 ha)	193 (Wildlands)+ 22 (Shelembe)
Melmoth (790 ha)	
Hancocks Mistbelt Grassland (286 ha)	185

Baling of hay was taking place on Dartmoor at the time of purchase of the property by Wildlands Conservation Trust and at the time of the proclamation of Dartmoor as part of the Karkloof Nature reserve. The practice (as per Map 11) continued alongside grazing to support the current management costs but would be phased out over time. The baling takes place annually on the same fields as those baled at the proclamation; these fall within the moderate use zone. Baling will be phased out over a five-year period. In accordance with phasing out the baling there is a need to develop a rehabilitation plan within the current financial year to guide the phasing out and rehabilitation of arable lands.

Brush cutting will be permitted to provide fire security for infrastructure/ fences upon submission of a written request through and subject to approval by the Karkloof Nature Reserve Co-management Committee and the Ezemvelo West Regional Operations Committee.

Map 13: Current Baling taking place at Dartmoor

2.6 ADMINISTRATIVE STRUCTURE

As indicated in the context section, there is a need to assess and provide a joint human resource component in the Karkloof Nature Reserve that is contributed to by all stakeholders incorporated in the reserve. The following structure (Figure 5 and 6*)* provides for the basic needs of the reserve and is not currently in place. It is acknowledged that without sufficient human and financial resources, the implementation of this plan will not be possible.

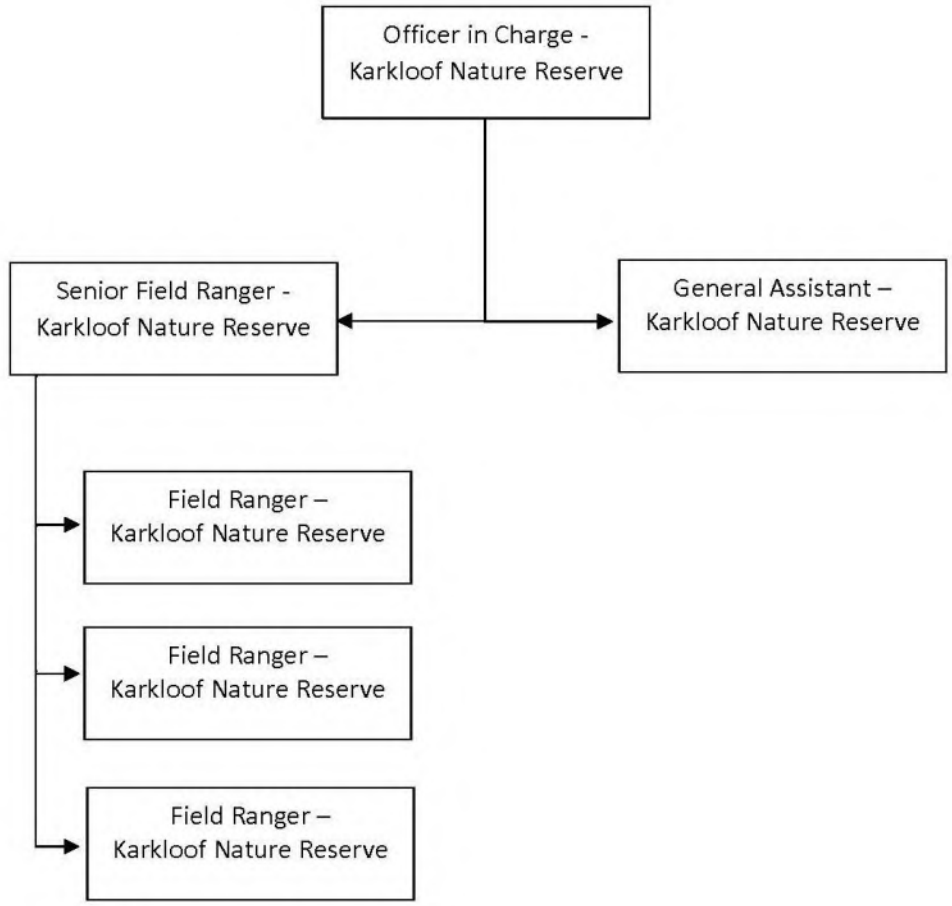


Figure 5: Ezemvelo staff component for Karkloof Nature Reserve

Over and above this, the institutional structure is indicated in Figure 5.

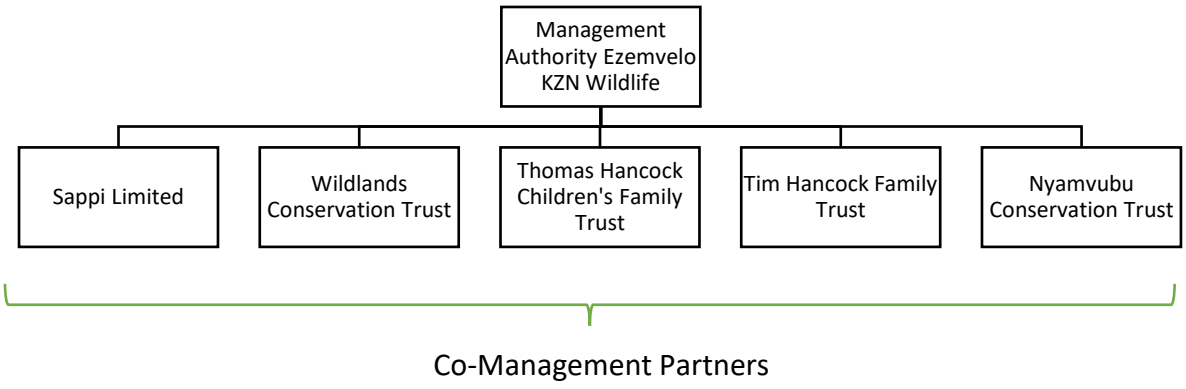


Figure 6: Administrative structure for Karkloof Nature Reserve

2.7 FINANCE

The National Environmental Management: Protected Areas Act (No.57 of 2003) establishes the need for a costing plan to be prepared as part of the management plan for approval by the MEC. Management Effectiveness of protected areas relates directly to the availability of financial resources to achieve biodiversity conservation and other objectives. It is recognised that most protected areas do not have adequate financial resources to achieve their vision and stated objectives.

This section indicates adequate human resources, equipment, infrastructure, and funding to enable the reserve's effective protection, development, and management. Financial management of the protected area will be done per the Public Finance Management Act [No. 1 of 1999] and Ezemvelo KZN Wildlife policies.

Current funding is not sufficient to effectively maintain the protected area, and the table below provides a cost estimate for the effective management of Karkloof Nature Reserve. The budget allocation for Karkloof Nature Reserve has diminished substantially over the last three years and this, with the cumulative impact of lack of staff to manage the area has an enormous impact on the management of the reserve, as well as reserve management's ability to comply with legislation and implement this management plan. The operational budget varied from R 58 743 in 2016/2017, R 29 005 in 2017/2018, R 101 057 in 2018/2019 to R 2 726 in 2019/2020. This reserve is understaffed and underfunded and this presents the biggest threat to the persistence and effective management of the protected area. Table 8 indicates the minimum budget required to manage the Karkloof Nature Reserve.

Opportunities to source external funding through various partnerships for specific projects should be investigated. Various NGOs or the private sector could be approached to facilitate these partnerships, some of these partnerships already exist, and partners are included in the co-management process. A process to establish a combined budget for all land parcels that forms a part of the protected area must be facilitated.

All co-management partners must develop and agree on a consolidated and secured budget to facilitate joint management.

Table 8: Karkloof Nature Reserve – a cost estimate

KARKLOOF NATURE RESERVE					
Minimum Budget 2019					
Sector	**Description**	**Quantity**	**Rate**		
Staff Salaries	S / Field Ranger	1	R279 295,43	R279 295,43	R1 585 130,29
	Field Ranger	3	R219 187,79	R657 563,37	
	General assistant	1	R202 607,32	R202 607,32	
	Tractor driver	1	R231 904,39	R231 904,39	
	Labour supervisor	1	R213 759,78	R213 759,78	
Standby allowance		4	R800 pp/annum	R38 400,00	R38 400,00
Danger allowance		4	R4800 pp/annum	R19 200,00	R19 200,00
Overtime		8	R500.00 pp/month	R48 000,00	R48 000,00
Staff Uniforms	Uniform	7	R1,500 per staff	R10 500,00	R12 600,00
	Protective clothing	7	R300.00 per staff	R2 100,00	
Motor Vehicles	Travel - tractor & 4x4 LDV			R65 000,00	R66 200,00
	Licensing			R1 200,00	
Communications	Telephone			R6 600,00	R6 600,00
Utilities	Gas			R12 000,00	R94 000,00
	Electricity - line rental			R70 000,00	
	Electricity - service fee			R12 000,00	
Household materials	Sanitary products			R12 000,00	R19 500,00
	Cleaning materials			R7 500,00	
Tools & Equipment	Maintenance			R20 000,00	R20 000,00
Fencing	Maintenance		4 km boundary	R45 000,00	R45 000,00
Fire management	Temporary staff	30	R190 pp/day for 7 months	R1 197 000,00	R1 446 500,00
	Protective clothing - fire	37	R3,500.00 per staff	R129 500,00	
	Tools & Equipment			R120 000,00	
Sundry consumables	Purchase of consumables			R8 000,00	R8 000,00
Capital expenditure	Staff accomm. - house			R3 000 000,00	R13 950 000,00
	Staff accomm. - 2 x 3 bedder			R2 400 000,00	
	Storage and carport			R4 500 000,00	
	Electricity – line install.			R450 000,00	
	Electricity – deposit			R150 000,00	
	Water – subm. pump			R35 000,00	
	Water - 4500 l tank + valve			R15 000,00	
	Water - 50mm piping			R50 000,00	
	Tractor (65 kw)			R800 000,00	
	4 x 4 bakkie			R750 000,00	
	Road construction - 2km			R1 800 000,00	
				R17 359 130,29	**R17 359 130,29**

2.8 CONSERVATION TARGETS

A fundamental assumption made in the KZN Systematic Conservation Plan is that protected areas continue to conserve key species and habitats at the same levels at which they occurred when the plan was developed. Failure of protected areas to conserve these species and habitats will result in an underestimate of conservation requirements outside the protected area network, and hence the real possibility of provincial conservation objectives and targets not being achieved. It is therefore essential to design and implement management, monitoring and surveillance strategies to ensure that the Park continues to conserve those species and habitats which are important at a provincial level.

Conservation targets for biodiversity are not easily set and consequently, there can be a reluctance to formalise and agree to targets. In reality, our understanding of 'how much is enough', in what spatial configuration this should be, what the most critical processes are for the maintenance of biodiversity and how one can conserve these is poor. However, management has to take place despite these deficiencies, so it is necessary to make the best use of available

information, stating the assumptions and limitations, and to see conservation targets as a set of working hypotheses around which conservation planning, management and evaluation can take place.

The KZN Systematic Conservation Plan ["C-Plan"] identifies that it is essential for the Nature Reserve to conserve specific vegetation types and species (Table 9). No baseline status assessments have been conducted, and no formal monitoring programmes are currently in place, for any of these species or vegetation types, other than for Oribi. However, there is permanent Fixed Point Photography for monitoring the Mistbelt Forest at five-yearly intervals as well as permanent veld condition assessment (VCA) plots to monitor veld condition five-yearly. In addition, there is only a rudimentary understanding of the biology and ecology of many of the species and it is currently assumed by the Nature Reserve management that controlling alien plant invasions, preventing livestock grazing and applying a shifting mosaic of burns (see Fire Management) is the best strategy to maximize the persistence of these species and vegetation types. It is essential to better understand the biology and ecology of these biodiversity features and to design and implement appropriate monitoring programmes.

In addition to the elements of national and provincial importance identified in the KZN Systematic Conservation Plan, there are species of local concern and/or species that have not yet been incorporated into the KZN Systematic Conservation Plan but are known to be of local, provincial or national importance. Specific conservation targets have been set for these species (*Table 6*) and in most cases, monitoring programmes are implemented to measure status relative to targets and hence audit effectiveness of conservation interventions. It is particularly important to recognise that several species are currently well below target, thus identifying priority interventions. Conservation and monitoring strategies must be developed for all of these conservation target species.

Table 9: Conservation targets of Karkloof Nature Reserve

Feature	Description	Area within Karkloof Nature Reserve (ha)	Provincial Target (ha)
Alluvial Wetlands: Temperate Alluvial Vegetation	Vegetation type	992.410	322032.8928
Eastern Mistbelt Forests	Vegetation type	947.378	1597006.757
Midlands Mistbelt Grassland	Vegetation type	287.5	125911.8532
Mooi River Highland Grassland	Vegetation type	1881.342	61395.3444
Anthropoides paradiseus	Bird	365.92	105907
Bugeranus carunculatus	Bird	842.48	48488
Columba delegorguei	Bird	711	11541
Poicephalus robustus	Bird	711	8261
Bradypodion thamnobates	Reptile	470.72	948
Centrobolus tricolor	Millipede	1820.12	120897
Doratogonus montanus	Millipede	1888.4	204449
Doratogonus natalensis	Millipede	870.76	10267
Doratogonus peregrinus	Millipede	216.68	6386
Spinotarsus glomeratus	Millipede	41.16	9875

Feature	Description	Area within Karkloof Nature Reserve (ha)	Provincial Target (ha)
Spinotarsus triangulosus	Millipede	938.44	2242
Charaxes xiphares penningtoni	Butterfly	562.24	5000
Orachrysops ariadne	Butterfly	17	4999
Cochlitoma montistempli	Mollusc	423.64	10403
Euonyma lymneaeformis	Mollusc	1862.08	44414
Gulella inhluzaniensis	Mollusc	41.4	2208
Gulella juxtidens	Mollusc	41.4	3301
Sheldonia burnupi	Mollusc	82.6	1193
Cryptocarya myrtifolia	Plant	1	16
Dierama luteoalbidum	Plant	2	9
Geranium natalense	Plant	253.36	4572
Gerbera aurantiaca	Plant	953.8	572
Ocotea bullata	Plant	1	15
Plectranthus rehmannii	Plant	553.2	2000
Polygala praticola	Plant	1	5
Senecio dregeanus	Plant	2	10
Senecio exuberans	Plant	139.96	4000
Watsonia canaliculata	Plant	953.8	1000
Dasophrys umbripennis	Diplopoda	1	8
Eremidium erectus	Grasshopper	1697.6	35975
Pagopedilum martini	Grasshopper	5.76	2164
Transvaaliana draconis	Grasshopper	938.44	32321
Whitea alticeps	Grasshopper	210.92	43937
Whitea coniceps	Grasshopper	219.4	30906
Ourebia ourebi	Mammal	10.472	2060
Tritogenia lunata	Annelid	4	8

According to Ezemvelo KZN Wildlife Norms & Standards for the Management and Disposal of Large Animals from Ezemvelo KZN Wildlife Protected Areas (Goodman & Rushworth 2013), protected areas should develop, where necessary, economic carrying capacity and management strategies for the management of these populations. The

strategies listed below are used in the management of wildlife in Ezemvelo Protected Areas. Table 10 indicates the management strategies for managing large herbivores in Karkloof Nature Reserve.

No Management:

Apply to species in a system that can be allowed to achieve ecological carrying capacity without knowingly endangering other important biodiversity components in the protected area. This management option assumes that the important ecological processes responsible for establishing the equilibrium between the species and its resources are largely intact.

Ecological Process Management:

Apllies to species in a system where clearly one or more ecological processes are dysfunctional and need to be simulated or re-established in order to create an equilibrium between the species and its resources. Management interventions include one or a combination of the following

- Reconfiguring landscape drivers: of population dynamics e.g. artificial water supply, range expansion, corridor development etc.
- Simulating ecological process e.g. dispersal (via dispersal sinks), predation (via predator simulation removals).
- Re-establishing ecological process e.g. re-establishing indigenous predators
- Curtailment of population eruption e.g. managing the growth rate and age and sex structure of a population to stay within the ecological or economic carrying capacity – removals, limited duration contraception etc.

Biodiversity Management:

Management associated with a recognised direct threat to other biodiversity that the species to be managed poses e.g. impacts on resources or competition with threatened or declining species. This management option often entails a fixed upper limit for species and is usually applicable to smaller protected areas that are fenced or species such as elephants that are ecosystem engineers that could potentially have a large impact on the environment and could cause irreversible changes to the state of vegetation.

Conservation Management:

Management associated with live removal of a proportion of the population explicitly for establishing additional populations within the species natural range e.g. black rhino removal and range expansion programme. Populations may be maintained at ecological carrying capacity to optimise production.

Sustainable Harvest Management:

Population management associated with a predetermined and authorised commitment to harvest one or more animal populations for economic purposes e.g. hunting or live sale. Sustainable harvesting are restricted to areas zoned for hunting or resource use areas in the PA zonation plan.

Scientific Research:

The removal of animals to collect material required to achieve a research objective must be identified and approved through a registered research proposal. Capture or culling of animals for research purposes can only be permitted where material cannot be derived from removal operations authorised for other reasons.

Table 10: Strategies for managing large herbivores in Karkloof Nature Reserve

Species	Target / Carrying Capacity	Rationale	Management Strategy	Status	Key Threats
Oribi (Ourebia ourebi)	20	Its management could be associated with live removal of a proportion of a population after reaching a certain threshold explicitly for establishing additional populations within the species natural range.	Conservation Management	Endangered	Dog hunting, poor habitat management
Blesbuck	100	This management is associated with a recognised direct threat that the species to be managed poses to other important biodiversity elements. This is normally associated with impacts on resources or habitat (e.g. selective overgrazing, soil erosion, etc).	Biodiversity Management		Dog hunting
Common Reedbuck		This management applies to species in a system that can be allowed to achieve ecological carrying capacity without endangering other important biodiversity components in the protected area due to their naturally low densities. It assumes that the important ecological processes responsible for establishing the equilibrium between the species and its resources are largely intact.	No Management	ToPs	Dog hunting
Mountain Reedbuck			No Management		Dog hunting
Grey Rhebuck			No Management		Dog hunting
Blue Duiker			No Management	Vulnerable	Dog hunting
Bushbuck			No Management		Dog hunting
Grey Duiker			No Management		Dog hunting

3 Guiding Principles

These principles set out the key elements of policy and best practice which apply broadly to Ezemvelo KZN Wildlife protected areas. This section does not constitute detailed policy statements and must be read and implemented as per relevant legislation, Ezemvelo KZN Wildlife internal policies as listed in Appendix 2 (current) or available on the Ezemvelo Intranet, as well as any specific subsidiary plans.

3.1.1 General

Protected area management should apply an adaptive management approach to support continuous improvement in management. This includes monitoring the outcomes of management actions and taking account of the findings of monitoring and other research to continually improve management effectiveness. Management decisions should have a firm scientific basis or be supported by relevant experience and/or best practice. Ezemvelo will strive to maintain and improve their capacity to learn from experience, to value and build staff expertise. In managing protected areas, Ezemvelo will furthermore draw on input from stakeholders, to ensure effective management, sustainability and persistence of protected areas for the benefit of future generations and to ensure that decisions affecting current generations are socially equitable.

Management of protected areas (Pas) should be directed to, where possible, to:

- conserve the composition, structure, function and evolutionary potential of biodiversity;
- contribute to regional conservation strategies (buffer zones, corridors, steppingstones for migratory species, zone of influence, etc.);
- maintain diversity of landscape or habitat and associated species and ecosystems;
- ensure that Pas are of sufficient size to ensure the integrity and long-term maintenance of conservation targets or be capable of being increased to achieve this;
- maintain the protected area values and purpose for which it was assigned in perpetuity;
- be operating under the guidance of a management plan and monitoring and evaluation program that supports adaptive management;
- conserve significant landscape features, geomorphology and geology;
- provide regulatory ecosystem services, including buffering against the impacts of climate change;
- conserve natural and scenic areas of provincial, national and international significance for cultural, spiritual and scientific purposes;
- deliver benefits to resident and local communities consistent with the other objectives of the protected area;
- deliver recreational benefits consistent with the other objectives of the protected area;
- facilitate scientific research and ecological monitoring related to and consistent with the values of the protected area;
- use adaptive management strategies to improve the management effectiveness of the protected area over time;
- facilitate or provide education and awareness opportunities (including about management approaches);
- ensure public support for the protected area; and
- protect the natural and cultural heritage and must include identifying and taking appropriate actions to avert and actively manage emerging threats and risks.

3.1.2 Legal context and compliance

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 the laws governing the use and access of protected areas and the prohibition of particular activities are enforced. In fulfilling this role, the managers of the protected area must adhere to the following guiding principles:

- All reasonable efforts must be made to ensure the effective conservation of biodiversity and cultural resources within and on the boundaries of the protected area;
- Ensure that there is sufficient law enforcement capacity, including staff numbers, skills, equipment and support;
- Management must make provision for regular patrols covering the full extent of the protected area;
- Cooperative structures should be established to enable participation by key security stakeholders such as local communities and the South African Police Service in addressing offences and breaches of the law;
- All reasonable efforts must be implemented to provide for the safety and security of protected area visitors, staff, concessionaire and public and private property;
- Law enforcement within the protected area must be undertaken through surveillance, monitoring and appropriate reaction in the event of an offence;
- Law enforcement must be focussed on:
    - Prevention of criminal activities through awareness programs, cooperative efforts with security stakeholders such as the South African Police Service (SAPS) and deterrents such as the successful prosecution of crimes; and
    - Detection, investigation and prosecution of criminal activities.
- Management must enforce the internal rules for the protected area as provided in Appendix 5 and gazetted in 2020; if necessary, the manager may display a public notice as per Section 24.2 of the gazetted internal rules to give lawful instruction to any person entering the protected area;
- Access management by either Ezemvelo staff or a company appointed by Ezemvelo must provide legal access to the protected area according to the standard operating procedure or standing station orders;
- A register and copies of any legal agreements, servitudes, MoU's or MoA's must be kept on station for implementation and enforcement of any conditions therein;
- Effective control measures must be implemented for protected area access in line with station standing orders/ standard operating procedures;
- Ensure that the full extent of the PA is appropriately demarcated, and that the demarcation is known by surrounding communities.

Managers must familiarise them with all relevant legislation, regulations and any subsequent amendments and legal agreements, and apply them to their management actions. Karkloof Nature Reserve management developed and adopted a uMgungundlovu District Security Operational Plan Version 1/2021 to implement all security matters.

3.1.3 Conservation beyond boundaries

Protected areas are part of broader bioregional, social, cultural and economic landscapes and must be managed in this context.

3.1.3.1 Protected area expansion

In terms of Ezemvelo KZN Wildlife's protected area expansion strategy, several areas were identified as priorities for protected area expansion. As the biodiversity conservation authority or KZN, Ezemvelo KZN Wildlife will promote the expansion of the province's protected area network to:

- ensure representative and viable samples of the province's biodiversity and particularly that which considered vulnerable, threatened or critically endangered are protected and conserved for future generations;
- enhance the survival and wellbeing of species requiring extensive habitats;
- secure critical linkages between protected areas;
- provide for climate change mitigation and adaption;
- contribute to the transformation of the conservation industry and support land reform in the conservation industry;
- develop and enhance the biodiversity economy aimed at improving rural economies and livelihoods and socio-economic development;
- these initiatives must be supported by research, assessments, databases, and collaboration with the public and other stakeholders.
- wherever possible, facilitate and promote nature-based tourism economy within the province. If under threat, efforts must be made to formally protect the areas of critical habitat, located outside of the protected area; and
- management of the protected area must where appropriate actively identify and pursue opportunities for the expansion of the protected area.

3.1.3.2 Zone of influence

To safeguard the biodiversity within the protected area and to counter any threatening processes or edge effects, appropriate land uses in areas surrounding protected areas must be identified (Map 10). Appropriate actions may then be taken to secure these areas through protected area expansion mechanisms and local planning tools. It is important, in managing the areas around the protected area, that Ezemvelo KZN Wildlife works with local government authorities to ensure that their land-use planning considers the biodiversity conservation imperatives of the protected area. In this regard, it is necessary to ensure that protected area considerations are captured in planning tools such as Integrated Development Plans (IDPs), Spatial Development Framework's (SDF's) and Land Use Management Schemes (LUMS).

The tools/mechanisms available to facilitate the above are the zone of influence and buffer zone. While there are significant areas of overlap between the zone of Influence and the buffer zone, a zone of influence has a more limited (narrower) definition than that of a 'buffer zone', which can be defined as "an area, usually peripheral to a protected area, in which activities are implemented or the area managed to enhance the positive and reducing the negative impacts of conservation on neighbouring communities and neighbouring communities on conservation" (modified from Wild & Mutebi 1997 and Martino 2001). In developing a buffer zone, the following guiding principles will apply:

- Threatening processes and edge effects on the protected area's boundary and beyond it must be identified.
- An appropriate public consultation process needs to be followed in the development of a protected area buffer zone.
- Appropriate actions must be taken to manage threatening processes and edge effects on the protected area's boundary and beyond it;
- 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 protected area;
- Ezemvelo KZN Wildlife will endeavour to align its plans and strategies with the programmes and strategies of the local and district municipality, where appropriate.

A Zone of Influence is the area outside the boundary of a protected area where activities of people or other influences may negatively impact on the purpose, values or objectives and/or efficient and effective management of the protected area and/or continued delivery of tourism and other societal benefits from the protected area, and consequently where protected area management seeks to actively engage with stakeholders to promote and retain compatible, and prevent or mitigate incompatible, activities and use of land. In developing and implementing the zone of influence the following principles will apply:

- The zone of influence may be used as a key informant in delineating a buffer zone for the protected area.
- All new management plans must include the delineation of a zone of influence, where a buffer zone is required incorporation of the buffer zone in the management plan will only happen after public consultation processes have been undertaken.
- The zone of influence may be provided as an environmental overlay or protected area zone in Land use management schemes.
- The zone of influence must be developed in the framework of the protected area purpose, values and management objectives.
- The zone of influence must identify key influences that may threaten the protected area and the achievement of its, purpose, values and objectives.
- As part of the zone of influence process, managers need to define critical stakeholders and maintain an up to date contact list of stakeholders.
- The zone of influence must be identified in line with the Guideline for the delineation and management of a zone of influence for terrestrial Ezemvelo KZN wildlife protected areas.

3.1.4 Stakeholder engagement

Constructive relationships with adjacent landowners and communities are an important aspect of the effective conservation of protected areas. Stakeholder engagement must aim to develop a strong sense of partnership between the neighbours and communities around the protected area. The following guiding principles should be adhered to:

- Efforts should be made to ensure that the communities living around the protected area are aware of the role that it fulfils in biodiversity conservation and the provision of ecosystem services to the region.
- Managers must facilitate meaningful and transparent stakeholder consultation and communication.
- Stakeholder engagement must be undertaken to engender a sense of ownership of the protected area, within the communities, and support for its biodiversity conservation objectives.
- A common understanding of the issues that affect both the protected area and the surrounding communities must be developed and efforts to resolve them should be undertaken cooperatively.
- Consultation with stakeholders will not replace the decision-making mandate of Ezemvelo KZN Wildlife, nor is it intended solely for reaching consensus; consultation will ensure that Ezemvelo has access to a broad range of information about stakeholder needs, concerns, views and options to assist in decision making.
- Stakeholder engagement is a cornerstone of planning and management practices to help ensure sound decision-making, build public understanding, and provide opportunities for stakeholders to contribute their knowledge, expertise and suggestions.

- The provision of accurate, comprehensive and timely information is important in fostering awareness, appreciation, appropriate use and understanding and in encouraging public involvement. This is achieved through such means as interpretation, communication, outreach, environmental education, and public participation programs, as well as through protected area liaison forums.

3.1.5 Co-management

Where land-claims have been settled in protected areas the community must obtain capacity building in conservation, tourism and business development in and around protected areas (Kepe 2008). It is critical to:

- Clarify responsibilities, rights and power relations of co-management partners;
- Bring co-management partners together under one structure;
- Clarify expectations (vision) and understanding of co-management among co-management partners;
- Build capacity of co-management partners (Develop partnerships where necessary to facilitate this);
- Establish co-management structures and organisations;
- Establish the co-management plan (including joint vision) and co-management agreement.
- Modify the co-management plan and co-management agreement through adaptive management (Borrini-Feyerabend et al. 2007).

The manager and other relevant staff of the protected area with a settled land claim must implement the outcomes of the land claims process in line with the Ezemvelo policy on co-management.

3.1.6 Public education and awareness

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

- There must be a strong focus on neighbouring communities to engage, inform and benefit them;
- Wherever possible, local community members should be trained to assist and operate environmental interpretation and education tours;
- Where possible, partnerships with NGO's should be established to ensure effective environmental education and awareness;
- The Education and awareness programme must incorporate indigenous knowledge where possible and relevant;
- The programme must be target-specific, objective-oriented and address real issues including the values and purpose of the protected area and management issues that can potentially affect stakeholders;
- Opportunities to create awareness based on international initiatives such as Arbor Day must be encouraged.
- The provision of accurate, comprehensive, and timely information is important in fostering awareness, appreciation, appropriate use and understanding, and encouraging public involvement. This is achieved through such means as interpretation, communication, outreach, environmental education, and public participation programs, as well as through protected area liaison forums.

3.1.7 Eco-culture tourism

Ezemvelo KZN Wildlife has the mandate to sustainably develop protected areas to fully realise its eco-cultural tourism and associated income-generating potential, within the context of protecting its biodiversity and

cultural values. In developing and managing tourism within the protected area, the following guiding principles must be adhered to:

- Tourism products developed within the protected area must be appropriate to the values and purpose of the protected area and must not threaten its biodiversity, cultural assets or ecological function;
- In developing tourism products, requirements for environmental authorisation and internal approval processes (e.g. DevCo) must be adhered to;
- Tourism products must be designed to capitalise on the unique beauty and biodiversity and cultural features of the protected area;
- Tourism products must be developed in response to tourism market demands and opportunities within the protected area and should be carefully assessed to determine their viability;
- Any tourism products within the protected area must be integrated with tourism strategies and plans in the region;
- Tourism must, where appropriate, be used as a tool for the generation of economic activity and employment in the communities surrounding the protected area;
- Tourism infrastructure should be maintained to an acceptable standard-based and infrastructure must be incorporated in the scheduled maintenance programme of the protected area;
- Tourism development must comply with all legal and environmental authorisation requirements, both external and the internal DevCo process;
- When undertaking decisions that may have a consequence for integrity and sustainable use of the protected areas, Ezemvelo KZN Wildlife will actively and judiciously apply the environmental principles provided in the National Environmental Management Act 107 of 1998;
- Ezemvelo will strive to provide controlled access and enjoyment of the protected areas by visitors through appropriate zonation that, where possible, provides for nature-based tourism opportunities compatible with the purpose for the establishment of the protected area;
- The protected area manager must, in line with the Occupational Health and Safety Act, make reasonable efforts to ensure visitor safety and to have an appropriate emergency response system in place;
- Based on the carrying capacity of infrastructure and other impacts created by access to protected areas, management may limit the number of entries per day to what is deemed acceptable by Ezemvelo KZN Wildlife; this is also so stipulated in the gazetted internal rules (See Appendix 5);
- Ezemvelo KZN Wildlife recognises that the installation of infrastructure may have direct and indirect negative impacts on the integrity of the protected area, sensitive species and habitats, as well as the sense of place enjoyed by visitors. Non-essential infrastructure must be minimised and where reasonably possible, located outside of the protected area in appropriate neighbouring areas. All remaining essential infrastructure must be in keeping with the purpose, sense of place of the protected area, and all adverse impacts on the integrity and character of the protected area must be minimised and remediated;
- Access opportunities, where appropriate, will be provided to visitors to enhance public understanding, appreciation, enjoyment and protection of the natural and cultural heritage and appropriate to the values and purpose of the protected area. Basic essential services are provided while maintaining ecological and integrity and recognizing the effects of incremental and cumulative impacts;
- Facilities and access for the public must consider limits to growth, and not compromise ecological and must be consistent with approved management plans. Also, they must reflect as far as possible national environmental standards and design, as well as the diversity of markets and equity of access considerations for disabled persons and visitors of various income levels;

- Public safety considerations must be built into planning and design processes. Priority is placed on accident prevention, education and information programs designed to protect visitors.

3.1.8 Biodiversity Resource and conservation management

3.1.8.1 Fire management

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 protected area, the following guiding principles should be adhered to:

- Fire management must contribute to the achievement of the protected area objectives;
- 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 protected area and the need to protect rare and endangered species;
- 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;
- A monitoring and surveillance programme must be implemented with a mechanism that allows for the adaptive management process.

In terms of Section 17 of the National Veld and Forest Fires Act, a landowner (in this case, the protected area 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 concerning firefighting:

- The need to maintain a system of firebreaks to enable the management of controlled burns and to effectively fight wildfires;
- The size of the protected area 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;
    - Firefighting equipment mounted on the backs of vehicles;
    - Backpack sprayers;
    - Beaters; and
    - Safety equipment for personnel involved in firefighting.

3.1.8.2 Invasive species control

A listed invasive species means any species listed in section 70 of the Biodiversity Act, whose establishment and spread occurs outside of its natural distribution range. Such plants are considered a severe threat to natural systems' ecological functioning and 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 ongoing programme that prioritises critical infestations along watercourses, 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;
- Monitoring and Surveillance programmes must be implemented to facilitate adaptive management;
- Strategic partnerships and poverty relief programmes such as the Working for Water programme should be utilised in controlling invasive plants.

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. In dealing with the control of alien animals, procedures to deal with animals that stray into the protected area 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 protected area for official purposes such as patrolling.
- Feral animal species that pose a threat to indigenous species will be destroyed (as humanely as practicably possible with due regard to the tourist experience).
- The protected area must develop and implement a strategy to deal with livestock management where required.

3.1.8.3 Soil resource management

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;
- 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 protected area will determine the appropriate responses required and the costs associated with them.

3.1.8.4 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, cultural heritage or biodiversity conservation imperatives. Accordingly, applications for the extractive use of resources within the protected area will be considered, based on the following guiding principles:

- The management plan and specifically the protected area'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 protected area;
- 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 bonafide South African research institutions and are undertaken in accordance with relevant Ezemvelo KZN Wildlife policies;
- The ability of the protected area's managers to effectively control and monitor such resource use;
- All resource use requests must be assessed, responded to as well as recorded and implementation thereof monitored in line with all relevant Ezemvelo KZN Policies.

3.1.8.5 Wildlife management

Management interventions related to indigenous wildlife will be focused on safeguarding populations of rare and endangered species or meeting set conservation targets. Interventions may also be required for dealing with animal wildlife conflict and other key species. In addressing wildlife management, the following guiding principles should be adhered to:

- Wildlife management must be focused primarily on protecting the protected area's ecological functioning and meeting set provincial conservation targets for species;
- The introduction of indigenous species into the protected area must be undertaken per 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 protected area;
- Animals that become a danger or excessive nuisance to persons and property due to either habituation or aberrant behaviour must be managed per relevant Ezemvelo KZN Wildlife policies;
- To maintain genetic diversity and also to avoid genetic pollution of game populations, especially in small protected areas (PAs), it is essential to regularly bring new individuals into the populations to augment the populations genetically as well as to avoid introducing and/or keeping closely related subspecies in one protected area;
- The keeping of closely related subspecies in protected areas must be avoided to prevent hybridization between subspecies (e.g. blue wildebeest & black wildebeest, etc.) since this could lead to the loss of both subspecies;
- Maintaining the genetic diversity of populations is important, especially in the light of climate change which will put pressure on species to adapt rapidly to their changing environment. In the absence of genetic diversity, species populations have little or no chance of survival through adaptation to the rapidly changing environment;
- Due to the recent spike in the intensive breeding for colour morphs (variants) by the private game ranching industry, it has become necessary for conservationists to guard against the possible introduction of the genetically compromised colour morphs into the protected area to protect the genetically pure populations from contamination by compromised genes;
- According to Ezemvelo KZN Wildlife Norms & Standards for the management of large herbivores, management must develop, where necessary, economic carrying capacity and management strategies for the management of these populations. The management of protected areas must implement these norms and standards;
- Key wildlife species such as predators also require specific management interventions and these strategies need to be recorded and monitored to facilitate adaptive management.

3.1.8.6 Sense of place

Sense of place is a complex key ecosystem service that promotes and may be complemented by the character of tourism facilities, an appreciation of the protected area through the rejuvenation of physical, mental and psychological well-being of visitors. This, in turn, has a positive influence on the country's economy, social capital and enhancing pro-environmental behaviour, responsible use of natural resources and waste reduction. Sense of place generated by protected areas is a critical asset that needs to be conserved and protected (Wilson 1997; Leather et al. 1998; Pretty & Ward 2001; Derr 2002; Dewa et al. 2004; Lewicka 2005; Eyles & Williams 2008; Cantrill 2011; Schofield & Szymanski 2011; Ramkissoon, Weiler & Smith 2012).

3.1.8.7 Protected area viewscapes

Protected areas provide an increasingly rare opportunity for people to experience and enjoy the ambience of undeveloped viewscapes. These undeveloped viewscapes are fundamental to the sense of place and enjoyment of the wild character of the protected area by visitors; these areas within and adjacent to the protected area, in particular high-lying and ridgetop areas, are the focus for the placement of tourism, management and other infrastructure. In

protecting important viewscapes within and along access routes to the protected areas, management must actively protect these areas.

- Viewscapes are vulnerable and sensitive to development, and management must in collaboration with relevant stakeholder and government partners ensure that these areas are protected;
- Where essential infrastructure is required, it must be installed and maintained in a manner that does not degrade the viewscape and the associated sense of place.

3.1.8.8 Protection of soundscapes

To maintain an acceptable level of sense of place to support tourism functions the soundscape needs to be protected. The following guiding principles apply:

- Identify where necessary what levels of human-caused sound are acceptable within the protected area. The frequencies, magnitudes, and durations of human-caused sound considered acceptable will vary throughout the protected area, being generally greater in developed areas and generally lesser in undeveloped areas;
- Monitor where necessary, human activities that generate noise that adversely affects PA soundscapes, both within and adjacent to the Park, including noise caused by mechanical or electronic devices.
- Take action to prevent or minimise all noise that, through frequency, magnitude, or duration, adversely affects the natural soundscape or other PA resources or values, or that exceed levels that have been identified as being acceptable or appropriate for the different management zones;
- Minimise noise from management activities, including those caused by mechanical devices, vehicles, and aircraft.;
- Management activities such as vehicles, chainsaws, brush cutters, shooting and speech are sources of noise that must be carefully managed;
- Staff and visitors will also be sensitised to the impact of loud talking, and playing of music on visitor enjoyment and the PA rules make provision for officers to manage the nuisance impact of noise;
- Prohibit, including through enforcing the provisions of the Internal Rules, the playing of loud music by visitors or staff in any zone of the protected area, and manage the nuisance impact of any music on visitor experience and expectation of natural quiet;
- Explicitly consider the generation and impact of noise in Scoping reports and Events Management Plans;
- Large events, such as weddings and races, may, if not carefully managed, create considerable noise. Music concerts create considerable noise and are generally incompatible with protected area operations. The impacts of noise from such events may lead to inter-user conflict, complaints and a loss of existing clients and revenue from an established portion of the market that appreciates and pays a premium for the natural soundscapes that protected areas provide;
- Ensure that comments on proposed or existing activities in the Buffer zone or Zone of influence will explicitly take into account the impact of those activities on the natural soundscapes of the PA, including assessing the societal, conservation and economic value of those natural soundscapes.

3.1.8.9 Protection of lightscapes

Ezemvelo will preserve, to the greatest extent possible, the natural lightscapes of protected areas, which are natural resources and values that exist in the absence of human-caused light. The absence of light in areas such as caves and at the bottom of deep water bodies influences biological processes and the evolution of species, such as the blind cave fish. The phosphorescence of waves on dark nights helps Hatchling Sea turtles orient to the ocean. The stars, planets, and earth's moon visible during clear nights influence humans and many other species of animals, such as birds that navigate by the stars or prey animals that reduce their activities during moonlit nights.

Improper outdoor lighting can impede the view and visitor enjoyment of a naturally dark night sky. Recognizing the roles that light and dark periods and darkness play in natural resource processes and species evolution, Ezemvelo will protect natural darkness and other components of the natural lightscape in protected areas as far as possible. To

prevent the loss of dark conditions and natural night skies, Ezemvelo will minimize the light that emanates from protected area facilities, and also seek the cooperation of protected area visitors, neighbours, and local government agencies to prevent or minimize the intrusion of artificial light into the night scene of the ecosystems of protected areas. Ezemvelo will not use artificial lighting in areas such as sea turtle nesting locations where the presence of the artificial lighting will disrupt a protected area's dark-dependent natural resource components.

The following guiding principles apply:

- restrict the use of artificial lighting in protected areas to those areas where security, basic human safety, and specific cultural resource requirements must be met;
- use minimal-impact lighting techniques;
- shield the use of artificial lighting if necessary to prevent the disruption of the night sky, natural cave processes, physiological processes of living organisms, and similar natural processes.

3.1.8.10 Water management

The pollution of surface waters and groundwater by both point and nonpoint sources can impair the natural functioning of aquatic and terrestrial ecosystems and diminish the utility of protected area waters for visitor use and enjoyment. Management must determine the quality of protected area surface and groundwater resources and avoid, whenever possible, the pollution of protected area waters by human activities occurring within and outside the protected areas. Protected area management must:

- work with appropriate governmental bodies, Ecological-Advice and other partners to obtain the highest possible standards;
- take all necessary actions to monitor, maintain or restore the quality of surface waters, and groundwater within the protected areas;
- A growing economy and climate change are putting extreme pressure on water availability. Protected areas need to manage their water use effectively. Managers need to be conscious of water flows and the impact of on-ground management actions on the hydrology of the area;
- Possible management interventions may include protecting wetlands or accessing groundwater, managing water availability for freshwater.

3.1.8.11 Ecological Integrity

Protecting ecological integrity take precedence in acquiring, managing, and administering protected areas. In every application of policy, this guiding principle is paramount. The integrity of natural and cultural heritage is maintained by ensuring that management decisions affecting these unique places are made on sound cultural resource management and ecosystem-based management practices. In Ezemvelo protected areas, the following principles will apply:

- It is recognized that protected areas are not islands but are part of larger ecosystems and cultural landscapes, and decision-making must, therefore, be based on an understanding of surrounding environments;
- Protected areas are designated and managed for their biodiversity and cultural values, for a specified purpose, and for the benefit of the public. Fostering appreciation and understanding of ecological integrity must be the foundation for public use and enjoyment decision-making;
- The various internal and external factors that threaten protected areas, its value and purpose must be carefully analysed. Protection must be appropriate to the type, significance and sensitivity of the ecosystems and heritage resources involved;
- Because protected areas are influenced by surrounding, and adjacent land uses, and, in turn, the management of these areas influences those surrounding areas, cooperative relationships must be sought with relevant stakeholders. The priority in decision-making must be to ensure the long-term ecological integrity of these areas;

- Concerted efforts must be made to encourage compatible external activities and to discourage incompatible ones within the greater ecosystem or cultural landscape setting of a protected area.

3.1.9 Protected area use

Access to and use of protected areas must be consistent with the long-term protection of their values, the maintenance of physical and ecological processes and agreed management objectives. The following guiding principles apply:

- The primary use of a protected area is for conservation purposes, there may be other land uses, but in general, management must prevent any practices or activities that may be harmful to the values, purpose and objectives of the protected area;
- Where there is a conflict between the main objective of conservation and other uses, conservation will take priority;
- Any use activities, resource use and/or management activities must be monitored and evaluated to support adaptive management. Monitoring must demonstrate that there is a direct benefit to the conservation of nature on the property and that there is no loss of biodiversity values;
- Low-impact eco-tourism or nature-based activities must not compromise the protected area integrity and must be in line with the management and zonation plan for the protected area;
- New applications for use must be tested against the protected area purpose, values, objectives and the management and zonation plan of the area;
- Non-conservation uses should not occupy more than 25% of the area of the protected area. The primary objective should apply to 75 per cent of the protected area – 'the 75 per cent rule' (Dudley 2008);
- The protected area management plan must explicitly describe allowable uses, including access for sustainable use of natural resources.

3.1.9.1 Use of air space

Non-human disturbed airspace above a protected area is fundamental to the health and well-being of wildlife and the enjoyment and benefit of the protected area by people and for security purposes. Save for with the explicitly permitted instances, actively safeguard the airspace above its protected areas from low-flying manned and unmanned aircraft and any other unnatural aerial disturbance.

An Aircraft means a manned or unmanned machine or equipment used or capable of controlled flight and includes but is not limited to a glider, hang glider, paraglider, para-wing, helicopter, aeroplane, balloon or remote-controlled drone.

In line with the gazetted internal rules (2020) the following principles apply:

- The use of aircraft inside the PA is prohibited, unless these are used for authorised research or official purposes and/or with the prior written approval of and subject to obtaining such permits specified by the Authority;
- An officer may within a PA seize any aircraft unlawfully used in the PA;
- An officer may seize any aircraft landing without permission within the PA unless such landing is considered to be a bona fide emergency to safeguard human life;
- The use of radio- or remote-controlled toy or model aircraft is prohibited except in specially designated areas. Such toy or models used in violation of this prohibition may be confiscated by an officer.

In line with NEMPA Section 47:

47. Use of aircraft in special nature reserve, national park or world heritage site

(1) A special nature reserve, national park or world heritage site includes the air space above the reserve, park or site to a level of 2 500 feet above the highest point of the reserve, park or site.

(2) No person or organ of state, may land or take off in an aircraft in a special nature reserve, national park or world heritage site, except—

(a) on or from a landing field designated by the management authority of that nature reserve, national park or world heritage site; and

(b) on the authority of prior written permission of the management authority, which authority may stipulate the terms and conditions upon which this must take place.

3.1.9.2 Memorials and plaques

Ezemvelo KZN Wildlife recognises that people often form a spiritual bond with the beauty and tranquillity of a protected area or a particular place therein. This appreciation occasionally leads a to request a memorial to be placed, in remembrance of the person and their special bond, in the protected area. Ezemvelo KZN Wildlife's policy only considers a small, sensitively and unobtrusively placed plaque of commemoration and prohibited installing any other memorials or symbols of remembrance.

The following principles apply:

- The number of memorials will be limited and may not detract from visitor's enjoyment of the protected area, its values or the use of its facilities.
- Types of memorials that will be considered include:
    - Benches of wood or crude stone that are appropriately sited;
    - Brass plates with inscriptions;
    - Cultural heritage sites;
    - Historical sites;
    - Land;
    - Visitor units; and
    - Hides; etc
- In applying to the management authority, a clear strategy for the maintenance and responsibility for maintaining the memorial needs to be agreed upon;
- No burials or placing of urns will be allowed in protected areas, given that evidence of such activities is not in keeping with the purpose for the establishment of the protected area and may also detract from the sense of place and visitor's enjoyment of this area and its values. Furthermore, such activity may raise an expectation of a right of access by others to the site of burial.

3.1.10 Development of infrastructure

For the protected area to operate appropriately, infrastructure within the protected area must be maintained, removed, expanded or developed for conservation management and eco-cultural tourism purposes. This will be undertaken cognisant of and in line with legal requirements and procedures regarding environmental and cultural resource impacts. In addressing facility and infrastructure needs in the protcted area the following guiding principles will be adhered to:

3.1.10.1 General

- Proposals for major maintenance projects or the removal, expansion and development of infrastructure must comply with the protected area zonation, the value and purpose of the protected area;
- The project must also be recommended by the Management Committee (Park Management Committee/ Nature Reserve Management Committee and approved by the Ezemvelo Board's Development Committee (DevCO);

- Placing infrastructure outside the boundaries should always be considered as an option, where practical, to reduce the amount of infrastructure within the protected area.
- Management is responsible for infrastructure within the protected area and must at all times ensure that it is maintained in a safe, sound, clean, serviceable and aesthetically acceptable condition;
- Tourist accommodation, camping-grounds and other facilities must at all times be maintained to appropriate world-class standards regarding safety, appearance, cleanliness and serviceability;
- All structures must as far as possible be harmonised with the surrounding environment and landscape character through appropriate siting, use of colour, building materials, landscaping and screening;
- All structures are fixed assets and must be marked with their unique asset number using a permanent label or marker and must be verified annually;
- Where funding and functionality allow protected areas must install environmentally appropriate infrastructure;
- Ensure that all developments that take place within Ezemvelo protected areas, as well as Developments or activities outside protected areas, follow the correct legal and best practice Integrated Environmental Management procedures;
- Maintain effective systems of control and monitoring to ensure that development within protected areas is appropriate and in keeping with best environmental practice and the protected area management plan.

3.1.10.2 Water and energy supply and efficiency

- Where possible, all future electricity supplies must be underground unless technically not possible;
- Existing electricity supplies that negatively impact biodiversity or sense of place will be evaluated and replaced with more appropriate infrastructure or placed underground;
- Practical solutions to the provision of electricity to the Park should be sought at the Park based on available renewable energy technologies;
- Any infrastructure will be designed and operated to minimise energy requirements;
- Existing incandescent light bulbs should be phased out, and wherever feasible low-flow showerheads will be fitted;
- All water- and energy-efficiency measures will be highlighted to guests, together with suggestions for water and energy saving; and
- Staff must be conscious of water and energy use and minimise wastage.

3.1.10.3 Communication

- Telephone communications via microwave or cellular technology; wherever possible old phone lines should be removed or relocated to reduce visual impact;
- The Park will not provide/lease sites for public communication structures; and
- Given the potential visual and wildlife impact of communication structures, any radio repeater stations or other similar communication towers must be subject to the internal and, where required, external environmental authorisation process.

3.1.10.4 Waste management

Ezemvelo is subject to the same waste management laws that govern other developments in this province but should strive to be a leader in environmental acceptability and implement responsible waste management systems.

- Protected areas must develop and implement a recycling programme to ensure as far as possible the reduction of waste. This process can be implemented in collaboration with NGO's and community partners where possible;
- All solid waste must be sorted, and recyclable materials must be removed from the protected area to authorised recycling companies and non-recyclable materials to municipal waste management sites;
- Correct management of the waste stream has financial implications and an assessment needs to be conducted and a waste plan must be formulated and implemented for the protected area;
- Existing and future waste management practices must be of an acceptable environmental standard as determined by section 20 of the Environment Conservation Act 73 of 1989 and related legislation and regulations;
- Protected areas must develop a solid waste stream management implementation strategy and budget requirements;
- Regular monitoring and review of the waste management systems must take place to ensure effective management of unforeseen circumstances;
- The principle of the Best Practicable Environmental Option (BPEO) must be employed in the disposal of protected area wastes. This refers to the option that provides the most benefit or results in the least damage to the environment as a whole, at a cost acceptable to society, in both the long and short-term;
- Waste management practices must support sustainable development and the principles set out in the National Environmental Management Act 107 of 1998 (NEMA) including concepts of "cradle-to-grave" responsibility, "care of duty", "polluter pays", and "waste avoidance and minimisation" must be applied;
- Use of organic waste for compost purposes may be permitted but will be subject to strict conditions;
- All historical waste sites in the protected area must be appropriately rehabilitated;
- All staff and public waste receptacles must be animal- and, especially, baboon-proof and maintained as such.

3.1.10.5 Quarries

Gravel from quarries is required in protected areas for road maintenance and construction work, the use of material quarried in protected areas conflicts with biodiversity conservation and being unsightly. When available from quarries outside of protected areas, Hauling gravel may have significant financial implications, and suitable quarry material is often available only in the protected areas. The following principles apply to quarrying in protected areas:

- Only approve the excavation of new quarries or the extension of existing quarries in protected areas when essential and per mandatory integrated Environmental Management procedures and other appropriate legislation;
- Rehabilitate any quarries or part thereof no longer required;
- Manage all operational quarries in terms of an environmental management programme which must be part of the protected area management plan.

3.1.10.6 Landscaping

Landscaping forms an important part of the sense of place and general impression the public has when entering protected areas, the first point of contact at the entrance gate, and reception offices and tourism facilities. These areas must be appropriately landscaped where required in line with the following principles:

- All landscaping around offices, accommodation and tourism facilities must make use of plants indigenous to the area;

- Landscaping must be done in such a way so as not to compromise any infrastructure or create erosion or safety concerns around infrastructure;
- Landscaping must comply with internal authorisation (DevCo) and legislated environmental authorisation processes where required.

3.1.10.7 Roads

Roads and vehicle tracks and the use of these, together with bicycle trails and footpaths, can have a significant negative and lasting impact on the integrity of habitats and the behaviour of wildlife but may be desirable or essential for management and tourism in the protected area.

- Limit the network and type of roads, vehicular tracks and trail paths in its protected areas to a level and standard that provides appropriate and reasonable access for both the management and visitor needs;
- All established roads, tracks, and trail paths no longer required must be decommissioned and rehabilitated in line with an approved maintenance management plan.

3.1.10.8 Electromagnetic pollution

Long-term exposure of wildlife to electromagnetic radiation from wireless telecommunications towers and other sources poses a significant threat to the health and wellbeing of wildlife by way of reduction of natural defences, general health deterioration, reduced reproduction and reduction of their useful territory as a result in habitat degradation or reduction in prey(Havas 2000; Balmori 2009a; Balmori 2009b; Sarkar 2011; Charu 2012; Sivani & Sudarsanam 2012; Memon 2013; Balmori 2014; Balmori 2015; Lázaro et al. 2016; Sharma & Sinha 2017; Sutherland et al. 2018).

Although cellular communication is vital for managing protected areas and tourism, this must be considered using the cautious approach.

- Allow limited installation of cellular masts and the cellular coverage in protected areas; if considered, these should be restricted to management and tourism accommodation nodes;
- Limited numbers of additional masts can be considered where such is vital for the security and management of the protected area and shall ensure, where reasonably possible, the protected area is predominately free of telecommunication based electromagnetic radiation.

3.1.10.9 Light and noise pollution

Protected areas provide an increasingly rare opportunity for people to experience and enjoy the ambience of natural soundscapes and star-filled skies. It is further recognised that non-human disturbed light and soundscapes are essential for the health and wellbeing of wildlife and that communication between animals includes visual and sounds (transmitted through air, water, or ground) that may be disrupted by human-induced light and noise.

Where reasonably possible protected area management must:

- Restore, maintain, and protect the natural soundscapes and naturally dark skies within its protected areas;
- Promote the scientific understanding and inspire the appreciation of the public of the value and the character of undiminished soundscapes and star-filled skies within its protected areas.

3.1.11 Climate change

Climate change will affect South Africa's biodiversity in many different ways. Protected areas should be managed to maintain high species diversity, healthy and functioning ecosystems and to reduce the likelihood of species extinction and genetic loss.

To address climate change, management of protected areas must give due consideration to the following aspects:

- Understanding key values for protection and their requirements.
- Protecting key habitat (for example, refugia).
- Maintaining ecological processes.
- Managing threats in the landscape.
- Dealing with landscape-scale issues.
- Where possible, cater for altitudinal gradients within a PA to enable migrations when necessary.
- Managers will need to play a critical role in observing and monitoring changes in species, ecosystems, and threats across the landscape.

3.1.12 Cultural heritage management

As per the Cultural Heritage Management Plan for the Karkloof Nature Reserve, the following will apply:

- No collection of any rocks/random rubble or headstones from graves;
- No exhuming of skeletal remains and reinterring them elsewhere since both actions require a permit from the KZN Amafa Research Institute's Council after consultation with the descendants.
- Where less than five graves are present, a buffer of 5 metres surrounding these graves must be kept intact.
- Where more than five graves are present, a buffer of 25 metres must be kept intact surrounding the middle area of the collection of graves: this means that no development or removal of topsoil may take place at this site within 25 metres of the collection of graves, without a permit from the KZN Amafa and Research Institute's Council.
- Managers must inform all staff, employees or contract workers of the 25-metre buffer that must be kept around any informal graveyard. This buffer must be taken from the furthest row of graves on each side of the square or rectangular graveyard.
- The built environment or parts thereof that are still existing today (ruins), such as historic houses and outbuildings such as carriage houses, storerooms, stables, staff housing (older than 60 years), and structures such as silos, dams, livestock pens, animal cribs may not be altered, destroyed, added onto or demolished without a permit from the KZN Amafa and Research Institute's Council.

Management strategies:

- *The area consisting of the old ruin on Dartmoor (a) can be burnt to uncover other structures in and around the house since some of the area is still covered in thick vegetation to enable the surveyor to identify the archaeological footprint: taking into consideration that little wood and no fittings are left in the stone constructed building. Burning the site is a preferred recommendation above applying poison.*
- *Before burning the area where the ruin, structures and perhaps graves are present, a fire buffer should be burnt ten metres from the ruin and its linked area of occupation (livestock pen, graves, etc.) to ensure that the fire does not spread to the rest of the property.*
- *The area containing the school and mill ruin on the Rockwood farm (b): Round-up can be applied to the mill- and school ruin (taking into consideration that only the chimney is left of the school and only the foundation and two iron wheels are left of the mill building. This will enable the surveyor to identify the archaeological footprint of the site. A buffer of 10m surrounding this footprint must be applied so that no developments (which include removal of top-soil) occur.*

3.1.13 Research, monitoring and reporting

Research and critical analysis based on scientific principles and best-practice generate the evidence underpinning informed and defendable conservation policies, practices and decision-making. Furthermore, research and critical analysis are fundamental to advancing both the province's and South Africa's biodiversity conservation agenda by raising the profile of the economic, social and cultural importance of biodiversity to society. The biodiversity components, the functioning of the ecosystems and the cultural heritage of protected areas are mostly inadequately understood. Long term research and monitoring are desirable and necessary due to the dynamic and stochastic nature of the ecosystem and to ascertain whether management actions have their desired effect in terms of achieving the biodiversity and cultural heritage conservation objectives.

- Decision making must be evidence-based and founded on ethical science, heuristic research and best practice;
- Management decisions must be based on the best available knowledge, supported by a wide range of research;
- Priority must be given to research that provides information and understanding that is of direct benefit to the Park and will guide the management interventions required to achieve the protected area's biodiversity and cultural heritage conservation objectives in the most cost-effective manner. Opportunities will, however, be considered and provided for both applied and theoretical research.

Partnerships and agreements with appropriate academic and research institutions must be promoted to stimulate and encourage the desired research in the protected area. To achieve this, the following will be undertaken:

- Management and scientific staff, as well as external researchers, must identify and prioritise research requirements. This research priority list will then be circulated to tertiary research institutions and made available on the web site;
- All baseline abiotic and biotic data collected must be collated and stored in databases as well as GIS data layers to assist researchers in the planning of research projects and interpretation of data; and
- Appropriate permanent research facilities must be developed and managed within or bordering the Park to facilitate research work.

Monitoring and surveillance programmes must facilitate adaptive management through the assessment of management interventions and the provision of information for achieving the objectives of the protected area. Long term research and monitoring are desirable and necessary as a result of the dynamic and stochastic nature of the ecosystem and to ascertain whether management actions have their desired effect in terms of achieving the biodiversity and cultural heritage conservation objectives. The Annual surveillance and monitoring schedule for Karkloof Nature Reserve is contained in Appendix 4.

3.1.14 Financial and human resources

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

- Adequate funding is required for the management of the protected area to ensure the protection of its biodiversity and cultural values and the continued provision of its ecosystem services;
- Prioritisation of management actions based on available funding must be aligned with priorities as determined by the Annual Operations Plan;
- Commercial operations within the protected area must be self-sufficient and, if profitable, should be used to subsidise its conservation and community programmes.
- Adequately trained and experienced staff must be employed for the effective management of the protected area;

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Appendix 1: Proclamation of the Karkloof Nature Reserve

KWAZULU-NATAL PROVINCE
KWAZULU-NATAL PROVINSIE
ISIFUNDAZWE SAKWAZULU-NATALI

Provincial Gazette • Provinsiale Koerant • Igazethi Yesifundazwe

GAZETTE EXTRAORDINARY—BUITENGEWONE KOERANT—IGAZETHI EYISIPESHELI

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(Irejistiwee njengephephandaba eposihhovisi)

PIETERMARITZBURG,

30 AUGUST 2012
30 AUGUSTUS 2012
30 kuNCWABA 2012

Vol. 6 | **No. 799**

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PROVINCIAL NOTICE

No. 83 **30 August 2012**

DEPARTMENT of AGRICULTURE ENVIRONMENTAL AFFAIRS AND RURAL DEVELOPMENT

NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS, 2003 (ACT NO. 57 OF 2003)

OFFICE OF THE MEC FOR AGRICULTURE ENVIRONMENTAL AFFAIRS AND RURAL DEVELOPMENT

DECLARATION OF NATURE RESERVES AND ASSIGN EZEMVELO KZN WILDLIFE AS THE MANAGEMENT AUTHORITY IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS ACT, 2003 (ACT NO. 57 OF 2003);

I, Dr Meshack Radebe, MEC for Agriculture, Environmental Affairs and Rural Development in KwaZulu-Natal, by virtue of the powers vested in me by section 23(1) and section 38(2) of the National Environmental Management: Protected Areas Act No. 57 of 2003 hereby declare that, with effect from the date of publication hereof, Amatikulu Nature Reserve, Blinkwater Nature Reserve, Chelmsford Nature Reserve, Dlinza Forest Nature Reserve, Enseleni Nature Reserve, Hluhluwe-Imfolozi Park, Isandlwana Nature Reserve, Ithala Game Reserve, Karkloof Nature Reserve, Mbumbazi Nature Reserve, Mpenjati Nature Reserve, Ncandu Nature Reserve, Ngoye Forest Reserve, Oribi Gorge Nature Reserve, Poccolan Bush Reserve, Robinsons Bush Reserve, Tembe Elephant Park, uMgeni Vlei Nature Reserve, Umlalazi Nature Reserve, Umtamvuna Nature Reserve as Nature Reserves and assign Ezemvelo KZN Wildlife as the Management Authority. The properties listed in the Schedule constitute the named Nature Reserves.

Dr Meshack Radebe
MEC for Agriculture, Environmental Affairs and Rural Development
KwaZulu-Natal

SCHEDULE

~~**AMATIKULU NATURE RESERVE**~~
~~**Region:** Situated in the province of KwaZulu-Natal, the Uthungulu District Municipality and in the KZ282 Umhlathuze Local Municipalities.~~

~~**Properties Comprising the Amatikulu Nature Reserve**~~	~~**Surveyor General diagram No.**~~	~~**Extent (ha)**~~
~~Sub 1 of Matikulu Leper Location No. 16632~~	~~604 / 1996~~	~~797.2867~~
~~Sub 1 of Annexe Reserve No. 8 No. 14264~~	~~599 / 1996~~	~~12.0485~~
~~Portion of Annexe Reserve No. 8 No. 14264~~	~~598 / 1996~~	~~602.2736~~
~~Amatikulu River~~		~~88.0026~~

~~**ISANDLWANA HERITAGE RESERVE**~~

~~**Region:** Situated in the province of KwaZulu-Natal, the Umzinyathi District Municipality and in the Nqutu Local Municipality~~

~~Properties Comprising the Isandlwana Heritage Reserve~~	~~Surveyor General diagram No.~~	~~Extent (ha)~~
~~Isandlwana Historical Site No.1 on Reserve No. 18 No 15838~~	~~522/1988~~	~~2.7999~~
~~Isandlwana Historical Site No.1 on Reserve No. 18 No 15838~~	~~3440/1987~~	~~813.5479~~

~~**ITHALA NATURE RESERVE**~~

~~**Region:** Situated in the province of KwaZulu-Natal, the Zululand District Municipality and in the KZ262 Uphongolo and KZ263 Abaqulusi Local Municipalities~~

~~Properties Comprising the Ithala Nature Reserve~~	~~Surveyor General diagram No.~~	~~Extent (ha)~~
~~Remainder of the farm Ongegund No. 393~~	~~S. G. 505 / 1951.~~	~~849.498~~
~~Sub 1 of the farm Ongegund No. 393~~	~~S. G. 506 / 1951.~~	~~1699.0021~~
~~Sub 2 of the farm Ongegund No. 393~~	~~S. G. 507 / 1951.~~	~~849.5011~~
~~The farm Onverwagt No. 395~~	~~VRY 476.~~	~~987.0311~~
~~Sub 1 of the farm Onverwacht No. 395~~	~~S. G. 1059 / 2007~~	~~630.2812~~
~~The farm Eldorado No. 13~~	~~VRY 442.~~	~~1429.8474~~
~~Remainder of the farm Doornpan No. 177~~	~~VRY 143.~~	~~2600.3669~~
~~Sub 3 of the farm Doornpan No. 177~~	~~S. V. 492 F. 33.~~	~~136.4065~~
~~Sub 4 of the farm Doornpan No. 177~~	~~S. G. 1824 / 1947.~~	~~41.1135~~
~~Erf 616 Louwesburg Township~~	~~S. V. 492 F. 3.~~	~~223.6042~~
~~The farm Vergelegen No. 373~~	~~VRY 540.~~	~~1977.7624~~
~~Remainder of the farm Bergvliet No. 452~~	~~VRY 483A.~~	~~680.0023~~
~~Sub 1 of the farm Bergvliet No. 452~~	~~S. V. 717 F. 83.~~	~~237.0161~~
~~Sub 2 of the farm Bergvliet No. 452~~	~~S. G. 5097 / 1965.~~	~~341.7271~~
~~Sub 3 of the farm Bergvliet No. 452~~	~~S. G. 1060 / 2007~~	~~5.7953~~
~~Sub 4 of the farm Bergvliet No. 452~~	~~S. G. 1061 / 2007~~	~~38.5517~~
~~Sub 5 of the farm Bergvliet No. 452~~	~~S. G. 1062 / 2007~~	~~376.8268~~
~~Remainder of the farm Wonderfontein No. 486~~	~~VRY 295.~~	~~1460.3432~~
~~Sub 1 of the farm Wonderfontein No. 486~~	~~S. G. 4680 / 1969.~~	~~1526.7779~~
~~Remainder of the farm Langverwacht No. 493~~	~~VRY 455.~~	~~469.4163~~
~~Sub 1 of the farm Langverwacht No. 493~~	~~S. V. 477 F. 5.~~	~~853.7736~~
~~Remainder of the farm Doornkraal No. 504~~	~~VRY 381.~~	~~919.1173~~
~~Sub 1 of the farm Doornkraal No. 504~~	~~VRY 381F1.~~	~~919.1159~~
~~Remainder of the farm Geluk No. 521~~	~~VRY 294.~~	~~612.0660~~
~~Sub 1 of the farm Geluk No. 521~~	~~S. G. 4529 / 1970.~~	~~431.5686~~
~~Sub 2 of the farm Geluk No. 521~~	~~S. G. 1063 / 2007~~	~~682.6400~~
~~Remainder of the farm Craig Adam No. 534~~	~~VRY 436.~~	~~2852.9754~~
~~The farm Jammerdal No. 574~~	~~VRY 451.~~	~~2620.07~~
~~The farm Breda No. 17060~~	~~VRY 516.~~	~~2815.1224~~
~~Sub 4 of the farm Tochgevonden No. 33~~	~~S. G. 79 / 1988~~	~~4.0712~~

KARKLOOF NATURE RESERVE

Region: Situated in the province of KwaZulu-Natal, the Umgungundlovu District Municipality and in the KZ223 Mooi Mpofana and KZ222 Umgeni Local Municipalities.

Properties Comprising the Karkloof Nature Reserve	Surveyor General diagram No.	Extent (ha)
The remainder of the farm Dartmoor No. 5093	G. V. 93A F. 4	779.3593
The farm Melmoth No. 7673	G. V. 219 F. 16	790.3846
The remainder of the farm Welgevonden No. 969	G. V. 24 F. 5	291.9670
Nature reserve area no. 1 over the remainder of the farm Spitze Kop No. 970	S. G. No. 2095 / 2010	355.0442
The remainder of portion 1 of the farm Spitze Kop No. 970	S. V. 15 F. 113	432.2363

A portion of the remainder of portion 1 of the farm Yellow-Wood No. 13732	S. G. No. 7256/1949	147.0802
A portion of the remainder of the farm Yellow-Wood No. 13732	S. G. No. 7255/1949	76.2350
Portion 1 of the farm Middle Drai No. 4129	S. V. 392 F. 4	56.4486
Portion 2 of the farm Middle Drai No. 4129	S. V. 396 F. 69	329.5080

MBUMBAZI NATURE RESERVE

Region: Situated in the province of KwaZulu-Natal, the Ugu District Municipality and in the KZN215 Ezingolweni and KZN216 Hibiscus Coast Local Municipalities.

Properties Comprising the Mbumbazi Nature Reserve	**Surveyor General diagram No.**	**Extent (ha)**
Sub 2 of the farm Tigers Hole No. 7790	S.G. 2470/1969.	47.5650
Remainder of the farm Kranskloof No. 8100	G. V. 241 F. 7.	581.0524
Sub 2 of the farm Marah No. 9411	S.G. 5507 / 1969.	223.6938
The farm Lapisterra No. 10816	S. V. 663 F. 39.	458.1728
Portions of the following farms north of the line A B C D E F G H J K L M N P Q R S T U V W X Z A' B' C' D' E' F' G' H' J' K' L' M' N' P' R' S' of the Annexed proclamation line described in diagram S. G. 1406 / 1990		
The farm Tattygar No. 12663	S.G. 384 / 1936.	252.1624
The remainder of the farm Fury 15357	S.G. 1408 / 1979.	172.2801
Sub 1 of the farm Fury No. 15357	S.G. 1899 / 1980.	178.2458
Sub 2 of the farm Fury No. 15357	S.G. 1900 / 1980.	40.5163
Sub 3 of the farm Fury No. 15357	S.G. 1901 / 1980.	49.7601
Sub 5 of the farm Fury No. 15357	S.G. 1903 / 1980.	1.5098
Sub 6 of the farm Fury No. 15357	S.G. 1904 / 1980.	1.6229
Sub 14 of the farm Fury No. 15357	S.G. 1912 / 1980.	0.1333
Sub 15 of the farm Fury No. 15357	S.G. 1913 / 1980.	16.2223
Sub 16 of the farm Fury No. 15357	S.G. 1914 / 1980.	0.0064
Portion of the following farm west of the line C D E F G H J K in the diagram depicted in Annexure of this notice.		
Sub 1 of the farm Fury No. 15357	S.G. 1899 / 1980.	178.2458

MPENJATI NATURE RESERVE

Region: Situated in the province of KwaZulu-Natal in the Ugu District Municipality and in the Hibiscus Coast Local Municipality

Properties Comprising the Mpenjati Nature Reserve	**Surveyor General diagram No.**	**Extent (ha)**
Lot 877 Palm Beach,	S.G. No. 18/1988	33.6263
The Remainder of Lot 2 Umtamvuna No. 10630	S.G. No. G. V. 373 F. 5.	2.1662
Sub 5 of Lot 2 Umtamvuna No. 10630	S.G. No. 6787/1958	0.4047
The Remainder of Lot 3 Umtamvuna No. 12689	S.G. No. 1735/1936	4.2516
Sub 2 of Lot 2 Umtamvuna No. 10630,	S.G. No. 2870/1947	11.4961

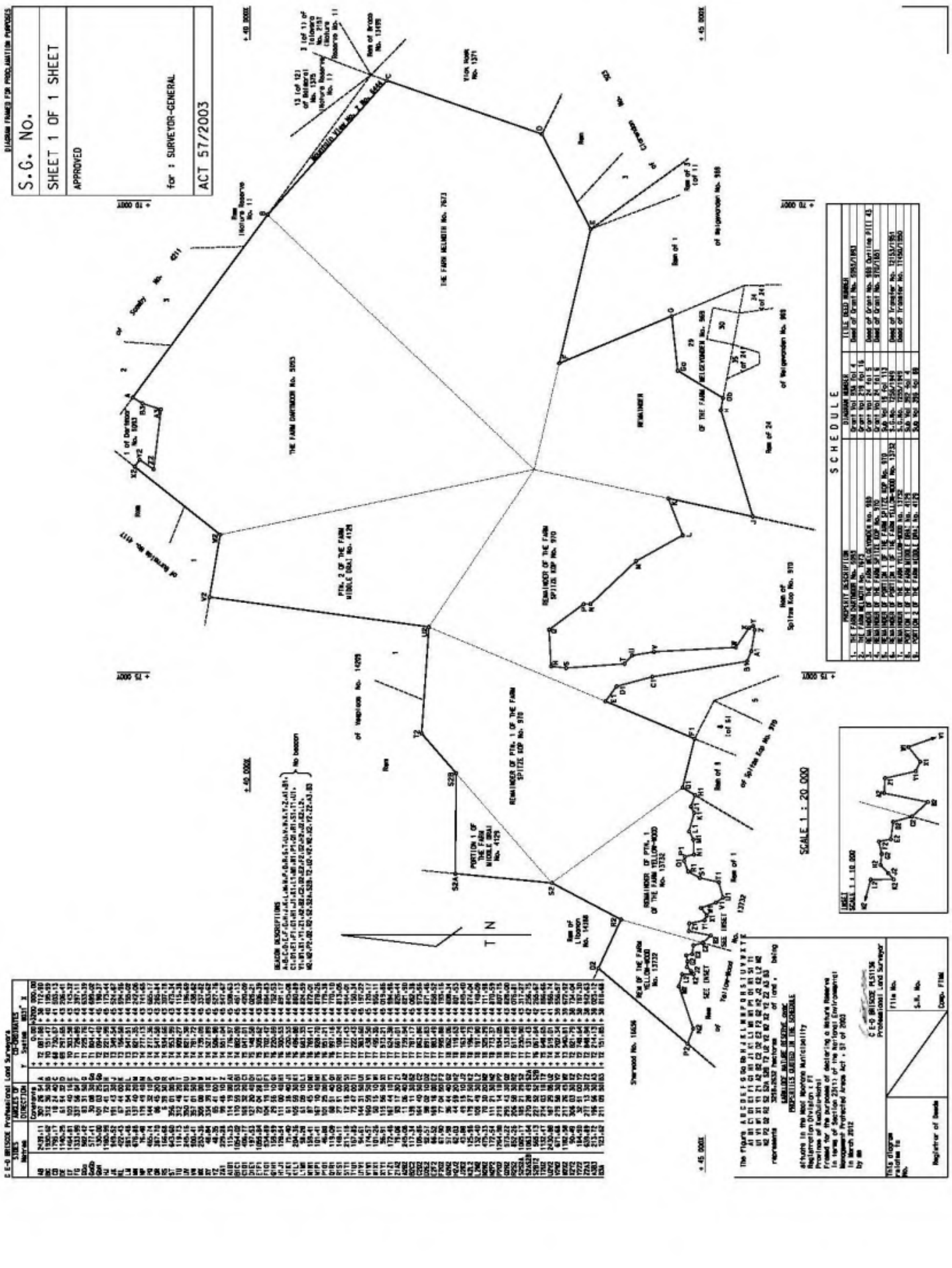
NCANDU NATURE RESERVE

Region: Situated in the province of KwaZulu-Natal, the Amajuba District Municipality and in the KZ252 Newcastle Local Municipality

Properties Comprising the Ncandu Nature Reserve	**Surveyor General diagram No.**	**Extent (ha)**
The farm Grey Ridge No. 2 No. 14525	S.G. 2193 / 1935	87.0758
State land known as Ncandu Nature Reserve		1771.2201

NGOYE FOREST RESERVE

Region: Situated in the province of KwaZulu-Natal, the Uthungulu District Municipality and in the KZ284 Umlalazi Local Municipality


S.G. No.
SHEET 1 OF 1 SHEET
APPROVED
for : SURVEYOR-GENERAL
ACT 57/2003
SCHEDULE
SCALE 1 : 20 000

KWAZULU-NATAL PROVINCE
KWAZULU-NATAL PROVINSIE
ISIFUNDAZWE SAKWAZULU-NATALI

Provincial Gazette • Provinsiale Koerant • Igazethi Yesifundazwe

(Registered at the post office as a newspaper) • (As 'n nuusblad by die poskantoor geregistreer)
(Irejistiwee njengephephandaba eposihhovisi)

Vol: 15 **PIETERMARITZBURG** **No: 2266**
1 APRIL 2021
1 APRIL 2021

ISSN 1994-4551
02266
9 771994 455008

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PROVINCIAL NOTICE 20 OF 2021

KWAZULU-NATAL DEPARTMENT OF ECONOMIC DEVELOPMENT, TOURISM AND ENVIRONMENTAL AFFAIRS

DECLARATION OF ADDITIONS TO THE KARKLOOF NATURE RESERVE IN TERMS OF SECTION 23(1) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS ACT, 2003

I, Ravigasen Ranganathan Pillay, in my capacity as Member of the KwaZulu-Natal Provincial Executive Council for Economic Development, Tourism and Environmental Affairs, and under powers vested in me by section 23(1) of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("the Act"), hereby declare that –

(a) subsequent to consultation with the relevant parties as contemplated in section 32(2) of the Act;

(b) subsequent to the publication of Notice Number 121 and 122 of 14 October 2020 in Provincial *Gazette* 2229 and 2230 respectively, and an advert in two national newspapers, in which my intention to declare the additions to the Karkloof Nature Reserve were duly published in accordance with the requirements of section 33(1) of the Act;

(c) subsequent to an agreement being concluded with the landowners in accordance with section 23(3) of the Act; and

(d) with effect from the date of publication of this Notice,

the properties described in the Schedule hereto are declared as part of an existing Nature Reserve, known as the Karkloof Nature Reserve, as contemplated in sections 23(1)(a)(ii) and section 23(1)(b) of the Act.

Given under my hand at **DURBAN** this _____ day of **MARCH**, Two Thousand and Twenty-one

Mr. R R Pillay, MPL
Member of the KwaZulu-Natal Executive Council
responsible for environmental affairs

SCHEDULE
Description of properties comprising additions to the Karkloof Nature Reserve

The additions to the Karkloof Nature Reserve comprise of the following immoveable properties:

(a) Portion 17 of the Farm Bloemendal No. 1144, situated in the Mooi Mpofana Local Municipality, Registration Division FT, in the province of KwaZulu-Natal, in extent 255,4218 (Two hundred and fifty five comma four two one eight) hectares, held by the Nyamvubu Conservation Trust under Title Deed No. T31085/2017, and shown in SG Diagram No. 167/2010; and

(b) Portion 1 of the Farm Burnside No. 4117, situated in the Mooi Mpofana Local Municipality, Registration Division FT, in the province of KwaZulu-Natal, in extent 141,6249 (One hundred and forty one comma six two four nine) hectares, held by Title Deed No. T5027/2011.

Appendix 2: List of Policies, Servitudes and Unpublished and Supporting Documents

Item:

1. Ezemvelo KZN Wildlife Corporate Strategic Plan and Performance Plan for 2015 - 2020
2. Ezemvelo KZN Wildlife Corporate Policies and Procedures (Norms & Standards) listed in the table below
3. Ezemvelo KZN Wildlife Biodiversity Database Checklists for Karkloof Nature Reserve
4. Proclamations of Karkloof Nature Reserve
5. uMgungundlovu District Security Operational Plan Version 1/2021
6. Veld Condition Report on Dartmoor and Middeldraai

Listed below are the Ezemvelo KZN Wildlife corporate policies (norms and standards) referenced from the intranet most relevant to Ezemvelo KZN Wildlife protected area management. It is the responsibility of all management and other personnel associated with the 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.

CORPORATE AFFAIRS	
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 KZN Wildlife
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
INTERNAL AUDIT	
C 5	Management Control
Biodiversity conservation operations	
1. natural resource sustainability	
Threatened Species and Ecosystems	
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
Exotic and Invasive species	
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
Migratory Species	
D 1.14	Black Wildebeest and Blue Wildebeest Hybridization and Conservation
D 1.15	Permit authorising the collection of Biological Material within Board Areas
2. CONSERVATION EFFECTIVENESS	
Strategic applications	

D 2.1	Involvement of the KwaZulu-Natal Nature Conservation Board in Project 8 of the MAB (Man and Biosphere) Programme
Conservation management: protected areas management	
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
Integrated environmental management	
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)
Ex Situ Wild Animal Management	
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
Human Animal Conflict - Inside and Outside Protected Areas	
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
Environmental Awareness	
D 2.34	Environmental Education Policy
3. BIODIVERSITY PROTECTION	
Co-management	
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

Resource use benefits	
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
4. RELATIONSHIPS	
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
COMMERCIAL OPERATIONS	
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

Appendix 3: Species List for Karkloof Nature Reserve

Plants

Taxon Name	Common Name	Conservation Status (SARDB)
Agapanthus campanulatus campanulatus	Bell Agapanthus	Least Concern
Aristea angolensis angolensis		Least Concern
Olea capensis macrocarpa		Least Concern
Begonia sutherlandii sutherlandii		Least Concern
Ursinia nana nana		Least Concern
Crassula vaginata vaginata		Least Concern
Rhus pyroides var. dinteri		
Rhus pyroides var. pyroides		
Gladiolus longicollis var. longicollis		
Hippocratea schlechteri var. schlechteri		
Maytenus acuminata var. acuminata		Least Concern
Centella glabrata var. glabrata		Least Concern
Centella glabrata var. natalensis		Least Concern
Pearsonia grandifolia		
Indigofera woodii		
Rhynchosia adenodes		Least Concern
Lotononis eriocarpa		Least Concern
Lotononis pulchra		Least Concern
Eriosema salignum	Brown Bonnet,Narrow-leaved Salignum	Least Concern
Tulbaghia cernua		Least Concern
Tulbaghia leucantha		Least Concern
Clutia katharinae		Least Concern
Andrachne ovalis	False Lightning Bush	Least Concern
Acalypha peduncularis		Least Concern
Protea simplex		Least Concern
Rhus discolor		
Rhus tomentosa		
Ocotea bullata	Stinkwood,Black Stinkwood	Endangered
Cryptocarya myrtifolia	Myrtle Quince,Wild Camphor	Vulnerable
Graderia scabra	Wild Penstemon,Pink Ground-Bells	Least Concern
Bowkeria verticillata		Least Concern
Phygelius aequalis		Least Concern
Phygelius capensis		Least Concern
Psydrax obovata		
Dierama cooperi		Least Concern
Dierama floriferum		Least Concern
Dierama insigne		Least Concern
Dierama latifolium		Least Concern
Dierama luteoalbidum		Vulnerable
Dierama robustum		Least Concern
Moraea inclinata		Least Concern
Watsonia canaliculata		Endangered
Cassipourea gummiflua		Vulnerable
Pycnostachys reticulata		Least Concern

Taxon Name	Common Name	Conservation Status (SARDB)
Ajuga ophrydis		Least Concern
Monopsis decipiens		Least Concern
Sebaea sp.		
Psammotropha myriantha		Least Concern
Ranunculus multifidus	Common Buttercup	Not Evaluated
Alepidea setifera		Least Concern
Peucedanum caffrum		
Trachyandra reflexipilosa		Least Concern
Kniphofia gracilis		Least Concern
Xysmalobium tysonianum	Sulphur Cartwheel	Least Concern
Disa chrysostachya		Least Concern
Disa stachyoides		Least Concern
Habenaria chlorotica		
Eulophia odontoglossa		Least Concern
Eulophia parviflora		Least Concern
Eulophia zeyheri		
Disperis cooperi		Least Concern
Disperis tysonii		Least Concern
Eugenia zuluensis		Least Concern
Conyza gouanii		Least Concern
Senecio burchellii		Least Concern
Senecio dregeanus		Vulnerable
Senecio inornatus		Least Concern
Senecio subrubriflorus		Least Concern
Cineraria grandibracteata		Least Concern
Othonna natalensis		Least Concern
Helichrysum argyrolepis		Least Concern
Helichrysum athrixiifolium		Least Concern
Helichrysum auriceps		Least Concern
Helichrysum cephaloideum		Least Concern
Helichrysum chionosphaerum		Least Concern
Helichrysum miconiifolium		Least Concern
Helichrysum monticola		Least Concern
Vernonia capensis		
Vernonia hirsuta		
Muraltia lancifolia		Least Concern
Polygala hispida		Least Concern
Polygala ohlendorfiana		Least Concern
Polygala rhinostigma		Least Concern
Polygala sp.		
Allophylus dregeanus		Least Concern
Silene burchellii	Bladder Campion,Gunpowder Plant	Not Evaluated
Psoralea glabra		Least Concern
Syncolostemon sp.		

Mammals

Taxon Name	Common Name	Conservation Status (SARDB)
Pelea capreolus	Grey rhebuck	
Sylvicapra grimmia	Common duiker, Grey duiker	

Taxon Name	Common Name	Conservation Status (SARDB)
Tragelaphus scriptus	Bushbuck	
Poecilogale albinucha	African striped weasel	
Galerella sanguinea	Slender mongoose	
Genetta tigrina	South African large-spotted genet	
Damaliscus pygargus phillipsi	Blesbok	
Ourebia ourebi ourebi	Oribi	Endangered
Philantomba monticola bicolor	Blue duiker	Vulnerable
Redunca arundinum arundinum	Southern reedbuck	
Canis mesomelas mesomelas	Black-backed jackal	
Aonyx capensis capensis	Cape clawless otter, African clawless otter	
Herpestes ichneumon cafer	Large grey mongoose	
Caracal caracal caracal	Caracal	
Leptailurus serval serval	Serval	Near Threatened
Potamochoerus larvatus koiropotamus	Bushpig	
Phacochoerus africanus	Common warthog	

Birds

Taxon Name	Common Name	Conservation Status (SARDB)
Anas sparsa	African Black Duck	Least Concern
Anas undulata	Yellow-billed duck	Least Concern
Plectropterus gambensis	Spur-winged goose	Least Concern
Vanellus armatus	Blacksmith Lapwing, Blacksmith Plover	Least Concern
Vanellus melanopterus	Black-winged Lapwing, Black-winged Plover	Least Concern
Ciconia ciconia	White Stork	Least Concern
Columba arquatrix	African Olive-Pigeon, Rameron Pigeon	Least Concern
Columba delegorguei	Eastern Bronze-naped Pigeon, Delegorgue's pigeon	Endangered
Columba guinea	Speckled Pigeon, Rock Pigeon	Least Concern
Falco biarmicus	Lanner falcon	Vulnerable
Falco subbuteo	Eurasian Hobby, Hobby Falcon	Least Concern
Accipiter melanoleucus	Black sparrowhawk	Least Concern
Accipiter rufiventris	Rufous-chested Sparrowhawk, Red-breasted Sparrowhawk	Least Concern
Accipiter tachiro	African Goshawk	Least Concern
Gyps coprotheres	Cape vulture	Endangered
Polemaetus bellicosus	Martial eagle	Endangered
Anthropoides paradiseus	Blue Crane	Near Threatened
Numida meleagris	Helmeted guineafowl	Least Concern
Neotis denhami	Denham's Bustard, Stanley's Bustard	Vulnerable
Sarothrura affinis	Striped flufftail	Vulnerable
Sarothrura rufa	Red-chested Flufftail	Least Concern
Acridotheres tristis	Common Myna, Indian Myna	Least Concern
Amblyospiza albifrons	Thick-billed Weaver	Least Concern
Andropadus importunus	Sombre Greenbul, Sombre Bulbul	Least Concern
Anthus cinnamomeus	African Pipit, Grassveld Pipit	Least Concern
Anthus leucophrys	Plain-backed Pipit	Least Concern

Taxon Name	Common Name	Conservation Status (SARDB)
Anthus lineiventris	Striped Pipit	Least Concern
Anthus similis	Long-billed Pipit	Least Concern
Apalis flavida	Yellow-breasted Apalis	Least Concern
Apalis thoracica	Bar-throated Apalis	Least Concern
Apaloderma narina	Narina Trogon	Least Concern
Apus affinis	Little Swift	Least Concern
Apus apus	Common Swift, European Swift	Least Concern
Apus barbatus	African Black Swift, Black Swift	Least Concern
Apus caffer	White-rumped Swift	Least Concern
Apus horus	Horus Swift	Least Concern
Aquila verreauxii	Verreauxs' Eagle, Black Eagle	Vulnerable
Ardea cinerea	Grey Heron	Least Concern
Ardea melanocephala	Black-headed Heron	Least Concern
Batis capensis	Cape Batis	Least Concern
Bostrychia hagedash	Hadeda Ibis	Least Concern
Bradypterus barratti	Barratt's Warbler	Least Concern
Bubo africanus	Spotted Eagle-Owl	Least Concern
Bucorvus leadbeateri	Southern Ground-Hornbill, Ground Hornbill	Endangered
Bugeranus carunculatus	Wattled Crane	Critically Endangered
Burhinus capensis	Spotted Thick-knee, Spotted Dikkop	Least Concern
Buteo buteo	Steppe Buzzard	Least Concern
Buteo rufofuscus	Jackal Buzzard	Least Concern
Buteo trizonatus	Forest Buzzard	Least Concern
Bycanistes bucinator	Trumpeter Hornbill	Least Concern
Camaroptera brachyura	Green-backed Camaroptera, Bleating Warbler	Least Concern
Campethera abingoni	Golden-tailed Woodpecker	Least Concern
Caprimulgus pectoralis	Fiery-necked Nightjar	Least Concern
Centropus burchellii	Burchell's Coucal	Least Concern
Charadrius tricollaris	Three-banded Plover	Least Concern
Chrysococcyx caprius	Diederick Cuckoo, Diederik Cuckoo	Least Concern
Chrysococcyx cupreus	African Emerald Cuckoo, Emerald Cuckoo	Least Concern
Cisticola aberrans	Lazy Cisticola	Least Concern
Cisticola ayresii	Wing-snapping Cisticola, Ayres' Cisticola	Least Concern
Cisticola fulvicapilla	Neddicky	Least Concern
Cisticola lais	Wailing Cisticola	Least Concern
Cisticola natalensis	Croaking Cisticola	Least Concern
Cisticola tinniens	Levaillant's Cisticola	Least Concern
Colius striatus	Speckled Mousebird	Least Concern
Coracina caesia	Grey Cuckooshrike	Least Concern
Corvus albicollis	White-necked Raven	Least Concern
Corvus albus	Pied Crow	Least Concern
Corvus capensis	Cape Crow, Black Crow	Least Concern
Cossypha caffra	Cape Robin-Chat, Cape Robin	Least Concern
Cossypha dichroa	Chorister Robin-Chat, Chorister Robin	Least Concern
Coturnix coturnix	Common Quail	Least Concern
Cuculus solitarius	Red-chested Cuckoo	Least Concern
Dicrurus adsimilis	Fork-tailed Drongo	Least Concern

Taxon Name	Common Name	Conservation Status (SARDB)
Dryoscopus cubla	Black-backed Puffback, Puffback	Least Concern
Emberiza flaviventris	Golden-breasted Bunting	Least Concern
Estrilda astrild	Common Waxbill	Least Concern
Euplectes ardens	Red-collared Widowbird, Red-Collared Widow	Least Concern
Euplectes axillaris	Fan-tailed Widowbird, Red-shouldered Widow	Least Concern
Euplectes capensis	Yellow Bishop, Yellow-rumped Widow	Least Concern
Euplectes orix	Southern Red Bishop, Red Bishop	Least Concern
Euplectes progne	Long-tailed Widowbird, Long-tailed Widow	Least Concern
Gallinago nigripennis	African Snipe, Ethiopian Snipe	Least Concern
Geronticus calvus	Southern Bald Ibis, Bald Ibis	Vulnerable
Guttera pucherani	Crested Guineafowl	Least Concern
Halcyon albiventris	Brown-hooded Kingfisher	Least Concern
Haliaeetus vocifer	African Fish-Eagle	Least Concern
Hirundo albigularis	White-throated Swallow	Least Concern
Hirundo fuligula	Rock Martin	Least Concern
Hirundo rustica	Barn Swallow, European Swallow	Least Concern
Indicator indicator	Greater Honeyguide	Least Concern
Indicator variegatus	Scaly-throated Honeyguide	Least Concern
Jynx ruficollis	Red-throated Wryneck	Least Concern
Lagonosticta rubricata	African Firefinch, Blue-billed Firefinch	Least Concern
Lamprotornis nitens	Cape Glossy Starling, Glossy Starling	Least Concern
Laniarius ferrugineus	Southern Boubou	Least Concern
Lanius collaris	Fiscal Shrike	Least Concern
Lioptilus nigricapillus	Bush Blackcap	Vulnerable
Lophaetus occipitalis	Long-crested Eagle	Least Concern
Lybius torquatus	Black-collared Barbet	Least Concern
Macronyx capensis	Cape Longclaw, Orange-throated Longclaw	Least Concern
Malaconotus blanchoti	Grey-headed Bush-Shrike	Least Concern
Megaceryle maxima	Giant Kingfisher	Least Concern
Melaenornis pammelaina	Southern Black Flycatcher, Black Flycatcher	Least Concern
Milvus migrans	Black Kite,Yellow-billed Kite	Least Concern
Monticola explorator	Sentinel Rock-Thrush	Least Concern
Monticola rupestris	Cape Rock-Thrush	Least Concern
Motacilla capensis	Cape Wagtail	Least Concern
Motacilla clara	Mountain Wagtail, Long-tailed Wagtail	Least Concern
Muscicapa adusta	African Dusky Flycatcher, Dusky Flycatcher	Least Concern
Nectarinia famosa	Malachite Sunbird	Least Concern
Oena capensis	Namaqua Dove	Least Concern
Onychognathus morio	Red-winged Starling	Least Concern
Oriolus larvatus	Black-headed Oriole	Least Concern
Ortygospiza atricollis	African Quailfinch, Quail Finch	Least Concern
Parus niger	Southern Black Tit	Least Concern
Passer diffusus	Southern Grey-headed Sparrow, Grey-headed Sparrow	Least Concern
Passer domesticus	House Sparrow	Least Concern
Phalacrocorax africanus	Reed Cormorant	Least Concern
Phyllastrephus terrestris	Terrestrial Brownbul, Terrestrial Bulbul	Least Concern
Platalea alba	African Spoonbill	Least Concern
Ploceus bicolor	Dark-Backed Weaver, Forest Weaver	Least Concern

Taxon Name	Common Name	Conservation Status (SARDB)
Pogoniulus pusillus	Red-fronted Tinkerbird, Red-fronted Tinker Barbet	Least Concern
Pogonocichla stellata	White-starred Robin, Starred Robin	Least Concern
Poicephalus robustus	Cape Parrot	Endangered
Polyboroides typus	African Harrier-Hawk, Gymnogene	Least Concern
Prinia hypoxantha	Drakensberg Prinia	Least Concern
Promerops gurneyi	Gurney's Sugarbird	Least Concern
Quelea quelea	Red-billed Quelea	Least Concern
Sagittarius serpentarius	Secretarybird	Vulnerable
Scopus umbretta	Hamerkop	Least Concern
Serinus canicollis	Cape Canary	Least Concern
Sphenoeacus afer	Cape Grassbird, Grassbird	Least Concern
Stephanoaetus coronatus	African Crowned Eagle	Vulnerable
Streptopelia capicola	Cape Turtle-Dove	Least Concern
Streptopelia semitorquata	Red-eyed Dove	Least Concern
Streptopelia senegalensis	Laughing Dove	Least Concern
Strix woodfordii	African Wood-Owl, Wood Owl	Least Concern
Tachybaptus ruficollis	Little Grebe, Dabchick	Least Concern
Tauraco corythaix	Knysna Turaco, Knysa Lourie	Least Concern
Tchagra senegalus	Black-crowned Tchagra	Least Concern
Telophorus zeylonus	Bokmakierie	Least Concern
Terpsiphone viridis	African Paradise-Flycatcher, Paradise Flycatcher	Least Concern
Tockus alboterminatus	Crowned Hornbill	Least Concern
Trochocercus cyanomelas	Blue-mantled Crested-Flycatcher, Blue-mantled Flycatcher	Least Concern
Turdus litsitsirupa	Groundscraper Thrush	Least Concern
Turdus olivaceus	Olive Thrush	Least Concern
Turtur tympanistria	Tambourine Dove	Least Concern
Tyto alba	Barn Owl	Least Concern
Tyto capensis	African Grass-Owl, Grass Owl	Vulnerable
Urocolius indicus	Red-faced Mousebird	Least Concern
Vidua funerea	Dusky Indigobird, Black Widowfinch	Least Concern
Vidua macroura	Pin-tailed Whydah	Least Concern
Zoothera gurneyi	Orange Ground-Thrush, Orange Thrush	Near Threatened
Scleroptila levaillantii	Red-winged Francolin	Least Concern
Pternistis natalensis	Natal Spurfowl, Natal Francolin	Least Concern
Pternistis afer	Red-necked Spurfowl, Red-necked Francolin	Least Concern
Pternistis swainsonii	Swainson's Spurfowl, Swainson's Francolin	Least Concern
Alopochen aegyptiaca	Egyptian Goose	Least Concern
Tachymarptis melba	Alpine Swift	Least Concern
Falco rupicolus	Rock Kestrel	Least Concern
Telophorus viridis	Gorgeous Bush-Shrike	Least Concern
Delichon urbicum	Common House-Martin, House Martin	Least Concern
Pycnonotus tricolor	Dark-capped Bulbul, Black-eyed Bulbul	Least Concern
Phylloscopus ruficapilla	Yellow-throated Woodland-Warbler, Yellow-throated Warbler	Least Concern
Zosterops virens	Cape White-eye	Least Concern

Taxon Name	Common Name	Conservation Status (SARDB)
Cercotrichas leucophrys	White-browed Scrub-Robin, White-browed Robin	Least Concern
Saxicola torquatus	African Stonechat, Stonechat	Least Concern
Chalcomitra amethystina	Amethyst Sunbird, Black Sunbird	Least Concern
Hedydipna collaris	Collared Sunbird	Least Concern
Cinnyris chalybeus	Southern Double-collared Sunbird, Lesser Double-collared Sunbird	Least Concern
Cinnyris afer	Greater Double-collared Sunbird	Least Concern
Crithagra mozambica	Yellow-fronted Canary, Yellow-eyed Canary	Least Concern
Crithagra scotops	Forest canary	Least Concern
Crithagra sulphurata	Brimstone Canary, Bully Canary	Least Concern
Dendropicos griseocephalus	Olive Woodpecker	Least Concern
Coccopygia melanotis	Swee Waxbill	Least Concern
Lonchura cucullatus	Bronze Mannikin	Least Concern
Cecropis cucullata	Greater Striped Swallow	Least Concern
Psalidoprocne pristoptera	Black Saw-wing, Black Saw-wing Swallow	
Chlorophoneus olivaceus	Olive Bush-Shrike	Least Concern
Chlorophoneus sulfureopectus	Orange-breasted Bush-Shrike	Least Concern
Campicoloides bifasciata	Buff-streaked Chat	Least Concern
Lamprotornis bicolor	Pied Starling	Least Concern
Caprimulgus vexillarius	Pennant-winged Nightjar	Least Concern
Columba larvata	Lemon Dove, Cinnamon Dove	Least Concern
Corythornis cristatus	Malachite Kingfisher	Least Concern
Oenanthe familiaris	Familiar Chat	Least Concern

Appendix 4: Annual surveillance and monitoring schedule for Karkloof Nature Reserve

Management issue	Parameters to be monitored	Method	Frequency	Reporting
Law enforcement	Schedule of patrols	Written record	Weekly	Annual report
	Illegal incidents	Photo/written record	Per event	Record of event
Stakeholder engagement	Minutes of meetings of the co-management committee	Written record	Bi-monthly	Annual report
Zone of influence	Ecological status of the wetlands outside of KNR	Photo/written records	Annually	Annual report
	List of invasive vegetation on KNR boundary	Photo/written records	Annually	Annual report
	Land use changes that are approved in the zone of influence	Written record	Annually	Annual report
Cultural heritage management	Monitoring of all cultural heritage features, including yellowwood saw pits	Written record and photographic	Bi-annually	Annual report
Fire management	Burning of firebreaks	Written record/map/Photo	Annually	Annual report
	Controlled burning of blocks	Written record/map/Photo	Annually	Annual report
	Unplanned / arson wildfires	Written record/map/Photo	Per event	Record of event
Invasive plant control	Areas of heavy invasive plant infestation	Fixed-point photo / Map	Annually	Annual report
	Areas cleared and rehabilitated	Written record/map/Photo	Annually	Annual report
	Records of labour hours/days	Written record	Annually	Annual report
	Herbicide usage	Written record	Annually	Annual report
Alien animal control	Control measures for alien animals found within KNR	Written record	Per event	Record of event
Soil erosion control	Proportions of plant cover in areas of erosion concern	Fixed point Photo	Annually	Annual report
	State of rehabilitated areas of erosion	Fixed point Photo	Annually	Annual report
Wildlife management	Incidents related to flagship species (Cranes and oribi)	Photo/written record	Per event	Record of event
	Surveys of key species	Photo/written records	Annually	Annual report
Resource utilisation	Extraction of resources from KNR	Photo/written records	Per event	Annual report
Human resources	Staffing levels	Number of full-time staff	Annually	Annual report
Facilities and infrastructure	State of roads, 4x4 tracks, paths and fences.	Photo/written records	Annually	Annual report
	State of facilities and service infrastructure	Written records	Annually	Annual report
	Pollution events	Photo/written records	Per event	Record of event

Appendix 5: Internal Rules of Protected Areas Managed by Ezemvelo KZN Wildlife

Government Gazette
Staatskoerant
REPUBLIC OF SOUTH AFRICA
REPUBLIEK VAN SUID AFRIKA

Vol. 655 24 January Januarie 2020 No. 42967

N.B. The Government Printing Works will not be held responsible for the quality of "Hard Copies" or "Electronic Files" submitted for publication purposes

ISSN 1682-5843

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NON-GOVERNMENTAL ORGANIZATION

NO. 43 **24 JANUARY 2020**

INTERNAL RULES OF PROTECTED AREAS MANAGED BY EZEMVELO KZN WILDLIFE (the KWAZULU-NATAL CONSERVATION BOARD)

These Internal Rules are as provided for in terms of section 52(1) of the National Environmental Management: Protected Areas Act read with the Proper Administration Regulations and are subject to such legislation and are to be applied in addition thereto

Definitions

Words used in these Rules shall have the meanings assigned to them below or as otherwise defined in the Act or its regulations.

Accommodation Unit:

Means any Rondavel, Square Davel cottage, lodge, cabin, chalet, hut, hiking hut, bungalow, hotel in a resort or any other built structure intended for permanent or temporary human habitation.

Act:

The National Environmental Management: Protected Areas Act, no 57 of 2003 as amended from time to time.

Adult:

Means any person over twelve years of age or older.

Aircraft:

Means a manned or unmanned machine or equipment used or capable of controlled flight and includes but is not limited to glider, hang glider, paraglider, parawing, helicopter, aeroplane, balloon or remote-controlled drone.

Authority:

Means the Board which is the management authority for a Protected Area established by Government and managed by the Board and as defined or contemplated by the WHCA or the Act and which is represented by the employee appointed by the Board to manage the PA in question.

Board:

Means the KwaZulu-Natal Nature Conservation Board as defined by the KwaZulu-Natal Nature Conservation Management Act No.9 of 1997 and which operates as Ezemvelo KZN Wildlife and which is represented by its Chief Executive Officer.

Camping site:

Means any area in the PA set apart and marked or otherwise indicated as a place in which visitors may camp or take up temporary abode and shall include a cave / overhang designated as temporary, overnight, shelter.

Cultural Sites:

Any portion of a PA containing artefacts or evidence of human culture warranting protection in terms of any law generally applicable to the protection of human cultural artefacts or evidence.

Field Ranger:

Means any officer duly appointed as a Field Ranger.

Graffiti:

Means any unauthorised inscription, word, figure, or design that is marked, etched, scratched, drawn, or painted on any surface within the PA, including but not limited to, buildings, walls, signs, structures or places, rocks, trees, stumps or logs, or other surfaces, regardless of the nature of the surface or its location in the PA.

Hang glider or Glider:

Means any craft, machine or device capable of normal controlled flight other than under mechanical power or jet propulsion.

Management:

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 National Environmental Management: Biodiversity Act, No. 10 of 2004 read with the Act.

Management Unit:

Means the specific geographic area/sector of the PA. The boundaries of these areas do not necessarily follow original protected area boundaries.

Officer:

Means any employee of the Authority, irrespective of rank or office and irrespective of whether or not such employee is on duty or off duty at the time and includes an Honorary Officer.

Officer-in-Charge:

Means the senior officer in charge of a PA or a Resort or a section of a PA irrespective of rank that person may hold.

Paraglider or Parawing means any equipment or device capable of powered or unpowered flight or gliding by way of a parafoil or parachute and includes 'basejumping' and recreational parachuting.

Picnic Site:

An area designated by the Authority where visitors to the PA may alight from their Vehicle for the purposes of using the facilities provided for rest and recreation.

Proper Administration Regulations:

Means

(a) In respect of the UDP WHS: The Regulations for the Proper Administration of Special Nature Reserves, National Parks and World Heritage Sites published under GNR 1061 of 2005 (GG 28181 of 28 October 2005).

(b) In respect of all other Nature Reserves: Regulations for the Proper Administration of Nature Reserves, 2012 published under GNR 99 of 2012 (GG 35021 of 8 February 2012).

Protected Area (the PA):

(a) Means any area declared or proclaimed as such in terms of section 3 or listed in the Second Schedule to the KwaZulu-Natal Conservation Management Act No.9 of 1997; and / or

(b) Means any of the protected areas referred to in section 9 of the Act and where such area is or is deemed to be a provincial protected area in terms of the Act;

and / or

(c) Means any protected area otherwise declared or deemed to have been declared to be a protected area in terms of the Act.

and / or

(d) Means the UDP WHS.

Resort:

A Visitor Area provided by the Authority for the use and enjoyment of visitors to a PA.

UDP WHS:

Means the uKhahlamba Drakensberg Park which comprise the South African components of the Maloti-Drakensberg Park World Heritage Site as listed under the World Heritage Convention and which are also known as the uKhahlamba-Drakensberg Park World Heritage Site.

Vehicle:

Means any vehicle or device in, upon or by any person or goods is or are or may be transported or drawn and includes any combination of vehicles irrespective of power source.

Viewing Hide:

Any hide, shelter or designated place where visitors to a Protected Area can alight from their Vehicle for the purpose of viewing wildlife and / or scenery.

Visitor Area:

Any reception area, Accommodation Unit, Camping Site, Picnic Site, Viewing Hide or any similar area demarcated for visitors to a PA to alight from a vehicle or otherwise remain.

WHCA:

The World Heritage Convention Act, No.49 of 1999 as amended from time to time.

Wilderness Area:

Means "an area designated.... 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 in the Act.

1.1.2.3. Any person accessing the PA does so subject to the provisions of the General Indemnification of the Authority against all claims or damages arising from such person's entry or those of any accompanying minors or babies. This indemnification is given in respect of any act or omission of the Authority, its officers, employees or agents and irrespective of whether such act or omission is grossly negligent. Signs, notices or conditions contained elsewhere shall not limit the generality of this indemnification.

1.1.2.4. No person may enter or exit the PA except through a designated point but, irrespective of whether or not a designated point is used, the person will be bound by these Rules.

1.1.2.5. All persons within a PA must, upon request by an Officer, produce acceptable means of identification and a valid entry permit / voucher.

1.1.2.6. Any person who, as pilot or passenger, who uses an aircraft at an altitude of 13,800 feet or less above sea level over ground constituting the UDP WHS will be deemed to have entered the UDP WHS and will be bound by these Rules (to the extent applicable) and by any Protected Airspace Rules of the Authority.

2. Times of Entry

2.1. No person shall enter or exit the PA at any time other than the time prescribed by the Authority from time to time. Admission to the PA shall not give any person the right to be outside any resort or visitor area outside the time laid down by the Authority for entry into and exit from such resort or visitor area.

2.2. The officer in charge shall have the right to levy an administrative penalty when required to operate outside of normal operating hours.

3. Entrance fees payable

3.1. No person may enter a PA and / or a Resort without payment of the required entrance fees determined by the management authority from time to time.

3.2. Daily entrance fees (including conservation, rescue and/or community levies etc.) shall be payable for every day / night stayed in the PA.

3.3. Any person entering or exiting a PA outside of the stipulated times may be charged a surplus in addition to any other fee payable.

3.4. Resort fees are payable in addition to PA entrance fees.

3.5. No person may enter a PA without a written permit / voucher issued by the management authority.

3.6. No person may knowingly assist or facilitate any other person's entry into the PA without the requisite written permit / voucher.

3.7. No person may knowingly assist or facilitate any other person's entry into a Resort or overnighting in a Resort without payment of the requisite fees and / or without a written permit / voucher.

4. Weapons may be conveyed into the PA on certain conditions

4.1. A person in possession of a valid licence or otherwise lawfully permitted to carry such weapon in question may convey that weapon into the PA subject to the following rules:

4.1.1. No unlawful weapons may be conveyed into the PA.

4.1.2. All weapons and ammunition of whatever nature shall be disclosed at the first checkpoint, whether such checkpoint be an entrance gate, reception, a resort or an office, as the case may be, for the purposes stipulated above.

4.2. The Officer or agent to whom such weapons and ammunition are disclosed shall record the details of such weapon and the amount of ammunition and may require the owner to seal such weapons and ammunition in such a manner that the weapons and ammunition cannot be used without the seals being broken.

4.3. A record of the weapon and ammunition will be issued and must be presented upon demand by any officer or law enforcement official and when exiting the protected area.

4.4. The owner shall ensure that the weapons are not loaded when being sealed.

4.5. When leaving the PA, the weapons and ammunition shall again be presented for inspection by an Officer or agent.

4.6. When required to be sealed: Any person found to be in possession of an unsealed weapon and / or ammunition or, in respect of which the seal is broken or who is unable to account for any weapon or ammunition shall be guilty of an offence and liable to prosecution.

4.7. For the purposes of this provision: weapon shall include any firearm, muzzle loading gun, air rifle, paint ball gun bow, crossbow or other device used for the discharge of any projectile as well as any other dangerous weapon and ammunition shall include the projectile and / or propellant as the case may be.

4.8. The Board may exempt members of a recognised law enforcement agency or other persons engaged on official business in the PA from the requirements of this provision.

4.9. The Board may, by notice make special provisions applicable to hunting and culling operations in protected areas.

5. **Visitor road access**

5.1. No person shall enter any part of the PA closed to the public or drive any vehicle at any place other than on roads designated for visitors.

5.2. No person shall enter or drive on any road within the PA shown by a notice as being closed or obstructed in any manner.

5.3. No person may drive any vehicle off the road without a written permit issued by the Authority or instructed to do so by an officer.

5.4. No person shall, without the permission of an officer, travel upon or use any road or path or any part thereof or enter any area in the PA or resort which is not open to the public unless:

5.4.1. That person has obtained the written permission of the Officer-in-Charge to do so; and

5.4.2. is accompanied by an officer unless specifically exempted by the Officer-in-Charge.

6. Cultural Sites

Cultural Sites are symbols of living heritage and must be respected as such. For the purposes of this provision: A Cultural Site extends 50m from the outermost clearly noticeable cultural artefact (e.g. paintings, structures and other physical artefacts holding cultural importance). The following are prohibited at cultural sites:

6.1. Touching the rock paintings or the rock surface immediately surrounding any rock paintings;

6.2. Leaning anything against the rock paintings or the rock surface immediately surrounding any rock paintings;

6.3. Pouring or spraying any liquid (including water) or any other substance onto the rock paintings;

6.4. Drawing or scratching on the rock paintings or rock face and decorating or damaging the walls of the site;

6.5. Stirring up dust when walking through or visiting the rock art sites;

6.6. Removing any artefacts or stone, stone tools or offcuts and shards produced in the making of such;

6.7. Defacing or damaging a Cultural Site or any part thereof.

6.8. Removing or attempting to remove any substrate on or in which a cultural artefact (including a painting) is located;

6.9. Camping or picnicking in or near Cultural Sites;

6.10. Littering, making fires or using candles and flame or heat irradiating lamps within or near cultural sites.

6.11. Using flash photography or exposing painting to bright or intense lighting.

Any person who contravenes the above will, in addition to contravening this rule, be liable for prosecution under the National Heritage Resources Act No. 25 of 1999 as well as applicable provincial legislation.

7. Animals not allowed

7.1. Except as provided for below; no person shall bring an animal of whatever nature, including indigenous wild animals, livestock or pets, into a PA.

7.2. Notwithstanding any other provision of these Rules: a disabled person who is assisted by a trained working dog may bring such dog into a Visitor Area subject to the following:

7.2.1. No dog may be brought into a Visitor Area located in a PA where lion, leopard, spotted hyena or wild dog are present.

7.2.2. Such dog is to be kept under direct physical control by means of a leash and / or harness at all times.

7.2.3. Such dog is to be vaccinated and must have been dewormed no more than 30 days prior to entering the Visitor Area. Proof of deworming and proof of vaccination against rabies, canine distemper, canine parvo-virus, canine hepatitis, canine para-influenza and leptospirosis must be carried at all times.

7.2.4. Such dog may not leave the Visitor Area.

7.2.5. Faeces must be removed by the owner and disposed of.

7.2.6. Any dog disturbing wildlife or causing a nuisance to other visitors must be confined or removed from the Visitor Area.

7.3. Any other person wishing to bring a wild animal, pet or domestic animal into a PA must obtain written authorisation from the Officer-in-Charge of the PA before attempting to do so. Such authorisation:

7.3.1. Is entirely within the discretion of the Officer-in-Charge, and

7.3.2. must be presented upon demand.

7.3.3. shall be limited to the PA identified

7.3.4. is subject to such other terms and conditions which the Officer-in-Charge might specify.

7.4. No permission for any species listed in terms of the Alien and Invasive Species Regulations, or proposed to be listed will be granted except to re-stock existing trout dams.

7.5. Bringing of any wild animal (indigenous or otherwise) into a PA will be subject such additional permits and authorisations prescribed by law.

7.6. Any unauthorised animal found in a PA may be impounded or destroyed by an Officer.

7.7. Bring any animal into a PA is entirely at the risk of the person doing so.

8. **Overnight Accommodation**

8.1. No person shall stay or overnight in any part of the PA at any place other than a resort or any other place designated by the Authority for such stay.

8.2. Accommodation in the PA may only be occupied from 14h00 on the day of arrival and must be vacated before 10h00 on the day of departure.

8.3. No person shall stay or overnight in a resort camp in the PA or any part of the PA without payment of the fees determined by The Authority from time to time.

8.4. No person shall stay or overnight in a resort camp in the PA or any part of the PA before having reported to an employee or officer in the reception office of such rest camp in question: Provided that no person shall stay overnight in a resort unless accommodation or a camping site is available for that person.

8.5. No smoking is permitted in any Visitor Area unless such area is specifically demarcated for such purpose or such area is both out of doors and removed from other visitors.

9. **Lighting of fires**

9.1. No person shall light or attempt to light a fire outside an officially demarcated fire place or braai area within the PA, without written permission from an Officer.

9.2. No fires may be made in any caves or cultural sites

9.3. No person may discard any object in any place where it may cause a fire to light.

9.4. Any person lighting a fire remains liable for the safe extinguishing of such fire.

10. Types of vehicles allowed

10.1. No person shall enter into or operate in the PA with any vehicle other than a vehicle that conforms to the dimensions and other requirements prescribed by the Authority from time to time.

10.2. Unless otherwise specified a motor vehicle, duly licenced for operation on national roads, shall be permitted for use on designated roads within the PA.

10.3. Use of off-road vehicles such as motor cross bikes, quad bikes and dune buggies are generally prohibited but may be used if specifically authorised by an Officer.

10.4. Non-motorised vehicles may only be used in demarcated areas or with the written permission of an Officer.

11. Vehicles to be registered, licensed and roadworthy

11.1. No person shall enter, drive or operate in the PA, a motor vehicle that is not lawfully registered and licensed, in terms of the National Road Traffic Act (Act 93 of 1996).

11.2. No person shall enter, drive or operate in the PA, a motor vehicle that is not in a roadworthy condition as is set out in the National Road Traffic Act.

11.3. No person shall drive or operate in the PA a motor vehicle, unless that person is in possession of a valid driver's licence for the vehicle in question.

11.4. No person shall drive or operate in the PA a motor vehicle, unless such person keeps such valid driver's licence with him or her at all at times whilst driving or operating such vehicle.

11.5. Any additional restriction on the use of motor vehicles may be imposed by means of a notice.

12. Traffic laws to apply

12.1. All laws, ordinances and other statutory enactments applicable to public roads in South Africa apply to roads within the PA subject to express amendment by these Rules.

12.2. Despite any other provision of these Rules; any wild animal has right of way on any road and the killing, interfering or injuring of any animal is strictly prohibited.

12.3. Despite any other provision of these Rules; bona fide viewing of game, nature or scenery is expressly provided for and such viewing shall not constitute a breach of these Rules except to the extent that such viewing constitutes reckless driving.

12.4. No person shall enter a road in the PA unless it can be done in a manner that does not compromise the safety of the driver, any other person or animals on or near the road.

12.5. No person or driver of any motor vehicle that has been involved in, or contributed to, an accident in the PA shall remove a vehicle or vehicles from the scene of such accident, except for the purposes of sufficiently allowing the passage of traffic, without the authority of an Officer.

12.6. Any driver who negligently, recklessly or deliberately kills or injures any animal shall, in addition to any other law including criminal prosecution, be liable to the Board for the commercial value of such animal.

13. Prohibited acts – vehicles

13.1. No person driving any vehicle in the PA shall:

13.1.1. Drive, park or stop in such a manner that it constitutes a nuisance, disturbance, inconvenience or danger to any other person, causes an obstruction, blocks the pathway of an emergency vehicle or causes damages of any kind including damage to plants.

13.1.2. Park a vehicle in a place other than on a designated road or parking area or in a place specifically designated for that purpose.

13.1.3. Drive anywhere excepting on the road or other specifically permitted place.

13.1.4. Damage or potentially damage any road or property.

13.1.5. Without the special permission of the Authority, in a PA exceed such speed limits as the Authority may from time to time impose and display by means of signage. Unless otherwise indicated the speed limit on all roads shall be 40km/hr

13.1.6. Officers on duty and in demarcated vehicles may exceed the stipulated speed limits and generally operate at 60km/hr where necessary and safe to do so.

13.1.7. Deliberately drive a vehicle close to any game animal with the intention, or where the result is, that the animal in question is disturbed in its natural environment.

13.1.8. No person shall drive a vehicle close to any game animal where, by doing so, they risk damage or injury to any person or property including their own.

13.1.9. Show intolerance or discourtesy to any other road user in the PA.

13.1.10. No person may alight or leave a vehicle for any reason whatsoever except in a visitor area specifically designated for such purpose unless authorised to do so by an Officer.

13.2. No person shall without the permission of the Authority, operate any vehicle or combination of vehicles on any road in any the PA if any axle weight thereof exceeds the maximum axle weight determined by the Authority from time to time. Unless otherwise indicated the maximum axle weight permitted in the PA is 8, 164 kg.

13.3. No person shall drive any vehicle in the PA in a reckless or negligent manner. Without restricting the ordinary meaning of the word "reckless" a person driving a vehicle will be deemed to have driven the vehicle in a reckless manner if it is driven in deliberate or wilful disregard for the safety of any person, animal, reptile, bird, plant or property of whatever nature or in a manner that unduly disturbs or disrupts third party enjoyment of the PA.

13.4. No person shall play music, hoot or excessively rev a motor engine so as to cause a disturbance to the environment and nature.

13.5. No person may drive after sunset and before sunrise without the permission of an officer.

14. Prohibited Acts – Aircraft

14.1. The use of aircraft inside the PA is prohibited, unless these are used for authorised research or official purposes and / or with the prior written approval of and subject to obtaining such permits specified by the Authority.

14.2. An officer may within a PA seize any aircraft unlawfully used in the PA.

14.3. An officer may seize any aircraft landing without permission within the PA unless such landing is considered to be a bona fide emergency to safeguard human life.

14.4. The use of radio or remote controlled toy or model aircraft is prohibited except in specially designated areas. Such toy or models used in violation of this prohibition may be confiscated by an Officer, without warning, and shall only be returned on application to the Authority.

14.5. No Officer, Authority and / or the Board or any of their employees or agents shall be liable for any damage arising through any seizure, confiscation or impoundment contemplated above.

15. Research

15.1. No person may conduct research or monitoring in a PA without having submitted a formal application in the prescribed format and without having obtained written authority from the Authority.

15.2. No person may collect a plant or animal specimen for research purposes without the relevant permit having being issued in terms of the Natal Nature Conservation Ordinance, 15 of 1974 and/or NEM: Biodiversity Act, 10 of 2004 or any other applicable legislation.

15.3. It is an offence in terms of these rules not to comply with the conditions in the written authorisation for research or with the conditions stipulated on the permit.

15.4. No person may bring the propagules or any other living material of any plant that is a declared Alien or Invasive Species, or otherwise which is alien to a PA, into the PA.

15.5. No person may bring biological matter into a PA where such matter harbours or may, reasonably possibly harbour, pathogens, invasive species or diseases.

16. Influence of alcohol or other intoxicating substances

16.1. No person shall in the PA:

16.1.1. drive a vehicle; or

16.1.2. occupy the driver's seat of a motor vehicle the engine of which is running, while under the influence of intoxicating liquor or any other substance that may have a narcotic effect on such person; or

16.1.3. have open alcohol containers in a motor vehicle and the driver of such vehicle shall be liable for any contravention of this provision.

16.2. No person shall in the PA:

16.2.1. drive a vehicle; or

16.2.2. occupy the driver's seat of a motor vehicle the engine of which is running, while the concentration of alcohol in any specimen of blood taken from any part of his or her body is not less than 0,05

gram per 100 millilitres, or in the case of a professional driver referred to in section 32, not less than 0,02 gram per 100 millilitres.

16.3. If, in any prosecution for an alleged contravention of a provision of subsection 19.2, it is proved that the concentration of alcohol in any specimen of blood taken from any part of the body of the person concerned was not less than 0,05 gram per 100 millilitres at any time within two hours after the alleged contravention, it shall be presumed, in the absence of evidence to the contrary, that such concentration was not less than 0,05 gram per 100 millilitres at the time of the alleged contravention.

16.4. Where, in any prosecution in terms of these rules, proof is tendered of the analysis of a specimen of the blood of any person, it shall be presumed, in the absence of evidence to the contrary, that any syringe used for obtaining such specimen and the receptacle in which such specimen was placed for despatch to an analyst, were free from any substance or contamination which could have affected the result of such analysis.

16.5. No person shall in the PA:

16.5.1. drive a vehicle; or

16.5.2. occupy the driver's seat of a motor vehicle the engine of which is running, while the concentration of alcohol in any specimen of breath exhaled by such person is not less than 0,24 milligrams per 1 000 millilitres.

16.6. If, in any prosecution for a contravention of a provision of subsection 19.5, it is proved that the concentration of alcohol in any specimen of breath of the person concerned was not less than 0,24 milligrams per 1 000 millilitres of breath taken at any time within two hours after the alleged contravention, it shall be presumed, in the absence of evidence to the contrary, that such concentration was not less than 0,2 milligrams per 1 000 millilitres at the time of the alleged contravention.

16.7. A breath sampling system (as prescribed in terms of the National Road Traffic Act) may be used for determining the concentration of alcohol in any breath specimen.

16.8. 16.8.Any person detained for an alleged contravention of any provision of this section shall not-

16.8.1. during his or her detention consume any substance that contains alcohol of any nature, except on the instruction of or when administered by a medical practitioner;

16.8.2. during his or her detention smoke until the specimen referred to in subsection 16.3 or 16.6 has been taken, as the case may be.

16.9. No person shall refuse that a specimen of blood, or a specimen of breath, be taken of him or her.

17. Restrictions on and concessions to persons within the PA

No person shall, without the special prior written permission of the Authority, within the PA:

17.1. Hold or give any public entertainment or collect any money from the public.

17.2. Exhibit any advertisement or notice.

17.3. Keep any animals, birds or poultry.

17.4. Affix to or make on in any manner whatsoever, any tree, rock or any object not belonging to that person any name, letter, figure, symbol, mark, picture or sign or otherwise damage any tree or other object.

17.5. Hold any event or entertainment, show or display (any authorisation shall require an approved Event Management Plan).

17.6. Conduct any commercial or business activity.

18. Damage and nuisance

18.1. No person shall within the PA:

18.1.1. Damage, hurt interfere with or endanger any animal, human being, living plant or property of the Board.

18.1.2. At any time play any radio, recording player, music system, musical instrument or in any way unnecessarily cause any noise in a manner that is likely to disturb any other person.

18.1.3. Discard any article, including cigarette ends, or refuse of whatever nature, except in receptacles and containers provided for this purpose.

18.1.4. Discard any burning object in any place where it may set fire to any other object or otherwise act in a manner likely to cause a fire other than where the making of a fire is specifically permitted.

18.1.5. Cause or allow any person to disfigure, blemish or injure any surface by way of graffiti or any other mechanism.

18.1.6. Be under the influence of alcohol or intoxicating substance (legal or otherwise) so as to cause a nuisance or disturbance to visitors or officers.

18.2. Any person who persists in causing a nuisance to any other user of the PA or who persists in disregarding the applicable regulations, rules, notices or lawful instructions of an officer may be instructed to leave the PA by an officer in which case:

18.2.1. such person shall have no claim for a refund of any fee paid to the Authority.

18.2.2. the officer may call upon other officers, third parties or law enforcement officials to remove such person.

18.2.3. Such person may be banned from entering the PA or any other PA operated by the Board.

18.3. Any person who causes any damage to any property within the PA or to any animal or plant in the PA shall be liable for the costs or repair or replacement of such property or the costs of treatment of such animal or plant.

19. Harming nature - general prohibitions

Subject to the provisions the Act, no person other than an employee of Board or a person specifically authorised in writing by the Board to do so, may:

19.1. convey into the PA or within the PA be in possession of any weapon other than a weapon declared and dealt with and may not be in possession of any explosive, fireworks, trap or poison including substances defined as such in the Hazardous Substances Act, no. 15 of 1973;

19.2. hunt or otherwise wilfully or negligently kill or injure any mammal, bird, fish, amphibian or reptile;

19.3. wilfully disturb any mammal, bird, fish, amphibian or reptile;

19.4. within the PA use any sound recording, lure, bait or scent to attract or catch, view or photograph fauna;

19.5. take, damage or destroy any egg or nest of any bird, or take honey from a beehive;

19.6. wilfully or negligently cause a fire;

19.7. wilfully or negligently cause any damage to any object of geological, archaeological, historical, ethnological, educational or other scientific interest;

19.8. cut, damage, remove or destroy any tree or other plant, including collecting and/or removing dry or firewood, grass or other plants;

19.9. remove seed or flowers from any tree or other plant; or

19.10. remove any animal or part thereof, whether dead or alive;

19.11. remove any sand, soil, rock or other mineral material or

19.12. feed any animal or leave food where it could reasonably be accessed by animals.

20. Recreational Activities in the UDP WHS

Unless otherwise specified that following recreational activities are only permitted in the UDP WHS and this part does not apply to any other PA unless expressly provided for in a notice displayed at such PA:

20.1. Canoeing, paddling or tubing is permitted but only where other users will not be inconvenienced or harmed and the use is strictly at the person's own risk and such person must have the required safety equipment, and be proficient.

20.2. Rock climbing is generally permitted with permission from an Officer-in-charge however use of fixed protection and bolting is restricted and may only occur with specific permission and in accordance with official policy and in accordance with the Integrated Management Plan and the Wilderness Management Plan where applicable. The Authority or an Officer may for good reason restrict the areas and times where climbing may take place.

20.3. Swimming is generally permitted unless otherwise indicated by the Authority.

20.4. The use and enjoyment of water resources is subject to the rights of other users of the PA and its water resources.

20.5. Hiking and walking on designated pathways are permitted.

20.6. The Authority may impose a surcharge or other conditions on any person insisting on hiking alone.

20.7. Any person hiking must complete the hiking register.

20.8. Fly-fishing in scheduled trout waters is generally permitted subject any conditions or fees imposed.

20.9. Any recreational activity is solely at the risk of the participant and the Board is fully indemnified against any claim arising.

20.10. Any recreational activity may be limited by notice or directive.

21. Hunting and Fishing

21.1. 21.1.The Authority may designate PA's or parts thereof, through suitable zonings, for consumptive use of natural resources including hunting, fishing and harvesting.

21.2. 21.2.Where the Authority has elected to do so and where such zonation is recorded in a management plan approved by the Board then the Authority may prescribe rules for such designated area (and matters incidental thereto) to allow for such activity to occur.

21.3. 21.3.The rules contemplated above may contradict these Park Rules and will, in the event of conflict, take precedence but only to the limited extent required to permit the consumptive use of natural resources within the designated area.

22. Photography in the PA

22.1. No person shall, except in accordance with the conditions laid down by the Authority from time to time, take any photographs, videos or films or record any images in the PA other than for private purposes.

22.2. Any photographs, films, videos or other recordings other than private ones shall be made available to the Authority on demand who shall have all rights to store, copy, edit, distribute, use such as it may in its sole discretion determine.

23. Officers may ask for written authority to be shown

23.1. Any person in the PA shall hand over the written voucher, permit or exemption authorising that person to be within the PA and to perform such activity to an Officer if requested to do so.

23.2. Any person failing or refusing to comply with any request to hand over the written voucher authorising that person to be within the PA when requested to do so by an Officer shall, apart from any other liability that person may incur, also be liable for payment of the fees in respect of admission, accommodation or any other service for which fees may be levied by the Authority, even though such fees may already have been paid. Provided that any fees thus paid shall be reclaimable by the person concerned on the submission to the Authority of satisfactory proof that such fees have previously been paid.

24. Complying with instructions

24.1. No person shall fail to comply with a lawful instruction issued by the Authority or an Officer while inside the PA.

24.2. The Authority may erect written notices to give effect to the PA Zoning or for any other matter and such notices shall be deemed to be lawful instructions and shall be complied with.

24.3. The right of admission to any PA, accommodation unit, viewing hide or picnic site is strictly reserved and any Officer may, in their discretion, require any person to vacate such area on good cause.

25. Special conditions to be observed

25.1. Any person to whom special permission of any nature whatsoever may be granted to enter into or reside in the PA shall, in addition to the provisions of the Act, the regulations and these rules, observe all instructions which the Authority may deem fit to issue in connection with such permission.

25.2. Unless otherwise provided for: The Board may exempt any person or group of persons from any rule contained herein in respect of an area or the PA as a whole and for such period as may be determined provided that such exemption may not be granted retrospectively and shall only be granted, in writing and on written motivation, in exceptional circumstances.

26. Offences and penalties

In addition to any offence in terms of section 89 of the Act, in terms of Regulation 61 read with Regulation 64 of the Proper Administration Regulations any person who contravenes or fails to comply with—

26.1. a provision of these internal rules;

26.2. a condition mentioned in a permit issued in terms of these internal rules; or

26.3. a prohibition, instruction, rule or order imposed, given or issued under these internal rules;

shall be guilty of an offence and is liable on conviction to a fine not exceeding R 5 million or to imprisonment for a period not exceeding five years or to both a fine and such imprisonment and, on second or subsequent conviction; to a fine and or imprisonment not exceeding R10 million or 10 years as the case may be.