



**E Z E M V E L O
K Z N W I L D L I F E**
Conservation, Partnerships & Ecotourism

KRANTZKLOOF NATURE RESERVE

Integrated **MANAGEMENT PLAN** *2009 - 2013*



Krantzkloof Nature Reserve

*KwaZulu-Natal
South Africa*

Integrated Management Plan: 2009-2013

***Reviewed and edited by
Ezemvelo KwaZulu-Natal Wildlife Management Planning Unit***

***Based on the Draft Integrated Management Plan (2008 – 2013)
by
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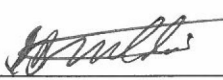


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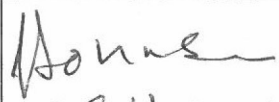
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PREFACE

This Integrated Management Plan for the Krantzkloof Nature Reserve is the primary and overarching management document for the Nature Reserve for the period 2009 to 2013. It forms the framework within which the Nature Reserve will be managed and developed towards the achievement of its management objectives, derived in collaboration with the Nature Reserve's stakeholders during the latter part of 2007 and early part of 2008.

The Protected Area Management Planning Process and the resultant planning documents (elaborated on in the next few pages) have been designed to meet the statutory requirements of the National Environmental Management: Protected Areas Act and other relevant legislation.

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

A long-term business approach has also been introduced that ensures that the Nature Reserve's management objectives are put into action and reflected through a Strategic Management Plan in the Nature Reserve's operational budget over the next five years. A Business Plan will, at the same time, be developed and actively pursue additional and improved funding and income towards the achievement of the natural and cultural heritage conservation objectives of the Nature Reserve over the next five years.

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

Dr. Bandile Mkhize
Chief Executive Officer

Date:

EXECUTIVE SUMMARY AND PURPOSE OF PLAN

This Integrated Management Plan (IMP) includes the management as well as developmental guidelines for the Krantzkloof Nature Reserve (KNR) and is the primary and overarching management document for the KNR for the period 2008 to 2013. The IMP forms the framework within which the reserve will be managed, aligned and developed in an endeavour to achieve the biodiversity conservation, ecotourism and partnership objectives as envisaged and set by the various stakeholders, and refined by the Technical Task Team members during the consultative planning process.

The IMP is based on the Protected Area Reserve Management Planning Process, as required by the National Environmental Management Act (Act No.107 of 1998) and the National Environmental Management: Protected Areas Act (Act No. 57 of 2003), and will only be modified with Ezemvelo KZN Wildlife (EKZNW) approval after consultation with all relevant stakeholders.

The principles underlying the IMP for the KNR are based on general principles guiding the attainment of sustainability – protecting biodiversity; sound resource management; equitable and appropriate community involvement and beneficiation; the creation of viable and sustainable business opportunities; and clear policies, objectives and operational guidelines.

The rationale of an IMP for protected area management is to assist the KNR in ensuring sustainability by protecting the integrity and value of environmental resources, providing measurable benefits to host communities, and enhancing the satisfaction of visitors.

By addressing the needs and expectations of resource managers, communities, and users by defining the processes that contribute to sustainability and monitoring the performance of these processes, EKZNW will ensure that their objectives, as well as those of relevant stakeholders are attained in an acceptable and appropriate manner, consistently.

Related to this is the development the Concept Development Plan which will be developed using the specified zonation process which aims to guide current and future land and activity use in KNR, for the purpose of effecting management and recreation opportunities. The zonation also sets a framework within which conservation programmes for the protected area are implemented.

Through the utilisation of the IMP as guide for the compilation of the Reserve's Strategic Management Plan and Operational Budget, it is envisaged that KNR's management objectives will be operationalised and reviewed annually, providing timeous changes to the five year plan.

As a document to guide the management of the KNR, based on the inputs of all stakeholders, the IMP also serves as the base document for monitoring both performance and compliance regarding the various management objectives of the KNR.

Recognising the important role the KNR plays in local conservation initiatives, EKZNW, as the conservation authority, commits itself to the implementation of this plan.

PROTECTED AREA MANAGEMENT PLANNING PROCESS FRAMEWORK FOR PROTECTED AREAS

The Integrated Management Plan, its components and authorisation

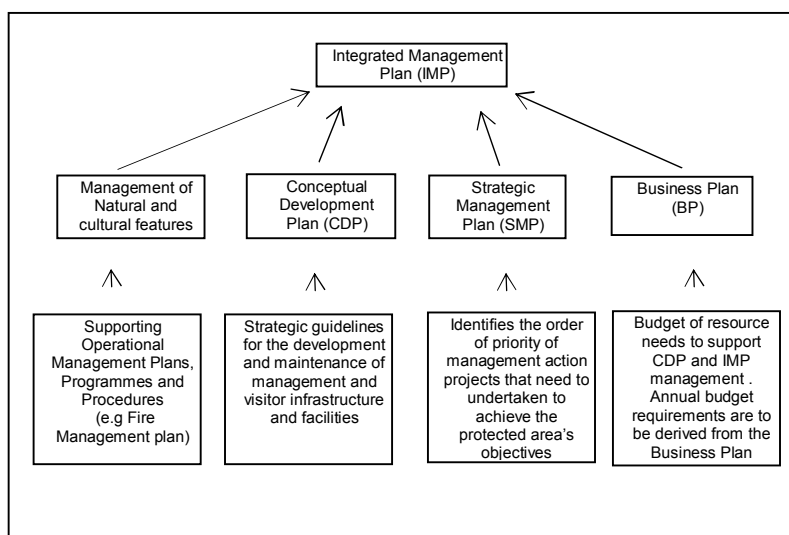
The **Integrated Management Plan (IMP)** is the overarching protected area integrated planning document that describes the administrative and legal framework, contextual background, public participation processes followed, vision / mission statements, management objectives, zonation as well as a management policy framework and guidelines, for a protected area, for a specific 5 year period. The **IMP** forms the framework within which all the other planning components, such as the **Conceptual Development Plan (CDP)**, **Strategic Management Plan (SMP)** and **Business Plan (BP)** are developed. The National Environmental Management: Protected Areas Act 57 of 2003 (NEMPA) considers these plans to be components of the **IMP**.

The **Conceptual Development Plan (CDP)** is an integrated planning document and provides a strategic guideline for the development and maintenance of conservation management infrastructure and visitor facilities / activities within the constraints of the protected area receiving environment. This component will be developed further during the IMP's five-year period. To ensure operational effectiveness, protected areas may require specific Operational plans, programmes and procedures such as Fire management Plans, Wilderness Areas Management Plans, Elephant Management Plans etc, that support the **IMP** and **CDP**. These will be compiled where they do not already exist.

The **Strategic Management Plan (SMP)** is an operational management component that identifies the order of priority of IMP action projects, activities and tasks that need to be undertaken in the achievement of the protected area objectives and attaches key performance areas, responsibilities, timeframes, budgets and resources to each activity. This plan usually takes the form of a Microsoft Access database that 'actions' the Reserve's management objectives and any projects identified by the **IMP**, **CDP** and **Business Plan (BP)**. The **SMP** is a key planning document that also informs the Annual Budgeting Estimates and provides information for Annual Reports.

The **Business Plan (BP)** is primarily aimed at describing the manner in which the **IMP** and **CDP** are to be both financially resourced as well as manpower and capacity needs. It may address issues of operational efficiency and the optimisation of income generated opportunities in order to bridge any possible shortfalls between required operational expenditure and committed provincial government budget allocations. Five year expenditure estimates will inform the development of the **Business Plan (BP)**.

Once the **BP** has been approved, the **SMP** is finalised according to the committed five-year provincial budget allocations for the protected area and other expected financial income.



The process by which the **IMP** plans are developed is in accordance with the requirements of South Africa's environmental legislation, in particular the NEMPA, requiring public consultation and participation, as follows:

- The Protected Area Mission and Objectives contained in the **IMP** are derived in consultation at a Stakeholders' Workshop, the outcomes of which are advertised both regionally and provincially for comment in the next step.
- The **IMP** will be advertised provincially and regionally for public comment before being authorised.
- The **SMP** and **BP** will form the basis for regular progress reporting to the protected area Management Authority and its structures.

The **IMP** and its subsidiary plans are required to be authorised by the Provincial Minister for the Department of Agriculture, Environmental Affairs and Rural Development, in terms of the National Environmental Management: Protected Areas Act 57 of 2003. The IMP and any subsidiary plan are to be forwarded to the MEC on recommendation from the EKZNW Board.

IMP Planning & Review

The IMP requires both annual and five year revision cycles to ensure that the management objectives remain relevant and that management actions are continually improved. The figure below illustrates how the annual and five year planning and review cycles are to be integrated.

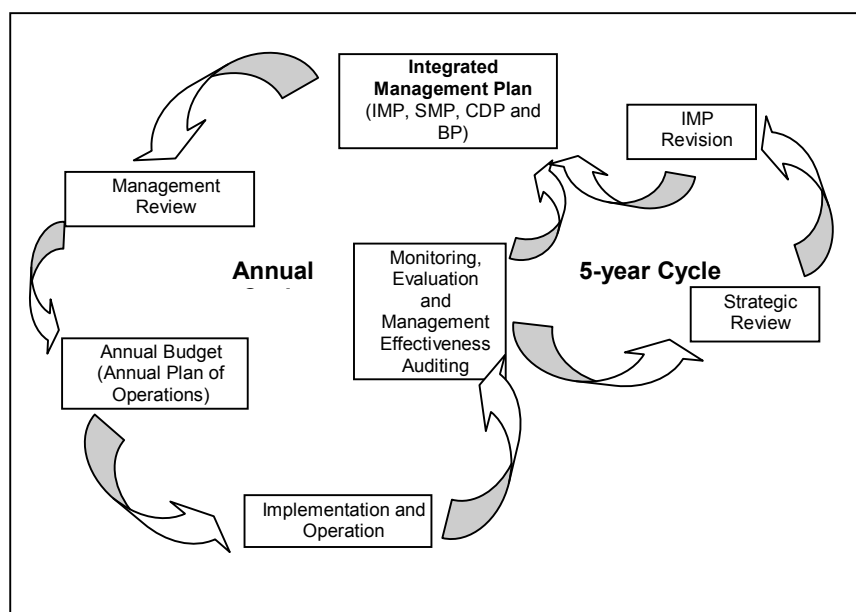


Figure 1: Integrated Management Plans: Aligning Annual and Five year Cycles

DEFINITIONS

Alien species:

Means species or genotypes that are not indigenous to Krantzkloof Nature Reserve and southern KwaZulu-Natal Coastal Region including hybrids and genetically altered organisms.

Amafa

Amafa aKwaZulu-Natali (KwaZulu-Natal Provincial Heritage Agency)

Biodiversity / biological diversity:

Means 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, No. 10 of 2004).

Bioprospecting:

In relation to indigenous biological resources, means any research on, or development or application of, indigenous biological resources for commercial or industrial exploitation, and includes –The systematic search, collection or gathering of such resources or making extractions from such resources for purposes of such research, development or application (as per the National Environmental Management: Biodiversity Act, 2004 [Act No. 10 of 2004]).

Board:

Means the KwaZulu-Natal Nature Conservation Board as defined by the Kwazulu-Natal Nature Conservation Management Act (No.9 of 1997).

Buffer Zone:

Means an area surrounding the Krantzkloof Nature Reserve that has restrictions placed on its use or where collaborative projects and programmes are undertaken to afford additional protection to the Nature Reserve.

Co-management:

The term Co-Management will be understood within the context of Section 42 of the National Environmental Management Act: Protected Areas Act, 2003 (Act No. 57 of 2003).

Cultural Heritage:

As defined in Article 1 of the World Heritage Convention (UNESCO) 1972¹, 'cultural heritage' is considered as "monuments, architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of value from the point of view of history, art or science, groups of buildings, groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of significance from the point of view of history, art or science, sites, works of man or the combined works of nature and man, and areas including archaeological sites which are of value from the historical, aesthetic, ethnological or anthropological point of view." For the purpose of this IMP, living heritage features such as mountains, pools, rivers, boulders, etc. as well as palaeontological features are included under this definition.

Ecosystem:

Means a dynamic complex of animal, plant and micro-organism communities and their non-living environment interacting as a functional unit (as per National Environmental Management: Protected Areas, 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:

¹ *Convention concerning the protection of the World Cultural and Natural Heritage.* UNESCO. Adopted by the General Conference at its seventeenth session, Paris, 16 November 1972. Paris, France.

- a. Benefits obtained 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 spiritual, recreational, aesthetic, inspirational, educational, community and symbolic nature.

Eco-cultural Tourism (ecotourism):

Means the travel to natural areas to learn about the way of life and cultural history of people, the natural history of the environment, while taking care not to change the environment and contributing to the economic welfare of the local people (*adapted from a definition of ecotourism by Hecto Ceballos Lascurain*).

Ecological Integrity

Means the sum of the biological, physical and chemical components of an ecosystem and its products, functions and attributes (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).

Environmental Degradation:

Means 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.

Indigenous Species:

In relation to a specific protected area, means a species that occurs, or has historically occurred, naturally in a free state of nature within that specific protected area, but excludes a species introduced in that protected area as a result of human activity (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).

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; and
- 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:

Means the agreed co-ordination of management and / or mandated managers on their individual or combined properties in order to achieve common management objectives

Local community:

Means any community of people living or having rights or interests in a distinct geographical area (as per the National Environmental Management: Protected Areas Act, No. 57 of 2003).

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 Biodiversity Act (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).

Management Authority:

In relation to a protected area, means the organ of state or other institution or person in which the authority to manage the protected area is vested (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).

Nature Conservation:

Means the conservation of naturally occurring ecological systems, the sustainable utilization 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]).

Nature Reserve:

Means Krantzkloof Nature Reserve.

Natural Heritage:

As defined in Article 2 of the World Heritage Convention (UNESCO) 1972² 'natural heritage' is considered 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.

Partnership/s:

Means a co-operative and / or collaborative arrangement/s between Nature Reserve Management/ EKZNW and a third party that supports the achievement of the Nature Reserve management objectives.

Protected Area:

Means any area declared or proclaimed as such in terms of section 3 or listed in the Second Schedule to this Act (as per the KwaZulu-Natal Nature Conservation Management Act, 1997 (Act No. 9 of 1997); or means any of the protected areas referred to in section 9 (of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).

Stakeholders / interested parties³:

These are interested individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public. According to the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), "stakeholder" means a person, an organ of state or a community contemplated in section 82 (1) (a), or an indigenous community contemplated in section 82(1) (b).

Sustainable:

In relation to the use of a biological resource, means the use of such resource in a way and at a rate that would not lead to its long-term decline; would not disrupt the ecological integrity of the ecosystem in which it occurs; and would ensure its continued use to meet the needs and aspirations of present and future generations of people (as per National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).

² UNESCO 1972 *Convention concerning the Protection of the World Cultural and Natural Heritage*. Adopted by the General Conference at its seventeenth session, Paris, 16 November 1972. UNESCO, Paris, France

³ Defined in Guideline Document EIA Regulations, DEAT, April 1998

ABBREVIATIONS

ASL	Above sea level
BP	Business Plan (Component of EKZNW protected area management planning process)
CDP	Concept Development Plan (Component of EKZNW protected area management planning process)
DAEA&RD	KwaZulu Natal Provincial Department of Agriculture, Environmental Affairs and Rural Development
DLA	Department of Land Affairs
DPW	Department of Public Works
DWEA	National Department of Water and Environmental Affairs
EIA	Environmental Impact Assessment
EKZNW	Ezemvelo KZN Wildlife
FPA	Fire Protection Association in terms of the national Veld and Forest Fire Act, 1998 (Act No.101 of 1998)
GIS	Geographical Information Systems
IAP	Interested and Affected Party
IDP	Municipal Integrated Development Plan
IEM	Integrated Environmental Management
IMP	Integrated Management Plan
IUCN	International Union for the Conservation of Nature or the World Conservation Union (as commonly referenced)
KNR	Krantzkloof Nature Reserve
KZN	KwaZulu-Natal (Province of the Republic of South Africa)
LDP	Local Development Plan
MCM	National Department of Marine and Coastal Management
MEC	Member of the Executive Council for DAEA&RD, KwaZulu-Natal Provincial Government
MO	Management Objective
MoA	Memorandum of Agreement
MoU	Memorandum of Understanding
NCS	KZN Nature Conservation Service
PAMC	Protected Area Management Committee
PPP	Public Private Partnership
ROC	EKZNW Regional Operations Committee
ROS	Recreational Opportunity Spectrum
SA	Republic of South Africa
SAHRA	South African Heritage Resources Agency
SDF	Municipal Spatial Development Framework
SMME	Small, Micro and Medium Enterprises
SMP	Strategic Management Plan (component of EKZNW protected area management planning process)
SUP	Sustainable Utilization Plan
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WUA	Water User Association

ABBREVIATIONS USED FOR STATUTES (LEGISLATION)

CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
ECA	Environment Conservation Act, 1989 (Act No. 73 of 1989)
KZNHRA	KwaZulu Heritage Resources Act, 1997 (Act No. 10 of 1997)
KZNNCMA	KwaZulu-Natal Nature Conservation Management Act, 1997 (Act No. 9 of 1997)
NEMA	National Environmental Management Act, 1998 (Act No.107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
NEMBA	National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)
NEMPAA	National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)
PFMA	Public Finance Management Act, 1999 (Act No. 1 of 1999)

1 PURPOSE AND SIGNIFICANCE OF THE KRANTZKLOOF NATURE RESERVE

1.1 Purpose:

The purpose of Krantzkloof Nature Reserve (KNR) is to:

- Conserve and maintain the KNR Gorge and its associated habitats and aesthetic integrity as a natural feature of the landscape.
- Protect endangered, rare and endemic species indigenous to the area.
- Preserve and conserve its ecological and cultural heritage integrity of the area.
- Contribute to local and regional economies through sustaining good quality water production and by providing a public amenity.
- Support systems for the sustainable use of natural resources.
- Provide a destination for eco-cultural tourism in the KwaZulu Natal Province.
- Provide a natural heritage amenity for the people of eThekweni Metropolitan Municipality.

1.2 Significance:

The significant values of KNR include:

Natural and cultural values. Various KNR natural and cultural heritage features are of provincial significance, and incorporate the following:

- KNR has 217 bird species listed;
- The outstanding natural beauty and aesthetic value of the area;
- The biological diversity of species and habitats with some presently only being protected within this Nature Reserve; and
- Rockshelters with ironage, archaeological deposits.

Outdoor Recreation and Eco-cultural Tourism. KNR provides sustainable outdoor recreation and eco-cultural tourism activities in an area of significant natural and aesthetic beauty. The Nature Reserve has the potential to significantly contribute to and enhanced tourism opportunities for visitors. One of the popular activities in KNR is rock climbing as it offers a safe and aesthetic environment, roads and hiking trails are easily accessible, in close proximity to the city centre and allows climbers to better develop their skills.

Action Project 1.2. (i): Develop a management plan for the climbing routes.
--

2 ADMINISTRATIVE AND LEGAL FRAMEWORK

2.1 Institutional Arrangements

2.1.1 KNR Management Authority

Decisions regarding the Krantzkloof Nature Reserve are made by Ezemvelo KwaZulu-Natal to give effect to its Mission, and to provide staff with a standardised position and framework regarding matters of general applicability. This will be confirmed in terms of Section 38 (2) of the Environmental Management: Protected Areas, 2003 [Act No.57 of 2003] (NEMPAA) which requires that the provincial MEC assign the management authority for a Protected Area. Many aspects of protected area management are governed by existing policies which are reviewed on an annual basis for ratification by the Board. Staff are encouraged to familiarise themselves with the relevant revisions and to contribute new policy perspectives as decision-making needs emerge, and to critically evaluate current policies. Current policies are binding on all staff, and are contained in a Policy File for ease of reference.

As the current Management Authority, EKZNW is responsible for reporting on the management of the Nature Reserve to the designated KwaZulu-Natal Provincial Member of the Executive Committee and the Premier thus ensuring co-ordination of those matters that may affect KNR through the relevant provincial departments, District and Local Municipalities.

Action Project 2.1.1 (i): Obtain written assignment from the MEC re-appointing EKZNW as the management authority for KNR in terms of Section 38(2) of NEMPAA.

2.1.2 Land Claims and Co-Management

There are no known land claims against KNR.

2.1.3 Separation of Authority Functions

Other public service providers within KNR include electricity provided by Eskom and telephone lines provided by Telkom. Waste removal is conducted by the Municipality and a Vodacom tower is present.

Action Project 2.1.3 (i): Update and compile a list of all service providers in KNR

2.2 Legislation Guiding the Administration of the Krantzkloof Nature Reserve

It is important to note that Krantzkloof Nature Reserve is a protected area in terms of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003 [NEMPAA]). In terms of this Act, any conflicts with other legislation will be dealt with in accordance with Section 7 of NEMPAA. In essence it stipulates that - where a provision of NEMPAA specifically concerns the management or development of protected areas, and there is conflict with other national legislation, the relevant section of NEMPAA prevails.

The operational administration and management of the Nature Reserve is subject to the following key statutes – it is acknowledged that this list is not exhaustive. Managers will familiarize themselves with the purpose and contents of these statutes as well as their subsequent amendments and regulations. Many of these statutes can be downloaded from the following SA Government Documents internet website:

<http://www.info.gov.za/view/DynamicAction?pageid=528>.

Not only do these Acts and Ordinances guide the specific decisions and actions, they also provide the framework for monitoring performance and compliance, and provide guidelines regarding contravention, offences and penalties.

Within the South African context, ensuring compliance to relevant legislation is a must. Therefore it is imperative that all actions undertaken by management are compliant with all relevant legislation such as:

Natural and Cultural Heritage/Resource Management and Development

- Animals Protection Act, 1962 (Act No. 71 of 1962).
- Amafa aKwaZulu-Natali/Heritage KwaZulu Natal: Kwazulu-Natal Heritage Act, 1997 (Act No.10 of 1997)
- Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965).
- Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983).
- Constitution of the Republic of South Africa, 1997 (Act No. 108 of 1997).
- Criminal Procedure Act, 1977 (Act No. 51 of 1977).
- Environment Conservation Act, 1989 (Act No. 73 of 1989).
- Forest Act, 1984 (Act No. 122 of 1984).
- Game Theft Act, 1991 (Act No. 105 of 1991).
- KwaZulu Animal Protection Act, 1987 (Act No. 4 of 1987)
- KwaZulu Nature Conservation Act, 1975 (Act No. 8 of 1975).
- KwaZulu-Natal Heritage Act, 2008 (Act No. 4 of 2008).
- KwaZulu-Natal Nature Conservation Management Act, 1997 (Act No. 9 of 1997).
- National Environmental Management Act, 1998 (Act No. 107 of 1998).
- National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
- National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).
- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).
- National Forests Act, 1998 (Act No. 84 of 1998).
- National Heritage Resources Act, 1999 (Act No. 25 of 1999).
- National Water Act, 1998 (Act No. 36 of 1998).
- National Water Amendment Act, 1999 (Act No. 45 of 1999).
- National Veld and Forest Fire Act, 1998 (Act No.101 of 1998).
- Nature Conservation Ordinance, 1974 (Act No. 15 of 1974).
- Traditional Health Practitioners Act, 2004 (Act No. 35 of 2004).

General Management

- Broad – Based Black economic Empowerment Act, 2003 (Act No. 53 of 2003).
- Communal Land Rights Act, 2004 (Act No.11 of 2004)
- Development Facilitation Act, 1995 (Act No. 67 of 1995).
- Disaster Management Act, 2002 (Act No. 57 of 2002).
- Fencing Act, 1963 (Act No. 13 of 1963)
- Fire Brigade Services Act, 1987 (Act No. 99 of 1987).
- Firearms Control Act, 2000 (Act No. 60 of 2000)
- Intergovernmental Relations Framework Act, 2005 (Act No.13 of 2005).
- KwaZulu Ingonyama Trust Act, 1994 (Act No. 3 of 1999).
- KwaZulu-Natal Planning and Development Act, 1998 (Act No. 5 of 1998).
- Local Government: Municipal Structures Act, 1998 (Act No. 117 of 1998).
- Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000).
- Municipal Services Act, 2000 (Act No.32 of 2000).
- Natal Town Planning Ordinance, 1949 (Act No. 27 of 1949).
- National Building Standards Act, 1977 (Act No. 103 of 1977).
- National Road Traffic Act, 1996 (Act No. 93 of 1996).
- Occupational Health and Safety Act No, 1993 (Act No. 85 of 1993).
- Restitution of Land Rights Act, 1994 (Act No. 22 of 1994).
- State Land Disposal Act, 1961(Act No. 48 of 1961).
- Water Services Act, 1997 (Act No. 108 of 1997).

Financial Management

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

Human Resource Management

- Basic Conditions of Employment Act (No. 75 of 1997).
- 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 as amended).
- Occupational Health and Safety Act (No. 85 of 1993).
- Pension Funds Act (No. 24 of 1956).
- Skills Development Act (No. 97 of 1998).
- Skills Development Levies Act (No. 9 of 1999).
- Unemployment Insurance Act (No. 63 of 2001).

Nature Reserve / Game Reserve / Park Regulations

EKZNW protected area regulations are enforced in accordance with Section 15 of the Nature Conservation Ordinance, 1974 (Act No. 15 of 1974) read together with the KwaZulu-Natal Nature Conservation Management Act, 1997 (Act No. 9 of 1997).

2.3 Regional Planning Context and Principles

In accordance with the Local Government: Municipal Demarcation Act, 1998 (Act No. 27 of 1998) and the Local Government: Municipal Structures Act, 1998 (Act No. 117 of 1998), the KNR has been demarcated into the eThekweni Municipality Outer-West Region and forms a key linkage between numerous conservation initiatives and open spaces which create a network of ecological pathways in the upper highway area as part of the larger eThekweni Environmental Services Management Plan (EESMP), formerly known as D'MOSS (Durban Metropolitan Open Space System). The EESMP includes land covering 63 115 ha or 27% of the eThekweni Municipal Area (EMA) and aims to ensure the sustained supply of a broad range of environmental goods and services. These include the supply of water, fuel, food, waste treatment, wildlife refuges, and buffers against environmental perturbations, e.g. climate change and flooding.

Through the integrated planning procedure, as well as participation in other planning initiatives, the IMP has been directly aligned with the eThekweni Municipality as required by the legislation:

- EESMP
- Integrated Development Plan (IDP)
- Land Use Management System (LUMS)
- Spatial Development Plan (SDP)

Alignment with regional plans will assist in developing an effective buffer zone around KNR. Protected Area Management in collaboration with the designated EKZNW officials will be tasked to make the relevant inputs whenever the municipality's Integrated Development Plans and Spatial Development Frameworks are reviewed and updated.

Action Project 2.3 (i): Manage the Nature Reserve in collaboration with other relevant EKZNW officials will be tasked with active participation in the review processes of the municipal Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) in order to ensure an effective buffer zone surrounding KNR through an alignment of appropriate land use adjacent to the Nature Reserve.

The Nature Reserve itself has been zoned (See **Par. 5**) according to protected area management norms to control various activities and for the achievement of various conservation objectives.

Action Project 2.3 (ii): Attend Ethekeeni Municipality Biodiversity Forum.

Action Project 2.3 (iii): Establish relationships with neighbouring properties including Ethekeeni Municipality to plan and restore fragmented corridors to enable the continued functioning of existing ones.

2.4 Proclamation Status of the Krantzkloof Nature Reserve

The areas that are proclaimed at KNR are as follows:

Proclamation number 55 of 1950:

• Sub. 36 of 13 of N of the farm Richmond No. 999	7,048 ha
• Sub. A of 37 of 13 of N of the farm Richmond No. 999	2,671 ha
• Sub. 58(a sub of 11) of the farm Waterfall No. 978	3,229 ha
• Sub. 59(a sub of 11) of the farm Waterfall No. 978	1,440 ha
• Sub. 60(a sub of 11) of the farm Waterfall No. 978	2,405 ha
• Remainder of Sub. A of 10 of the farm Waterfall No. 978	57,848 ha
• Sub. B of 10 of the farm Waterfall No. 978	162,279 ha

Proclamation number 78 of 1950:

• Lot 314, Forest Hills	175,329 ha
• Lot 320, Forest Hills	8,620 ha
• Sub. 1 of A of 13 of N of the farm Richmond No. 999	25,237 ha

Proclamation number 58 of 1954:

• Sub. 3 of A of 13 of N of the farm Richmond No. 999	0,699 ha
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Proclamation number 32 of 1963:

• Lot 455, Forest Hills	4,453 ha
• Lot 456, Forest Hills	4,773 ha

Proclamation number 185 of 1977:

• Lot 69, Ronalds Kloof	34,397 ha
• Lot 389, Kloof	0,503 ha
• Lot 298, Forest Hills	1,006 ha
• Lot 313, Forest Hills	7,540 ha
• Lot 315, Forest Hills	24,976 ha
• Lot 316, Forest Hills	1,682 ha
• Lot 317, Forest Hills	1,116 ha
• Lot 319, Forest Hills	2,786 ha
• Lot 385, Forest Hills	0,459 ha
• Lot 386, Forest Hills	0,750 ha
• Lot 387, Forest Hills	0,601 ha
• Lot 464, Forest Hills	0,479 ha
• Lot 465, Forest Hills	0,668 ha

These properties total about 76,688 ha and are all leased from the local eThekweni Municipality. Some of these leases have expired.

Proclamation number 10 of 1986:

• Lot 258, Kloof (Extension No. 4)	3,333 ha
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These proclamations total an area of about 536,058 ha.

The following properties still need to be proclaimed as part of the Reserve (KNR Cadastral Database, 2007):

- Portion of Erf 197 Forest Hills
- Portion 2 of Erf 198 Forest Hills
- Rem of 198 Forest Hills
- Portion of Erf 215 Forest Hills
- Portion of Erf 216 Forest Hills
- Portion of Erf 217 Forest Hills
- Rem of Erf 223 Forest Hills
- Lot 224 Forest Hills
- Erf 271 Forest Hills
- Erf 300 Forest Hills

- Erf 301 Forest Hills
- Erf 318 Forest Hills
- Erf 440 Forest Hills
- Erf 504 Forest Hills
- Erf 37 Everton
- Erf 38 Everton
- Sub 65 (Of 43) of The Farm Everton No. 864
- Erf 70 Everton
- Erf 71 Everton
- Erf 71 of Everton No.864
- Portion 79 of Everton No.864
- Sub 335 (Of 78) of The Farm Everton No. 864
- Sub 304 (Of 303) of The Farm Everton No. 864
- Lot 156 Of 47 of Everton No. 864
- Sub C of Everton
- Sub 39 of Everton
- The Farm Kraans Kloof No. 867
- Erf 387 Kloof Ext 4
- Erf 388 Kloof Ext 4
- Portion 10 of Erf 1666 Kloof
- Sub 912 of The Farm Waterfall No. 978
- Sub 1 of The Farm Waterfall No. 978
- Sub 8 of The Farm Waterfall No. 978
- Waterfall No. 978
- Sub 913 of 912 of The Farm Waterfall No. 978
- Richmond No. 999
- Sub 1170 (of 780) of The Farm Richmond No. 999
- Sub 1271 (of 663) of The Farm Richmond No 999
- Sub 843 (of 14) of The Farm Richmond No. 999
- Sub 1452 (of 663) of The Farm Richmond No. 999
- Sub Whit of H of The Farm Richmond No.999
- Sub 12 of H of The Farm Richmond No. 999
- Ptn B of 3 of R of The Farm Richmond No.999
- Ptn 16 O.T.F. Richmond No 999
- Sub 13 of H of The Farm Richmond No. 999
- Rem of Kranskloof No. 1038
- Lot 3281 Pinetown
- Rem of Lot 3888 Pinetown
- Sub 10 of The Farm Berrell No. 14738
- Sub 77 (of 10) of The Farm Berrell No. 14738

Action Project 2.4 (i): Establish the status of expired lease agreements and determine necessary renewals. MOA's need to be drawn up between land owners and eThekweni Municipality to determine the future of these properties. Original documents are to be submitted to the legal department of EKZNW and copies are to be submitted to Conservation Managers.

Action Project 2.4 (ii): Obtain the services of a land surveyor to register the consolidated KNR with the Surveyor General and seek the proclamation of the area by the MEC.

2.5 Local Agreements, Leases, Servitude Arrangements and MoUs

Portions of the Krantzkloof Nature Reserve are currently managed subject to Agreements of Lease entered into between the former Borough of Kloof and former Administrator: Natal Provincial Administration:

- Lot 318 Kloof Township
- Lot 300 & 301 Forest Hills

Both of the above mentioned leases expired on 31st July 2002 with the right of renewal for a further ten (10) years.

Further condition of the lease required proclamation in terms of Ordinance 15/1974 which does not appear on proclamation 10/86

One memorandum of Agreement between the Natal Provincial Administration and Mrs Grice refers:

- Sub 71 of Everton No: 864
- Sub 79 (of 43) of Everton 864

Subject to conditions as per agreement including management obligations for EKZNW.

The formal documentation and maintenance of all local agreements, leases, servitude arrangements and MoUs concerning the authorised use of KNR area by beneficiaries other than EKZNW will be undertaken to promote transparency and good governance. All such agreements will be scrutinized by the Manager: EKZNW Legal Services for direction, prior to any appointed EKZNW executive member signing such documents.

The KNR Manager will be familiar with the content of such authorised documents and will ensure that there is compliance with the conditions contained therein. Copies of all documentation will also be filed manually and digitally at the KNR management and regional management offices for easy reference. These copies will be updated in accordance with any authorised amendments.

The servitudes for KNR are as follows:

Remainder of Lot 224 Forest Hills

- Subject to a Pipe Line Servitude 1.83 metres wide

Sub A of 37 of 13 of N of the farm Richmond No.999

- Benefit of Rights of Way
- Subject to a Servitude of Road 15 feet wide

Remainder of the farm Waterfall No.978

- Subject to a Pipe and Electrical Power Line Servitude 30 feet wide

Remainder of Sub 57 of the farm Waterfall No.978

- Subject to a Water Pump Servitude
- Subject to a Power and Pipe Line Servitude 2.44 metres wide
- Subject to Rights of Way Servitude

Lot 455 Forest Hills Township (Extension No.1)

- Benefit of the use of all roads.

Lot 464 Forest Hills Township (Extension No.1)

- Benefit of the use of all roads.

Sub 3 of A of 13 of N of farm Richmond No.999

- Benefit of the use of all roads.

Sub A of Sub 6 of farm Klein Zeekoe Vallei No.803

- Benefit of a 6 foot Sewer and Drain Servitude

Sub 156 of 68 of farm Everton No.864

- Subject to the Servitude of Right of Way and Pipe Line 1.22 metres wide
- Benefit of the use of all roads 10.06 metres wide

Sub 65 (of 43) of farm Everton No.864

- Benefit of the use of all roads

Sub 335 (of 78) of farm Everton No.864

- Benefit of the use of all roads.

- Subject to and with the benefit of the Servitude of the right to lay, construct, erect, maintain, repair and use standards, cables, lines, drains and pipes.
- Benefit of a Servitude of Right of Way and Pipe Line 1.22 metres wide

Sub 304 (of 303) of farm Everton No.864

- Subject to and with the benefit of the Servitude Rights relating to the right to lay, construct, erect, maintain, repair and use standards, cables, lines, drains and pipes.
- With the benefit of a 12.19 metre servitude.
- Subject to an Underground Power and Pipe Line Servitude
- Subject to a Water Pump Servitude

Sub 24 (of 5) of farm Berrell No.14738

- Subject to Water, Drainage and Electric Power Servitude

Sub 26 (of 5) of farm Berrell No.14738

- Subject to Water, Drainage and Electric Power Servitude

Sub 41 (of 6) of farm Berrell No.14738

- Subject to Water, Drainage and Electric Power Servitude
- Benefit of the Right of Way for vehicular traffic

Sub 42 (of 6) of farm Berrell No.14738

- Benefit of the Right of Way for vehicular traffic

Sub 43 (of 6) of farm Berrell No.14738

- Benefit of the Right of Way for vehicular traffic

Sub 44 (of 7) of farm Berrell No.14738

- Benefit of the Right of Way for vehicular traffic

Sub 45 (of 7) of farm Berrell No.14738

- Benefit of the Right of Way for vehicular traffic

Sub 46 (of 7) of farm Berrell No.14738

- Benefit of the Right of Way for vehicular traffic

Remainder of Sub 6 of farm Berrell No.14738

- Subject to Water, Drainage and Electric Power Servitude 3.05 metres wide
- Benefit of the Right of Way for vehicular traffic
- Subject to a Road Servitude
- Subject to a River Reserve Servitude

Remainder of Sub 7 of farm Berrell No.14738

- Benefit of the Right of Way for vehicular traffic
- Subject to a Road Servitude
- Subject to a River Reserve Servitude

Sub 14 (of 8) of farm Berrell No.14738

- Benefit of the Right of Way for vehicular traffic

Sub 15 (of 8) of farm Berrell No.14738

- Benefit of the Right of Way for vehicular traffic

Remainder of sub division 38 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 41 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 42 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 43 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 44 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude

Sub 45 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude

Sub 46 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 47 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 48 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 49 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 50 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 51 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 52 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 53 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 54 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Sub 55 (of 28) of farm Lange Fontein No.5981

- Benefit of a Road Servitude 18 metres wide

Remainder of sub 912 of farm Waterfall No.978

- Subject to Right of Way for vehicular traffic
- Subject to Right of Way 4.57 metres wide
- Subject to 3.05 metre wide Water Drainage and Electric Power Servitude
- Subject to Water Tunnel Servitude 3.05 metres

Remainder of farm Molweni No.16128

- Subject to a General Tunnel Servitude 5 metres wide
- Subject to Right of Way for vehicular traffic
- Subject to the Reservation of all Mineral Rights

Remainder of farm Waterfall No.978

- Subject to a Pipe and Electrical Power Line Servitude 30 feet wide

Sub 913 (of 912) of farm Waterfall No.978

- Subject to Right of Way for vehicular traffic
- Subject to Right of Way 4.57 metres

Sub 1 of A of 13 of N of farm Richmond No.999

- Benefit of the use of all roads.

Lot 3280 Pinetown

- Subject to a 12.19 metre Road Servitude
- Subject to a Pipe Line Servitude 3.05 metres wide

Lot 3281 Pinetown

- Benefit of a Road Servitude
- Subject to a Pipe Line Servitude 3.05 metres wide

Sub 10 of farm Berrell No.14738

- Subject to Water, Drainage and Electric Power Servitude 3.05 metres wide

Action Project 2.5 (i): Obtain copies for and review all formal and informal local agreements, leases, servitude arrangements etc. pertaining to KNR and document, update, maintain and monitor these appropriately authorised agreements. All informal and revised agreements are to be formalised and approved by the Executive.

Action Project 2.5(ii): The KNR Manager needs to be familiar with the lease and MoA and will ensure that there is compliance with the conditions of the documents

2.6 Extending Conservation Land Use Management in Areas Surrounding KNR

Opportunities may arise that will enable the establishment of new formal protected areas or other conservation management areas on land bordering or in vicinity of KNR in collaboration and co-operation with the relevant stakeholder and landowners. This is likely to contribute to the EKZNW conservation planning targets through more effective natural and cultural heritage conservation. Indirectly, new tourism opportunities could also develop with the resulting socio-economic benefits.

All EKZNW officials associated with KNR will remain sensitive to these opportunities and ready to engage with the relevant role-players, assisting them with the most appropriate options for establishing conservation areas. This may be in the form of conservancies, private, community or local authority protected areas, contractual protected areas, public open space or even incorporation of land into KNR and in so doing increasing the extent of core protected areas within KZN and increasing protected area representivity. Alignment with the municipal IDPs will also be actively sought to ensure appropriate land use on the borders of KNR.

The most important areas in this regard would be the opportunity to expand KNR by incorporating private land into the Nature Reserve.

Action Project 2.6 (i): Annually explore and investigate opportunities to extend conservation land use in and around KNR.

Action Project 2.6 (ii): MoA's are to be drawn up and formalised between eThekweni Municipality and private land owners for the expansion of KNR.

3. BACKGROUND

3.1 Origin of the Name of Krantzkloof Nature Reserve

The name Krantzkloof originated in the early 1900's and is indicative of the geology of the area. "Kranz" is the Afrikaans word for cliffs and "Kloof" is both the English and Afrikaans word for a ravine.

3.2 Locality Description and Extent of the Nature Reserve

The Nature Reserve is situated five kilometers from the centre of the residential suburb of Kloof and 24 kilometers from Durban. The Nature Reserve covers an area of 532.7258ha and comprises the well-forested Molweni River Gorge and its tributaries, the largest of which is the Nkutu River (Refer to Map 2). The Nature Reserve extends from -29d44m09sS to 29d46m30sS and from -30d48m51sE to 30d52m04sE. The GIS flat surface area of KNR amounts to 619ha. The altitude at the highest point in KNR is 570 metres ASL with the lowest point being 120 metres asl.

Apart from the eastern boundary at the foot of the valley which borders a communal area, KNR is completely surrounded by urban development.

The eThekweni Municipality Outer West Region controls the land immediately adjacent to the nature reserve on the northern, southern and western boundaries. The Molweni Tribal Authority controls the land on the south eastern boundary of the nature reserve. The Molweni tribal people are granted land by their chief for occupation and farming, both of which utilise land right up to the boundary of the reserve. KNR is thus surrounded by land owned by the eThekweni Municipality, tribal authorities and private landowners, many of whom border onto the boundary of the reserve. Many of the landowners have established their properties overlooking the Krantzkloof Gorge because of the aesthetically pleasing views of the gorge and surrounding valleys. This has led to elite housing developments surrounding the gorge while the Molweni area in the gorge is isolated from road, water and electricity supplies and is consequently poorly developed.

3.3 Previous Land Use

Land use prior to proclamation included housing settlements, rural dwellings and subsistence farming of both livestock and crops. Some of the land remained untransformed natural land.

3.4 Conservation History of the Nature Reserve

The Krantzkloof Nature Reserve was proclaimed under the Nature Conservation Act (Act No. 15 of 1974) however, individual properties were proclaimed at different times. Some properties were acquired by the State while other portions were donated by private land owners. The reserve was proclaimed because of its nature conservation value of diverse species of plants, animals and the presence of the gorge. This includes the spectacular cliff faces, waterfalls, open grasslands, dense forest patches, clear running streams and rivers and the diverse wildlife species associated with all of these. It was further proclaimed to provide recreational facilities and services such as picnic sites and trails etc to the surrounding communities.

- 1948 - Initial portion of land included unauthorised housing (B of 10 of Farm Waterfall no.978) acquired by the State
- Squatters relocated and refuse removed
- Donation of adjacent private land to extend the reserve (Ronaldskloof Private Township)
- 1949 - Expropriation of two additional lots
- 1950 - Proclamation of the Reserve (30 August 1950, Proclamation no.55)

After proclamation, the Natal Parks Board was the appointed management authority for KNR. Policy decisions are made by the KZN Nature Conservation Service (NCS) to give effect to its mission, and to provide staff with a standardised position and framework regarding matters of general applicability. Portions of the reserve had conditions and agreements; these were namely water extraction from the dam, municipal leases and private donation agreements.

Challenges that the reserve have encountered since proclamation stem from the introduction of baboons as they negatively impacted on the neighbouring community and had to be removed. Other key challenges that the KNR has encountered, and is in the process of addressing, includes alien plant invasions, soil erosion, siltation, natural disasters, land transformation (services through the Protected Area), crime (illegal harvesting of plants, poaching with dogs, theft of fences and arson fires), illegal grazing and opposition from some of the surrounding communities.

Action Project 3.4 (i): Update the conservation history for KNR indicating the importance of the proclamation.

3.5 Climate and Weather

Generally the climate is warm and equable, with warm, misty summers and mild, dry winters with occasional frost. Rainfall occurs mainly in summer between September and April. The mean rainfall is 1064mm per annum of which 70% falls between October and March. Rainfall has been recorded at the Reserve since January 1976, and temperature, since October 1983.

Action Project 3.5 (i): Maintain the collection and storage of climatic data records. Include the predictive mean maximum and minimum temperatures in conjunction with mean rainfall for KNR.

3.6 Physical Description

3.6.1 Topography

The Nature Reserve consists of the Krantzklouf Gorge surrounded by cliffs and grassed plateaux divided by forested side gorges leading into the main gorge. The main gorge is regarded as an excellent example of this type of river valley erosion (King, 1972). The altitude ranges from 137m to 487m. Apart from some small grasslands which slope gently to the upper edge of the cliffs of the gorge, virtually all ground in the reserve is steeply sloping and the rivers still actively cutting into the valley.

3.6.2 Geology

Two geological formations are represented in the Krantzklouf Nature Reserve, namely basement granite and Natal Group Sandstone (formerly Table Mountain Sandstone). These two formations are described briefly below:

Basement granite is exposed in the riverbed, below Kloof Falls. The rock is granite genesis of igneous origin, which was formed by the cooling of lava 5 to 15kms below the earth's surface some 1000 million years ago. Such granites are commonly exposed in deep incisions, like the Krantzklouf Gorge.

The Natal Group Sandstone was deposited on the basement granites, about 400 million years ago. This indicates that up to 600 million years may have elapsed between the formation of the granite base and the deposition of the sandstone. Geologists are divided about what happened in the interim. It is probable that a complete geological cycle may have taken place, i.e. deposition over the basement granites and the subsequent erosion of such deposits to again deposit the granites.

Evidence in the nature reserve indicates that these sandstones were deposited in a freshwater environment, by streams flowing from the north and north-east.

3.6.3 Soils

Natal Group Sandstone soils comprise the most important soil group on the North Coast and extend from a little above sea level to an altitude of 700m. This extreme variation in altitude

gives rise to two main variations in the soil group. They are ordinary Natal Group Sandstone soils and mist-belt Natal Group Sandstone soils.

Occasionally Natal Group Sandstones soils are highly ferruginous (red) and not readily distinguishable from dolerite soils. In character, the sandstones, which may be hundreds of feet thick, are light purple, yellowish-grey and highly feldspathic. The grains vary from 0.5 to 2.0mm in diameter, although beds have been found with rounded pebbles up to 3.0cm in diameter.

Most Natal Group Sandstone landscapes in the sugar belt are young with a noticeable absence of developed pediment surfaces. The land is steeply rolling and hilly with frequent free faces with the result that the majority of soils are skeletal with immature profiles.

Action Project 3.6.3 (i): Identify the biodiversity importance and implications of immature soil profiles for management.

Action Project 3.6.3 (ii): Map the soils showing areas susceptible to erosion.

Action Project 3.6.3 (iii): Write and submit for approval, a soil erosion control plan.

3.7 Geomorphology

The major feature of the nature reserve is the gorge, which cuts through the Natal Group Sandstone by the Molweni River creating spectacular cliffs and plateaux's. It is regarded as an excellent example of this type of river valley erosion (King, 1972).

3.8 Hydrology

The Nature Reserve is well watered and both the Molweni and its main tributary, the Nkutu, are perennial streams. The Nkonka and Mpiti streams flow into the Molweni River.

Action Project 3.8 (i): Write a management plan in order to maintain and monitor the quantity and quality of water in the rivers.

3.9 Flora

Vegetation Types

The KNR encompasses three biomes within a relatively small area (<600ha); grassland, savannah and forest. Scarp forest occupies the majority of the reserve, with the flatter or lower-lying areas supporting patches of grassland or savannah. This vegetative diversity may be accounted for by the altitudinal, climatic and topographic gradients within the reserve. In particular, four distinct vegetation types have been identified (area of each vegetation type is given in parentheses); namely Eastern Scarp Forest - Northern Coastal Scarp Forest (273 ha), North Coast Grassland (141 ha), KwaZulu-Natal Sandstone Sourveld (139 ha) and KwaZulu-Natal Coastal Forest (36 ha). Historically, Scarp Forests acted as Afro temperate refugia and are a contemporary overlap zone between Afro temperate and coastal forest, resulting in higher species richness in Scarp Forests than in either the Afro temperate or Indian Ocean coastal belt forests (MacDevette et al., 1989; van Wyk, 1990). Furthermore, these forests house numerous endemic taxa. Thus, in terms of floral biodiversity, Scarp Forest is considered the most valuable forest type in South Africa (Mucina and Rutherford, 2005). To maintain the current extent and integrity of Northern Coastal Scarp Forest, it is necessary to control alien plant invasion and prevent the spread of uncontrolled fires into the forest.

KwaZulu-Natal Sandstone Sourveld is a Critically Endangered vegetation type with over 90% of this vegetation already transformed. It is therefore imperative that no further loss or transformation of KwaZulu Natal Sandstone Sourveld be allowed. Although fire is an important management tool in maintaining savannah/grassland habitats, frequent fires, as well as high levels of grazing, are not conducive to the recruitment of many of the shrubs and herbs that are a feature of KwaZulu-Natal Sandstone Sourveld (Mucina and Rutherford, 2006).

The grassland sections of the reserve are described as KwaZulu-Natal Coastal Belt (Mucina and Rutherford, 2006). For management and conservation purposes, EKZNW has subdivided this vegetation type into North Coast Grassland and South Coast Grassland with respect to geographical location. North Coast Grassland occurs in KNR and is a Critically Endangered vegetation type with over 95% already transformed. Present-day North Coast Grassland is intensely patchy and only small fragmented pockets remain. The main threats to this important grassland include inappropriate burning regimes, bush encroachment, alien invasive plants, heavy grazing and illegal harvesting.

Conservation Targets

- KwaZulu-Natal Sandstone Sourveld (Critically Endangered): The provincial target is 23% of the original distribution for this vegetation type, however only 7% remains untransformed. Only 2% of the remaining 7% occurs within protected areas, and KNR safeguards 75% of this. The conservation target has **not** been met.
- North Coast Grassland (Critically Endangered): The provincial target is 35% of the original distribution for this vegetation type, however only 5% remains untransformed. Only 9% of the remaining 5% occurs within protected areas, and KNR safeguards nearly 10% of this. The conservation target has **not** been met.
- Eastern Scarp Forest - Northern Coastal Scarp Forest (Least Threatened): The provincial target is 62% of the original distribution for this vegetation type, however 96% remains untransformed. Only 67% of the remaining 96% occurs within protected areas, and KNR safeguards 5% of this. The conservation target has **not** been met.
- KwaZulu-Natal Coastal Forest (Least Threatened): The provincial target is 72% of the original distribution for this vegetation type, however 90% remains untransformed. Only 60% of the remaining 90% occurs within protected areas, and KNR safeguards 0.2% of this. The conservation target has **not** been met.

Priority Species

The following Red Data listed plant species occur in the Nature Reserve for which conservation targets are required.

• <i>Brachystelma natalense</i>		Critically Endangered
• <i>Gladiolus cruentus</i>	Blood-red gladiolus	Critically Endangered
• <i>Geranium ornithopodioides</i>		Endangered
• <i>Dahlgrenodendron natalense</i>		Endangered
• <i>Diaphananthe millarii</i>		Vulnerable
• <i>Senecio dregeanus</i>		Vulnerable
• <i>Cryptocarya myrtifolia</i>	Myrtle quince/Wild camphor	Vulnerable
• <i>Hydrostachys polymorpha</i>		Vulnerable
• <i>Gasteria croucheri</i>		Vulnerable

Action Project 3.9 (i): Update the vegetation types and map for KNR.

Action Project 3.9 (ii): Develop a flora monitoring programme for KNR.

Action Project 3.9 (iii): Compile and implement a flora management plan that addresses the threats to the priority flora of KNR

Action Project 3.9 (iv): Compile a flora map and diagnostics species list

Action Project 3.9 (v): Determine conservation targets for red data plants

3.10 Fauna

Given the diversity of habitats, KNR has a remarkable diversity of animal species. Species checklists will be updated as data becomes available (**Appendix 1, Item 3**).

Action Project 3.10 (i) : Copies of the Species Checklists will be updated and filed manually and digitally at the KNR Management and Regional Offices as well as the Conservation Manager for easy reference. The copies will be updated in accordance with any authorised amendments. A fixed protocol for compiling and maintaining these checklists needs to be developed to ensure that they provide accurate

3.10.1 Invertebrates

Invertebrates play critical roles in the functioning of all ecosystems as they are responsible for maintaining soil fertility, waste disposal, water purification, pest control, pollination and may even influence the structure of plant communities. In some cases the survival of locally endemic plant species may be linked to a single pollinator.

The EKZNW Biodiversity Database provides a limited invertebrate list. Of particular importance are the Ruby-legged black millipede (*Doratogonus rubipodus*) – Endangered and the Snake-skin hunter slug (*Chlamydephorus dimidiatus*) – Vulnerable. The Rare freshwater shrimp spp. (*Atyoida serrata*), known only from 3 localities in KZN, may occur in the reserve.

Action Project 3.10.1 (i): Compile through research and collecting a checklist of the invertebrate species found in KNR.

Action Project 3.10.1 (ii): Establish if *Atyoida serrata* (a freshwater shrimp) is present in KNR.

3.10.2 Fish

A total of seven indigenous fish species have been recorded within KNR, none of which are listed as Red Data species. However, two are endemic to KwaZulu Natal; Redtail barb (*Barbus gurneyi*) and KwaZulu-Natal yellowfish (*Labeobarbus natalensis*). There is a record of the alien Largemouth bass (*Micropterus salmoides*) in the reserve (J. Vermeulen, pers. comm.).

Action Project 3.10.2 (i): Identify the major threats to the Fish Species in KNR.

Action Project 3.10.2 (ii): Develop and implement a Fish Species Monitoring Programme.

3.10.3 Herpetofauna (Amphibians and Reptiles)

The presence/absence of certain frog and reptiles species is indicative of the state of health of an ecosystem. Furthermore, it is important to determine whether any rare species occur on KNR in order to determine management strategies to prevent their extinction from the Nature Reserve. Five species of frogs are listed as occurring in the reserve. No Red Data species are listed.

Nine species of reptiles are listed as occurring in the reserve; 1 chameleon, 4 snakes, 3 lizards and 1 terrapin. No Red Data species are listed.

Action Project 3.10.3 (i): Compile through further research and monitoring, checklists of the Herpetofauna. Identify the major threats to Herpetofauna in KNR.

Action Project 3.10.3 (ii): Develop and implement a Herpetofauna Species Monitoring Programme

3.10.4 Avifauna (Birds)

The EKZNW Biodiversity Database lists 217 bird species for the Nature Reserve. Of particular importance are:

Spotted ground-thrush (*Zoothera guttata*) Endangered
This species is a local migrant, overwintering in KNR's scarp forests before returning to coastal forests for the summer breeding season. KNR thus protects part of an area

considered to be vital to the long-term persistence of this species, providing essential feeding grounds prior to migration and breeding.

Southern ground-hornbill (*Bucorvus leadbeateri*) Vulnerable
Ground-hornbills require a large area (ca. 100km² per group) in which to forage and find suitable breeding trees. The NR has ensured that protection is afforded to this species by safe-guarding a core area of suitable habitat in a locality where habitat alteration due to development and human pressures are high. The reserve is not viable on its own for a group of Southern ground-hornbill, but the region may still support parties of this species although suitable habitat is increasingly threatened with transformation.

Mangrove kingfisher (*Halcyon senegaloides*) Vulnerable
The kingfisher is not resident in the reserve, but young birds may occasionally occur in KNR as they disperse from their coastal breeding sites.

African finfoot (*Podica senegalensis*) Vulnerable
This species is most at risk from clearing of riverine vegetation, as well as reduced water flow in catchments. It is therefore necessary to ensure perennial flow of rivers as well as appropriate riparian vegetation if this species is to continue nesting in the reserve.

Martial eagle (*Polemaetus bellicosus*) Vulnerable
Martial Eagle may make occasional use of the reserve as a foraging area, but it is marginal habitat. Maintaining grasslands should be sufficient for maintaining foraging opportunities for this species.

Crowned eagle (*Stephanoaetus coronatus*) Near Threatened
The continued breeding of Crowned eagle's in KNR can be maintained by securing the nest site from disturbance.

Action Project 3.10 .4 (i): Identify the major threats to Avifauna in KNR.

Action Project 3.10.4 (ii): Develop and implement an Avifauna Species Monitoring Programme.

3.10.5 Mammals

The EKZNW Biodiversity Database lists 7 mammal species for the Nature Reserve. No predators are currently listed on the database. However, Large-spotted genet (*Genetta tigrina*), Serval (*Felis serval*), Cape clawless otter (*Aonyx capensis*), Striped weasel (*Poecilogale albinucha*), Slender mongoose (*Galerella sanguinea*), Water mongoose (*Atilax paludinosus*) and Banded mongoose (*Mungus mungo*) have been seen in KNR (J. Vermeulen, pers. comm.).

Burchell's zebra (*Equus burchelli*) occurs in small numbers in KNR. Zebras are grazers with a preference for savannah and grassland with a variety of short and medium high grasses. They are bulk grazers rather than selective grazers, and are thus adapted to dealing with long grass, taking large bites at a time, but do not have the ability to graze closer to the ground surface. Once an area has been 'opened up' by a bulk grazer, the food source becomes more accessible to selective grazers that have the ability to graze close to the ground surface. In this way both groups can benefit from the same preferred grass species

Red data listed species include:

- Blue duiker (*Philantomba monticola bicolour*) Vulnerable
Blue duiker requires forest with a reasonably developed understorey or dense bush, and are most at risk from poaching or illegal hunting.

Action Project 3.10.5 (i): Conduct a full inventory of the mammals occurring in KNR.

Action Project 3.10.5 (i): Conduct a full inventory of the mammals occurring in KNR.

Action Project 3.10.5 (iii): Develop and implement a Mammals Species Monitoring Programme.

3.11 Cultural Heritage

KNR's cultural resources include:

- Pottery and bone have been discovered in the rock shelters;
- Graves

Bona Fida researchers are allowed to view sites with the provision of obtaining permits from Ezemvelo KZN Wildlife and AMAFA.

Action Project 3.11 (i): Map the GPS Co-ordinates and provide Management Plans for KNR's cultural heritage sites.

Action Project 3.11 (ii): Identify the archaeological, historical, paleontological and cultural heritage sites at KNR. Ensure compliance with requirements of heritage legislation.

3.12 Socio-Cultural History

No information is available.

Action Project 3.12 (i): Conduct research on the archaeology of the KNR.

Action Project 3.12 (ii): Make use of archaeology and evidence of the past cultures inhabited the area in describing the cultural heritage value of KNR.

3.13 Sociological Context

KNR lies within a relatively densely developed residential area of Kloof within the eThekweni Metropolitan Municipality. This is generally an upmarket area with homes occupied by upper-middle and upper-income earners. The Nature Reserve serves as a popular amenity for residents who enjoy walking, picnicking, bird watching, rock climbing as well as the aesthetically pleasing scenery of the gorge. The eastern boundary of the Nature Reserve is bordered by the Molweni Township. School children from both disadvantaged and wealthy areas use the area for conservation and environmental education as well as various adult interest groups.

The Molweni area in the gorge is isolated from road, water and electricity supplies and is consequently poorly developed.

Action Project 3.13 (i): Investigate the sociological context and its importance to KNR.

3.14 Economic Context

The Nature Reserve contributes to the economy in the following ways:

Recreational activities that are offered by KNR include:

- Self guided and guided trails;
- Scouting;
- Bird watching;
- Rock climbing; and
- Picnicking

Facilities and services that are offered by KNR include:

- The interpretive centre which offers a venue for educational activities and conferences;
- Braai facilities;
- Employment opportunities to the local community for the eradication of alien plants and fire management; and
- The levy which is used for the upliftment and development of the local community.

Ecosystem services that are provided by KNR include, but are not restricted to:

- Potable drinking water to the surrounding communities
- Recreational experiences (ecotourism)
- Meets people's sense of cultural, spiritual and intellectual needs
- Nutrient cycling
- Water filtration
- Regulation of ground water and river channel flow
- Climate regulation
- Seed dispersal
- Maintenance of soil health
- Prevention of soil erosion, and
- Carbon sequestration

Action Project 3.14 (i): Investigate the economic context and its importance for KNR.

3.15 Developed Infrastructure

Developed infrastructure at KNR includes buildings and trails.

It is imperative that the necessary appropriate standard of infrastructure be maintained to support the effective management of KNR and promote eco-cultural tourism to the reserve. Concept future development will be detailed in the KNR Concept Development Plan.

Action Project 3.15 (i): Identify and map infrastructure using GIS and include in a spatial database. Develop standard protocols and procedures for infrastructure in KNR.

Action Project 3.15 (ii): Repair, where necessary, existing infrastructure provided in the KNR.

3.15.1 Eco-Cultural Tourism Infrastructure

- An education centre which is also used as a conference venue
- Two picnic sites
- Three public toilet blocks at picnic sites

Action Project 3.15.1 (i): Investigate future opportunities for eco-cultural tourism infrastructure for KNR.

3.15.2 Management Infrastructure

The following management buildings are present in the KNR (refer to Map 5):

- Single garage workshop
- Tool shed Wood shed
- Store room
- Pump house
- Petrol and oil store
- Garden shed
- Three staff accommodation units, one with ablution block
- Two game guard outposts at Nkutu. One of the outposts consists of three rondavels for sleeping and one kitchen/ablution rondavel.
- Manager's office

3.15.3 Bulk infrastructure

Consists of:

- One road that leads directly to the view of the Gorge.
- Seven septic tanks and french drains within KNR.
- One water treatment plant. The remaining water is provided by the municipality.
- Electricity is provided by Eskom.
- There is one Telkom line.

- One helipad.

Action Project 3.15.3 (i): Establish ownership of the dam and compile a MoA between the relevant parties for the management of the dam.

Action Project 3.15.3 (ii): Establish ownership for the water pump and develop a management plan for maintenance of the water pump and associated piping.

Action Project 3.15.3 (iii): Establish flight paths for the helicopter for emergency purposes, training and rescue missions.

Action Project 3.15.3 (iv): Establish a servitude agreement for access to the water pump.

3.15.4 Conservation Infrastructure

- Approximately 21 km of hiking trails
- Seven climbing points, guided trails and two picnic spots.
- The perimeter boundary fences total length is approximately 13 km. The existing boundary fence is generally 1.5 m high and is a Veldspan fence.
- One road as access to view the Gorge (Refer to Map 6).

There are no internal fences in KNR however; the boundary fences are made up of mixed fencing. This is as a result of private property owners replacing the Veldspan fence with other types of fencing (eg. Palisade). Certain areas of KNR fence have been stolen.

Action Project 3.15.4 (i): Develop a standardised fence for the boundary and implement where needed.

Action Project 3.15.4 (ii): Develop a maintenance plan for all trails and fences.

3.15.5 Water Supply Infrastructure

Water is supplied to KNR by the municipality. All water supply infrastructure will be appropriately screened to reduce its detrimental aesthetic impact. For management purposes it is essential that all water supply infrastructure be indicated on the reserve map.

Action Project 3.15.5 (i): Update KNR Map to include the location of all water supply infrastructure.

3.15.6 Infrastructure Maintained by other Organisations

KNR has a dam to manage water storage and supply. Both water supply and waste removal are public services that are provided by the eThekweni Municipality. Electricity is provided to KNR by Eskom and there is one Telkom telephone line and one Vodacom Communication Tower.

Action Project 3.15.6 (i): Compile MoAs between different service providers and KNR. Manager needs to ensure that he/she is familiar with all agreements.

4 MISSION STATEMENT, MANAGEMENT OBJECTIVES AND CONSERVATION TARGETS

4.1 Introduction

Ezemvelo KwaZulu-Natal Wildlife has a legislative mandate which rests the custodianship of biodiversity conservation within the organisation. In alignment with this mandate, EKZNW has adopted a Five Year Strategic Plan and Performance Plan for 2009-2014 which has identified the following corporate Vision, Mission, Goals and Core Values (see Text Box below):

EKZN WILDLIFE STRATEGIC VISION, MISSION, GOALS AND CORE VALUES	
VISION	
<i>“To be a world renowned leader in the field of biodiversity conservation”</i>	
MISSION STATEMENT	
<i>“To ensure effective conservation and sustainable use of KwaZulu Natal’s biodiversity in collaboration with stakeholders for the benefit of present and future generations.”</i>	
STRATEGIC GOALS	
<ol style="list-style-type: none">1. To conserve indigenous biodiversity in KwaZulu-Natal both within and outside of protected areas.2. To be a sustainable, well resourced and capacitated biodiversity conservation and ecotourism organisation.3. To foster the value of biodiversity conservation with stakeholders.4. To be an efficient, effective and compliant organisation with good governance.5. To effectively promote the mandate of the organisation to stakeholders.	
CORE VALUES	
Integrity	– at all times we act morally, ethically and with honesty.
Respect	– we treat stakeholders with patience, politeness and acknowledge and value their right and those of the environment.
Accountability	– we involve stakeholders in the organisation’s activities with a culture of openness and are answerable for the outcome of our actions and activities.
Team Work	– working together to achieve our vision through goals.
Innovation	– an adaptable organisation that embraces the culture of creativity and learning.
Excellence	– we are a progressive organisation applying best practices to achieve the highest quality and standards.
Commitment	– at all times we undertake our activities with passion, loyalty and dedication.
Productivity	– we undertake to produce results timeously, efficiently and effectively.

Cognisant of EKZNW’s legislative mandate as well its corporate Vision, Mission, Goals and Core Values, this KNR Integrated Management Plan (IMP) has been developed in consultation with stakeholders.

4.2 Stakeholder Participation

The public participation process followed in developing this IMP included public meetings with stakeholders and management staff, resulting in the development of the draft IMP. The draft IMP was then reformatted into a standardised EKZNW IMP format and advertised and distributed for further public comment. The document was then finalised while undertaking further consultation.

The details of the public participation process for this IMP’s development is contained in the Public Participation Report (see Appendix 1, Item 7)

Action Project 4.2 (i): Implement EKZNW IEM Policy. Create awareness of or inform surrounding landowners on the IEM Process and legislation through fora.

Action Project 4.2 (ii): Participate as a key stakeholder in EIA applications for developments near the reserve that may impact on the protected area.

Action Project 4.2 (iii): Participate in existing neighbour liaison fora.

4.3 Vision

The vision of the Krantzkloof Nature Reserve is:

“A consolidated, managed and legally protected Nature Reserve, providing sustainable and tangible benefits to visitors, neighbours and the metropolitan area through the provision of appropriate access to the cultural and natural resources.”

4.4 Mission

EKZNW, as the designated Management Authority supports the following mission statement for the Nature Reserve.

The mission of Krantzkloof Nature Reserve is:

“To sustainably manage and conserve the natural and cultural resources of the Krantzkloof Nature Reserve, based on sound environmental principles and management for the equitable benefit of both visitors and other stakeholders.”

4.5 Management Objectives

Management Objectives for KNR were not set according to ranking:

- Conserve rare and endemic ecosystems and species
- Conserve the Krantzkloof Nature Reserve, its associated biodiversity and maintain it's developed infrastructure
- Contribute to sub-regional eco-tourism initiatives
- Contribute to the achievement of national and provincial conservation targets
- Facilitate controlled access to cultural heritage sites
- Facilitate environmental and cultural activities, education and awareness, including access to historical information related to the history of the reserve and the surrounding area
- Identify and control threats to biodiversity
- Minimise threats to the sense of place (retain the aesthetic value of the area)
- Participate as a key stakeholder in local environmental management initiatives
- Play a key role in local eco-tourism initiatives
- Play a notable role in local, regional, national and international conservation initiatives
- Promote and encourage community involvement in biodiversity conservation
- Promote and ensure effective communication between the local communities and EKZNW through integrated, shared and co-operative working relationships
- Promote conservation as a viable and sustainable land use option
- Promote supervised access to the reserve and its resources, both natural and cultural, and promote responsible use of the facilities by the public
- Provide appropriate recreational opportunities
- Safeguard the archaeological, historical, palaeontological and living cultural heritage of the area

The above Nature Reserve Objectives were aligned with the following overarching management objectives for KNR (not ranked in order).

- **Conservation** of key biodiversity features, biophysical processes, landscapes, abiotic, historical and archaeological resources
- The provision of **socio-economic benefits** (benefit flow) to the Reserve's neighbours and to contribute to the local economy and the efforts of conservation in a sustainable manner based on sound business principles (EKZN Business Plan)
- The provision of appropriate ecotourism **business** opportunities in the natural and cultural environment based within the influence sphere of KNR
- The formation of functional **partnerships** to integrate the KNR with regional development plans and other initiatives which underwrite the vision of KNR

4.6 Conservation Targets

In order to assist in developing a conservation management strategy more effectively linked to budget and resources, it is necessary to have specific conservation objectives (or 'targets' in conservation planning terms) in place. Monitoring of status relative to these targets will then allow for measurement of success of management interventions (and consequent budget and resource adjustments where required), and to trigger management interventions when certain thresholds are reached. This removes the 'monitoring to extinction' problem that has arisen in many organisations.

Apart from the need to monitor the success of implementation of the strategy in terms of achievement of conservation targets, a basic requirement for a systematic approach to conservation planning, impact assessment and protected area management effectiveness assessment is the identification of a clear set of provincial goals for the province, which for operational use needs to be translated into a more specific set of quantitative 'targets' (Margules & Pressey 2000). A key (but faulty) assumption often made with provincial Systematic Conservation Plans in terms of conservation priorities outside the protected area network is that protected areas continue to conserve key species and habitats at the same levels at which they occurred when the plan was developed. Where protected areas have failed to do so, it will result in an underestimate of conservation requirements outside protected areas and hence the real possibility of provincial conservation objectives and targets not being achieved. It is therefore essential to design and implement management and monitoring strategies to ensure that KNR continues to conserve those species and habitats which are important at a provincial level.

Conservation targets for biodiversity are not easily set, and indeed, conservation managers, scientists, decision makers and politicians have been reluctant 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, and the debate and research around this topic will continue for some time to come. This information will be continuously updated over time as our knowledge of area, connectivity and other process requirements improves for the conservation of ecosystems, communities and species. However, management has to take place despite these deficiencies so it is necessary to make 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 and evaluation will take place. Another advantage of developing strategies around targets is that this process serves to highlight the critical knowledge deficits thus guiding future research and monitoring priorities.

Conservation Targets for the Reserve

Specific conservation targets for the KNR are required to develop a strategy linked to budget and resources, to allow for monitoring and evaluation, as well as policy improvement.

Conservation targets for the KNR are presented in Table 1:

Table 1: Biodiversity Targets

Element of Concern	Key Attribute (Threats)	Indicator	Current Status	Target
Conserve the endangered and critically endangered veld types in KNR.				
The KwaZulu Natal Sandstone Sourveld is critically endangered.	The provincial target is 23%, however only 6.58% is untransformed. Only 1.7% of this vegetation type remains within protected areas. Decline of veldtype.	<ul style="list-style-type: none"> Land transformation. Alien species invasion. Poor veld management. Arson Fires. No recruitment. 	<ul style="list-style-type: none"> KNR contributes 1.3% to the provincial remains. 	TBD
Northcoast Grassland is critically	<ul style="list-style-type: none"> The provincial target is 35%, however only 	<ul style="list-style-type: none"> Land transformation. Alien species 	<ul style="list-style-type: none"> KNR contributes 0.92% to the 	TBD

Element of Concern	Key Attribute (Threats)	Indicator	Current Status	Target
endangered.	5.27% is untransformed . <ul style="list-style-type: none"> Only 9.4% of this vegetation type remains within protected areas. Decline .of veld type 	invasion. <ul style="list-style-type: none"> Poor veld management. Arson Fires. No recruitment. 	provincial remains.	
To conserve critically endangered and endangered Red Data plant species.				
<i>Brachystelma natalense</i> is critically endangered	<ul style="list-style-type: none"> There is a loss of plant species. 	<ul style="list-style-type: none"> Land transformation. Alien species invasion. No recruitment. 	<ul style="list-style-type: none"> KNR needs to conserve this species in good condition 	TBD
<i>Gladiolus cruentus</i> is endangered	<ul style="list-style-type: none"> There is a loss of plant species. 	<ul style="list-style-type: none"> Land transformation. Alien species invasion. No recruitment. 	<ul style="list-style-type: none"> KNR needs to conserve this species in good condition 	TBD
<i>Geranium ornithopodioides</i> is endangered.	<ul style="list-style-type: none"> There is a loss of plant species. 	<ul style="list-style-type: none"> Land transformation. Alien species invasion. No recruitment. 	<ul style="list-style-type: none"> KNR needs to conserve this species in good condition 	TBD
<i>Dahlgrenodendron natalense</i> is endangered.	<ul style="list-style-type: none"> There is a loss of plant species. 	<ul style="list-style-type: none"> Land transformation. Alien species invasion. No recruitment. 	<ul style="list-style-type: none"> KNR needs to conserve this species in good condition 	TBD
<i>Diaphananthe millari</i> is endangered.	<ul style="list-style-type: none"> There is a loss of plant species. 	<ul style="list-style-type: none"> Land transformation. Alien species invasion. No recruitment. 	<ul style="list-style-type: none"> KNR needs to conserve this species in good condition 	TBD
To conserve rare and endemic ecosystems and species.				
<ul style="list-style-type: none"> <i>Doratogonus rubipodus</i> is endangered. Invertebrate. 	<ul style="list-style-type: none"> There is a loss of individuals. 	<ul style="list-style-type: none"> Decrease in condition. 	<ul style="list-style-type: none"> KNR needs to conserve this species in good condition 	TBD
<ul style="list-style-type: none"> <i>Atyoida serrata</i> is rare. Invertebrate. 	<ul style="list-style-type: none"> There is a loss of individuals. 	<ul style="list-style-type: none"> Decrease in condition. 	<ul style="list-style-type: none"> KNR needs to conserve this species in good condition 	TBD
<ul style="list-style-type: none"> <i>Zoothera guttata</i> is endangered. Bird. 	<ul style="list-style-type: none"> There is a loss of individuals. 	<ul style="list-style-type: none"> Loss of suitable habitat. 	<ul style="list-style-type: none"> KNR needs to conserve this species in good condition 	TBD

Action Project 4.6 (i): Set conservation targets and monitoring strategies for the identified species.

Action Project 4.6 (ii): Develop conservation targets and monitoring strategies for Cultural, Business and Partnerships Objectives.

5 ZONATION

The Recreational Opportunity Spectrum (ROS) has been used for zoning of the Nature Reserve. This system was developed by the United States Forest Service and used to zone protected areas in KZN by EKZNW.

The ROS system enables the protected area to be zoned, in context, according to seven categories. These categories are spread along a continuum, from Wilderness to rural recreational development namely: Pristine Wilderness, Primitive Wilderness, Semi-Primitive Wilderness, Semi-primitive Non-Motorised, Semi-Primitive Motorised, Roaded Natural and Rural.

Each category within the ROS is defined in terms of activity, setting and experience opportunities. The ROS zonation system recognises and reflects:

- the sensitive features associated with the protected area (*i.e.* biophysical, cultural and sense of place)
- the range of existing and potential visitor experiences in and surrounding the protected area
- the influence of existing development and use on these features and experiences
- the opportunities and constraints (biophysical, social or managerial constraints) for use
- the existing / potential threats to the protected area either within or adjacent to the protected area
- the opportunities for extending the protected area and linking with surrounding reserves, conservancies and open spaces

As a result, the final management zonation is a composite of ecological zonation (based on natural and cultural resource sensitivity), sense of place, cultural features, patterns of environmental settings, and existing development and use patterns. The final zonation map is represented as a desired state, *i.e.* directing management towards a vision for each zone, which reflects and respects the broader conservation and ecotourism objectives for the reserve. EKZNW is in the process of developing a standard zonation system in keeping with the IUCN categories, to apply to both terrestrial and marine protected areas.

A zonation table (Appendix 3) detailing the boundaries and rationale for each zone, as well as the zone's natural and cultural features supports the zonation map. Biophysical features that are readily located on the ground have been used to demarcate and delineate the zone boundaries. The zones are indicated spatially on Zonation Map 3. The zones are recognised in KNR, these are given in Appendix 3.

(Source: ROS User Guide, United States Forest Service, as in the Advanced Wilderness Course Manual)

Action Project 5 (i): Revise the existing KNR zonation plan in accordance with the new EKZNW standard zonation system as soon as it is developed and approved.

6 OPERATIONAL MANAGEMENT POLICY FRAMEWORK AND GUIDING PRINCIPLES

The following predominant existing or potential threats to the Nature Reserve have been identified:

- Inadequate financial and human resources.
- Illegal activities in and around the Nature Reserve such as poaching.
- Catchment degradation disrupting natural ecological processes
- Alien species invasion.
- Security and safety of the visitors.
- Arson fires.

The KNR operational policy framework, guidelines and strategies have been developed to support the achievement of the stated Nature Reserve management objectives and where possible to address the existing or potential threats as listed above.

6.1 Financial and Human Resources

6.1.1 Financial Resources

Capital and operational funding for KNR is sourced primarily from the KwaZulu-Natal Provincial Government. Funding is furthermore generated from commercial operations within the Park and various external sources.

Levels of funding have remained stable, however, over time the management of the Nature Reserve cannot be sustained at required levels and capital assets, including infrastructure, are not being effectively maintained.

It is necessary therefore to develop a realistic five-year Strategic Management and Business Plans in an attempt to secure funding to effectively support the achievement of the mission and management objectives for the Nature Reserve

The development of a KNR Business Plan is a priority and will indicate past income and expenditure trends, a five year projection of income and expenditure targets that will allow for effectively achieving the KNR management objectives. In addition, planning will be put in place to address any budget shortfalls after the annual grants from the KwaZulu-Natal Provincial Government have been accounted for.

The total self-sufficiency of commercial operations within the Nature Reserve is a minimum requirement, while it will be expected that commercial operations will respect the natural and cultural heritage values of KNR and that any operational profit will be used to subsidize the Nature reserve's conservation and community programmes.

The value of ecosystem services that KNR provides as well as the direct and indirect economic value of the Park to the local and regional economy will be determined in order to market the Nature Reserve, ensure continued government funding and where appropriate, leverage additional funding from other sources.

Action Project 6.1.1 (i): Develop a five-year Strategic Management Plan and Business Plan for KNR.

Action Project 6.1.1 (ii): Initiate a resource economics study of the Nature Reserve to determine its economic value regarding the provision of ecosystem services and its contribution to the local and regional economy.

6.1.2 Human Resource Capacity

The existing human resource structure and capacity is insufficient to fully meet KNR Management Objectives. The following objectives in particular are emphasised:

- Safe and secure environment for staff and visitors.
- Effective fire management.
- Efficient policing against poaching of game and illegal harvesting of plants

- Efficient and profitable tourism management
- Effective conservation and sustainable use of the biodiversity and landscape.
- Environmental education and awareness programmes.
- Trained tour guides for the guided tours.

In order to effectively address the full spectrum of KNR management functions it is imperative that the human resource needs are fully investigated with a view to developing a new and effective human resource structure for KNR.

To improve accountability, efficiency, co-ordination and reporting significantly an option would be to consider a staff structure situated under a single Nature Reserve Manager. This investigation needs to be undertaken urgently in order to inform the KNR Business Plan.

Action Project 6.1.2 (i): Investigate and develop an appropriate human resource structure and capacity of KNR with a view to improving effectiveness and efficiency in achieving KNR objectives and informing the Business Plan.

6.1.2.1 KNR Employment Policy Guidelines

KNR Management Committee and local leaders (not a formal local board) will always be informed in advance of impending recruitment of staff.

- Appointments will be made in accordance with the:
 - relevant employment legislation;
 - employment policy framework of EKZNW;
 - required experience, skills, proven ability and qualifications of applicants.
- Entry-level or temporary appointments requiring no specific skills will be employed from neighbouring communities after consultation with the KNR Management Committee and local leaders.

6.2 Local Community Involvement

EKZNW will strive to work collaboratively with institutions and adjacent landowners/communities to improve communication as well as conservation management in and around the Nature Reserve for the benefit of all. Neighbour relations and partnerships are guided by EKZNW Board Policies No. 4.8 and 4.11 (**Appendix 2**).

EKZNW encourages community involvement in the management of the Nature Reserve through collaboration with adjoining communities in the following programmes and projects.

Action Project 6.1.3 (i): EKZNW will continue to work collaboratively with landowners and surrounding communities to improve conservation management of KNR for the benefit of all.

6.2.1 Local Board

Community participation in the Nature Reserve is realised, mainly, through a Local Board which is established in terms of Chapter 5 of the KZNNCMA. The EKZNW Board Policy No.4.9 (**Appendix 2**) provides an operational relationship framework between the Nature Reserve and its Local Board to ensure effective community participation in the management of the Nature Reserve. This Local Board must still be established.

Action Project 6.2.1 (i): Establish a Local Board for KNR.

6.2.2 Community Levy Trust Fund

Communities adjacent to the KNR benefit from income generated by the Nature Reserve through a community levy paid by visitors. These funds are administered through the EKZNW Community Trust Fund and provided to communities for development needs as prescribed by EKZNW Board Policies No. 4.16 and No. 4.6 (**Appendix 2**).

Action Project 6.2.2 (i): The Community Levy will continue to be collected for the development and upliftment of the local communities.

6.2.3 External Funding Projects

KNR procures external funding for specific Nature Reserve related projects; priority is given to training members of the community and the creation of community small, micro and medium enterprise (SMME) business and employment opportunities.

Action Project 6.2.3 (i): Training of members of the local community will continue to be practiced. Investigate other employment opportunities that will benefit the surrounding local communities of KNR.

6.2.4 Land Claims

There are no known land claims against KNR.

6.2.5 Environmental Education

It is EKZNW policy to provide environmental education programmes for communities adjoining KNR. These programmes will be conducted in accordance with **Board Policy No. D 2.34**. Access to the material and spiritual benefits of the Nature Reserve is facilitated in accordance with Neighbour Relations **Board Policy D 4.1** (See **Appendix 2**). Environmental education programmes are addressed further under **Par. 6.8**.

Action Project 6.2.5 (i): Investigate and implement additional environmental education programmes for communities surrounding KNR.

6.2.6 Transfrontier Partnerships

KNR has no Transfrontier Partnerships.

6.2.7 Informal Participation

Local community involvement will not only occur through formal structures like the KNR Local Board but also through an annual public meeting where informal community participation will be encouraged.

Action Project 6.2.7 (i): Annually in March of each year arrange a public meeting to give feedback on progress, planned projects and encourage informal local community participation.

Informal communication between the general public/stakeholders and reserve management will be encouraged at all times within practical limits (Open door policy).

6.3 Security and Safety

EKZNW recognises that illegal activities within and around KNR will be a severe threat to the integrity of its natural and cultural heritage, its water storage and supply infrastructure, as well as the safety of KNR users, neighbouring communities and the attainment of its stated Mission and Management Objectives.

Nature Reserve management will therefore initiate and institutionalise a security strategy that ensures co-ordinated participation in all possible local, regional security forums and networks while optimising security in and around KNR. This strategy will ensure sufficient capacity to deal with conservation-related illegal activities in KNR (See also **Par. 6.4.7**) and contribute to a network of provincial, national and international law enforcement intelligence.

Action Project 6.3 (i): Develop an integrated security strategy for the Nature Reserve that ensures collaboration with all relevant institutions.

Action Project 6.3 (ii): Develop and implement a Civil Emergency Procedures Plan.

6.4 Natural Resource Management

6.4.1 Introduction

The management philosophy is one of adaptive management. This includes implementing management actions according to the stated objectives, policies and operational plans, monitoring progress and adapting the management strategy accordingly. This is done using a participatory, team approach and making use of the best scientific understanding in collaboration with partners and stakeholders. The principle of sustainable use of natural resources is implicit in the philosophy.

Management aims to conserve biodiversity through addressing threats and ensuring the maintenance and/or re-instatement of the ecological processes that are considered the main determinants of ecosystem structure and function. Where these processes or regulatory mechanisms have been disrupted and cannot be re-instated, management will attempt to simulate their effects; otherwise Management intervention in the system will be minimised. In particular, the function of sustained water delivery of quality water is paramount.

Fire is a key ecological process influencing biodiversity in KNR. Given the above, the objective is to actively manage for a shifting mosaic of vegetation patches with high basal cover but different ages and sizes - thereby creating a diversity of habitats that will ensure the conservation of the biodiversity representative of the area. This approach will also provide the best insurance policy for the majority of organisms for which habitat requirements and response to fire are unknown. The mosaic is achieved through controlling the spread of fire in the landscape and the conditions under which fires are ignited.

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

6.4.2 Fire Management

Nature Reserve Management shall convene and chair a **Fire Workshop** in March each year. This workshop shall include Conservation Partnerships and Ecological Advice staff, and invited experts where appropriate.

At this Fire Workshop the burns of the previous fire season (planned and unplanned) will be reviewed and, based on the Nature Reserve **Fire Management Plan**, management units will be scheduled for burns in the upcoming fire season and recorded as the **Annual Burning Plan** for implementation. In preparation for the Fire Workshop all fire returns will be with Ecological Advice by 30 November each year to allow for digital capture and analysis of the data.

The **Fire Management Plan** is to be based on the KNR management objectives and guided by 'best practice' linked to scientific understanding, legal context and risk management.

Action Project 6.4.2 (i): Develop a KNR **Fire Management Plan** that provides comprehensive fire management objectives, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required and resources needed.

Action Project 6.4.2 (ii): Promote and champion (in cooperation with DWEA and the "Working on Fire" programme) the establishment of FPAs on the borders of KNR.

Action Project 6.4.2 (iii): Arrange a KNR Fire Management Workshop in February of each year.

6.4.3 Alien Species Control and Management

The requirements of NEMBA (Sections 76 and 77) in terms of **invasive species** and the relevant legal obligations of protected area management authorities will be noted. The

following is the KNR strategy to deal with alien and alien invasive species in the Nature Reserve.

Action Project 6.4.3 (i): Compile and implement an alien species management plan. Identify and itemize indicator species and their current species densities in KNR.

6.4.3.1 Alien Plants

Alien plant species have been planted or have established themselves within KNR over time because they will, to varying degrees impact negatively on ground water quality, the natural environment and biodiversity as well as the natural landscape character of the Nature Reserve. Their control and management is considered a management priority.

Wherever possible and appropriate these plants will be removed from KNR.

The following management guidelines apply:

Alien Plant Introductions

Introductions of alien plants to KNR will not be tolerated except for non-invasive vegetables, garden plants, fruit trees, or herbs (for domestic consumption) planted within staff accommodation plots or non-invasive pot plants used indoors for decorative purposes, provided these plants in no way impact negatively on the ecological processes or disrupt normal animal behaviour patterns (e.g. fruit trees and baboons/monkeys).

Only plants indigenous to the KNR and surrounds will be used outdoors in landscaping projects within the demarcated development zones.

Declared Alien Weeds and Invasive Plants

Alien plants declared **weeds and invader plants** under section 29 of CARA (Act No. 43 1983) are a serious threat to the ecological functioning of natural systems as well as groundwater storage and water production from catchments. They will be controlled in terms of the relevant CARA regulations. An ongoing time-bound programme to effectively control these alien weeds and invader plants within the KNR and up to 1km beyond (buffer area) the Nature Reserve boundary will be developed in collaboration with neighbours and the relevant municipalities.

State poverty relief programs such as 'Landcare', 'Working for Water', 'Working on Fire' and 'Working for Wetlands' will be used to full effect to complement the Nature Reserve budget for this management task.

KNR management will be accountable for all invasive alien plant clearing and therefore will strictly supervise control operations to ensure that the correct methodologies are used and to avoid environmental damage.

Alien species are regarded as species or genotypes that are not indigenous to the Reserve, including hybrids and genetically altered organisms. Alien plants which have been declared weeds and invader plants (according to Section 29 of CARA) are a serious threat to the ecological functioning of natural systems.

The alien plant species of relevance within and immediately surrounding the Nature Reserve are the following:

- | | |
|--------------------------------|-------------------|
| • <i>Acacia mearnsii</i> | Black wattle |
| • <i>Acacia podalyriifolia</i> | Pearl acacia |
| • <i>Achyranthus aspera</i> | Burweed |
| • <i>Agave sp.</i> | Sisal spp. |
| • <i>Ageratum conyzoides</i> | Invading ageratum |
| • <i>KNRredera cordifolia</i> | Madeira vine |
| • <i>Ardisia crenata</i> | Coral bush |
| • <i>Bauhenia sp.</i> | Camels foot |

• <i>Bryophyllum delagoense</i>	Chandelier plant
• <i>Caesalpinia decapetala</i>	Mauritius thorn
• <i>Callisia repens</i>	Dwarf-striped inch plant
• <i>Campuloclinium macrocephalum</i>	Pom pom weed
• <i>Canna indica</i>	Wild canna
• <i>Cardiospermum grandiflorum</i>	Balloon vine
• <i>Catharanthus roseus</i>	Periwinkle
• <i>Cestrum laevigatum</i>	Inkberry
• <i>Chromolaena odorata</i>	Triffid
• <i>Cinnamomum camphora</i>	Camphor tree
• <i>Colocasia esculenta</i>	Wild taro
• <i>Coreopsis lanceolata</i>	Tickseed
• <i>Cuscuta campestris</i>	Dodder
• <i>Duranta erecta</i>	Forget-me-not
• <i>Echinodorus tenellus</i>	
• <i>Eucalyptus</i> spp.	Gum tree spp.
• <i>Eugenia uniflora</i>	Cherry hedge
• <i>Grevillea hybrid (robusta)</i>	Silky oak
• <i>Hedychium</i> spp.	Ginger
• <i>Hypoestes phyllostachya</i>	Polka dot plant
• <i>Jacaranda mimosifolia</i>	Jacaranda
• <i>Lantana camara</i>	Lantana
• <i>Leucaena leucocephala</i>	
• <i>Lilium formosum</i>	Formosa lily
• <i>Litsea glutinosa</i>	Indian laurel
• <i>Macfadyena anguis-cati</i>	Cat's claw creeper
• <i>Melia azadarach</i>	Syringa
• <i>Mimosa pudica</i>	
• <i>Montonoa hibiscifolia</i>	Tree daisy
• <i>Morus alba</i>	Mulberry
• <i>Nephrolepis exaltata</i>	Sword fern
• <i>Opuntia monocantha</i>	Drooping prickly pear
• <i>Passiflora subpeltata</i>	Granadilla spp
• <i>Pennisetum purpureum</i>	Napier fodder
• <i>Pereskia aculeate</i>	Barbados gooseberry
• <i>Persicaria capitata</i>	Creeping knotweed
• <i>Plectranthus comosus</i>	Wooly plectranthus
• <i>Psidium cattleianum</i>	Cherry guava
• <i>Psidium guajava</i>	Guava
• <i>Rhus succedanea</i>	Wax tree
• <i>Ricinus communis</i>	Castor-oil bush
• <i>Salvinia molesta</i>	Kariba weed
• <i>Schinus terebinthifolius</i>	Brazilian pepper
• <i>Senna</i> spp.	
• <i>Sesbania punicea</i>	Red sesbania
• <i>Solanum mauritianum</i>	Bugweed
• <i>Syncarpia</i> sp.	Turpentine tree
• <i>Tagetes minuta</i>	Khakibush
• <i>Tecoma stans</i>	Yellow bells
• <i>Telechitonia/Sphagneticola trilobata</i>	
• <i>Thevetia peruviana</i>	Yellow oleander
• <i>Tithonia diversifolia</i>	Mexican sunflower
• <i>Tradescantia fluviensis</i>	Striped wandering jew

Action Project 6.4.3.1 (i): Develop an ongoing time-bound programme to effectively control declared alien weeds and invader plants within KNR and 1 km beyond (buffer area) the Nature Reserve boundary.

Existing Non-invasive Alien Plants

A phased 3-year plan to address the existence and spread of **non-invasive alien plants** (including grasses) that already exist within KNR will be developed. Where required, this plan will also address the re-planting of relevant areas with indigenous plants. If considered appropriate by the PAMC, certain non-invasive alien plants may be demarcated and retained for horticultural or cultural-historical purposes. They will, however, not be replaced should they die, unless recommended by the PAMC for cultural-historical reasons. All seedlings of demarcated alien plants will be removed annually.

Action Project 6.4.3.1 (ii): Develop a phased 3-year plan to address the existing non-invasive alien plants in KNR.

6.4.3.2 Alien Animals

Because alien animal species can threaten the ecological, genetic or natural aesthetic integrity of the Nature Reserve and can be vectors for the spread of diseases, their control and management are considered a management priority. Wherever possible and appropriate these animals will be removed from the KNR.

The following management guidelines apply:

Alien Animals Present in KNR

Alien animals that are present and are a threat / potential threat to the ecological processes tourism experience in the Nature Reserve will be dealt with as necessary according to a control programme developed and approved by the PAMC.

There are currently no grazing concessions that have been made regarding alien animals in KNR. Sometimes security fences are cut allowing goats and cattle to enter KNR. Cutting of these fences is an illegal activity.

A management strategy is needed to monitor and eliminate alien fish species in KNR.

Mallard ducks, alien wild ungulates, 'domesticated' guinea fowl and feral species are all potential threats and could be found in the Nature Reserve sporadically. They will be destroyed as soon as possible after their presence is detected (humanely as practically possible and with due regard for the tourist experience).

Action Project 6.4.3.2 (i): Develop a control programme for alien animals present in KNR.

Action Project 6.4.3.2 (ii): Develop a management strategy that will minimize the negative impact of alien fish and promote the establishment of sustainable populations of fish species indigenous to KNR.

Alien Animal Introductions

Introductions of alien animals to KNR will not be tolerated except:

- as part of culture-based, community-based or management projects approved by the PAMC ; or
- for domestic animals and livestock (incl. donkeys and horses) kept for official purposes or privately by staff according to specific rules for each management centre/protected area; and
- in accordance with relevant EKZNW policies.

It is critically important that these exceptions do not negatively influence the integrity and sustainability of Nature Reserve's biodiversity and ecological processes.

A new, standardised and equitable KNR policy for keeping domestic animals and livestock is required and will also include procedures to deal in a consistent manner with alien animals that stray into KNR. This policy will, *inter alia* clearly address:

- Threats to biodiversity conservation as a priority.
- Reducing the numbers of such animals to an absolute minimum.
- Designating areas where these animals will be kept. They will not be allowed to roam or feed in the nature reserve (except for official patrol horses when on patrol) or interfere in any way with tourists.
- The proper and hygienic care of these animals.
- Minimum standards (aesthetic acceptability, sizes, neatness and cleanliness) of facilities housing these animals e.g. stable, camps cages etc.

Action Project 6.4.3.2 (iii): Develop a new, equitable policy for keeping personal and official domestic animals and livestock in the Nature Reserve that includes procedures for dealing in a consistent manner with alien animals that stray into the Park. This policy will, *inter alia* clearly address:

- Threats to biodiversity conservation as a priority
- Reducing the numbers of such animals to an absolute minimum.
- Designating areas where these animals will be kept. They will not be allowed to roam or feed in the Park (except for official patrol horses when on patrol) or interfere in any way with tourists.
- The proper and hygienic care of these animals.
- Minimum standards (aesthetic acceptability, sizes, neatness and cleanliness) of facilities housing these animals e.g. stables, camps, cages etc.
- Disciplinary measures for staff transgressing these regulations or failing to enforce these measures.

6.4.4 Catchment/River Management

The Nature Reserve forms the major part of the Umgeni catchment area.

In order to ensure a sustained flow of good quality water from this natural catchment it is essential that throughout the catchment (both in and outside KNR).

- A good vegetative canopy and basal cover is maintained to maintain a sustained flow of water and reduce turbidity caused by accelerated soil loss.
- Strict pollution control and waste management standards will be applied [especially in the Nature Reserve.
- Invasive alien plants are removed and controlled (See **Par.6.4.3**).
- Aquifer and surface water quality and quantity are monitored.

Water quality is currently being monitored on a monthly basis by Ethekewini Municipality for Bilharzia.

Action Project 6.4.4 (i): Obtain all standards for water quality from the Municipality, review monitoring the results against these standards and take appropriate actions should any standard not be met.

6.4.5 Soil Erosion Control

Gradual natural soil erosion processes will be allowed to continue unless this is a threat to the achievement of the Nature Reserve's management objectives. However, in the case of human-induced and / or aggravated erosion, appropriate remedial management action will be taken. Potential human impacts will be avoided through appropriate planning and maintenance of infrastructure, especially trails/ pathways.

Extensive sites of potential or aggravated soil erosion will be mapped, and the rehabilitation prioritised annually. Rehabilitation of soil erosion sites will follow the guidelines presented by Coetzee (2005).

Action Project 6.4.5 (i): Map all extensive or potential human-induced / aggravated soil erosion sites and annually monitor the condition of these sites in order to prioritise

rehabilitation work.

6.4.6 Wildlife Management

The primary objective of wildlife management at KNR will be to maintain, within the ecological carrying capacity of the Nature Reserve, viable indigenous wildlife populations that historically occurred in the area and are suited to the particular habitats offered by KNR.

Where possible, a minimal intervention management strategy will be followed in terms of indigenous wildlife management. Exceptions would be the specific strategies identified in terms of the National Norms and Standards for the management of specific species in accordance with NEMBA and / or this IMP and / or additional actions recommended by the PAMC. The latter interventions will only be considered for the following purposes:

- safeguarding populations of Rare and Endangered species;
- achieving KNR's Management Objectives and set Conservation Targets;
- complying with KNR's IMP Management Guidelines;
- the maintenance of populations of wildlife species to avoid the over-utilisation of the available natural resources;
- research and monitoring purposes;
- translocation to other state or private protected areas;

Wildlife that have been injured and are highly unlikely to survive will be destroyed on the authority of the KNR Manager. The Reserve Manager will, however ensure that all relevant information is recorded and the relevant data / specimens / material provided is provide to the Ecological Advice component staff responsible for processing and recording such information. A copy of these records will be kept in the reserve office record system. The by-products such as meat and horns will be disposed of according to tariffs and procedures determined by EKZNW and in accordance with the relevant legislation.

Action Project 6.4.6 (i): Compile and implement a Wildlife Protection Management Plan.

Action Project 6.4.6 (ii): Compile and implement a Priority Species Management Plan and determine status of priority species.

6.4.6.1 Introductions of Indigenous Animal Species into KNR

The introduction of indigenous animal species into the Nature Reserve will be considered in terms of **Corporate Policy** (See **Appendix 2**) and taking into account their natural distribution range, genetic compatibility, social behaviour characteristics, impacts on existing populations, habitat requirements, practical management and possible interaction with human communities adjacent to KNR.

The introduction of **any** animal species (individual or group) will be done in collaboration with the responsible Ecological Advice staff, with the approval of the PAMC. The introduction will be adequately documented. An animal species introduction policy for KNR is needed for the effective application of this policy guideline.

Action Project 6.4.6.1 (i): Develop a policy that addresses the introduction and and population monitoring of animal species into the Nature Reserve.

6.4.6.2 Game Population Management

Ongoing game population management will be aimed at maintaining a diversity of species without negatively affecting vegetative diversity and cover. The objective of this management is to control numbers as far as possible within the ecological carrying capacity of the Nature Reserve. Ungulate game species populations that are not strongly territorial will be subject to a population management programme as their population numbers have the potential to increase to unsustainable numbers within the confines of KNR. This could result in overgrazing and trampling of the vegetation and eventually accelerated soil erosion and biodiversity losses. To guide game population management, it

is therefore necessary to develop a KNR Game Management Policy Guideline document that is reviewed and recommended by the KNR PAMC.

The KNR PAMC will annually in February determine and recommend game removal or augmentation in terms of the Game Management Policy Guideline

Game removal from KNR will only be undertaken by means of:

- Live Capture; or
- Culling Programmes

Action Project 6.4.6.2 (i): Develop a KNR Game Introduction and Monitoring Programme, with Guidelines in terms of EKZNW's Wildlife Introduction Policy and implement.

6.4.6.3 Fishery Management

Action Project 6.4.6.3 (i): Regular monitoring and assessments will continue to be conducted.

6.4.6.4 Bird Management

Action Project 6.4.6.4 (i): Regular monitoring and assessments will continue to be conducted.

6.4.6.5 Problem Animal Management (Damage Causing Animals)

Animals that become a danger or excessive nuisance to persons and property due to either habituation or aberrant behaviour are to be destroyed humanely or captured and removed from KNR. This also applies to animals that escape or leave and return periodically and cause damage outside KNR.

To minimize the need to control problem animals, pro-active and preventative measures (e.g. fencing) would be considered as a priority, while affected public, visitors or neighbours need to be informed appropriately regarding the relevant animal behaviour and/or dangers. Where the only solution to the problem lies in destroying or capturing animals, the methods decided upon will be with due regard to avoiding possible public criticism.

All human / wildlife conflict matters relating to problem animal management (damage causing animals) will be dealt with in terms of the **NEMBA Norms and Standards for Management of Human and Wildlife Conflict in SA**. This is applicable to animals within and outside of the Nature Reserve.

Action Project 6.4.6.5 (i): The KNR Conservation Manager will ensure that all complaints and incidents reported are investigated by the relevant KNR staff and/or District Conservation Officer (DCO) as soon as possible. Complaint details, investigation findings and remedial action taken are to be recorded in the prescribed Damage Causing Animals Complaints Register kept on station. Investigations and incident reporting is to be carried out in accordance with **EKZNW's DCO Control Protocol and Guidelines**.

6.4.7 Control over Illegal Use of Natural Resources

Illegal utilisation of KNR's natural resources is not quantified and is to be considered a threat that has the potential to increase significantly if not adequately controlled.

Ongoing vigilance through cost-effective surveillance, monitoring programmes and reaction capabilities is to be undertaken. Direct illegal use of natural resources will be dealt with by KNR management while high risk criminal activities will be monitored and communicated to the relevant security forces as part of a broader co-operative security strategy [See **Action Project 6.3(i)**].

A standing staff component of seven field rangers, primarily tasked with law enforcement, has been appointed, is operative and will be maintained. Should illegal activities increase then it will be necessary for the staff component to be increased accordingly.

To assist in maintaining the Nature Reserve ecological integrity and safeguarding staff and visitors, it is essential that the effectiveness of the field ranger component and their deployment is regularly and critically assessed. A well maintained statistical incident register will be used in such assessments (See also **Monitoring and Evaluation under Par. 6.9.1**).

Action Project 6.4.7 (i): Assessment of the field ranger component will be done monthly.

To resolve illegal utilisation of natural resources by neighbouring communities for purposes of subsistence will be to create understanding and awareness through pro-active education amongst these communities is to be undertaken (See **Local Community Involvement: Environmental Education under Par. 6.2.5**). Management will prosecute people that illegally utilise natural resources for commercial or other purposes in accordance with the legislation.

Action Project 6.4.7(ii): Management will continue to prosecute people that illegally utilise natural resources for commercial or other purposes in accordance with the legislation.

6.5 Cultural Resource Management

Management of the cultural heritage is guided by the National Heritage Resources Act and as well as the Amafa / EKZNW Co-operative Conservation Management of Cultural Heritage Agreement (signed July 2005) and aims to promote the conservation and public appreciation of the cultural heritage found in KNR (See **Appendix 2, Policy B7**). The policy also provides guidelines in terms of monuments and memorials.

There is a critical need to develop a comprehensive cultural heritage management plan for KNR that would meet national requirements. This plan will cover archaeological, historical sites as well as palaeontological features and living heritage sites.

The cultural heritage of the KNR is non-renewable and importantly may shed further light on the socio-cultural history of the area. These resources are fragile and therefore the Cultural Heritage Management Plan will, in addition, address institutional specialist capacity to guide cultural heritage management on KNR

Action Project 6.5 (i): Develop a comprehensive Cultural Heritage Inventory and Management Plan for KNR in collaboration with SAHRA and Amafa. Institutional capacity will also be addressed by this plan.

Action Project 6.5 (ii): Identify the archaeological, historical, paleontological and cultural heritage sites at KNR.

6.6 Resource Utilisation

Requests for extractive use of plant, animal and abiotic resources will be considered provided that such resource use is sustainable, controlled and the natural or cultural heritage conservation management objectives of KNR are not compromised. Resource use will not be allowed to degrade the aesthetic landscape character of KNR or be permitted if management staff lack adequate capacity to ensure effective control over the resource utilisation or by compromising essential functions.

Action Project 6.6 (i): Control or 'bench mark' areas within KNR will be identified where no extractive resource utilisation of indigenous species will take place.

6.6.1 Plants and Animals

Extractive resource use will be undertaken in accordance with, **EKZNW Board Policy Nos. D2.15 and D3.12 to D3.19**.

The PAMC are to evaluate applications with due consideration of:

- any applicable land restitution or other agreements,
- the precautionary principle
- ecological and social acceptability,
- impact on the aesthetic character of the landscape,
- impact on eco-cultural tourism,
- sustainable and wise use of the resource,
- benefit to neighbouring communities,
- equitable access to the resource,
- any benefit transaction that is acceptable within the PFMA framework,
- harvesting operations that are effectively controlled and monitored,
- A written agreement stipulating resource price and/or conditions of harvest, and
- viable alternatives.

Action Project 6.6.1 (i): Evaluate Resource Use in KNR in terms of EKZNW policies for the Evaluation of Extractive Resource Use. If possible, sustainable and feasible in terms of this guideline, develop a resource use management plan and implement.

6.6.2 Bioprospecting

Requests to collect biological material/samples from KNR will be considered by the PAMC in accordance with, amongst others, **EKZNW Board Policy D2.15 (Appendix 2)** (Accessed EKZNW Intranet on 8/09/2008) from *bone fide* South African research institutions until national (NEMBA) and provincial legislation governing bioprospecting is in place.

Bioprospecting activities within the Nature Reserve will be closely monitored and regulated in terms of present environmental legislation.

6.6.3 Abiotic Resources

The extraction of abiotic resources from the protected area will not be permitted unless it has direct bearing on achievement of the KNR management objectives and any application for extraction by an external body will be referred to the EKZNW Board.

6.7 Eco-Cultural Tourism and Marketing

Eco-cultural tourism and marketing will be considered within the framework of, amongst others, **Board Policy E1 to E19** with regard to Commercial Operations.

EKZNW has the mandate to sustainably develop the KNR within the framework of its approved IMP and Concept Development Plan CDP. This will be undertaken to fully realise its eco-cultural tourism and associated income-generating potential, while respecting and giving access to the Nature Reserve's natural and cultural heritage features.

To fulfil this mandate, and in accordance with NEMPAA, EKZNW will initiate the compilation of a CDP. It will address future new development as well as the upgrading and maintenance of all existing infrastructure including tourist facilities (See **Par. 6.10**).

The CDP will be guided by the framework of the KNR Mission, Management Objectives, Zonation and Management Policy Guidelines as adopted and approved for this IMP. The approach adopted in the compilation of the CDP will involve an objective and integrated assessment of the Nature Reserve in terms of its natural and cultural heritage sensitivities, management and bulk infrastructure, its particular sense of place and its visitor infrastructure and facilities.

EKZNW will strive to provide a quality eco-cultural tourism experience for visitors to the KNR. A range of appropriate facilities and services will be provided for the use of visitors to KNR. While some of these will serve recreational and social needs, emphasis will be placed on facilities and services that enrich the visitor's understanding and appreciation of the Nature Reserve.

In order for KNR to realise its full income-generating potential:

- The quality and standard of facilities will be maintained at a high level.
- Professional standard tourism service delivery will be provided.
- Its tourism opportunities will be competitively and effectively marketed.
- Cultural heritage tourism will require emphasis.
- A partnership strategy, that takes full advantage of appropriate opportunities for outsourcing (joint venture or otherwise) needs to be put in place while linkages will be sought with other regional tourism initiatives.
- A visitor orientation and interpretation strategy will be developed and implemented.

The above policies and values will be supported by a KNR Eco-cultural Tourism Development and Marketing Strategy that will be compiled and approved.

Action Project 6.7 (i): Cognisant of the KNR IMP and CDP policy guidelines, develop a KNR Eco-cultural Tourism Development and Marketing Strategy that addresses:

- the attainment of professional tourism service delivery standards.
- branding and marketing.
- linkages with other regional tourist initiatives.
- public / private partnerships.
- cultural heritage tourism.
- visitor awareness, orientation and interpretation.

Action Project 6.7 (ii): Develop and communicate formal procedures for local tourism user groups.

Action Project 6.7 (iii): Develop and implement a visitor management plan. Undertake analysis of available recreational facilities and identify opportunities to improve these.

Action Project 6.7 (iv): Align marketing strategy with EKZNW Organisational Plan and develop and communicate formal procedures for local tourism user groups.

6.8 Environmental Interpretation, Awareness and Education

Environmental interpretation, awareness and education of KNR's natural and cultural resources will be aimed at creating an awareness, understanding and appreciation of the value of these resources among the general public and visitors to the Nature Reserve.

An environmental awareness and education programme will be developed to pro-actively engage, inform and benefit the Nature Reserve's range of neighbouring communities and visitors. **Board Policies D 2.34** (Environmental Education) and **D 4.1** (Neighbour Relations) apply (See **Appendix 2**).

Ideally, such programmes will not be primarily aimed at children, but provision will be made for developing various programmes, applicable to a wide spectrum of ages and education levels.

Programmes for groups and communities from other areas will be accommodated on request whenever possible. The "Kids and Parks" Programme requires school groups visiting the Nature Reserve's, to submit a lesson plan before the visit to qualify for a concession. The visit takes place during schooling days.

Where and whenever possible members of the local community (e.g. community tour guides) will be empowered and used to run appropriate environmental education tours.

Action Project 6.8 (i): Develop a KNR environmental awareness education programme specifically for surrounding neighbouring communities and the general public interest groups.

Action Project 6.8 (ii): Compile educational material on environmental and cultural aspects of the Nature Reserve.

Action Project 6.8 (iii): Engage in biodiversity and cultural education with schools, communities, interest groups.

Action Project 6.8 (iv): Facilitate access to educational information pertaining to the history of the reserve and surrounding areas.

An interpretation programme using signage, displays and information media will be developed to effectively direct and inform visitors in respect of appropriate natural and cultural features of the area. The format of these signs will be standardised and trail marking will be a priority.

Action Project 6.8 (v): Develop an interpretation programme in a standard format for the Nature Reserve.

An investigation to identify synergies in the needs of various government or other institutions in the area to develop awareness programmes (e.g. social education of the youth) will be undertaken and if feasible, to combine environmental awareness education with these other programmes. In this way, it will be possible to combine resources to reach a wider target audience.

Action Project 6.8 (vi): Investigate the possibility of combining environmental awareness programmes with social programmes offered by other institutions in the general area of the Nature Reserve.

6.9 Research

Priority will be given to research that will provide information and understanding that is of direct benefit to KNR and will guide management interventions required to achieve the protected area's conservation targets as well as natural and cultural heritage management objectives in the most cost-effective manner. Opportunities will, however, be considered and provided for both applied and theoretical research of local, provincial or national importance.

Long term research and monitoring is desirable and necessary as a result of the dynamic and stochastic nature of the ecosystem and to ascertain whether management actions are having their desired affect in terms of achieving conservation targets as well as natural and cultural heritage management objectives.

Partnerships and agreements with appropriate academic and research institutions will be promoted to stimulate and encourage the desired research in KNR. In order to achieve this, the following will be undertaken:

- Management and scientific staff as well as external researchers will identify and prioritize 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 will 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.
- Appropriate permanent research facilities will be developed within or bordering the Park in order to facilitate research work.

Action Project 6.9 (i): Develop a prioritised KNR natural and cultural heritage research project list.

Action Project 6.9 (ii): Develop procedures that will ensure that all abiotic and biotic data collected are captured in managed databases and GIS data layers for interrogation by researchers and managers.

Action Project 6.9 (ii): Develop procedures that will ensure that all abiotic and biotic data collected are captured in managed databases and GIS data layers for interrogation by researchers and managers.

All proposals to undertake research within the Nature Reserve will be submitted and evaluated using the procedures outlined in the *Guidelines for the Registration and Administration of Research Projects Undertaken by or through Ezemvelo KZN Wildlife (August 2002)* [Appendix I, Item 6]. Where research requires the collection of biological material, a collection permit will be issued in accordance with approval of the research project.

A copy of all publications is to be lodged within the Nature Reserve, the Regional Office as well as the Head Office library and details captured using appropriate keywords into the Region's bibliography.

A KNR bibliography and reference library facilities will be developed together with procedures to maintain a hard and digital copy of all KNR related research work, all documents listed as IMP supporting documentation in **Appendix 1** as well as any new supporting management documentation produced. Libraries will be maintained at the Nature Reserve and at the Regional Office. Strict curation rules shall apply and the ultimate responsibility for the curation of this library at KNR will be allocated to the most senior reserve management position and the Regional Co-ordinator: Ecological Advice.

Action Project 6.9 (iv): Identify and develop reference library facilities and procedures to maintain hard and digital copies of all KNR related research work, all documents listed as IMP supporting documentation in **Appendix 1** as well as any new supporting management documentation produced. Strict curation rules shall apply and the ultimate responsibility for the curation of this library at KNR will be allocated to the most senior reserve management position and the Regional Co-ordinator: Ecological Advice at the Coastal Regional Office.

6.9.1 Monitoring and Evaluation

Baseline data collection, monitoring and evaluation will be undertaken in order to determine whether conservation targets, natural and cultural heritage management objectives, as well, as eco-cultural tourism objectives and targets are being achieved, and to ascertain the effectiveness of management interventions.

Due to (a) the stochastic (random behaviour) nature of the environment, (b) the effects of long-term climate cycles and change, and (c) the length of time for treatment effects to manifest themselves, it is necessary to implement long term baseline collection and monitoring programmes. It is also necessary to monitor and record all management interventions and the biophysical environment in order to understand the causes for any biological and environmental changes that may occur.

All existing monitoring programs are to be maintained. No programme is to cease and may only do so if a specific decision recorded in writing by the PAMC minutes to terminate a particular monitoring programme is recommended and is submitted to BCOM for approval.

The **Ecological Advice component** is responsible for:

- Designing all biodiversity monitoring and baseline collection programmes (including the data capture and storage procedures) and ensuring that these will provide data of the right precision and accuracy, and at the right frequency, in order to guide management decision making and to allow for reporting at the required frequency.
- Biodiversity data management, secure storage, analysis, reporting and regular feedback to management.
- Undertaking scientific monitoring and data collection.

The **Biodiversity Conservation Management component** is responsible for:

- The accurate collection of biodiversity baseline data, monitoring and data storage as agreed with the Ecological Advice component.
- Monitoring the use of natural areas by visitors through Limits of Acceptable Change criteria.
- Monitoring cultural sites as outlined in approved and implemented cultural heritage management plans in collaboration with Amafa/SAHRA as the case may be.
- Monitoring energy and water use by conservation management facilities.
- Monitoring development or land use change in the Nature Reserve and in its buffer zone for compliance with set environmental conditions linked to authorization.
- Monitoring compliance by outside parties with conditions as specified in agreements, contracts etc. in collaboration (where practical and as agreed) with the Ecotourism and Marketing component.

The **Ecotourism and Marketing (Commercial Operations) component** is responsible for:

- Monitoring eco-cultural tourism statistics and revenue generation and reporting against revenue targets.
- Monitoring energy and water use by eco-cultural tourism and associated management facilities.
- Monitoring compliance by outside parties with conditions as specified in agreements, contracts etc. in collaboration (where practical and as agreed) with the Biodiversity Conservation Management component.

Action Project 6.9.1 (i): An appropriate monitoring and evaluation programme for each of the above components is to be developed for the Nature Reserve and implemented.

6.10 Infrastructure

EKZNW has the mandate to maintain, remove, expand or develop infrastructure within KNR for natural and cultural heritage management as well as eco-cultural tourism purposes. However, development projects will only be undertaken if they are:

- Aligned with the Nature Reserve's Zonation and Management Guidelines.
- Listed as an approved Action Projects either in this IMP or in the Nature Reserve's Concept Development Plan (CDP).
- Recommended for implementation by the PAMC and approved by the EKZNW Board's Development Committee.
- Compliant with the relevant NEMA regulations and other applicable legal requirements, particularly regarding Environmental and Heritage Impact Assessments.

Infrastructure development outside KNR or on its periphery will always be considered as a preferred option, where practical, to reduce the amount of infrastructure and its resultant impacts on the environment within the Nature Reserve.

KNR management is responsible for infrastructure within the Nature Reserve and will at all times ensure that it is maintained in a safe, sound, clean, serviceable and aesthetically acceptable condition. Tourist accommodation, campgrounds and other facilities are at all times to be maintained to appropriate world-class standards regarding appearance, cleanliness and serviceability.

Utility service providers (e.g. Telkom, Eskom, Vodacom), concessionaires or other groupings that may, through agreements develop, use and/or maintain infrastructure within KNR, will be closely monitored by management to ensure that they abide by conditions contained in the relevant agreements and servitude conditions. Management will ensure that their activities do not negatively impact on the achievement of the natural and cultural heritage management objectives as well as landscape character of KNR and that they maintain the same values as expressed above.

All structures are to be (as far as possible) harmonised with the surrounding environment and landscape character through appropriate siting, use of colour, building materials, landscaping and screening.

To create a sound foundation for future planning, all infrastructure will be listed on a maintained database and their positions plotted with GPS points on an associated KNR Infrastructure Map. Furthermore, the desirability and effectiveness of this infrastructure will be assessed with a view to reducing the impact of these structures on the KNR environment and landscape.

Action Project 6.10 (i): Develop and maintain a KNR Infrastructure database and map.

Action Project 6.10 (ii): Review the desirability and effectiveness of all present infrastructure associated with KNR with regard to:

- Adequacy
- State of repair
- Existing maintenance plans and programs
- Visitor and staff use, requirements and values
- Financial
- Environmental impact (negative and positive)
- Income generation
- Possibilities of outsourcing

6.10.1 Entrance Points and Gates

All road entrance points to KNR will be under the control of management, certain functions have, however been outsourced to Nomandla Security. It is important that the entrance gates be secure at all times to discourage illegal entry to KNR.

There are 16 gate entrances which is required for access to the Nature reserve for management purposes.

6.10.2 Boundary Fence

The purpose of the boundary fence is to keep game in and live stock out of the reserve while demarcating reserve boundaries to assist in preventing illegal entry. There is currently 13 kilometers of Veldspan fence 1.2 meters high with three strands of wire above.

6.10.3 Internal Fences

There are internal fences within KNR for infrastructure such as staff accommodation, main offices, pump house and communication tower.

6.10.4 Signage

All access routes to KNR are to be signposted.

Four groups of signage are identified, namely:

Public Entrance Gate and Boundary Signage

A standard for this signage is to be developed, that clearly depicts that one is entering the KNR with any camp/office names in a secondary position.

Tourist Camp or Management Infrastructure Area Signage

Interpretation, directional and information signage in KNR will have a standardised format [See also **Par 6.8**].

Trail Signage

The trail signage format is currently coloured arrows indicating the trail.

Memorial Plaques

In terms of the Public Monuments and Memorials Policy and the Names of Protected Areas under the Control of EKZNW Policy, all applications for such memorials are to be made to the Board who would approve or not in terms of design and location. All such applications are subject to an EIA. The key legislation includes the KwaZulu – Natal Heritage Act, 1997 (Act No.10 of 1997) and the KwaZulu – Natal Nature Conservation Management Act, 1997 (Act No. 9 of 1997).

6.10.5 Roads, Tracks and Paths

Roads and tracks will be kept to a minimum to maintain the natural character of the landscape as far as possible and to avoid unnecessary negative impacts on the natural and cultural heritage of KNR. In terms of this management guideline, a critical evaluation of the existing road /track and footpath network needs to be undertaken to identify any that need to be closed

or re-aligned. Any section that is approved for closure will be rehabilitated according to a documented rehabilitation programme.

Proposed development of new roads / tracks and footpaths or their closure will be aligned with the Zonation specified in this IMP and will follow the appropriate legal and other procedures after recommendation from the PAMC.

Management will ensure that the existing vehicle road / tracks and footpaths on KNR are effectively maintained to the appropriate standards in order to support the relevant use and avoid soil erosion as well as other negative impacts on the environment.

Roads and tracks that are heavily used by vehicles or sections prone to accelerated soil erosion will be tarred, paved, concreted or upgraded to 'all-weather' gravel roads that have been treated with a dust repellent (sealer).

Action Project 6.10.5 (i): All vehicle roads and tracks will be evaluated for the suitability of their alignment and recommendations made for new vehicle roads and tracks, repair or closure (with rehabilitation measures) of existing ones.

Action Project 6.10.5 (ii): Investigate [preferably in consultation with The Hiking Clubs] the potential for a hiking trail routes and day walks in KNR and make recommendations on professional hiking trail evaluation, design, construction, maintenance, accreditation, marketing, management as well as estimated revenue and expenditure. Implement if feasible

6.10.6 Staff Accommodation

Where essential for the efficient functioning of KNR, management will consider the provision and maintenance of staff accommodation, according to Corporate Norms and Standards. Accommodation is to meet standards as set by EKZNW's Technical Division and any development or maintenance in this regard will form part of the CDP.

Staff will be encouraged to acquire their own housing and live outside KNR, where practically possible and financially viable. In such cases, official transport to and from KNR may be considered depending on site specific circumstances and applicable corporate policies.

6.10.7 Offices, Workshops, Stables and other Infrastructure

KNR management will ensure that all infrastructure within the Nature Reserve is always maintained in a clean, neat and functional state and that these work areas meet Occupational Health and Safety Act standards.

All service areas (e.g. workshops, waste management and storage areas) will be effectively screened from public view using indigenous plantings.

Management will also be responsible for ensuring that any facility for keeping animals encamped or in captivity on KNR are legally compliant or maintained at generally accepted standards for keeping and caring for such animals.

6.10.8 Services

Management will strive to ensure that wherever possible, service infrastructure such as electricity, telephone, and water supply are located appropriately in the landscape or effectively screened to minimise their aesthetic and / or other environmental impacts. Reserve management will also strive to ensure that such infrastructure is maintained in a safe, serviceable and aesthetically acceptable condition by the relevant service providers.

6.10.9 Radio Communication and other Communication Equipment

KNR management uses a two-way radio system for efficient management. Any future radio repeater stations or similar communication towers will comply with EIA conditions.

6.10.10 Waste Management

6.10.10.1 Domestic Solid Waste

All domestic waste is to be sorted for recycling. The recyclable waste is to be removed to authorized recycling depots/ companies. The use of organic waste for compost purposes permitted but will be subject to strict conditional approval on the recommendation of the KNR PAMC. All historical waste disposal sites in KNR are to be rehabilitated.

Solid waste management procedures will be closely monitored by management to prevent pollution and other adverse impacts, especially of the water resources. All waste receptacles (for staff or the public) will be animal-proof (especially against baboons and monkeys) and maintained as such.

Action Project 6.10.10.1 (i): Develop an integrated waste management plan for KNR.

Action Project 6.10.10.1 (ii): Develop, install and maintain effective standardized solid waste receptacles for KNR that are animal and baboon/monkey-proof.

6.10.10.2 Sewage

All sewage systems are to be investigated and their compliance verified. New systems will be installed where there is non-compliance with legal requirements.

Existing infrastructure at KNR are septic tanks/french drain sewage systems that will possibly be contaminating ground and surface water. These systems will be replaced with more environmentally friendly systems available in the market as funding permits.

Action Project: 6.10.10.2 (i): All sewage systems in KNR to be investigated for legal compliance. A phased development plan to upgrade existing systems and septic tank/French drain systems is to be put in place.

6.10.11 Water- and Energy-saving Measures

Infrastructure in KNR has little or no modern water- and energy-saving (electricity) devices or measures in place.

Action Project 6.10.11 (i): Develop a phased plan to install standardised (reliable and tested) water- and energy-saving devices throughout KNR as soon as practically possible.

6.10.12 Aircraft Landing Fields

No airstrips are permitted inside KNR except for a helicopter landing pad maintained to the minimum aviation standards at a selected site within the natural zone. This is primarily for emergency purposes or for such other purposes on the approval of PAMC after taking into account the effect on biodiversity and the environment, 'sense of place' values and tourist disturbance aspects.

6.10.13 Staff and Visitor Safety

All requirements of the Occupational Health and Safety Act and other applicable legal requirements will be met to provide for the safety of staff and visitors in and around infrastructure installations at KNR (e.g. fire and electricity).

Action Project 6.10.13 (i): Management will maintain a secure entry controls system and maintain a high level of internal security in order that visitors and their belongings will be safe and secure.

Action Project 6.10.13 (ii): All Reserve staff will receive appropriate training regarding all health and safety aspect and will receive refresher course training as required on a regular basis.

6.11 Concept Development Plan

In compliance with NEMPAA and in order to initiate the development of new infrastructure as well as the strategic maintenance of existing infrastructure, EKZNW will initiate the compilation of a Conceptual Development Plan (CDP). The CDP will address the future development, improvement and maintenance of all infrastructure including eco-cultural tourism facilities.

The CDP will be guided by the framework of the KNR Mission, Management Objectives, Zonation and Management Policy Guidelines as adopted and approved for this IMP. The approach adopted in the compilation of the CDP will involve an objective and integrated assessment of the Nature Reserve in terms of its natural and cultural heritage sensitivities, management and bulk infrastructure, its particular sense of place and its visitor infrastructure and facilities.

6.11.1 Institutional Framework for Implementation of CDP Development Projects

The KNR management has the mandate to manage and sustainably develop the protected area to fully realise its ecotourism and associated income-generating potential, while respecting and giving access to the protected area's biodiversity and cultural values. Infrastructural planning and development of the protected area will be undertaken cognizant of the requirements the National Environmental Management Act (No. 107 of 1998) and the National Heritage Resources Act (No. 25 of 1999) and the KwaZulu-Natal Heritage Management Act (No. 10 of 1997).

The KNR CDP is guided by the framework of the KNR's Vision, Mission, Management Objectives, Zonation, Policy Framework and the Guiding Principles of this IMP. The approach adopted in the compilation of the CDP involves an objective and integrated assessment of the Reserve in terms of its natural and cultural heritage sensitivities, management and bulk infrastructure, its particular sense of place and its visitor infrastructure and facilities.

6.11.2 Strategic Considerations and Management Guidelines

The general strategic direction for the protected area set by the CDP is essentially one of consolidating and improving existing management and tourism infrastructure within the protected area while also seeking to improve links with local and regional conservation and tourism initiatives.

The emphasis in the CDP is on the improvement of the standard of existing infrastructure and improving the camp site as well as day visitor facilities throughout the protected area. Facilities for people with disabilities are to receive attention through specific policy formulation which will be applied to built infrastructure and related visitor amenities. It is envisaged that the implementation of the CDP will be instrumental in broadening access to the Reserve by a greater spectrum of the public and will provide a platform towards improving income generation, benefit flow management and inform any further appropriate development during the next five year planning period.

6.11.3 Alignment of CDP with Local Authority Integrated Development Plans

Emphasis has been placed on the importance of a cooperative governance relationship between KNR management and the eThekweni Municipality, to ensure that continuous development planning in and around the KNR is appropriately aligned as required by the National Environmental Management: Protected Areas Act and the Local Government: Municipal Systems Act.

It is critical from a biodiversity conservation, tourism and benefit flow perspective to preserve the aesthetic qualities of the natural landscape or "sense of place" which is strongly linked to retaining the natural character of the landscape both in and adjacent to the protected area.

Action Project 6.11.3 (i): Develop a Conceptual Development Plan and align with Municipal planning.

7 IMP REVIEW AND AMENDMENT PROCEDURES

7.1 Five-Yearly Review and Amendment Procedures

This KNR IMP will be reviewed every five years with the next review period planned for 2013 to revise and amend the IMP for the following five years, namely 2014 to 2018. If deemed appropriate by the PAMC, the review will take place sooner.

The EKZNW Management Planning Steering Committee in collaboration with the Co-ordinator: Management Planning will give guidance on the extent of public / stakeholder participation required before submitting the amended / updated IMP for approval to the MEC. The extent of the public / stakeholder participation (apart from that undertaken with the Local Board) will depend on the nature and extent of amendments recommended by the relevant KNR PAMC.

Action Project 7.1 (i): The PAMC will undertake a five-yearly review of this IMP in 2013 for the following five years.

7.2 Annual Review and Amendment Procedures

The PAMC will convene annually in November to monitor and evaluate IMP progress, plan and, if necessary, recommend the re-prioritisation of management activities for the next year. The PAMC will, as record of these meetings, submit a report to the EKZNW Management Planning Co-ordination Unit which contains the following:

- Any recommended **minor amendments or corrections** to the IMP that do not affect the substance of the Mission, Management Objectives, Zonation, Management Policy Framework and Guiding Principles;
- The result of an annual evaluation by the PAMC of the Management Effectiveness Level achieved for KNR This will be calculated using the World Bank Protected Area Management Effectiveness Evaluation Tool (Stolton *et al*, 2007);
- The cumulative number of Action Projects per Management Objective that have been completed, activated or not activated; as well as
- An indication of progress towards achieving Conservation Targets set in the IMP.

The PAMC will also be responsible for the recommendation of any policies, projects and plans that are developed as a result of the implementation of this IMP or other *ad hoc* projects etc. not covered by the IMP that have operational, financial and human resource or ecological implications (e.g. research projects that have not been identified according to IMP guidelines, or *ad hoc* funding received for the development of unplanned recreational facilities).

Any proposed significant amendments that are deemed necessary / urgent and that are likely to result in the amendment of the Mission, Management Objectives, Management Policy Framework and Guiding Principles contained in the KNR IMP will be supported by the PAMC, the Integrated Management Planning Steering Committee and BCOMM before being subjected to the appropriate public /stakeholder participation process and before BCOMM recommends that the proposed amended IMP is submitted for authorisation through the EKZNW Board to the MEC.

The EKZNW Management Planning Co-ordinator will ensure that any minor or significant IMP amendments that are appropriately approved, are duly noted / recorded and that a new digital 'master copy' (Word) version is generated and archived with the EKZNW Management Planning Co-ordination Unit as well as ensuring that updated 'read only' copies are distributed to the relevant Head Office sections and Regional General Manager who will ensure that the updated 'read only' digital and / or hard copies are distributed to all staff requiring these. The EKZNW Management Planning Co-ordinator will furthermore be responsible to ensure that website / intranet copies are updated at the same time.

Action Project 7.2 (ii): Convene a PAMC meeting annually in November to monitor, evaluate and report on progress in terms of this IMP, plan and, if necessary, recommend the re-prioritisation of management activities or amendments to the IMP. Ensure all resource needs are submitted when budgets are being prepared.

8 PROJECTS FOR ACTION CORRELATED WITH MANAGEMENT OBJECTIVES

While the tables below indicate the list of identified Action Projects that support the achievement of the specific objectives, it must be recognised that a number of other actions relating to ongoing protected area management, take place. Such actions would relate particularly to security, maintenance (buildings, roads, fences, veld management, etc) and relationships with stakeholders. It is important that they be detailed and included when developing budgets and business strategies.

8.1 List of IMP Action Projects

Table 2 below lists the Action Projects identified in the IMP. The Action Project number corresponds to the relevant paragraph in the text of the IMP.

This is a comprehensive list of Action Projects identified as requiring attention for the management of the protected area. Management will identify, review and act on the identified priority Action Projects that will impact on the achievement of the protected area's objectives. These priorities will be regularly reviewed during this five year period.

It is important to note that these IMP Action Projects will not be interpreted in isolation but will be interpreted and operationalised within the context of the associated narrative that precedes the articulation of the Action Project in the relevant paragraph.

Table 2: List of IMP Action Projects

No.	IMP Action Project No.	Project Description
1.	1.2 (i)	Develop a management plan for the climbing routes.
2.	2.1.1 (i)	Obtain written assignment from the MEC appointing EKZNW as the management authority for KNR in terms of Section 38(2) of NEMPAA.
3.	2.1.3 (i)	Update and compile a list of all service providers in KNR.
4.	2.3 (i)	The Nature Reserve Manager in collaboration with other relevant EKZNW officials must be mandated with active participation in the review processes of the municipal Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) in order to ensure an effective buffer zone surrounding KNR through an alignment of appropriate land use adjacent to the Nature Reserve.
5.	2.3 (ii)	Attend Ethekeeni Municipality Biodiversity Forum.
6.	2.3 (iii)	Establish relationships with neighbouring properties including Ethekeeni Municipality to plan and restore fragmented corridors to enable the continued functioning of existing ones.
7.	2.4 (i)	Establish the status of expired lease agreements and determine necessary renewals. MOA's need to be drawn up between land owners and eThekeeni Municipality to determine the future of these properties. Original documents are to be submitted to the legal department of EKZNW and copies are to be submitted to Conservation Managers.
8.	2.4 (ii)	Obtain the services of a land surveyor to register the consolidated KNR with the Surveyor General and seek the proclamation of the area by the MEC.
9.	2.5 (i)	Review all formal and informal local agreements, leases, servitude arrangements etc. pertaining to KNR and document, update, maintain and monitor these appropriately authorised agreements. All informal and revised agreements are to be formalised and approved by the Executive.
10.	2.5 (ii)	The KNR Manager needs to be familiar with the lease and MoA and will ensure that there is compliance with the conditions of the documents
11.	2.6 (i)	Annually explore and investigate opportunities to broaden conservation land use in and around KNR.
12.	2.6 (ii)	MoA's need to be drawn up and formalised between eThekeeni Municipality and private land owners for the expansion of KNR.
13.	3.4 (i)	Update the background of the conservation history for KNR indicating the importance of the proclamation.
14.	3.5 (i)	Maintain the collection and storage of climatic data records. Include the predictive mean maximum and minimum temperatures in conjunction

		with mean rainfall for KNR.
15.	3.6.3 (i)	Identify the biodiversity importance and implications of immature soil profiles for management.
16.	3.6.3 (ii)	Map the soils showing areas susceptible to erosion.
17.	3.6.3 (iii)	Write and submit for approval, a soil erosion control plan.
18.	3.8 (i)	Write the management plan in order to maintain and monitor the quantity and quality of water in the rivers.
19.	3.9 (i)	Update the vegetation types and map for KNR.
20.	3.9 (ii)	Develop a vegetation monitoring programme for KNR.
21.	3.9 (iii)	Identify threats to the vegetation and their associated habitats.
22.	3.9 (iv)	Compile and implement a vegetation management plan that addresses the threats.
23.	3.9 (v)	Compile a vegetation map and diagnostics species list.
24.	3.9 (vi)	Determine conservation targets for red data plants.
25.	3.10 (i)	Copies of the Species Checklists will be updated and filed manually and digitally at the KNR Management and Regional Offices as well as the Conservation Manager for easy terms of reference. The copies will be updated in accordance with any authorised amendments. A fixed protocol for compiling and maintaining these checklists needs to be developed to ensure that they provide accurate, comparable and contemporary baseline data for management and scientific purposes.
26.	3.10.1 (i)	Compile through research and collecting a checklist of the invertebrate species found in KNR.
27.	3.10.2 (i)	Identify the major threats to the Fish Species in KNR.
28.	3.10.2 (ii)	Develop and implement a Fish Species Monitoring Programme.
29.	3.10.3 (i)	Compile through further research and monitoring, checklists of the Herpetofauna. Identify the major threats to Herpetofauna in KNR.
30.	3.10.3 (ii)	Develop and implement a Herpetofauna Species Monitoring Programme.
31.	3.10.3 (iii)	Establish if <i>Atyoida serrata</i> (a freshwater shrimp) is present in KNR.
32.	3.10.4 (i)	Identify the major threats to Avifauna in KNR.
33.	3.10.4 (ii)	Develop and implement an Avifauna Species Monitoring Programme.
34.	3.10.5 (i)	Conduct a full inventory of the mammals occurring in KNR.
35.	3.10.5 (ii)	Identify the major threats to Mammals in KNR.
36.	3.10.5 (iii)	Develop and implement a Mammals Species Monitoring Programme.
37.	3.11 (i)	Map the GPS Co-ordinates and provide Management Plans for these sites.
38.	3.11 (ii)	Identify the archaeological, historical, paleontological and cultural heritage sites at KNR. Ensure compliance with requirements of heritage legislation.
39.	3.12 (i)	Conduct research on the archaeology of KNR.
40.	3.12 (ii)	Make use of archaeology and evidence of the past cultures inhabited the area in describing the cultural heritage value of KNR.
41.	3.13 (i)	Investigate the socio logical context and its importance to KNR.
42.	3.14 (i)	Investigate the economic context and its importance for KNR.
43.	3.15 (i)	Identify and map infrastructure using GIS and include in a spatial database. Develop standard protocols and procedures for infrastructure in KNR.
44.	3.15 (ii)	Repair, where necessary, the existing infrastructure provided in the KNR.
45.	3.15.1 (i)	Investigate future opportunities for eco-cultural tourism infrastructure for KNR.
46.	3.15.3 (i)	Establish ownership of the dam and compile a MoA between the relevant parties for the management of the dam.
47.	3.15.3 (ii)	Establish ownership for the water pump and develop a management plan for maintenance of the water pump and associated piping.
48.	3.15.3 (iii)	Establish flight paths for the helicopter for emergency purposes, training and rescue missions.

49.	3.15.3 (iv)	Establish a servitude agreement for access to the water pump.
50.	3.15.4 (i)	Develop a standardised fence for the boundary and implement.
51.	3.15.4 (ii)	Develop a maintenance plan for all trails and fences.
52.	3.15.5 (i)	Update KNR management infrastructure map to include the location of all water supply infrastructure.
53.	3.15.6 (i)	Compile MoAs between different service providers and KNR. Manager needs to ensure that he/she is familiar with all agreements.
54.	4.2 (i)	Implement EKZNW IEM Policy. Create awareness of or inform surrounding landowners on the IEM Process and legislation through fora.
55.	4.2 (ii)	Participate as a key stakeholder in EIA applications for developments near the reserve that may impact on the protected area.
56.	4.2 (iii)	Participate in existing neighbour liaison fora.
57.	4.6 (i)	Set conservation targets and monitoring strategies for the identified species.
58.	4.6 (ii)	Develop conservation targets and monitoring strategies for Cultural, Business and Partnerships Objectives.
59.	5 (i)	Revise the existing KNR zonation plan in accordance with the new EKZNW standard zonation system as soon as it is developed and approved.
60.	6.1.1 (i)	Develop a five-year Strategic Management Plan and Business Plan for KNR.
61.	6.1.1 (ii)	Initiate a resource economics study of the Nature Reserve to determine its economic value regarding the provision of ecosystem services and its contribution to the local and regional economy.
62.	6.1.2 (i)	Investigate and develop an appropriate human resource structure and capacity of KNR with a view to improving effectiveness and efficiency in achieving KNR objectives and informing the Business Plan.
63.	6.1.3 (i)	EKZNW will continue to work collaboratively with landowners and surrounding communities to improve conservation management of KNR for the benefit of all.
64.	6.2.1 (i)	Establish a Local Board for KNR.
65.	6.2.2 (i)	The Community Levy will continue to be collected for the development and upliftment of the local communities.
66.	6.2.3 (i)	Training of members of the local community will continue to be practiced. Investigate other employment opportunities that will benefit the surrounding local communities of KNR.
67.	6.2.5 (i)	Investigate and implement additional environmental education programmes for communities surrounding KNR.
68.	6.2.7 (i)	Annually in March of each year arrange a public meeting to give feedback on progress, planned projects and encourage informal local community participation.
69.	6.3 (i)	Develop an integrated security strategy for the Nature Reserve that ensures collaboration with all relevant institutions.
70.	6.3 (ii)	Develop and implement a Civil Emergency Procedures Plan.
71.	6.4.2 (i)	Develop a KNR Fire Management Plan that provides comprehensive fire management objectives, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required and resources needed.
72.	6.4.2 (ii)	Promote and champion (in cooperation with DWAF and the "Working on Fire" programme) the establishment of FPAs on the borders of KNR.
73.	6.4.2 (iii)	Arrange a KNR Management Fire Workshop in February of each year.
74.	6.4.3 (i)	Compile and implement an alien species management plan. Identify and itemize indicator species and their current species densities in KNR.
75.	6.4.3.1 (i)	Develop an ongoing time-bound programme to effectively control declared alien weeds and invader plants within KNR and 1 km beyond (buffer area) the Nature Reserve boundary.
76.	6.4.3.1 (ii)	Develop a phased 3-year plan to address the existing non-invasive alien plants in KNR.

77.	6.4.3.2 (i)	Develop a control programme for alien animals present in KNR.
78.	6.4.3.2 (ii)	Develop a management strategy that will minimize the negative impact of alien fish and promote the establishment of sustainable populations of fish species indigenous to KNR
79.	6.4.3.2 (iii)	<p>Develop a new, equitable policy for keeping personal and official domestic animals and livestock in the Nature Reserve that includes procedures for dealing in a consistent manner with alien animals that stray into the Park. This policy will, <i>inter alia</i> clearly address:</p> <ul style="list-style-type: none"> • Threats to biodiversity conservation as a priority. • Reducing the numbers of such animals to an absolute minimum. • Designated areas where these animals will be kept. They will not be allowed to roam or feed in the Park (except for official patrol horses when on patrol) or interfere in any way with tourists. • The proper and hygienic care for these animals. • Minimum standards (aesthetic acceptability, sizes, neatness and cleanliness) of facilities housing these animals e.g. stables, camps, cages, etc. • Disciplinary measures for staff transgressing these regulations or failing to enforce these measures.
80.	6.4.4 (i)	Obtain all standards for water quality Municipality, review monitoring the results against these standards and take appropriate actions should any standard not be met.
81.	6.4.5 (i)	Map all extensive or potential human-induced / aggravated soil erosion sites and annually monitor the condition of these sites in order to prioritise rehabilitation work.
82.	6.4.6 (i)	Compile and implement a Wildlife Protection Management Plan.
83.	6.4.6 (ii)	Compile and implement a Priority Species Management Plan.
84.	6.4.6.1 (i)	Develop a policy that addresses the introduction of wildlife species into the Nature Reserve.
85.	6.4.6.2 (i)	Develop a KNR Game Introduction and Monitoring Programme with Guidelines in terms of EKZNW's Wildlife Introduction Policy and implement.
86.	6.4.6.3 (i)	Regular monitoring and assessments will continue to be conducted.
87.	6.4.6.4 (i)	Regular monitoring and assessments will continue to be conducted.
88.	6.4.6.5 (i)	The KNR Conservation Manager will ensure that all complaints and incidents reported are investigated by the relevant KNR staff and/or District Conservation Officer (DCO) as soon as possible. Complaint details, investigation findings and remedial action taken are to be recorded in the prescribed Damage Causing Animals Complaints Register kept on station. Investigations and incident reporting is to be carried out in accordance with EKZNW's DCO Control Protocol and Guidelines.
89.	6.4.7 (i)	Assessment of the field ranger component will be done monthly.
90.	6.4.7 (ii)	Management will continue to prosecute people that illegally utilise natural resources for commercial or other purposes in accordance with the legislation.
91.	6.5 (i)	Develop a comprehensive Cultural Heritage Inventory and Management Plan for KNR in collaboration with SAHRA and Amafa. Institutional capacity must also be addressed by this plan.
92.	6.5 (ii)	Identify the archaeological, historical, paleontological and cultural heritage sites at KNR.
93.	6.6 (i)	Control or 'bench mark' areas within KNR will be identified where no extractive resource utilisation of indigenous species will take place.
94.	6.6.1 (i)	Evaluate Resource Use in KNR in terms of EKZNW guideline document for the Evaluation of Extractive Resource Use. If possible, sustainable and feasible in terms of this guideline, develop a resource use management plan and implement.
95.	6.7 (i)	Cognisant of the KNR IMP and CDP policy guidelines, develop a KNR. Eco-cultural Tourism Development and Marketing Strategy that addresses:

		<ul style="list-style-type: none"> the attainment of professional tourism service delivery standards branding and marketing linkages with other regional tourist initiatives public / private partnerships cultural heritage tourism visitor awareness, orientation and interpretation
96.	6.7 (ii)	Develop and communicate formal procedures for local tourism user groups.
97.	6.7 (iii)	Develop and implement a visitor management plan. Undertake analysis of available recreational facilities and identify opportunities to improve these.
98.	6.7 (iv)	Align marketing strategy with EKZNW Organisational Plan and develop and communicate formal procedures for local tourism user groups.
99.	6.8 (i)	Develop a KNR environmental awareness education programme specifically for surrounding neighbouring communities and the general public interest groups.
100.	6.8 (ii)	Compile educational material on environmental and cultural aspects of the Nature Reserve.
101.	6.8 (iii)	Engage in biodiversity and cultural education with schools, communities, interest groups.
102.	6.8 (iv)	Facilitate access to educational information pertaining to the history of the reserve and surrounding areas.
103.	6.8 (v)	Develop an interpretation programme in a standard format for the Nature Reserve.
104.	6.8 (vi)	Investigate the possibility of combining environmental awareness programmes with social programmes offered by other institutions in the general area of the Nature Reserve.
105.	6.9 (i)	Develop a prioritised KNR natural and cultural heritage research project list.
106.	6.9 (ii)	Develop procedures that will ensure that all abiotic and biotic data collected are captured in managed databases and GIS data layers for interrogation by researchers and managers.
107.	6.9 (iii)	Investigate the potential in or near KNR for the development of permanent research facilities.
108.	6.9 (iv)	Identify and develop reference library facilities and procedures to maintain hard and digital copies of all KNR related research work, all documents listed as IMP supporting documentation in Appendix 1 as well as any new supporting management documentation produced. Strict curation rules must apply and the ultimate responsibility for the curation of this library at KNR must be allocated to the most senior reserve management position and the Co-ordinator: Ecological Advice at the Coastal Regional Office.
109.	6.9.1 (i)	An appropriate monitoring and evaluation programme for each of the above components is to be developed for the Nature Reserve and implemented.
110.	6.10 (i)	Develop and maintain a KNR Infrastructure database and map.
111.	6.10 (ii)	<p>Review the desirability and effectiveness of all present infrastructure associated with Nature Reserve with regard to:</p> <ul style="list-style-type: none"> Adequacy State of repair Existing maintenance plans and programs Visitor and staff use, requirements and values Financial Environmental impact (negative and positive) Income generation Possibilities of outsourcing
112.	6.10.5 (i)	All vehicle roads and tracks must be evaluated for the suitability of their alignment and recommendations made for new vehicle roads and tracks, repair or closure (with rehabilitation measures) of existing ones.
113.	6.10.5 (ii)	Investigate [preferably in consultation with The Hiking Clubs] the potential for a hiking trail routes and day walks in KNR and make

		recommendations on professional hiking trail evaluation, design, construction, maintenance, accreditation, marketing, management as well as estimated revenue and expenditure. Implement if feasible.
114.	6.10.10.1 (i)	Develop an integrated waste management plan for KNR.
115.	6.10.10.1 (ii)	Develop, install and maintain effective standardized solid waste receptacles for KNR that are animal and baboon/monkey-proof.
116.	6.10.10.2 (i)	All sewage systems in KNR must be investigated for legal compliance. A phased development plan to upgrade existing systems and septic tank/french drain systems must be put in place.
117.	6.10.11 (i)	Develop a phased plan to install standardised (reliable and tested) water- and energy-saving devices throughout KNR as soon as practically possible.
118.	6.10.13 (i)	Management will maintain a secure entry controls system and maintain a high level of internal security in order that visitors and their belongings will be safe and secure.
119.	6.10.13 (ii)	All Reserve staff will receive appropriate training regarding all health and safety aspect and will receive refresher course training as required on a regular basis.
120.	6.11.3 (i)	Develop a Conceptual Development Plan and align with Municipal planning.
121.	7.1 (i)	The PAMC must undertake a five-yearly review of this IMP between September and November 2013 for the following five years.
122.	7.2 (i)	Convene a PAMC meeting annually in November to monitor, evaluate and report on progress in terms of this IMP, plan and, if necessary, recommend the re-prioritisation of management activities or amendments to the IMP. Ensure all resource needs are submitted when budgets are being prepared.

8.2 Alignment of IMP Action Projects with Prioritised Management Objectives

The 122 IMP Action Projects from **Table 2** have been aligned with the Management Objectives and are listed in **Table 3** below.

The IMP Action Projects in many cases are cross-cutting in achieving more than one objective. To aid prioritisation they have been placed (listed in number sequence) under the objective where they are likely to make the greatest contribution.

Table 3: IMP Action Projects aligned with and supporting the various KNR Management Objectives.

Conservation Objective	
Conservation of key biodiversity features, biophysical processes, landscapes, abiotic, historical and archaeological resources	
Conserve rare and endemic ecosystems and species	
3.6.3 (i)	Identify the biodiversity importance and implications of immature soil profiles for management.
3.10.3 (iii)	Establish if <i>Atyoida serrata</i> (a freshwater shrimp) is present in KNR.
4.2 (ii)	Participate as a key stakeholder in EIA applications for developments near the reserve that may impact on the protected area.
Conserve the Krantzkloof Nature Reserve, its associated biodiversity and maintain its developed infrastructure	
2.6 (i)	Annually explore and investigate opportunities to broaden conservation land use in and around KNR.
3.4 (i)	Update the background of the conservation history for KNR indicating the importance of the proclamation.
3.11 (ii)	Identify the archaeological, historical, paleontological and cultural heritage sites at KNR. Ensure compliance with requirements of heritage legislation.
3.12 (i)	Conduct research on the archaeology of KNR.
3.12 (ii)	Make use of archaeology and evidence of the past cultures inhabited the area in describing the cultural heritage value of KNR.
3.15 (ii)	Repair, where necessary, the existing infrastructure provided in the KNR.
6.5 (ii)	Identify the archaeological, historical, paleontological and cultural heritage sites at KNR.
Contribute to the achievement of national and provincial conservation targets	
4.6 (i)	Set conservation targets and monitoring strategies for the identified species.
4.6 (ii)	Develop conservation targets and monitoring strategies for Cultural, Business and Partnerships Objectives.
Identify and control threats to biodiversity	
3.9 (iii)	Identify threats to the vegetation and their associated habitats.
3.10.2 (i)	Identify the major threats to the Fish Species in KNR.
3.10.3 (i)	Compile through further research and monitoring, checklists of the Herpetofauna. Identify the major threats to Herpetofauna in KNR.
3.10.4 (i)	Identify the major threats to Avifauna in KNR.
3.10.5 (ii)	Identify the major threats to Mammals in KNR.
Facilitate environmental and cultural activities, education and awareness, including access to historical information related to the history of the reserve and the surrounding area	
6.8 (ii)	Compile educational material on environmental and cultural aspects of the Nature Reserve.
6.8 (iii)	Engage in biodiversity and cultural education with schools, communities, interest groups.
6.8 (iv)	Facilitate access to educational information pertaining to the history of the reserve

	and surrounding areas.
Other Action Projects supporting KNR Conservation Objective	
1.2 (i)	Develop a management plan for the climbing routes.
2.1.1 (i)	Obtain written assignment from the MEC appointing EKZNW as the management authority for KNR in terms of Section 38(2) of NEMPAA.
3.5 (i)	Maintain the collection and storage of climatic data records. Include the predictive mean maximum and minimum temperatures in conjunction with mean rainfall for KNR.
3.6.3 (ii)	Map the soils showing areas susceptible to erosion.
3.6.3 (iii)	Write and submit for approval, a soil erosion control plan.
3.8 (i)	Write the management plan in order to maintain and monitor the quantity and quality of water in the rivers.
3.9 (i)	Update the vegetation types and map for KNR.
3.9 (ii)	Develop a vegetation monitoring programme for KNR.
3.9 (iv)	Compile and implement a vegetation management plan that addresses the threats.
3.9 (v)	Compile a vegetation map and diagnostics species list.
3.9 (vi)	Determine conservation targets for red data plants.
3.10 (i)	Copies of the Species Checklists will be updated and filed manually and digitally at the KNR Management and Regional Offices as well as the Conservation Manager for easy terms of reference. The copies will be updated in accordance with any authorised amendments. A fixed protocol for compiling and maintaining these checklists needs to be developed to ensure that they provide accurate, comparable and contemporary baseline data for management and scientific purposes.
3.10.2 (ii)	Develop and implement a Fish Species Monitoring Programme.
3.10.3 (ii)	Develop and implement a Herpetofauna Species Monitoring Programme.
3.10.4 (ii)	Develop and implement an Avifauna Species Monitoring Programme.
3.10.5 (i)	Conduct a full inventory of the mammals occurring in KNR.
3.10.5 (iii)	Develop and implement a Mammals Species Monitoring Programme.
3.11 (i)	Map the GPS Co-ordinates and provide Management Plans for these sites.
3.15.4 (i)	Develop a standardised fence for the boundary and implement.
3.15.4 (ii)	Develop a maintenance plan for all trails and fences.
4.2 (iii)	Participate in existing neighbour liaison fora.
5 (i)	Revise the existing KNR zonation plan in accordance with the new EKZNW standard zonation system as soon as it is developed and approved.
6.1.2 (i)	Investigate and develop an appropriate human resource structure and capacity of KNR with a view to improving effectiveness and efficiency in achieving KNR objectives and informing the Business Plan.
6.3 (ii)	Develop and implement a Civil Emergency Procedures Plan.
6.4.2 (iii)	Arrange a KNR Management Fire Workshop in February of each year.
6.4.3 (i)	Compile and implement an alien species management plan. Identify and itemize indicator species and their current species densities in KNR.
6.4.3.2 (i)	Develop a control programme for alien animals present in KNR.
6.4.3.2 (ii)	Develop a management strategy that will minimize the negative impact of alien fish and promote the establishment of sustainable populations of fish species indigenous to KNR
6.4.3.2 (iii)	<p>Develop a new, equitable policy for keeping personal and official domestic animals and livestock in the Nature Reserve that includes procedures for dealing in a consistent manner with alien animals that stray into the Park. This policy will, <i>inter alia</i> clearly address:</p> <ul style="list-style-type: none"> • Threats to biodiversity conservation as a priority. • Reducing the numbers of such animals to an absolute minimum. • Designated areas where these animals will be kept. They will not be allowed to roam or feed in the Park (except for official patrol horses when

	<p>on patrol) or interfere in any way with tourists.</p> <ul style="list-style-type: none"> • The proper and hygienic care for these animals. • Minimum standards (aesthetic acceptability, sizes, neatness and cleanliness) of facilities housing these animals e.g. stables, camps, cages, etc. • Disciplinary measures for staff transgressing these regulations or failing to enforce these measures.
6.4.4 (i)	Obtain all standards for water quality Municipality, review monitoring the results against these standards and take appropriate actions should any standard not be met.
6.4.5 (i)	Map all extensive or potential human-induced/aggravated soil erosion sites and annually monitor the condition of these sites in order to prioritise rehabilitation work.
6.4.6 (i)	Compile and implement a Wildlife Protection Management Plan.
6.4.6 (ii)	Compile and implement a Priority Species Management Plan.
6.4.6.1 (i)	Develop a policy that addresses the introduction of wildlife species into the Nature Reserve.
6.4.6.2 (i)	Develop a KNR Game Introduction and Monitoring Programme with Guidelines in terms of EKZNW's Wildlife Introduction Policy and implement.
6.4.6.3 (i)	Regular monitoring and assessments will continue to be conducted.
6.4.6.4 (i)	Regular monitoring and assessments will continue to be conducted.
6.4.6.5 (i)	The KNR Conservation Manager will ensure that all complaints and incidents reported are investigated by the relevant KNR staff and/or District Conservation Officer (DCO) as soon as possible. Complaint details, investigation findings and remedial action taken are to be recorded in the prescribed Damage Causing Animals Complaints Register kept on station. Investigations and incident reporting is to be carried out in accordance with EKZNW's DCO Control Protocol and Guidelines .
6.4.7 (i)	Assessment of the field ranger component will be done monthly.
6.4.7 (ii)	Management will continue to prosecute people that illegally utilise natural resources for commercial or other purposes in accordance with the legislation.
6.5 (i)	Develop a comprehensive Cultural Heritage Inventory and Management Plan for KNR in collaboration with SAHRA and Amafa. Institutional capacity must also be addressed by this plan.
6.6 (i)	Control or 'bench mark' areas within KNR will be identified where no extractive resource utilisation of indigenous species will take place.
6.6.1 (i)	Evaluate Resource Use in KNR in terms of EKZNW guideline document for the Evaluation of Extractive Resource Use. If possible, sustainable and feasible in terms of this guideline, develop a resource use management plan and implement.
6.9 (ii)	Develop procedures that will ensure that all abiotic and biotic data collected are captured in managed databases and GIS data layers for interrogation by researchers and managers.
6.9 (iii)	Investigate the potential in or near KNR for the development of permanent research facilities.
6.9 (iv)	Identify and develop reference library facilities and procedures to maintain hard and digital copies of all KNR related research work, all documents listed as IMP supporting documentation in Appendix 1 as well as any new supporting management documentation produced. Strict curation rules must apply and the ultimate responsibility for the curation of this library at KNR must be allocated to the most senior reserve management position and the Co-ordinator: Ecological Advice at the Coastal Regional Office.
6.9.1 (i)	An appropriate monitoring and evaluation programme for each of the above components is to be developed for the Nature Reserve and implemented.
6.10.5 (i)	All vehicle roads and tracks must be evaluated for the suitability of their alignment and recommendations made for new vehicle roads and tracks, repair or closure (with rehabilitation measures) of existing ones.
6.10.10.1 (i)	Develop an integrated waste management plan for KNR.
6.10.10.1 (ii)	Develop, install and maintain effective standardized solid waste receptacles for KNR that are animal and baboon / monkey-proof.
6.10.10.2 (i)	All sewage systems in KNR must be investigated for legal compliance. A phased

	development plan to upgrade existing systems and septic tank / French drain systems must be put in place.
6.10.11 (i)	Develop a phased plan to install standardised (reliable and tested) water- and energy-saving devices throughout KNR as soon as practically possible.
6.10.13 (i)	Management will maintain a secure entry controls system and maintain a high level of internal security in order that visitors and their belongings will be safe and secure.
6.10.13 (ii)	All Reserve staff will receive appropriate training regarding all health and safety aspect and will receive refresher course training as required on a regular basis.
7.1 (i)	The PAMC must undertake a five-yearly review of this IMP between September and November 2013 for the following five years.
7.2 (i)	Convene a PAMC meeting annually in November to monitor, evaluate and report on progress in terms of this IMP, plan and, if necessary, recommend the re-prioritisation of management activities or amendments to the IMP. Ensure all resource needs are submitted when budgets are being prepared.
Socio- Economic Benefits Objective	
The provision of socio-economic benefits (benefit flow) to the Reserve's neighbours and to contribute to the local economy and the efforts of conservation in a sustainable manner based on sound business principles (EKZN Business Plan).	
Other Action Projects supporting KNR's Socio-Economic Benefits Objective	
2.1.3 (i)	Update and compile a list of all service providers in KNR.
2.3 (i)	The Nature Reserve Manager in collaboration with other relevant EKZNW officials must be mandated with active participation in the review processes of the municipal Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) in order to ensure an effective buffer zone surrounding KNR through an alignment of appropriate land use adjacent to the Nature Reserve.
2.3 (ii)	Attend Ethekeeni Municipality Biodiversity Forum.
2.3 (iii)	Establish relationships with neighbouring properties including Ethekeeni Municipality to plan and restore fragmented corridors to enable the continued functioning of existing ones.
2.4 (i)	Establish the status of expired lease agreements and determine necessary renewals. MOA's need to be drawn up between land owners and eThekeeni Municipality to determine the future of these properties. Original documents are to be submitted to the legal department of EKZNW and copies are to be submitted to Conservation Managers.
2.4 (ii)	Obtain the services of a land surveyor to register the consolidate KNR with the Surveyor General and seek the proclamation of the area by the MEC.
2.5 (i)	Review all formal and informal local agreements, leases, servitude arrangements <i>etc.</i> pertaining to KNR and document, update, maintain and monitor these appropriately authorised agreements. All informal and revised agreements are to be formalised and approved by the Executive.
2.5 (ii)	The KNR Manager needs to be familiar with the lease and MoA and will ensure that there is compliance with the conditions of the documents
2.6 (ii)	MoA's need to be drawn up and formalised between eThekeeni Municipality and private land owners for the expansion of KNR.
3.14 (i)	Investigate the economic context and its importance for KNR.
3.15.1 (i)	Investigate future opportunities for eco-cultural tourism infrastructure for KNR.
3.15.3 (i)	Establish ownership of the dam and compile a MoA between the relevant parties for the management of the dam.
3.15.3 (ii)	Establish ownership for the water pump and develop a management plan for maintenance of the water pump and associated piping.
3.15.3 (iii)	Establish flight paths for the helicopter for emergency purposes, training and rescue missions.
3.15.3 (iv)	Establish a servitude agreement for access to the water pump.
3.15.5 (i)	Update KNR Management Infrastructure Map to include the location of all water supply infrastructure.
3.15.6 (i)	Compile MoAs between different service providers and KNR. Manager needs to ensure that he/she is familiar with all agreements.
4.2 (i)	Implement EKZNW IEM Policy. Create awareness of or inform surrounding

	landowners on the IEM Process and legislation through fora.
6.1.1 (i)	Develop a five-year Strategic Management Plan and Business Plan for KNR.
6.2.1 (i)	Establish a Local Board for KNR.
6.2.5 (i)	Investigate and implement additional environmental education programmes for communities surrounding KNR.
6.2.7 (i)	Annually in March of each year arrange a public meeting to give feedback on progress, planned projects and encourage informal local community participation.
6.3 (i)	Develop an integrated security strategy for the Nature Reserve that ensures collaboration with all relevant institutions.
6.4.2 (i)	Develop a KNR Fire Management Plan that provides comprehensive fire management objectives, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required and resources needed.
6.4.2 (ii)	Promote and champion (in cooperation with DWAF and the "Working on Fire" programme) the establishment of FPAs on the borders of KNR.
6.4.3.1 (i)	Develop an ongoing time-bound programme to effectively control declared alien weeds and invader plants within KNR and 1 km beyond (buffer area) the Nature Reserve boundary.
6.4.3.1 (ii)	Develop a phased 3-year plan to address the existing non-invasive alien plants in KNR.
6.4.3.2 (iii)	<p>Develop a new, equitable policy for keeping personal and official domestic animals and livestock in the Nature Reserve that includes procedures for dealing in a consistent manner with alien animals that stray into the Park. This policy will, <i>inter alia</i> clearly address:</p> <ul style="list-style-type: none"> • Threats to biodiversity conservation as a priority. • Reducing the numbers of such animals to an absolute minimum. • Designated areas where these animals will be kept. They will not be allowed to roam or feed in the Park (except for official patrol horses when on patrol) or interfere in any way with tourists. • The proper and hygienic care for these animals. • Minimum standards (aesthetic acceptability, sizes, neatness and cleanliness) of facilities housing these animals e.g. stables, camps, cages, etc. • Disciplinary measures for staff transgressing these regulations or failing to enforce these measures.
6.8 (vi)	Investigate the possibility of combining environmental awareness programmes with social programmes offered by other institutions in the general area of the Nature Reserve.
6.9 (i)	Develop a prioritised KNR natural and cultural heritage research project list.
6.10 (i)	Develop and maintain a KNR Infrastructure database and map.
Business The provision of appropriate ecotourism business opportunities in the natural and cultural environment based within the influence sphere of KNR.	
Other Action Projects supporting KNR's Business Objective.	
3.13 (i)	Update the sociological context and its importance to KNR.
6.1.1 (ii)	Initiate a resource economics study of the Nature Reserve to determine its economic value regarding the provision of ecosystem services and its contribution to the local and regional economy.
6.2.2 (i)	The Community Levy will continue to be collected for the development and upliftment of the local communities.
6.2.3 (i)	Training members of the local community will continue to be practiced. Investigate other employment opportunities that will benefit the surrounding local communities of KNR.
6.8 (v)	Develop an interpretation programme in a standard format for the Nature Reserve.

Partnerships	
The formation of functional partnerships to integrate the KNR with regional development plans and other initiatives which underwrite the vision of KNR.	
Other Action Projects supporting KNR's Partnerships Objective.	
6.1.3 (i)	EKZNW will continue to work collaboratively with landowners and surrounding communities to improve conservation management of KNR for the benefit of all.
6.7 (i)	Cognisant of the KNR IMP and CDP policy guidelines, develop a KNR. Eco-cultural Tourism Development and Marketing Strategy that addresses: <ul style="list-style-type: none"> • the attainment of professional tourism service delivery standards • branding and marketing • linkages with other regional tourist initiatives • public / private partnerships • cultural heritage tourism • visitor awareness, orientation and interpretation
6.7 (ii)	Develop and communicate formal procedures for local tourism user groups.
6.7 (iv)	Align marketing strategy with EKZNW Organisational Plan and develop and communicate formal procedures for local tourism user groups.
6.8 (i)	Develop a KNR environmental awareness education programme specifically for surrounding neighbouring communities and the general public interest groups.
6.10 (ii)	Review the desirability and effectiveness of all present infrastructure associated with Nature Reserve with regard to: <ul style="list-style-type: none"> • Adequacy • State of repair • Existing maintenance plans and programs • Visitor and staff use, requirements and values • Financial • Environmental impact (negative and positive) • Income generation • Possibilities of outsourcing
6.11.3 (i)	Develop a Conceptual Development Plan and align with municipal planning.
6.10.5 (ii)	Investigate [preferably in consultation with The Hiking Clubs] the potential for a hiking trail routes and day walks in KNR and make recommendations on professional hiking trail evaluation, design, construction, maintenance, accreditation, marketing, management as well as estimated revenue and expenditure. Implement if feasible.

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APPENDIX 1

List of References for Unpublished Supporting Documentation KNR - Integrated Management Plan 2009 - 2013

Copies available from:

Coastal Regional Office of Ezemvelo KZN Wildlife. Private Bag X3. Congella. 4013
Contact person: Ecological Advice Coordinator, Coastal Region

Item

1. EKZNW Corporate Strategic Plan and Performance Plan for 2009-2014.
2. EKZNW Corporate Policies (Norms & Standards) listed in **Appendix 2**.
3. EKZNW Biodiversity Database Checklists for KNR.
4. Amafa / EKZNW Co-operative Conservation Management of Cultural Heritage Agreement (signed July 2005).
5. List of local agreements, leases and other servitude arrangements pertaining to KNR.
6. Guidelines for the Registration and Administration of Research Projects Undertaken by or through Ezemvelo KZN Wildlife (August 2002).
7. Public Participation Report for Krantzklloof Nature Reserve IMP.

APPENDIX 2

Appendix 2 below lists the EKZNW Corporate Policies (Norms & Standards) referenced from intranet⁴ that are most relevant to EKZNW PA management. It is, however, 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 EKZNW Board Approved Policies.

<u>EKZNW CORPORATE POLICIES (NORMS & STANDARDS)</u>	
<u>Policy File No.</u>	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 EKZNW.
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.
<u>Policy File No.</u>	INTERNAL AUDIT
C 5	• Management Control
BIODIVERSITY CONSERVATION OPERATIONS	
1. NATURAL RESOURCE SUSTAINABILITY	
<u>Policy File No.</u>	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.
<u>Policy File No.</u>	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.
<u>Policy File No.</u>	Migratory Species
D 1.14	• Black Wildebeest and Blue Wildebeest Hybridization and Conservation.
D 1.15	• Permit authorizing the collection of Biological Material within Board Areas.
2. CONSERVATION EFFECTIVENESS	
<u>Policy File No.</u>	Strategic Applications
D 2.1	• Involvement of the KwaZulu-Natal Nature Conservation Board in Project 8 of the MAB (Man and Biosphere) Programme.

⁴ www.kznwildlife.com/intranet (Accessed 31 March 2009)

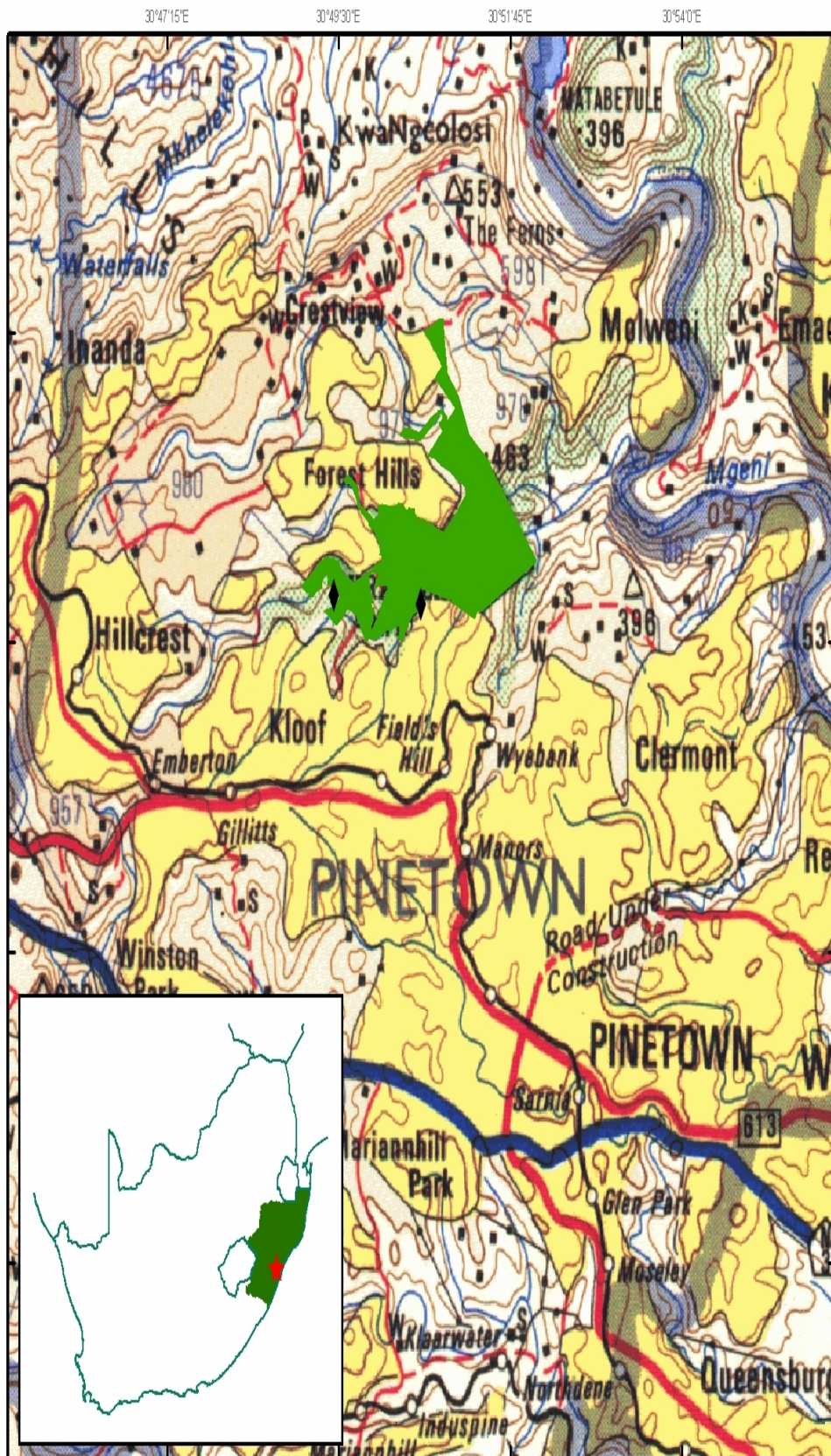
<u>Policy File No.</u>	Conservation Management: Protected Area Management
D 2.2	• Management of Wilderness Areas.
D 2.3	• Protected Area Development.
D 2.4	• Prohibition of Works and Servitudes in Board Areas.
D 2.5	• Zonation and Regulations for the control of off-road vehicles on beaches controlled 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.
<u>Policy File No.</u>	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).
<u>Policy File No.</u>	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.
<u>Policy File No.</u>	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.
<u>Policy File No.</u>	Environmental Awareness
D 2.34	• Environmental Education Policy.
3. BIODIVERSITY PROTECTION	
<u>Policy File No.</u>	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
<u>Policy File No.</u>	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.
<u>Policy File No.</u>	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.
<u>Policy File No.</u>	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 – ZONATION DESCRIPTIONS

CATEGORY	DESCRIPTION OF CRITERIA TO BE USED FOR ZONATION	SETTING DESCRIPTIONS (AS FROM ROS HANDBOOK)
Semi-Primitive Non-motorised	<p>Closely related to the above zone, but usage of formalized trails at a high intensity – concreting/rock-packing of trails</p> <p>Natural environment experience, non-motorised use, usually a buffer between Wilderness and semi-primitive wilderness/roaded natural areas</p> <p>Visual and audio impact from outside, at a short distance (< 5km)</p> <p>May be hiking huts or other types of low-scale accommodation, possible field ranger outposts.</p>	<p>Area is characterised by a predominantly natural or natural-appearing environment of moderate to large size, interaction between users is low, but there is often evidence of other users. The area is managed such that minimum on-site controls and restrictions may be present, but are subtle. Motorised use is not permitted.</p>
Semi-Primitive Motorised	<p>4x4 trails and their area of impact (audio and visual)</p> <p>Visitor and management tracks and their zone of visual and audio impact (GIS to be used to determine exact range of impact, hence an initial distance of 100m other side has been set)</p> <p>Rustic accommodation or low-level, low intensity tourism nodes (no bigger than 10 – 20 beds).</p>	<p>Area is characterised by predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are suitable. Motorised use is allowed.</p>
Rural	<p>A rural recreational node/area, rather than as a nature-based experience. Resort type development rather than a nature-based tourism facility.</p>	<p>Area is characterised by a substantially modified natural environment. Resource modifications and utilisation practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident and the interaction between users is often moderate-high. A number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available.</p>

Map 1 - Location Map of KNR



Map 1

Krantzklouf Nature Reserve

Locality Map

Area: 619 ha (flat)/ ha (surface)
 Boundary length: 30.7 km (flat)/ km (surface)
 Highest point: 570 m a.s.l.
 Lowest point: 120 m a.s.l.
 Centroid: 29° 45m 43s S & 30° 50m 45s E
 Geographical extent:
 Latitude - 29° 44m 09s S to 29° 46m 30s S
 Longitude - 30° 48m 51s E to 30° 52m 04s E

◆ Entrance gate

0 0.5 1 2 3 4
 Kilometers

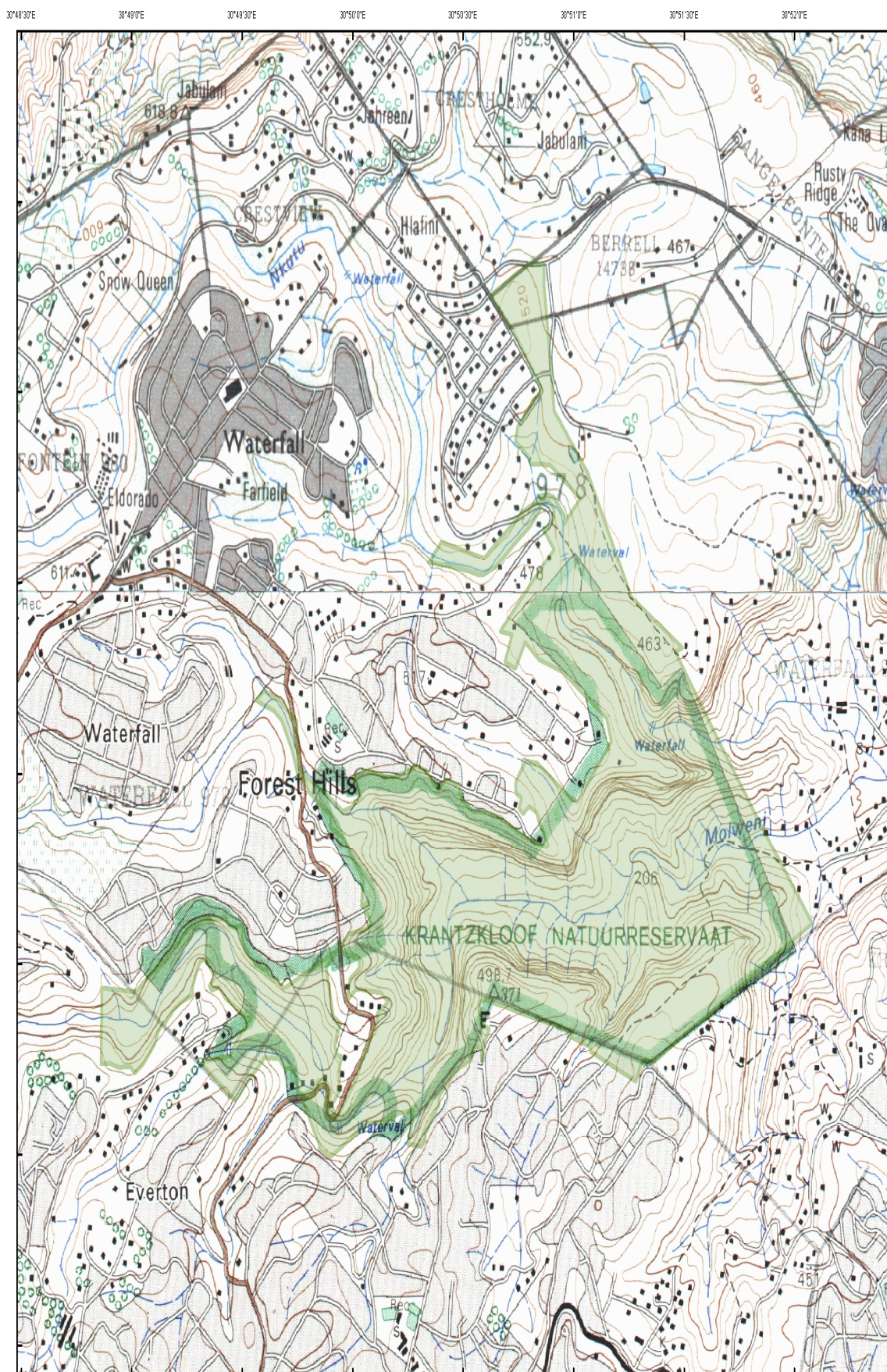


Map scale 1: 100,000

WGS84 Datum
 Compiled by: Ezemvelo KZN Wildlife
 Version: (2/2009)
 Date Modified: October 2009
 Data Sources: Ezemvelo KZN Wildlife



Map 2 – Topographic Map of KNR



Map 2

Krantzkloof Nature Reserve

Topography

Area: 619 ha (flat)/ ha (surface)
 Boundary length: 30.7 km (flat)/ km (surface)
 Highest point: 570 m a.s.l.
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 Centroid: 29d 45m 43s S & 30d 50m 45s E
 Geographical extent:
 Latitude - 29d 44m 09s S to 29d 46m 30s S
 Longitude - 30d 48m 51s E to 30d 52m 04s E

International Boundary and Beacon	-----
Provincial Boundary	-----
Game, Nature Reserve & State Forest Boundary	-----
Perennial River	~~~~~
Non-perennial River	~~~~~
Non-perennial Water	~~~~~
Dry Water Course	~~~~~
Dry Pan	~~~~~
Marsh and Vlei	~~~~~
Pipeline (above ground)	~~~~~
Water Tower; Reservoir; Water Point	~~~~~
Coastal Rocks	~~~~~
Prominent Rock Outcrop	~~~~~
Erosion; Sand	~~~~~
Woodland	~~~~~
Cultivated Land	~~~~~
Orchard or Vineyard	~~~~~
Recreation Ground	~~~~~
Row of Trees	~~~~~
National freeway; National route	~~~~~
Arterial Road	~~~~~
Main Road	~~~~~
Secondary Road; Bench Mark	~~~~~
Other Road; Bridge	~~~~~
Track and Hiking Trail	~~~~~
Railway; Station or Siding	~~~~~
Other Railway; Tunnel	~~~~~
Embankment; Cutting	~~~~~
Power Line	~~~~~
Build-up Area	~~~~~
Buildings; Ruin	~~~~~
Post Office; Police Station; Store	~~~~~
Place of Worship; School; Hotel	~~~~~
Fence; Wall	~~~~~
Windpump; Monument	~~~~~
Communication Tower	~~~~~
Mine Dump; Excavation	~~~~~
Trigonometrical Station; Marine Beacon	~~~~~
Lighthouse and Marine Light	~~~~~
Cemetery; Grave	~~~~~

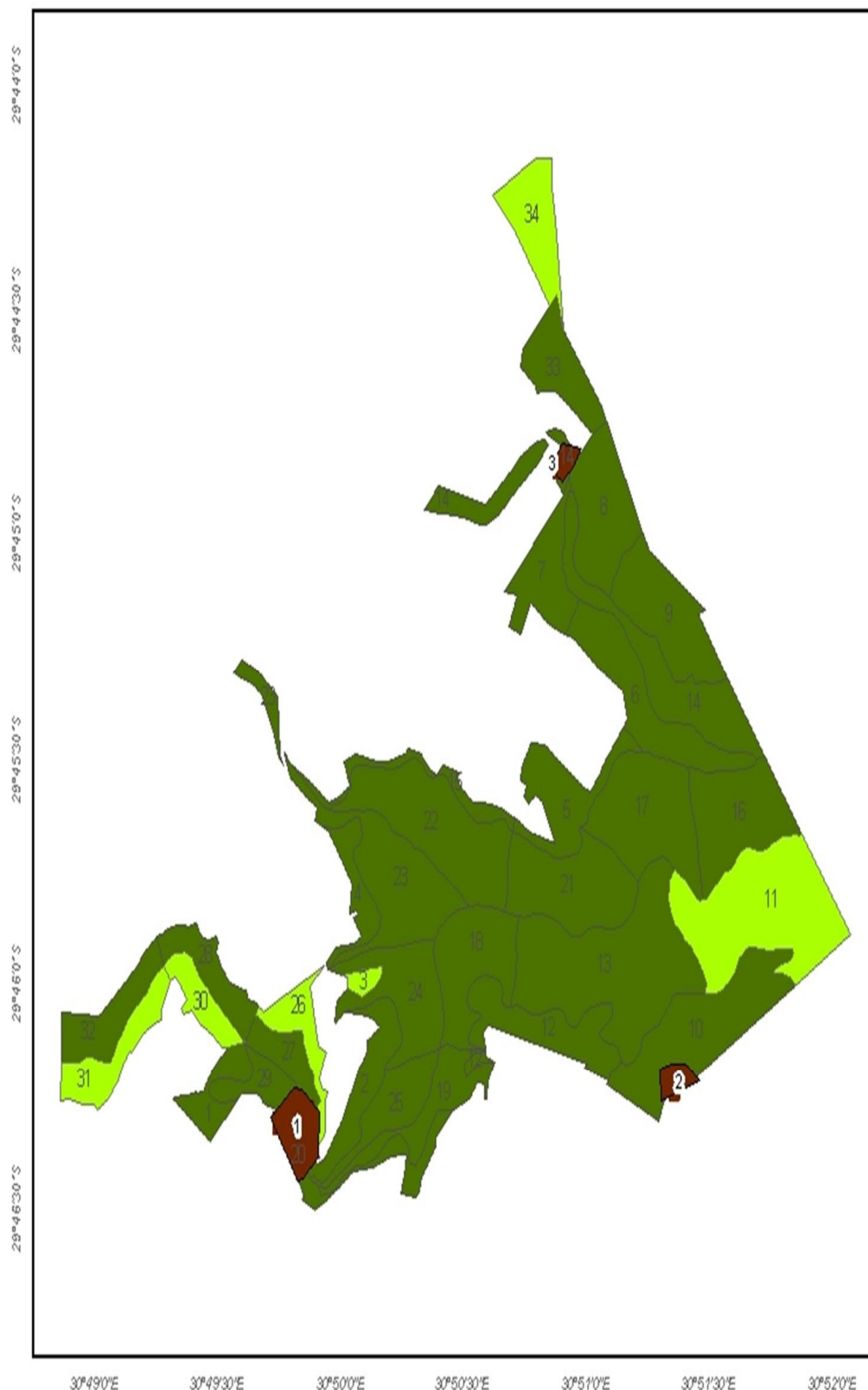


Map reference: 28300B & 29300D

WGS84 Datum
 Compiled by: Ezemvelo KZN Wildlife
 Version: (2/2009)
 Date Modified: October 2009
 Data Sources: Ezemvelo KZN Wildlife,
 Chief Directorate Surveys & Mapping



Map 3 - Zonation Map of KNR



**Zonation Map : Map 3
Krantzkloof Nature Reserve**

- Rural zone
- Natural zone: Semi-Primitive
- Natural zone: Semi-Primitive Non-motorised

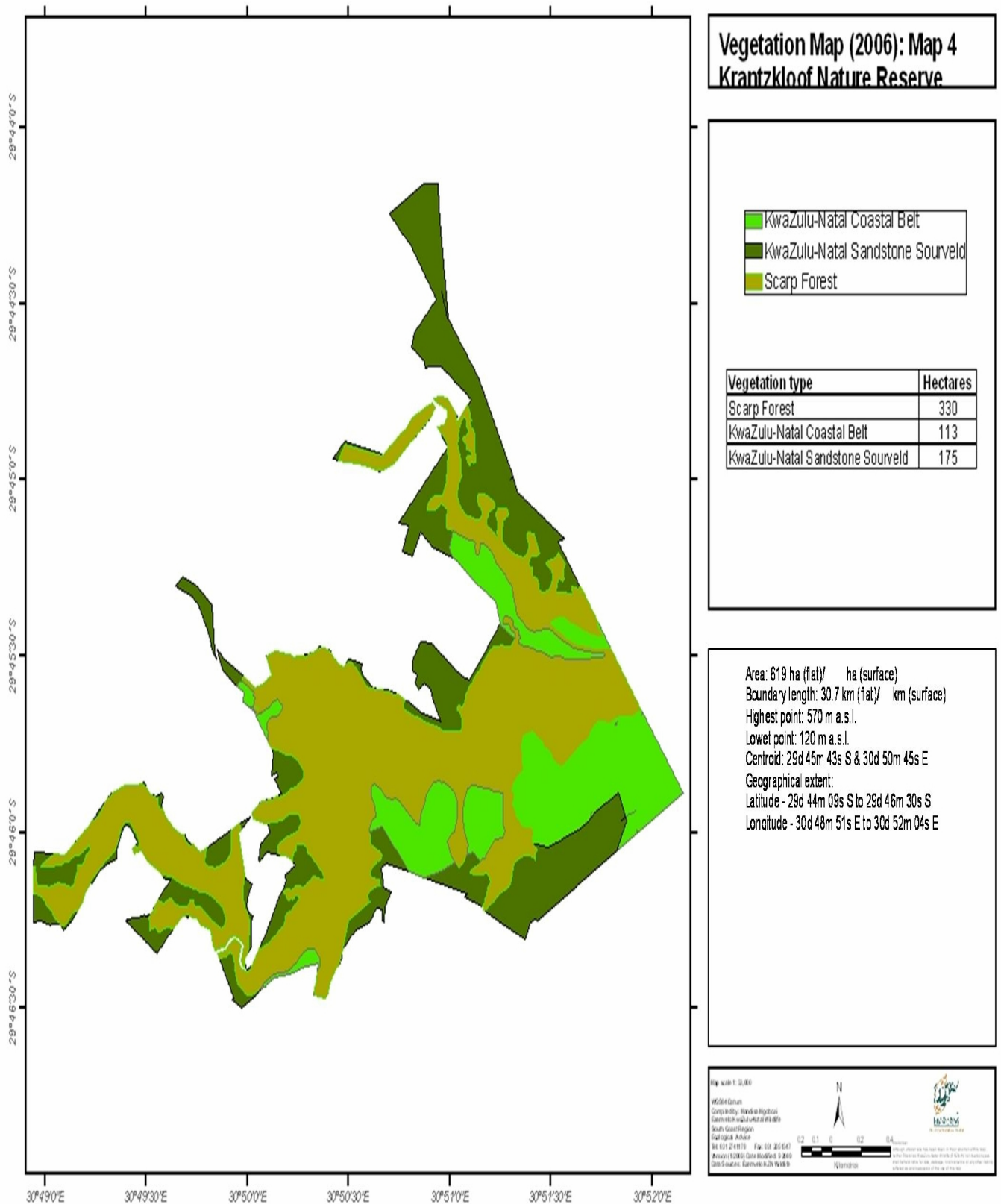
Area: 619 ha (flat)/ ha (surface)
 Boundary length: 30.7 km (flat)/ km (surface)
 Highest point: 570 m a.s.l.
 Lowest point: 120 m a.s.l.
 Centroid: 29d 45m 43s S & 30d 50m 45s E
 Geographical extent:
 Latitude - 29d 44m 09s S to 29d 46m 30s S
 Longitude - 30d 48m 51s E to 30d 52m 04s E

Map scale: 1:20,000

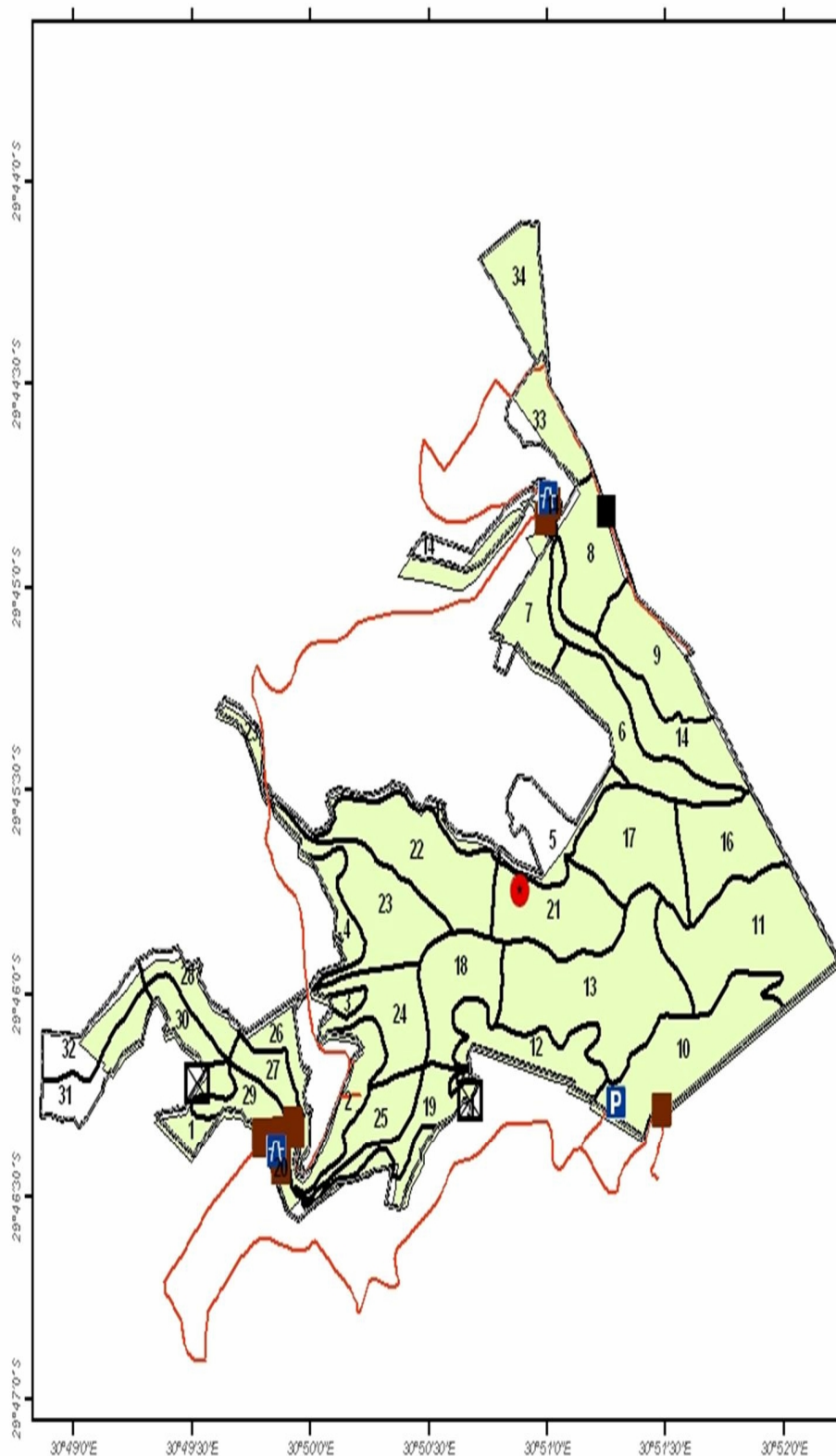
MSM Data
 Completed by: Mark van Houten
 Checked by: Mark van Houten
 Date: 2010-01-01
 Project: 12010-01-01



Map 4 - Vegetation Map of KNR

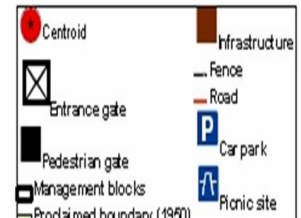


Map 5 - Infrastructure Map of KNR



Infrastructure (Management blocks) : Map 5 Krantzklouf Nature Reserve

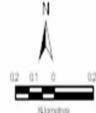
Management block	Rectangle	Perimeter	Management block	Rectangle	Perimeter
1	7.3	1810.1	17	28.2	2297.7
2	13.1	2861.8	18	20.9	2577.5
3	1.9	645.8	19	12.6	3476.2
4	7.3	2105.7	20	8.8	3402.1
5	15.8	3061.8	21	25.7	2411.0
6	22.4	3171.8	22	32.9	3066.4
7	13.8	2118.5	23	30.0	5158.7
8	20.7	1883.1	24	19.6	3145.6
9	21.8	2243.1	25	11.8	2237.7
10	33.1	3277.0	26	9.0	2416.5
11	44.4	3515.4	27	7.6	1446.1
12	17.4	3028.4	28	10.0	1898.8
13	0.8	803.3	29	9.0	1758.9
14	52.0	4011.9	30	7.3	1489.9
15	23.5	3980.3	31	11.8	2123.9
16	9.5	2730.1	32	12.2	1951.2
17	6.6	3680.9	33	13.0	1699.1
18	23.3	2223.6	34	14.0	1948.5



Area: 619 ha (flat)/ ha (surface)
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Map scale: 1:22,000

WGS84 datum
 Compiled by: Marlene Mphahlele
 Geomatics: Krantzklouf Nature Reserve
 South Coast Region
 Biological: Ardenne
 Version: 1/2009; Date Modified: 1/2009
 Data Sources: Geomatics KNR Wildlife



Map 6 - Trails Map of KNR

