



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

## **AMATIKULU NATURE RESERVE**

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



# Amatikulu 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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Photograph-credits: Geoff Nichols

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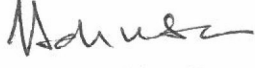
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## PREFACE

This Integrated Management Plan for ANR the primary and overarching management document for the nature Reserve for the period 2009-2013. 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 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, has been designed to meet the statutory requirements of the National Environmental Management: Protected Areas Act and other relevant legislation.

The protected area management planning process requires participation from the 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 Reserves management objectives are operationalised and reflected through a Strategic Management Plan in the Park's operational budget over the next five years. A Business Plan will at the same time actively pursue additional and improved funding and income towards the achievement of the natural and cultural heritage conservation objectives of the Nature Reserve over the next five years.

Ezemvelo KwaZulu-Natal Wildlife as the appointed Management Authority for Amatikulu 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 Amatikulu Nature Reserve, and is the primary and overarching management document for the Nature Reserve for the period 2009 to 2013. The IMP forms the framework within which the Nature 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 can only be modified with Ezemvelo KZN Wildlife (EKZNW) approval, after consultation with all relevant stakeholders.

The Amatikulu Nature Reserve was established to conserve and maintain a small remnant of southern Zululand vegetation and associated faunal components. It is part of the Siyaya Coastal Park, which includes Umlalazi Nature Reserve, Amatikulu Nature Reserve and Red Hill, and which is currently recognised as a part of the southern-most protected portion of the Maputaland coastal plain. The Park is situated within the narrowest part of this coastal plain, as further north the plain becomes very broad.

The Matigulu River is relatively unspoilt and unpolluted upstream and the Nature Reserve is associated with this riverine habitat, dune, coastal and swamp forests, undeveloped sandy beaches and a prograding beach with associated beach vegetation.

The principles underlying the IMP for the ANR 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 ANR 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 ANR, 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 ANR'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 ANR, 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 ANR.

**Recognising the important role the ANR 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

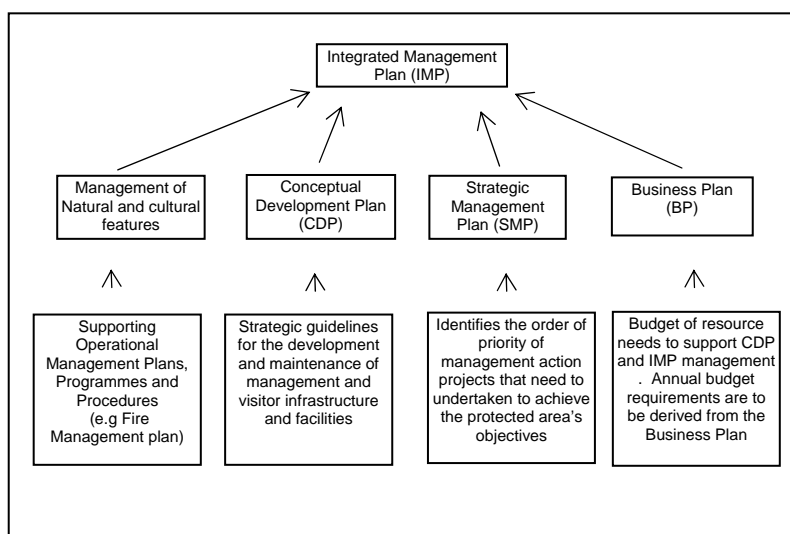
The **Integrated Management Plan (IMP)** is the overarching protected area integrated planning document that describes the administrative and legal framework, contextual background, public participation processes followed, vision / mission statements, management objectives, zonation as well as a management 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.



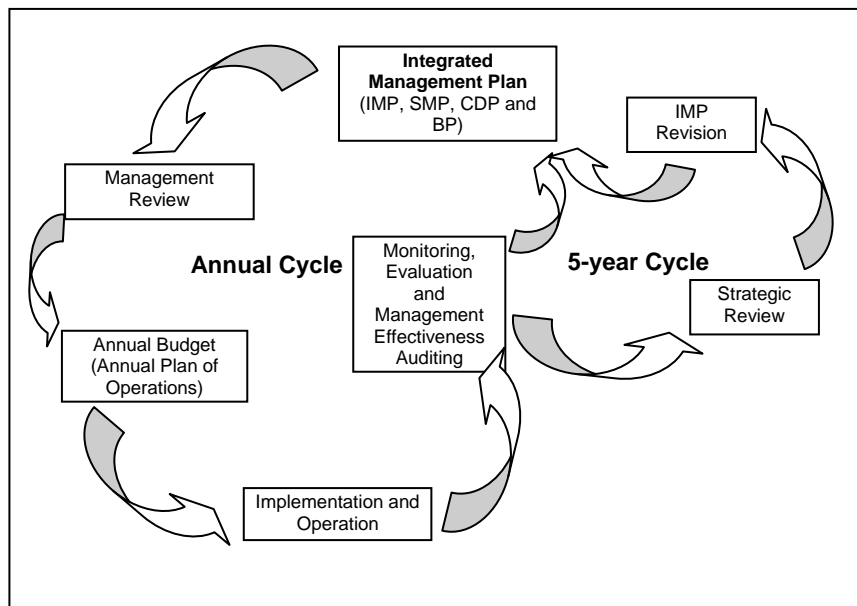
The process by which the **IMP** plans are developed is in accordance with the requirements of South Africa's environmental legislation, in particular the NEMPA, requiring public consultation and participation, as follows:

- 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 is 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, which are not indigenous to ANR and the surrounding area including hybrids and genetically altered organisms.

### **Amafa**

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

### **Amatikulu**

Amatigulu is the correct spelling however Amatikulu will be used in this IMP. The correct spelling will be updated in the review period.

### **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, 2004 [Act No. 10 of 2004]).

### **Bioprospecting:**

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

### **Board:**

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

### **Buffer Zone:**

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

### **Co-management:**

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

### **Cultural Heritage:**

As defined in Article 1 of the World Heritage Convention (UNESCO) 1972<sup>1</sup>, '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.

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<sup>1</sup>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.



**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]).

**Ecosystem:**

Means a dynamic complex of animal, plant and micro-organism communities and their non-living environment interacting as a functional unit (as per the National Environmental Management: Protected Areas Act, 2003 [Act No. 57 of 2003]).

**Ecosystem Services:**

As defined in Section 1 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) as “environmental goods and services” meaning:

- (a) benefits obtained from ecosystems such as food, fuel and fibre and genetic resources;
- (b) benefits from the regulation of ecosystem processes such as climate regulation, disease and flood control and detoxification; and
- (c) cultural non-material benefits obtained from ecosystems such as benefits of a spiritual, recreational, aesthetic, inspirational, educational, community and symbolic nature;”

For the purposes of this IMP, sustainable water production is also specifically included under this definition.

**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, 2003 [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 utilisation of indigenous plants and animals therein, and the promotion and maintenance of biological diversity (as per the KwaZulu-Natal Nature Conservation Management Act, 1997 [Act No.9 of 1997]).

**Nature Reserve**

Means Amatikulu Nature Reserve

**Neighbouring Community:**

Means the communities and people permanently living in the local municipal area / s bordering onto the Nature Reserve.

**Natural Heritage:**

As defined in Article 2 of the World Heritage Convention (UNESCO) 1972<sup>2</sup> 'natural heritage' is considered (*with wording excluded as indicated*) 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.

**Park:**

Means Siyaya Coastal Park. The Umlalazi Nature Reserve and Amatikulu Nature Reserve together form the Siyaya Coastal Park, which stretches from the mLalazi River in the North, in a narrow band along the coast Southwards almost to the Thukela (Tugela) River.

**Partnership/s:**

Means a co-operative and / or collaborative arrangement between the 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 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 Parties<sup>3</sup>:**

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)).

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<sup>2</sup> 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

<sup>3</sup> Defined in Guideline Document EIA Regulations, National Department of Environmental Affairs and Tourism, April 1998

## ABBREVIATIONS

ANR	Amatikulu Nature Reserve
BP	Business Plan (Component of EKZNW protected area management planning process)
CDP	Concept Development Plan (Component of EKZNW protected area management planning process)
DAE&RD	KwaZulu-Natal Provincial Department of Agriculture and Environmental Affairs and Rural Development
DEAT	National Department of Environmental Affairs and Tourism
DLA	Department of Land Affairs
DPW	Department of Public Works
DWEA	National Department of Water and Environmental Affairs
EIA	Environmental Impact Assessment
EKZNW	Ezemvelo KwaZulu-Natal 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
IDP	Municipal Integrated Development Plan
IEM	Integrated Environmental Management
IMP	Integrated Management Plan
IUCN	International Union for Conservation of Nature <u>or</u> The World Conservation Union (as commonly referenced)
JMB/C	Joint Management Board/ Committee
KPA	Key Performance Area
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
MoA	Memorandum of Agreement
MoU	Memorandum of Understanding
ORI	Oceanographic Research Institute
PAMC	Protected Area management Committee/Reserve Planning Committee
PPP	Private Public Partnership
ROC	EKZNW Regional Operations Committee
ROS	Recreational Opportunity Spectrum
SA	Republic of South Africa
SAHRA	South African Heritage Resources Agency
SCDP	Siyaya Coastal Catchment Demonstration Project
SCP	Siyaya Coastal Park
SDF	Municipal Spatial Development Framework
SMME	Small, Micro and Medium Enterprises
SMP	Strategic Management Plan (Component of EKZNW protected area management planning process)
UNESCO	United Nations Educational, Scientific and Cultural Organisation

### **ABBREVIATIONS USED FOR STATUTES (LEGISLATION)**

CARA:	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
KZNHRA	KwaZulu Heritage Resources Act (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).
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)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)

## PURPOSE AND SIGNIFICANCE OF THE AMATIKULU NATURE RESERVE

### 1.1 Purpose

The Purpose of Amatikulu Nature Reserve is to:

- Contribute to the achievement of Provincial and National conservation targets through protecting a representative portion of the Southern Zululand vegetation and associated faunal components of the area and their associated biodiversity, including the ecological and evolutionary processes that generate and maintain this diversity ANR has a riverine habitat, dune, coastal and swamp forests, undeveloped sandy beaches with associated beach vegetation;
- Conserve a small remnant of the Southern Zululand vegetation;
- Protect endangered, rare and endemic species indigenous to the area;
- Preserve and conserve the ecological and cultural heritage integrity of the area;
- Provide controlled and equitable access by the public to the area and its resources;
- Contribute to local and regional economies through sustaining good quality water production and by providing a public amenity; and
- Provide a destination for eco-cultural tourism in the KwaZulu-Natal Province.

### 1.1 Significance

The significant values of ANR include:

- **Natural and cultural values.** Various ANR natural and cultural heritage features are of regional significance, and incorporate the following:
  - 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.
- **Outdoor Recreation and Eco-cultural Tourism.** ANR has the potential to sustainably provide 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 enhance regional tourism opportunities. Recreation opportunities at Amatikulu Nature Reserve include fishing, walking (hiking), bird watching, mountain biking and canoeing.
- **Biodiversity and natural heritage values:**
  - Relatively unspoilt coastline, beach and estuaries.
  - Pro-grading beach and dune system.
  - Estuaries in general are sensitive and have great ecological importance and the Matigulu/Nyoni estuary ranks 35<sup>th</sup> amongst the top 50 South African estuaries ranked in terms of conservation importance. In terms of importance to fish, it ranks 6<sup>th</sup>.
  - Diversity of habitats, which includes the marine component, sandy beaches, a prograding dune system with serial vegetation stages, coastal wetlands, estuarine and freshwater systems, coastal grassland and bush thickets, coastal forests, climax dune forests, riverine and swamp forests.
  - Source of seeds for colonisation of other damaged areas, e.g., where dune mining is taking place.
  - Provides habitat for a number important animal species, including red data fish, reptile and bird species.

➤ **Cultural heritage values:**

- Historical importance.
- Link to John Dunn, the “white Zulu”.
- The two Estuaries in ANR, provide a number of ecosystem services, including silt trapping, acting as a carbon sink, a nursery for fisheries, processing of sewage and a source of sustainable resources.
- The Nature Reserve could act as a focal point or catalyst towards the economic upliftment of surrounding communities through ecotourism ventures if the protected area is developed in terms of a concept development plan.

➤ **Partnerships and benefits:**

- “Working for Water” provides jobs.
- Community levy (provide jobs for local development projects).
- *Ncema*, *iKwane* and reeds are harvested.



## 2. ADMINISTRATIVE AND LEGAL FRAMEWORK

### 2.1 Institutional Arrangements

#### 2.1.1 ANR Management Authority

Ezemvelo KwaZulu-Natal Wildlife is the appointed Management Authority responsible and accountable for the Amatikulu Nature Reserve (ANR). This will be confirmed in terms of Section 38(2) of the National Environment Management: Protected Areas, 2003 [Act No.57 of 2003] (NEMPAA) which requires that the provincial MEC assign the management authority for a Protected Area.

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 ANR 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 ANR in terms of Section 38(2) of NEMPAA.

#### 2.1.2 Land Claims and Co-management

There are no known land claims against ANR.

#### 2.1.3 Separation of Authority Functions

Other public service providers within ANR include electricity provided by Eskom and telephone lines provided by Telkom.

**Action Project 2.1.3 (j):** Update and compile a list of all service providers in ANR.

### 2.2 Legislation Guiding the Administration of Amatikulu Nature Reserve.

**It is important to note that Amatikulu 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:**

- AMAFA aKwaZulu – Natal: KwaZulu – Natali/ Heritage Act (Act No. 10 of 1997)
- Animals Protection Act, 1962 (Act No. 71 of 1962).
- 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 Veld and Forest Fire Act, 1998 (Act No.101 of 1998).
- National Water Act, 1998 (Act No. 36 of 1998).
- National Water Amendment Act, 1999 (Act No. 45 of 1999)
- Nature Conservation Ordinance, 1974 (Act No. 15 of 1974)
- Traditional Healers Act (Act No. 10 of 2004).

### **General Management:**

- Broad – Based Black Economic Empowerment Act (Act No. 53 of 2003)
- Communal Land Rights Act (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 (Act No. 3 of 1994)
- 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 (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, 1999 (Act No. 1 of 1999).

## **Human Resource Management.**

- Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997).
- Compensation for Occupational Injuries and Diseases Act, 1993 (Act No. 130 of 1993).
- Employment Equity Act, 1998 (Act No. 55 of 1998).
- Labour Relations Act, 1995 (Act No. 66 of 1995).
- Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).
- Pension Funds Act, 1956 (Act No. 24 of 1956).
- Skills Development Act, 1998 (Act No. 97 of 1998).
- Skills Development Levies Act, 1999 (Act No. 9 of 1999).
- Unemployment Insurance Act, 2001 (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**

ANR is a core conservation area forming part of the KZN protected area network. As with all EKZNW protected areas, the intention is to continually improve management effectiveness of ANR in line with the levels adopted for all protected area within the EKZNW protected area network.

In the KwaZulu-Natal Province, the Nature Reserve is situated within the iLembe District Council [DC 29] and the eNdongakusuka Local Municipality [KZ 291]. Mandeni is the only urban settlement of substance within the eNdongakusuka Local Municipality. Mandeni, however, consists of a fragmented system of pockets of intense urban settlement, separated by areas of little or no development. This fragmented system is the direct result of the past administrative divisions which applied in the area, largely as a direct consequence of apartheid policies, with areas falling within the jurisdiction of different agencies. Some secondary urban settlements exist around Tugela Mouth and the old Amatikulu Leper Hospital, situated at Wangu (adjacent to Amatikulu Nature Reserve). Both of these secondary urban settlements are very small, and rank very distantly behind Mandeni as urban settlements.

Tugela Mouth is essentially still a very quiet, old fashioned, coastal fishing/holiday settlement. It has however been identified by the Municipality as having enormous development potential. Wangu is similarly a very small urban settlement, which developed around the old Amatikulu Leper Hospital, and now contains medical, police and shopping facilities, which serve the northern area of the coastal tribal authority areas of eNdongakusuka.

The eNdongakusuka IDP identified a Conservation Corridor along the Matigulu River and along the coast around the Amatikulu Nature Reserve, with the latter referred to as the Siyaya Coastal Park.

A report entitled "Development of a Local Tourism Strategy and Business Plan - Mandeni Region" was prepared in 2000 by Zama O'Brien Consulting, on the results of an investigation into the development of the historical sites associated with the Thukela Frontier and the coastline. Two proposals of critical importance come out of this report, namely the "Thukela Mouth Development Master Plan" and the "Conceptual Design Proposal and Development Master Plan for the "Thukela Frontier" Interpretive Centre and Implementation Strategy." These two proposals are intended to realise the international and local tourism opportunities which exist in these two very special areas and therefore represent two important economic development opportunities which form a critical part of the IDP input.

The objective of the first report was to provide a development plan for a "Coastal" Visitor attraction, holiday destination and coastal residential area. The second study had the primary objective being to provide a Public/Private/Community development opportunity for an Interpretive Centre in the form of an *ikhanda* or Zulu military kraal, which will set out components of Zulu heritage and culture, including particularly the Zulu social and military system, at the site of the Ndongakasuka Military Kraal, which was a Zulu outpost in the 19th Century.

This report concludes very strongly that there is a rich source of untapped tourism development potential in the Mandeni area.

It will be noted from this report that Tugela Mouth is the only place along the coast where development can realistically be permitted, due to the pristine and unspoilt nature of the coastline elsewhere, and due to this being the most easily accessed and serviced area along the coastal strip. The report also deals with the short-, medium- and long-term strategies for the development of tourism in the area, and sets out the business plans needed to carry out these proposals.

Alignment with regional plans will assist in developing an effective buffer zone around ANR. Protected area management, in collaboration with the designated EKZNW officials, will be tasked to make the relevant inputs whenever these municipalities' Integrated Development Plans and Spatial Development Frameworks are reviewed and updated.

**Action Project 2.3 (i):** Management, in collaboration with other relevant EKZNW officials, are 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 ANR through an alignment of appropriate land use adjacent to the Nature Reserve and to contribute to sustainable and environmentally sound development.

**Action Project 2.3(ii):** Implement SUP. Establish and maintain relationship with local and district municipalities to ensure effective integration into planning.

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

## 2.4 Proclamation Status of Amatikulu Nature Reserve

- KwaZulu Government Notice No. 219 of 1987. Proclaimed under the KwaZulu Conservation Act, establishment of Amatikulu Nature Reserve, in extent 1,476.6 ha.
- KwaZulu Government Notice No. 63 of 1992. Proclaimed under the KwaZulu Conservation Act, establishment of Redhill Nature Reserve, in extent 236.1 ha.
- KwaZulu Government Notice No. 18 of 1993. Proclaimed under the KwaZulu Conservation Act, establishment of Talmage Pan Nature Reserve, in extent 387.5673 ha.

The original aim was to include all three areas within the Amatikulu Nature Reserve, which would have been 2,100.3 ha in extent. However, the Talmage Pan Nature Reserve has since been de-proclaimed (Provincial Notice 5 of 2002) and the Amatikulu Nature Reserve therefore covers 1,712.7 ha.

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

## 2.5 Local Agreements, Leases, Servitude Arrangements and MOUs

The formal documentation and maintenance of all local agreements, leases, servitude arrangements and MoUs concerning the authorised use of ANR 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 ANR 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 ANR management and regional management offices for easy reference. These copies will be updated in accordance with any authorised amendments.

**Action Project 2.5 (i):** Obtain and review all formal and informal local agreements, leases, servitude arrangements *etc.* pertaining to ANR and implement servitude agreements where necessary. All informal and revised agreements are to be formalised and submitted for approval by the Executive.

### 2.5.1 Extending Conservation Land Use Management in Areas Surrounding ANR

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 ANR in collaboration and co-operation with the relevant stakeholders 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 ANR 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 ANR 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 ANR.

At present, there is little opportunity for broadening conservation land use management around ANR, although the establishment of a buffer with appropriate land uses should be pursued. Areas bordering the Nature Reserve are tribal land, commercial plantations and sugar cane.

**Action Project 2.5.1 (i):** Annually explore and investigate opportunities to extend conservation land use in and around ANR.

### **3 BACKGROUND**

#### **3.1 Origin of the Name of the Nature Reserve**

The Matigulu River may have got its name from an old dialectic variation of amanzi + khulu, "big waters", which could refer to seasonal flooding of the river (Koopman, 2002).

#### **3.2 Location and Extent of the Nature Reserve**

The Amatikulu Nature Reserve, covering an area of 1,476 ha and the Redhill Nature Reserve that covers an area of 236 ha, makes a total area of 1,712 ha. In this document the two combined Nature Reserves are referred to as Amatikulu Nature Reserve. It is situated about 100 km north of Durban and straddles the mouths of two rivers – the Matigulu and the Nyoni. The Nature Reserve occupies a narrow strip along the coast, reaching a maximum width of 3 km and a length of 20 km.

Despite its size, the Amatikulu Nature Reserve contains many different habitats (including coastal, riparian, swamp and dune forest, grassland, lala palm bushveld, bush thickets, an estuary and a freshwater pan), the variety of which resulted in a diverse mammal, amphibian and reptile population, including a checklist of over 300 birds. The Nature Reserve lies at the confluence of the Matigulu and Nyoni rivers, the latter running uniquely parallel to the Indian Ocean for about 8 km.

The Siyaya Coastal Park (which includes the Amatikulu Nature Reserve and the Umlalazi Nature Reserve) extends from the northern boundary of the Umlalazi Nature Reserve to the southern boundary of the Redhill Nature Reserve (approximately 37 km in length). The two nature reserves are not contiguous due to the de-proclamation of the Talmage Pan section of the Siyaya Coastal Park in 2002 (Provincial Notice 5 of 2002). The co-ordinates of ANR are -29°06'03.035"S to 29°12'50.512"S and 31°30'51.048"E to 31°36'59.425"E. The GIS flat surface area is 1702.4 ha and the boundary length of ANR is 34.5 km. The maximum height above sea level is 100 m.

#### **3.3 Previous Land Use**

ANR was initially used to farm food for the leper colony at Wangu. The Mandikini Primary Health care centre, then known as the Mandikini Hospital, was the only leper hospital in KwaZulu Natal. The hospital practiced cattle farming to provide food and milk for the patients and residents. Much of the land remained untransformed natural land.

#### **3.4 Conservation History of the Nature Reserve**

The Amatikulu Nature Reserve was proclaimed under the following notices (individual properties were proclaimed at different times):

- Kwazulu Government Notice no. 219 / 1987 – Proclamation of Amatikulu Nature Reserve.
- Kwazulu Government Notice no. 63 / 1992 – Proclamation of Red Hill Reserve
- Kwazulu Government Notice no. 18 / 1993 – Proclamation of Talmage Pan Reserve
- Kwazulu – Natal Provincial Notice no. 5 / 2002 – Deproclamation of Talmage Pan Nature Reserve.

Prior to proclamation, the land was owned by the KwaZulu government and the reserve was proclaimed after the theft of many cattle from the area when it was used to graze cattle for the Leper Hospital. ANR was established to conserve and maintain a small remnant of southern Zululand vegetation and its associated faunal components.

After proclamation, the KwaZulu Bureau of Natural Resources was the appointed management authority for ANR and the reserve is now administered by Ezemvelo KZN Wildlife. (The KwaZulu Bureau of Natural Resources and the Natal Parks Board amalgamated and became the KZN Nature Conservation Service, which is now known as Ezemvelo KZN Wildlife)



Faunal species include, but are not restricted to, giraffe, impala, vervet and samango monkeys, mongoose, zebra and clawless otters. Many large mammals have been deliberately introduced into the Nature Reserve. Giraffe, zebra, kudu, impala and reedbuck, serval and water buck are easily seen, while smaller creatures like blue duiker, large grey mongoose, banded mongoose and small spotted genet are more elusive. The Nature Reserve supports a wide selection of butterflies and other insects, including dung beetles, which benefit from the presence of the large mammals not found in other small nature reserves.

Challenges that the reserve have encountered since proclamation, and is in the process of addressing, includes alien plant invasion, soil erosion, crime (illegal harvesting, poaching, theft and arson fires), siltation, illegal grazing, opposition from the community, and a shortage of resources.

**Action Project 3.4 (i):** Update the Conservation History for ANR indicating the importance of the proclamation.

### **3.5 Climate and Weather**

The climate is humid and warm to hot with a year-round rainfall. The rainfall is extremely variable in time (months, years, cyclic in the longer term) and also varies spatially across the different catchments. Amatikulu Nature Reserve's average annual rainfall is extremely high, with only a few places in South Africa exceeding this. The heaviest rainfall occurs from December to February each year.

The mean annual rainfall (for a 37 year period) is 991.4 mm, while the average monthly rainfall is 84.3 mm. The July minimum monthly rainfall is 33.0 mm while the March maximum monthly rainfall is 139.2 mm (Beater, 1962).

Warm and oppressive weather conditions dominate the summer months, while winters are cooler. The prevailing surface winds along the KwaZulu-Natal coast are north-easterly and south-westerly, flowing roughly parallel with the coastline and almost equally divided in frequency and velocity. They are spread fairly evenly over the 12 months of the year. Wind velocities are subject to strong diurnal variations, with daytime winds being significantly stronger than those at night. Gales from the south are generally experienced from September to November.

**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 ANR.

### **3.6 Physical Description**

#### **3.6.1 Topography**

Southwards, from the Mlalazi Estuary to the Tugela River mouth, the coastal plain is absent and instead a series of Holocene beach ridges form a prograding shore at the margins of subdued sand dunes. A comparatively shallow continental shelf terminates some 40 km offshore with a pronounced slope change at depths of between 90 and 135 m.

The Nature Reserve is found mainly on a flat to gently undulating and prograding coastal plain, consisting of sandy beaches and a series of ridged dunes and troughs, which all lie parallel to the coastline. The southern bank of the Matigulu River, where it reaches the coast, is dominated by a ridge rising to a height of 96 m, which is covered by luxuriant indigenous coastal forest.

#### **3.6.2 Geology**

The Nature Reserve is underlain by fairly uniform lithologies. Four different formations are found outcropping in the area, viz. Basement Granites, Natal Group Sandstone, Berea Red Sand and Quaternary Sands.

### 3.6.3 Soils

Sandy loam of marine origin.

**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.

### 3.6.4 Geomorphology and Landforms

The Amatikulu Nature Reserve can be divided into three distinct zones with regards to topographical and geomorphological features. A semi-continuous ancient dune system forms the western boundary of the Nature Reserve, while the seaward area is fronted by a series of beach ridges. There is a 50-80 m wide beach. It is important that this is a prograding coastline (ie this coastline is building out into the sea). This is the only prograding system in South Africa.

### 3.7 Hydrology

These two ridge formations, formatted by the prograding coastline, are divided by a linear depression, which forms a conduit for the surrounding drainage systems. Water drains into this area through seasonal streams from the high-lying areas to the north-west of the Nature Reserve.

Historically, it is likely that these streams drained into the Nyoni River. However, the transgression (backward migration) of the frontal dunes have blocked off the passage of surface water. Surface water now feeds a number of pans in this depression and most probably enters the Nyoni River as groundwater flow.

A tidal river forms the northern boundary to the Nature Reserve. A permanent freshwater vlei is transected by the southern boundary of the Nature Reserve. Numerous freshwater bands form in the old dune slacks during the wetter seasons.

The Nature Reserve contains approximately six different types of wetlands within its boundaries. The wetland systems are predominantly Palustrine (swampy, non-tidal wetlands where the soils are wet almost all the time – marshes, swamps, bogs, fens and vleis), with one distinct Endorheic Pan clearly visible, even on aerial photographs. Endorheic wetlands are commonly known as pans in South Africa and are usually circular to oval in shape. The pan is flat, has a level basin floor and is less than 3 m deep when fully inundated there is no outlet. The wetlands play an important role in maintaining suitable habitats for the many water-dependent species, both plant and animal.

**Action Project 3.7.1 (i):** Investigate the hydrology of the ANR, identify threats to its ecological functioning and propose mitigatory measures.

### 3.8 Estuarine, Intertidal and Marine

#### 3.8.1 Estuarine Ecology

The Matigulu and the Nyoni rivers exit to the sea in ANR. Their ecologies need to be investigated.

**Action Project 3.8.1 (i):** Investigate the estuarine ecology and functioning within ANR and develop a management plan to mitigate against threats to its healthy functioning.

#### 3.8.2 Intertidal Ecology

This section is a summary of Clark (2003).

The intertidal environment extends from the lower limit of spring low tides up to the upper limit of spring high tides. This is a narrow strip of shoreline that is highly dynamic in nature. It experiences

the full force of waves breaking on the shore, the zone of maximum impact depending on the height of the tide. In the case of the Siyaya Coastal Park, the intertidal shoreline is comprised exclusively of steeply inclined, coarse-grained sandy beaches. Three estuaries intersect this shore, the Umlalazi, the Siyaya and the Matigulu. The species composition and abundance of intertidal fauna and flora in the intertidal zone may vary due to the influence of riverine input at these sites.

**Action Project 3.8.2 (i):** There is the need to further investigate the intertidal ecology (in consultation with ORI and other relevant institutions) and to develop a specific management plan for this zone.

### 3.8.3 Marine Environment

The marine environment plays an important role in this prograding coastline and requires further investigation.

**Action Project 3.8.3 (i):** Investigate and include the coastal and marine environments (in consultation with ORI and other organisations) and develop specific management actions as appropriate.

## 3.9 Flora

### *Vegetation Types*

Amatikulu NR falls within a broad region termed the Indian Ocean Coastal Belt (IOCB). The IOCB occurs as a narrow coastal strip along Africa's eastern seaboard, and is characterized by a flat or gently rolling landscape. The IOCB has strong subtropical floristic elements, linked along the coast to the tropical regions of East and Central Africa. In South Africa, the IOCB stretches from the Mozambican border south to the Great Kei River, and it is the region 'that feels the breath of the Tropics the most' (Mucina and Rutherford, 2006). In terms of biomes, the IOCB encompasses grassland, savannah, wetlands and forest, with all four frequently interspersed in a complex vegetation mosaic. Many of the vegetation types occurring within the IOCB are threatened to a greater or lesser extent, primarily due to the high population densities and associated land transformation in the region.

Occurring in Amatikulu Nature Reserve are the following:

North Coast Grassland (42 ha), a Critically Endangered vegetation type is the most threatened in the province. Floristically similar to the Maputaland Coastal Grassland (788 ha), North Coast Grassland occurs further inland. The major threat to both grassland types is the invasion by alien plant species, of which *Chromolaena odorata* is the main problem species. Bush encroachment is a further threat, but one that may be controlled by appropriate burning regimes.

The three forest types occurring in the NR are all relatively well protected within KZN, and as such are classified as Least Threatened. KwaZulu-Natal Coastal Forest (465ha) and KwaZulu-Natal Dune Forest (7ha) are delimited by location alone, and are both species-rich subtropical coastal forests, making them important vegetation types to safeguard. Swamp Forest – *Barringtonia racemosa* (21ha) occupies sites with permanently waterlogged soils, and the forest has a distinct canopy and shrub layer. The most serious threat to this forest type is a change in the local hydro-geological conditions.

Wetlands (12ha Subtropical Freshwater Wetlands) occupy only a small proportion of ANR. Wetlands perform a number of vital ecosystem services such as improving water quality (they act as sediment sinks and filter excess nutrients) and aiding atmospheric equilibrium (they store significant carbon in plant biomass). This habitat is also crucial for a number of Red Data listed fauna, in particular the endangered Pickersgill's reed frog.

Coastal vegetation, found in the interface between the beach and inland (and thus under the influence of the ocean *i.e.* sea water, salt spray, dune formation) is collectively termed Seashore Vegetation. In ANR, the vegetation type is Subtropical Seashore Vegetation (71ha), which is characterised by grassy, herbaceous or dwarf-shrubby pioneer species, often monotypic in nature.

### Conservation Targets:

- 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 ANR safeguards 0.7% of this. The conservation target has **not** been met.
- Maputaland Coastal Grassland (Endangered): The provincial target is 25% of the original distribution for this vegetation type, however only 32% remains untransformed. Only 61% of the remaining 32% occurs within protected areas, and ANR safeguards 2% of this. The conservation target has **not** been met.
- KwaZulu-Natal Dune Forest (Least Threatened): KwaZulu-Natal Dune Forest (Least Threatened): The provincial target is 69% of the original distribution for this vegetation type, however 93% remains untransformed. Only 68% of the remaining 93% occurs within protected areas, and ANR safeguards 0.1% 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 ANR safeguards 1.2% of this. The conservation target has **not** been met.
- Swamp Forest – *Barringtonia racemosa* (Least Threatened): The provincial target is 70% of the original distribution for this vegetation type, however 92% remains untransformed. Only 55% of the remaining 92% occurs within protected areas, and ANR safeguards 37.1% of this. The conservation target has **not** been met.
- Subtropical Seashore Vegetation (Least Threatened): The provincial target is 20% of the original distribution for this vegetation type, however 81% remains untransformed. Only 71% of the remaining 81% occurs within protected areas, and ANR safeguards 3% of this. The conservation target has **not** been met.
- Subtropical Freshwater Wetlands (Least Threatened): The provincial target is 24% of the original distribution for this vegetation type, however 80% remains untransformed. Only 56% of the remaining 80% occurs within protected areas, and ANR safeguards 0.05% 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>Didimoplexus verrucosa</i> |                      | Vulnerable |
| • <i>Brachystelma franksiae</i> | Frank's brachystelma | Vulnerable |
| • <i>Thunbergia venosa</i>      |                      | Rare       |

**Action Project 3.9 (i):** Update the flora types and map for ANR.

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

**Action Project 3.9 (iii):** Compile and implement a flora management plan that addresses the threats

**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.

**Action Project 3.9 (vi):** Investigate the mangrove swamps origin and propose a suitable management strategy.

### 3.10 Fauna

The EKZMW Biodiversity Database provides a relatively comprehensive list of the bird and mammal fauna of the Amatikulu Nature Reserve. The invertebrate, fish and herpetofauna species lists are not comprehensive.

**Action Project 3.10 (i)** : Copies of the Species Checklists will be updated and filed manually and digitally at the ANR 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, comparable and contemporary baseline data for management and scientific purposes.

**Action Project 3.10 (ii)**: Investigate priority marine fauna in consultation with ORI and other relevant institutions.

#### 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 EKZMW Biodiversity Database provides a limited invertebrate list. Of particular importance is the Rare Variegated *Acraea* hopper (*Fresna nyassae*).

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

#### 3.10.2 Fish

Only a single fish species is recorded in the Biodiversity Database, the Rare Sibayi goby (*Silhouettea sibayi*). However, the Blackthroat goby (*Favonigobus melanobranchus*), an Endangered and endemic species in KZN, and the Vulnerable Bearded Eelgoby (*Taenioides jacksoni*) are predicted to occur in the Amatikulu estuary.

**Action Project 3.10.2 (i)**: Identify the major threats to the Fish Species in ANR and propose mitigatory measures.

**Action Project 3.10.2 (ii)**: Complete a fish survey. Develop and implement a priority Fish Species Monitoring Programme.

#### 3.10.3 Herpetofauna (Amphibians and Reptiles)

Currently, three species of frogs are listed as occurring in the Reserve. No Red Data species are listed. It is suggested that the KZN endemic Black-headed dwarf chameleon (*Bradypodion melanocephalum*) occurs in ANR. The Endangered Pickersgill's reed frog's (*Hyperolius pickersgilli*) occurrence in the nearby Umlalazi Nature Reserve suggests that it may occur in ANR.

Black-headed dwarf chameleon (*Bradypodion melanocephalum*)

Limited to the coastal areas of KZN, this species' preferred habitat includes tall grassland and riparian thicket.

Pickersgill's reed frog (*Hyperolius pickersgilli*)

A secretive and seldom seen species, this coastal KZN endemic is found in thick reeds around coastal pans.

Two species of reptiles are listed as occurring in the Reserve, both snakes. No Red Data species are listed.

**Action Project 3.10.3 (i):** Compile, through further in particular confirm the presence of endangered (Red Data) species research and monitoring, checklists of the Herpetofauna. Identify the major threats to Herpetofauna in ANR and propose mitigatory measures.

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

### 3.10.4 Avifauna (Birds)

The EKZNW Biodiversity Database lists 303 bird species for the Nature Reserve. Of particular importance are:

African grass-owl (*Tyto capensis*) Vulnerable  
Grass-owls favour tall, dense and rank patches of grassland. Nesting takes place on the ground in a tunnel of dense grass from March – April with juveniles fledging 3 months later. Management protocols need to take this breeding cycle into account when planning burning regimes.

Swamp nightjar (*Caprimulgus natalensis*) Vulnerable  
The nightjar breeds in short coastal grassland habitat and forages over marshes, floodplains and grasslands in the Nature Reserve. Eggs are laid on bare ground from August – December, and as such are susceptible to fire.

Denham's bustard (*Neotis denhami*) Vulnerable  
There is an isolated breeding population of this species along the KZN coastal plain, preferring grassland habitat. Favours cultivated lands for foraging, but strictly natural grassland for breeding. Eggs are laid onto bare ground amongst tall grass tussocks from September – December, with chicks fledging approx. 2 months after hatching. Primary causes of species decline include habitat loss and human disturbance.

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

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 if this species is to persist.

African marsh-harrier (*Circus ranivorus*) Vulnerable  
The wetlands in the reserve support breeding pairs of African Marsh Harrier.

Martial eagle (*Polemaetus bellicosus*) Vulnerable  
The Reserve contains suitable grassland for foraging of Martial eagle. However, the total area available for foraging is too small to support a breeding pair (require ca. 300 km<sup>2</sup>). Martial eagle are probably rare, if they still occur. Its persistence in this region depends on adjacent patterns of land use and transformation. The Reserve has some open woodland preferred for nesting although forest and pylons may be used. The ability of the region to support a breeding pair will depend on future habitat loss around the reserve.

Pink-backed pelican (*Pelecanus rufescens*) Vulnerable  
Maintain wetlands and river and estuarine functioning in order to provide foraging habitat for Pink-backed Pelican. Protect large riverine trees as potential breeding sites, although this species has never been recorded nesting in this reserve.

The following two species are not recorded in ANR, but their occurrence in the nearby Umlalazi Nature Reserve suggests they may be present:

Spotted ground-thrush (*Zoothera guttata*) Endangered  
This species is a local migrant, over wintering in coastal forests before returning to the inland scarp forests for the summer breeding season. ANR thus protects part of an area considered to be vital to the long-term persistence of this species, providing essential feeding grounds to maintain body condition before breeding.

Pel's fishing owl (*Scotopelia peli*)

Vulnerable

These owls require large riverine trees and extensive wetlands in which to hunt, and it is thus important to maintain a healthy, functioning wetland system with an intact riparian forest.

**Action Project 3.10.4 (i):** Determine which of the listed bird species breed in the Nature Reserve, and ensure that management protocols are set in place to maintain and conserve these breeding sites for the long- term persistence of the species.

**Action Project 3.10.4 (ii):** Identify the major threats to priority Avifauna in ANR and propose mitigatory measures.

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

### 3.10.5 Mammals

Eleven mammal species are recorded as occurring in ANR. No Red Data species are listed. The presence of the Red Data species, Maqwassie musk shrew (*Crocidura maquassiensis*) and Sclater's forest shrew (*Myosorex sclateri*), in the nearby Umlalazi Nature Reserve suggest that these species may occur in ANR.

Sclater's forest shrew (*Myosorex sclateri*)

Endangered

A northern KZN endemic, this species has been recorded from grassland, wetland and forest habitats. There is currently very little information regarding the general biology of this species.

Makwassie musk shrew (*Crocidura maquassiensis*)

Vulnerable

This is the least known of all the musk shrews, and very little is known about its general biology. Sites where it has been recorded are grassy slopes, and rocky areas.

**Action Project 3.10.5 (i):** Establish if the Red Data listed shrew species occur in the Nature Reserve.

**Action Project 3.10.5 (ii):** Undertake a mammal survey and compile a comprehensive checklist of species.

### 3.11 Cultural Heritage

- Rich in early and late Iron Age Sites. The early sites are 400 – 1000AD and the late between 1000 – 1880AD
- There are also middle Stone Age sites close to the coast (between 40000 – 200000 years ago).

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

**Action Project 3.11.6 (i):** Map the GPS Co-ordinates and provide Management Plans for these sites.

**Action Project 3.11.6 (ii):** Identify the archaeological, historical, palaeontological and cultural heritage sites at ANR. Ensure compliance with requirements of heritage legislation.

### 3.12 Socio-cultural History of area in which Amatikulu Nature Reserve is situated

The Mandeni Local Municipal area has a very rich historical past, which presents a huge opportunity for new development. The Tugela (correctly spelt Thukela) River is the largest river in KwaZulu-Natal, and was the historical border between Zululand and Natal. A number of significant historical events associated with the river have left a rich legacy of major historical and cultural sites on what has now been referred to as the "Thukela Frontier".

The area was one of the most important agricultural areas of the Kingdom of KwaZulu since the reigns of Kings (until the reign of Shaka, they were simply Clan Chiefs) Malandela, Jama, Senzangakhona, Shaka, Dingane and Mpande. During the reigns of Kings Shaka and Dingane, the Mandeni area formed part of the area regarded as Prince Mpande's sphere of influence. He had his umuzi, kwaMfemfe eGcotsheni, in Ndulinde, which is where Prince Shingana was born, and buried in 1911.

The historical events which occurred (although outside the Nature Reserve) in this area include the following:

- **The Battle of Tugela:** This was fought on the slopes of Ndongakusuka in 1838 between a group of settlers from Port Natal under John Cane and Robert Biggar, and an impi of Dingane's forces. King Dingane sent forces to eThekweni (Durban) to destroy the settlers, but they took refuge in their ships, and were not attacked.
- **The Battle of Ndongakusuka:** Ndongakusuka rates as one of the greatest battles ever fought on Zulu soil, both in terms of numbers involved and the number of casualties. It was largely the result of conflict over succession between two of Mpande's sons, Cetshwayo and Mbuyazi, and not an external enemy.

When Mpande had called on the Boers for help, he had presented his son, Cetshwayo, as his heir, but the ageing Mpande became fearful that Cetshwayo would threaten his position. He began to encourage another of his sons, Mbuyazi, to believe that he would be heir. Cetshwayo's adherents became known as the *uSuthu*, after the large Sotho-type cattle his supporters had captured from the Pedi. Mbuyazi's adherents were known as the *iziGqoza*, from the word meaning "to drop down like drops of water from a roof", in reference to the steady trickle of adherents moving to his side. Cetshwayo, however, commanded considerably more support than Mbuyazi. As a pretext for a showdown, the two sons received permission from Mpande to hold a joint hunt in the Royal Hunting Grounds at the confluence of the Black and White Umfolozi Rivers, the place which is now Imfolozi Game Reserve. The *uSuthu* came better prepared for battle and the *iziGqoza* lost their nerve and withdrew without a blow being struck.

Mpande then allocated Mbuyazi land in the south, where his own influence had once been at its greatest. He hoped this would facilitate the recruitment of more adherents for Mbuyazi, and that he would be close enough to solicit support from the British, but, if he were beaten, could flee to Natal. This was too much for Cetshwayo and he mobilised his *uSuthu* to drive them out.

Mbuyazi heard they were coming and moved south towards the lower Thukela River. He requested help from the British, and John Dunn crossed the border with 35 frontier policemen, 100 African hunters, and was later joined by a few white trader-hunters and their assistants. After failed attempts to get Mbuyazi's women, children and cattle across the fast-flowing river, Dunn suggested that the greatly outnumbered *iziGqoza* take the initiative and attack first. Late on the first day, as the two armies moved closer to one another, Dunn's mounted force opened fire on the *uSuthu* advance scouts. The next day, the *iziGqoza*, although assisted by Dunn's men, were routed and massacred. Dunn escaped by swimming across the river, but many of his riflemen were killed. The death toll has never been accurately assessed, but must have numbered in the thousands. Mbuyazi and five brothers were killed, but his body was never identified.

Mpande came to terms with Cetshwayo's claim to the throne and in 1857 they reached a formal reconciliation. In return for Cetshwayo's promise to keep the peace, Mpande pledged him a considerable role in ruling the nation, on condition that Mpande remain the ultimate authority.

**British Ultimatum:** Deteriorating relations between King Cetshwayo and the colonial authorities resulted in the Ultimatum given to King Cetshwayo's izinduna on 11 December 1878 at the Ultimatum



Tree on the banks of the Tugela in the Mandeni Local Municipality area. This led to the invasion of the Kingdom of KwaZulu on 22 January 1879, and the start of the Anglo-Zulu War, which saw the epic battles which have become part of world history.

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

**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 ANR.

### 3.13 Sociological Context

In the North, ANR is bordered by the Matigulu River while the east is bordered by the Indian Ocean with settlement on the Tugela River in the South. The Western boundary of the reserve is surrounded by the Macambini traditional authority under Nkosi Mathaba.

**Action Project 3.13 (i):** Update the sociological context and its importance to ANR.

### 3.14 Economic Context

The Nature Reserve contributes to the economy in the following ways but are not restricted to:

Recreational activities that are offered by ANR include:

- Self guided trails;
- Camping;
- Canoeing;
- Mountain bike cycling;
- Angling/ hunting;
- 4 x 4 trails;
- Bird watching; and
- Picnicing

Facilities and services that are offered by ANR include:

- The education centre;
- Team building facilities;
- Accommodation and braai facilities;
- Employment opportunities to the local community for the eradication of alien plants and fire management;
- The levy which is used for the upliftment and development of the local community

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

- Potable drinking water to the surrounding communities
- Recreational experiences (ecotourism)
- Meeting 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
- Carbon sequestration

**Action Project 3.14 (i):** Update the economic context, including the contribution of the marine environment, its importance to ANR and identify opportunities to add existing commercial developments.

### 3.15 Developed Infrastructure

It is imperative that the necessary appropriate standard of infrastructure be developed and maintained as soon as possible to support the effective management of ANR and promote eco-cultural tourism to the Nature Reserve. Future development will be detailed in the ANR 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 ANR.

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

#### 3.15.1 Eco-cultural Tourism Infrastructure

Eco-cultural tourism infrastructure in the Park consists of:

- Six tented Zangozolo camps and ablution facilities
- Communal ablution block connected to the units by a boardwalk.
- Four camp sites
- One education centre that comprises of two park homes (has basic facilities but no equipment or electricity).
- One picnic site and ablution facilities

**Action Project 3.15.1 (i):** Undertake analysis of available recreational facilities. Repair and maintain recreational facilities as required.

#### 3.15.2 Management Infrastructure

Management infrastructure consists of:

- Officer in Charge house and ablution facilities
- Staff accommodation and ablution facilities
- Workshop
- Main office and ablution facilities
- Field ranger outpost and ablution facilities at Redhill
- Tugela District Officer's house and field ranger camp with ablution facilities

#### 3.15.3 Bulk Infrastructure:

Bulk infrastructure consists of:

- 17.3 kilometers of roads and vehicle tracks (15.8 kilometers of management tracks and 1.5 kilometres of public road).
- One waste management site (solid waste is collected by the Officer in Charge and transported to Mandeni dump site).
- There are seven septic tanks with french drains.
- The Municipality provides water.
- Eskom provides electricity.
- A Telkom line is installed from the main gate to the main office

#### 3.15.4 Conservation Infrastructure

Other conservation infrastructure outside the developed centres consists of:

- 4.09 kilometers of self-guided hiking trails
- One viewing site
- Internal fence around the staff accommodation and workshop
- The perimeter boundary fence's total length is approximately 11km. The existing boundary fence is generally 1.8 m high.

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

### 3.15.5 Water Supply Infrastructure

Water is collected and stored in four water tanks where it is purified and reticulated by gravity.

All water supply infrastructure must be appropriately screened to reduce its potentially detrimental aesthetic impact on. For management purposes it is essential that all water supply infrastructure be indicated on the reserve map.

<b>Action Project 3.15.5 (i)</b> : Update ANR Map to include the location of all water supply infrastructure.
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### 3.15.6 Infrastructure Maintained by other Organisations

Water and electricity are public services provided by the local municipality and Eskom respectively. Solid waste is collected and disposed of by the Officer in Charge. Security at the main gate is also an outsourced service. There is a telephone line which provided by Telkom.

<b>Action Project 3.15.6 (i)</b> : Compile MoA between different service providers and ANR. Protected area manager needs to ensure that he is familiar with all agreements.
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## 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 (Appendix 1 Item 1) which has identified the following corporate Vision, Mission, Goals and Core Values (see Text Box below):

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

Cognisant of EKZNW’s legislative mandate as well it’s corporate Vision, Mission, Goals and Core Values, this ANR **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 I, Item 7)..

**Action Project 4.2 (i):** Establish neighbour liaison forums. Develop and maintain partnership forums with representation from community interest groups and leaderships around Amatikulu.

**Action Project 4.2 (ii):** Implement EKZNW IEM policy and create awareness of/or educate surrounding landowners on the IEM Process and legislation.

**Action Project 4.2 (iii):** Liaise with and support surrounding conservancies.

**Action Project 4.2 (iv):** Identify and prioritise relevant forums and formalize relationships with municipal forums.

## 4.3 Vision

The Vision of the Amatikulu Nature Reserve is:

*"A consolidated , managed and legally protected Nature Reserve that contributes to the achievement of biodiversity targets and, provides sustained and tangible benefits to visitors, neighbours and the municipal area through the provision of appropriate access to the cultural and natural resources."*

## 4.4 Mission

The Mission of the Amatikulu Nature Reserve is:

*"A commitment to sustainably manage and conserve the natural and cultural resources of the Amatikulu Nature Reserve, based on sound environmental principles, that benefit both the visitor and neighbouring community in an equitable manner."*

## 4.5 Management Objectives

The 17 management objectives for ANR are not set out according to ranking:

- Conserve the Amatikulu Nature Reserve, its associated biodiversity and maintain its developed infrastructure.
- Conserve the rare and endemic ecosystems and species.
- Contribute to sub-regional eco-tourism product.
- Contribute to the achievement of National and Provincial conservation targets.
- Facilitate controlled access to cultural heritage sites.
- Facilitate environmental and cultural 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 significant 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 Nature 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 Nature Reserve.

The Nature Reserve Objectives were aligned with the following overarching management Objectives for ANR. These objectives are 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 ANR
- The formation of functional **partnerships** to integrate the ANR with regional development plans and other initiatives which underwrite the vision of ANR

## 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 ANR 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 will 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 can 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 Nature Reserve

Specific conservation targets for the ANR 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 ANR are presented in Table 1:

**Table 1: Biodiversity Targets for ANR.**

Element of Concern	Key Attribute (Threats)	Indicator	Current Status	Target
Conserve the endangered and critically endangered Veld types in ANR.				
The North coast Grassland is critically endangered.	<ul style="list-style-type: none"> <li>The provincial target is 35%, however only 5.3% is untransformed.</li> <li>Only 9.4% of this vegetation type remains within protected areas.</li> <li>Decline of Veld type</li> </ul>	<ul style="list-style-type: none"> <li>Alien plant invasion.</li> <li>Illegal harvesting.</li> <li>Land transformation.</li> <li>Bush encroachment.</li> <li>Arson fires.</li> <li>No recruitment.</li> </ul>	<ul style="list-style-type: none"> <li>ANR contribute 0.73 % to the provincial remains.</li> <li>The target is to maintain the current extent and where possible, to increase its representation within the protected area system.</li> </ul>	TBD
The Maputaland Coastal Grassland is endangered.	<ul style="list-style-type: none"> <li>The provincial target is 25%, however only 31.8% is untransformed.</li> <li>Only 61.4% of this vegetation type remains within protected areas.</li> <li>Decline of Veld type</li> </ul>	<ul style="list-style-type: none"> <li>Alien plant invasion.</li> <li>Illegal harvesting.</li> <li>Land transformation.</li> <li>Bush encroachment.</li> <li>Arson fires.</li> <li>No recruitment.</li> </ul>	<ul style="list-style-type: none"> <li>ANR contribute 1.0% to the provincial remains.</li> <li>The target is to maintain the current extent and where possible, to increase its representation within the protected area system.</li> </ul>	TBD

Element of Concern	Key Attribute (Threats)	Indicator	Current Status	Target
To conserve critically endangered and endangered Red Data plant species.				
<i>Knipofia leucocephala</i> is critically endangered.	<ul style="list-style-type: none"> <li>There is a loss of plant species.</li> </ul>	<ul style="list-style-type: none"> <li>Land transformation.</li> <li>Alien species invasion.</li> <li>No recruitment.</li> <li>Illegal harvesting.</li> <li>Bush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>ANR needs to conserve this species in good condition.</li> </ul>	TBD
<i>Thunbergia venosa</i> is rare.	<ul style="list-style-type: none"> <li>There is a loss of plant species.</li> </ul>	<ul style="list-style-type: none"> <li>Land transformation.</li> <li>Alien species invasion.</li> <li>No recruitment.</li> <li>Illegal harvesting.</li> <li>Bush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>ANR needs to conserve this species in good condition.</li> </ul>	TBD
To conserve rare and endemic ecosystems and species.				
<ul style="list-style-type: none"> <li><i>Fresna nyassae</i> is rare.</li> <li>Invertebrate</li> </ul>	<ul style="list-style-type: none"> <li>Decline or loss of species.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease in condition.</li> </ul>	<ul style="list-style-type: none"> <li>ANR needs to conserve this species in good condition.</li> </ul>	TBD
<ul style="list-style-type: none"> <li><i>Silhouettea sibayi</i> is rare.</li> <li>Fish</li> </ul>	<ul style="list-style-type: none"> <li>Decline or loss of species.</li> <li>Shrinking population numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Illegal gill netting or poaching.</li> <li>Pollution (Agro chemicals).</li> <li>Loss of suitable habitat.</li> </ul>	<ul style="list-style-type: none"> <li>ANR needs to conserve this species in good condition.</li> </ul>	TBD
<ul style="list-style-type: none"> <li><i>Favonigobus melanobranchus</i> is endangered.</li> <li>Fish.</li> </ul>	<ul style="list-style-type: none"> <li>Decline or loss of species.</li> <li>Shrinking population numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Illegal gill netting or poaching.</li> <li>Pollution (Agro chemicals).</li> <li>Loss of suitable habitat.</li> </ul>	<ul style="list-style-type: none"> <li>ANR needs to conserve this species in good condition.</li> </ul>	TBD
<ul style="list-style-type: none"> <li><i>Hyperolius pickergilli</i> is endangered.</li> <li>Amphibian.</li> </ul>	<ul style="list-style-type: none"> <li>Decline or loss of species.</li> </ul>	<ul style="list-style-type: none"> <li>Loss of suitable habitat.</li> </ul>	<ul style="list-style-type: none"> <li>ANR needs to conserve this species in good condition.</li> </ul>	TBD
<ul style="list-style-type: none"> <li><i>Zoothera guttata</i> is endangered.</li> <li>Bird.</li> </ul>	<ul style="list-style-type: none"> <li>Decline or loss of species.</li> </ul>	<ul style="list-style-type: none"> <li>Loss of suitable habitat.</li> </ul>	<ul style="list-style-type: none"> <li>ANR needs to conserve this species in good condition.</li> </ul>	TBD
<ul style="list-style-type: none"> <li><i>Myosorex sclateri</i> is endangered.</li> <li>Mammal</li> </ul>	<ul style="list-style-type: none"> <li>Decline in population of species.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease in condition.</li> <li>Increase in poaching.</li> <li>No recruitment.</li> </ul>	<ul style="list-style-type: none"> <li>ANR needs to conserve this species in good condition.</li> </ul>	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.



## 5. ZONATION

The Recreation Opportunity Spectrum (ROS) provides visitors to Protected Areas with a range, or continuum of choices based on their personal recreational needs. People differ and while some seek unspoilt wilderness that provides solitude and an experience close to nature, others feel insecure in that environment. Different categories or zones of Protected Areas are therefore defined which describe the level of development allowed in each zone. See map 3 for Zonation.

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, Roded Natural and Rural.

Each category within the ROS is defined in terms of activity, setting and experience opportunities which guide both the manager and the recreationist. The manager will provide the opportunity for obtaining the experiences that the recreationist expects within a particular category. The ROS zonation system recognises and reflects:

- the sensitive features associated with the reserve (*i.e.* biophysical, cultural and sense of place)
- the range of existing and potential visitor experiences in and surrounding the Reserve
- 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 Reserve either within or adjacent to the Reserve
- the opportunities for extending the Reserve 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.

A zonation table (Appendix III) 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. These zones are recognised in VCNR, and are given in Appendix III and illustrated on Map 3.

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

<b>Action Project 5 (i):</b> Revise the existing ANR zonation plan in accordance with the new EKZNW standard zonation system as soon as it is developed and approved.
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## 6. OPERATIONAL MANAGEMENT POLICY FRAMEWORK AND GUIDING PRINCIPLES

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

- **Alien plant invasion** has been the greatest pressure on the Nature Reserve, along with illegal harvesting.
- **Illegal harvesting (or poaching)** Lack of fencing in the southern part of the Nature Reserve allows the neighbours in to cut *Barringtonia racemosa* (for fencing of land for kraal sites, etc.). Human population pressure is the biggest driving force in this respect.
- **Siltation** of the estuaries, has been widespread and will very likely continue into the future at the same rate.
- **Tourism.** It is predicted, this will increase, with potentially significant associated impacts and medium-term effects.
- **Land invasion** has been a localised and mild pressure on the Nature Reserve. This will, however, increase in magnitude in the future. It is predicted that the threat will be widespread, with potentially significant associated impacts and medium-term effects.
- **PA (protected area) isolation.** Amatikulu Nature Reserve is surrounded by sugar cane and plantations and therefore risks being isolated. This also restricts burning practises.
- **Bush encroachment.** Bush encroachment has been a scattered and moderate pressure on the system, with short-term effects. This will very likely continue at the same rate into the future.
- **Pollution.** The main source of pollution would be from agrochemicals, however, industrial pollution in the Thukela catchment could affect the coastline.
- **Disease, both exotic and indigenous.** The biggest potential disease threat could result from a disease outbreak in a fish farm, which could spill over into estuary and marine environments.

Other threats not identified by the public participation process include the following:

- Lack of funding and financial viability of the Nature Reserve.
- Lack of expertise/skills shortage.
- Lack of participation in terms of buy-in from key external stakeholders and a possible lack of support from neighbouring communities.
- Possible mining interest in heavy metals in the dunes.
- Bulk infrastructure, such as electricity, roads, sewage and phone lines, which enter the Nature Reserve.
- Beach access and lack of control along the beach area (this has even resulted in poaching of some species of game from the beach).

***The ANR 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 ANR 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 an ANR 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 ANR 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 ANR and that any operational profit will be used to subsidize the Nature Reserve's conservation and community programmes.

The value of ecosystem services that ANR provides as well as the direct and indirect economic value of the Nature Reserve 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 ANR.

**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 ANR Management Objectives. The following objectives in particular are emphasised:

- Safe and secure environment for staff and visitors.
- Cultural heritage management.
- Efficient and profitable tourism management
- Effective conservation and sustainable use of the biodiversity and landscape.
- Stakeholder liaison.
- Environmental education and awareness programmes.
- Training of staff

In order to effectively address the full spectrum of ANR 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 ANR.

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

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

#### 6.1.2.1 ANR Employment Policy Guidelines

The ANR Stakeholder Liaison Forum 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 ANR Stakeholder Liaison Forum

## 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 6.2 (i):** EKZNW will continue to work collaboratively with landowners and surrounding communities to improve conservation management of ANR for the benefit of all.

### 6.2.1 Local Board

Community participation in the Nature Reserve is realized, 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 ANR.

### 6.2.2 Community Levy Trust Fund

Communities adjacent to the ANR benefit from income generated by the Nature Reserve through a community levy paid by visitors. These funds are administered through the 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

ANR 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 continued to be practiced. Investigate other employment opportunities that will benefit the surrounding local communities of ANR.

### 6.2.4 Land Claims

There are no known land claims against ANR.

### 6.2.5 Environmental Education

It is EKZNW policy to provide environmental education programmes for communities adjoining ANR. 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 the communities surrounding ANR.

## 6.2.6 Transfrontier Partnerships

There are no Transfrontier Partnerships for ANR.

## 6.2.7 Informal Participation

Local community involvement will not only occur through formal structures like the ANR 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 ANR can 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 ANR 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 ANR. This strategy will ensure sufficient capacity to deal with conservation-related illegal activities in ANR (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.

## 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 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 ANR. 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 is 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 will convene and chair a **Fire Workshop** in February each year. This workshop will 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 ANR management objectives and guided by 'best practice' linked to scientific understanding, legal context and risk management.

**Action Project 6.4.2 (i):** Develop an ANR **Fire Management Plan** that includes: Fire management objectives, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required and resource needs.

**Action Project 6.4.2 (ii):** Develop a computerized decision support tool linked to GIS that will be included in the Fire Management Plan, to assist in the planning of burns at the annual Fire Workshop. This rule-based tool will ensure that ANR- wide and area-specific fire management objectives can be simultaneously achieved wherever possible, and will allow for flexibility in response to unplanned fires.

ANR is obligated in terms of the National Veld and Forest Fire Act to be a member of the local Fire Protection Association (FPA). In this regard Park Management will actively champion the establishment and maintenance of FPA's on and bordering ANR in order to gain the full legal advantages of being a member of the FPA and to promote, where possible, fire management regimes surrounding ANR that would benefit the conservation of biodiversity and ecological processes.

**Action Project 6.4.2 (iii):** Promote and champion (in cooperation with DWAF and the "Working on Fire" programme) the establishment of FPAs on the borders of ANR.

**Action Project 6.4.2 (iv):** Arrange an ANR 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 ANR strategy to deal with alien and alien invasive species in the Nature Reserve.

**Action Project 6.4.3 (i):** Compile and implement alien species control management plan.

##### 6.4.3.1 Alien Plants

Alien plant species have been planted or have established themselves within ANR over time because they can, to varying degrees, impact negatively on water production, 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 ANR.

The following management guidelines apply:

### ***Alien Plant Introductions***

Introductions of alien plants to ANR 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 ANR 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 ANR 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.

ANR 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 Reserve include the following:

- |                              |                            |
|------------------------------|----------------------------|
| • <i>Ageratum conyzoides</i> | Invading ageratum          |
| • <i>Chromolaena odorata</i> | Paraffin weed/Triffid weed |
| • <i>Lantana camara</i>      | Lantana                    |

**Action Project 6.4.3.1 (i):** Undertake a full species inventory for alien plant species present and map their distribution in ANR.

**Action Project 6.4.3.1 (ii):** Develop an ongoing time-bound programme to effectively control declared alien weeds and invader plants within ANR 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 ANR will be developed. Where required, this plan will also address the re-planting of relevant areas with indigenous plants for horticultural purposes. 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 (iii):** Develop a phased 3-year plan to address the existing non-invasive alien plants in ANR.

### 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 ANR.

The following management guidelines apply:

#### ***Alien Animals Present in ANR***

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.

No concessions have been made regarding alien animals however illegal cattle grazing occurs within the Nature Reserve. Dogs also enter the Nature Reserve to illegally hunt game.

A management strategy is needed to monitor and manage the impact of alien fish species in ANR.

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).

<b>Action Project 6.4.3.2 (i):</b> Develop a control programme for alien animals present in ANR.
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<b>Action Project 6.4.3.2 (ii):</b> 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 the ANR.
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#### ***Alien Animal Introductions***

Introductions of alien animals to ANR are not accepted 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, standardized and equitable ANR 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 ANR.



**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

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 ANR)

- A good vegetative canopy and basal cover is maintained to maintain a sustained flow of water and reduce turbidity caused by accelerated soil loss (See **Par. 6.4.2** and **6.4.5**).
- Strict pollution control and waste management standards will be applied, especially in the Nature Reserve (See **Par. 6.10.10**).
- Invasive alien plants are removed and controlled (See **Par. 6.4.3**)
- Aquifer and surface water quality and quantity is monitored (See **Par. 6.9**)
- The river bank will be protected.

**Action Project 6.4.4 (i):** Obtain all standards for water quality from the Municipality or Department of Water and Environmental Affairs (DWEA), review monitoring results against these standards and take appropriate action should any standard not be met by referring all concerns to DWEA.

#### 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 and pathways.

Human-induced soil erosion in ANR is primarily the result of the presence of invasive alien vegetation, poor alignment and management of foot paths and vehicle tracks and roads of the Nature Reserve. Old quarry sites / borrow pits and areas that have been cleared of invasive alien vegetation need rehabilitation plans primarily to prevent soil erosion. 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) and the EKZMW Track and Trail Maintenance Manual.

**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 ANR 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 ANR.

Most wildlife populations presently existing in ANR are self-regulatory because of territorial behaviour, predator-prey relationships, food availability etc. The vegetation of ANR is not generally considered to be over-utilised by wildlife species.

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 ANR's Management Objectives and set Conservation Targets;
- complying with ANR'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 are to be destroyed on the authority of the ANR 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.

#### 6.4.6.1 Introductions of Indigenous Animal Species into ANR

The introduction of indigenous animal species into the Nature Reserve will be considered in terms of **Corporate Policy 2.21** (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 ANR.

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 ANR 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 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 ANR. 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 an ANR Game Management Policy Guideline document that is reviewed and recommended by the ANR PAMC.

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

Game removal from ANR will only be undertaken by means of live capture.

No culling procedures have been carried out in ANR and no professional hunting is allowed.

**Action Project 6.4.6.2 (i):** Develop an ANR Game Introduction and Monitoring Programme, with Guidelines, in terms of the EKZNW Wildlife Introduction Policy and Action Project: 6.4.6.1 (i) and implement.

#### 6.4.6.3 Fishery Management

There is currently no bio monitoring of the fish populations. Law enforcement is maintained in terms of the legislation where valid fishing permits are required.

**Action Project 6.4.6.3 (i):** Bag limits and size of species is monitored as well as closed seasons on fishing. Regular patrols for illegal gill-netting will continue to be conducted.

#### 6.4.6.4 Bird Management

ANR has 303 recorded bird species. Bird watching is a well known activity within ANR.

**Action Project 6.4.6.4 (i):** The Honorary Officer in charge of the Birds in Reserve Programme will continue to conduct water bird counts.

#### 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 ANR. This also applies to animals that escape or leave and return periodically and cause damage outside ANR.

To minimize the need to control problem animals, pro-active and preventative measures (e.g. fencing) will 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 ANR Conservation Manager will ensure that all complaints and incidents reported are investigated by the relevant staff and or District Conservation Officer (DCO) as soon as possible. Complaint details, investigation findings and remedial action taken is 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 ANR'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 ANR 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.

A standing staff component of 7 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.

**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, 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 those people that illegally utilise natural resources for commercial or other purposes in accordance with its 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 ANR. (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 ANR that would meet national requirements. This plan will cover rock art, Iron Age, and Stone Age, historical sites as well as palaeontological features and living heritage sites.

The cultural heritage of the ANR 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 ANR.

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

## 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 ANR are not compromised. Therefore resource use will not be allowed to degrade the aesthetic landscape character of ANR or be permitted if management staff lack adequate capacity to ensure effective control over the resource utilization without compromising its essential functions.

**Action Project 6.6 (i):** Control or 'bench mark' areas within ANR 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):** Finalize a Guideline Document for the Evaluation of Extractive Resource Use Applications

### 6.6.2 Bioprospecting

Requests to collect biological material / samples from ANR will be considered by the PAMC in accordance with, amongst others, **Policy D2.15(Appendix 2)** 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 ANR management objectives.

## 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 (**Appendix 2**).

EKZNW has the mandate to sustainably develop ANR 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 and 6.11**).

The CDP will be guided by the framework of the ANR 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 ANR. A range of appropriate facilities and services will be provided for the use of visitors to ANR. 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 ANR 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 an ANR Eco-cultural Tourism Development and Marketing Strategy that will be compiled and approved.

**Action Project 6.7 (i):** Cognisant of the ANR IMP and CDP policy guidelines, develop an ANR 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

## 6.8 Environmental Interpretation, Awareness and Education

Environmental interpretation, awareness and education of ANR'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**).

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 an ANR environmental awareness education programme specifically for surrounding neighbouring communities and the general public interest groups.

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 (ii):** 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 (iii):** Investigate the possibility of combining environmental awareness programmes with social programmes offered by other institutions in the general area of the Nature Reserve.

**Action Project 6.8 (iv):** 1 Engage in biodiversity and cultural education with schools, communities, interest groups and staff.  
2 Facilitate access to educational information pertaining to the history of ANR And surrounding areas.

## 6.9 Research

The natural heritage, the functioning of the ecosystems and the cultural heritage that {PA acronym} was declared to conserve are presently inadequately understood.

Priority will be given to research that will provide information and understanding that is of direct benefit to ANR 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 effect 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 ANR. 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 ANR 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.

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)*. Where research requires the collection of biological material, a collection permit will be required in accordance with the 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 Coastal Region's bibliography.

An ANR bibliography and reference library facilities is to be developed together with procedures to maintain a hard and digital copy of all ANR 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 will apply and the ultimate responsibility for the curation of this library at ANR will be allocated to the most senior reserve management position and the Regional Co-ordinator: Ecological Advice.

**Action Project 6.9 (iii):** Identify and develop reference library facilities and procedures to maintain hard and digital copies of all ANR 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 will apply and the ultimate responsibility for the curation of this library at ANR will be allocated to the most senior reserve management position and the Regional Co-ordinator: Ecological Advice.

### 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. Much of this information is required in order to meet the legal reporting requirements of the NEMBA and NEMPAA.

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 important 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 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 ANR 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.
- development is compliant with the relevant NEMA regulations and other applicable legal requirements, particularly regarding Environmental and Heritage Impact Assessments.



**Infrastructure development outside ANR 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**

ANR 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 and Eskom), concessionaires or other groupings that may, through agreements develop, use and /or maintain infrastructure within ANR are to 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 ANR 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 ANR 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 ANR environment and landscape.

**Action Project 6.10 (i):** Review the desirability and effectiveness of all present infrastructure associated with Nature Reserve 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 ANR will be under the control of management, certain functions may, however be outsourced. It is important that the entrance gates be secure at all times to discourage illegal entry to ANR.

### **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.

**Action Project 6.10.2 (i):** Assess the need for the erection of boundary fences where necessary.

### **6.10.3 Internal Fences**

There are currently no internal fences within ANR except around staff accommodation.

### **6.10.4 Signage**

All access routes to ANR are to be appropriately 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 ANR with any camp /office names in a secondary position.

### **Management Infrastructure Area Signage**

Interpretation, directional and information signage in ANR will have a standardized format.

### **Trail Signage**

The trail signage format simply highlights the name of the trail on the sign board.

### **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**

**Map 5** indicates the existing vehicle roads / tracks and footpaths used for public access, recreational use or management purposes.

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 ANR. In terms of this management guideline, a critical evaluation of the existing road / track and footpath network will 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 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 ANR 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.

## **6.10.6 Staff Accommodation**

Where essential for the efficient functioning of ANR, 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 ANR, where practically possible and financially viable. In such cases, official transport to and ANR may be considered depending on site specific circumstances and applicable corporate policies.

### 6.10.7 Offices, Workshops, Stables and other Infrastructure

ANR 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 ANR are legally compliant or maintained at generally accepted standards for keeping and caring for such animals.

### 6.10.8 Services

Reserve management will strive to ensure that wherever possible, service infrastructure such as electricity, telephone, water supply *etc.* 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

ANR 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 and will be removed from ANR to authorised companies or municipal waste management sites. The use of organic waste for compost purposes is permitted but will be subject to strict conditional approval on the recommendation of the ANR PAMC. All historical waste sites in ANR 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 ANR.

**Action Project 6.10.10.1 (ii):** Develop, install and maintain effective standardized solid waste receptacles for ANR 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 ANR has 7 septic tanks sewage systems that could possibly be contaminating ground and surface water. These systems will be replaced with more environmentally friendly systems. Septic tank systems will not be installed at future small developments.

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

### 6.10.11 Water- and Energy-saving Measures

Water-and-Energy-Saving measures have been introduced to ANR by means of:

- Energy saving light bulbs.
- Installation of day and night switches.
- Installation of water meters to offices and staff accommodation to monitor water usage and water leaks.
- Informal train
- ing for staff was carried out on how to save water and energy.

**Action Project 6.10.11 (i):** Monitor and upgrade the current water and energy saving methods where necessary for ANR.

### 6.10.12 Aircraft Landing Fields

No airstrips are permitted inside ANR except for informal helicopter landing pad that is found in the development zone.

**Action Project 6.10.12 (i):** Determine the requirement for helicopter landing pads on ANR. If required and approved, select site/s and maintain according to minimum aviation standards.

### 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 ANR. (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 can 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 ANR 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 Development Projects contained in the CDP

The ANR 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 ANR CDP is guided by the framework of the ANR'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 also 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 this 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 ANR management and the Uthungulu District Municipality, to ensure that continuous development planning in and around the ANR 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.

<b>Action Project 6.11.3 (i):</b> Align the Concept Development Plan with all Municipal plans.
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<b>Action Project 6.11.3 (ii):</b> Engage with the municipality and other stakeholders in order to establish a buffer zone surrounding ANR.
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## 7 IMP REVIEW AND AMENDMENT PROCEDURES

### 7.1 Five-Yearly Review and Amendment Procedures

This ANR 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 can 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 Minister. The extent of the public / stakeholder participation (apart from that undertaken with the Local Board and the Joint Management Committee will depend on the nature and extent of amendments recommended by the relevant ANR PAMC.

**Action Project 7.1 (i):** The PAMC must undertake a five-yearly review of this IMP in 2013 to revise and amend the IMP for the following five years.

### 7.2 Annual Review and Amendment Procedures

The PAMC will convene regularly to monitor and evaluate IMP progress, plan and, if necessary, recommend the re-prioritisation of management activities for the next year. The PAMC must, 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 ANR. This must 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 ANR IMP must 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 must 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 must 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 (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 PROJECTS FOR ACTION ACCORDING TO 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 number of the Action Project corresponds to the relevant sub-section or paragraph.

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 projects must not only interpreted in isolation but must be interpreted and operationalised within the relevant context and guidelines as stipulated in the IMP.

**Table 2: List of IMP Action Projects**

No.	IMP Action Project No.	Project Description
1.	2.1.1 (i)	Obtain written assignment from the MEC appointing EKZNW as the management authority for ANR in terms of Section 38(2) of NEMPAA.
2.	2.1.3 (i)	Update and compile a list of all service providers in ANR.
3.	2.3 (i)	Management, in collaboration with other relevant EKZNW officials, are 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 ANR through an alignment of appropriate land use adjacent to the Nature Reserve and to contribute to sustainable and environmentally sound development.
4.	2.3 (ii)	Establish and maintain relationship with local and district municipalities to ensure effective integration into planning.
5.	2.4 (i)	Obtain the services of a land surveyor to register the consolidated ANR with the Surveyor General and seek the proclamation of the area by the MEC.
6.	2.5 (i)	Review all formal and informal local agreements, leases, servitude arrangements <i>etc.</i> pertaining to ANR and document, update, maintain and monitor these appropriately authorised agreements. All informal and revised agreements are to be formalised and submitted for approval by the Executive.
7.	2.5.1 (i)	Annually explore and investigate opportunities to broaden conservation land use in and around ANR.
8.	3.4 (i)	Update the background of the Conservation History for ANR indicating the importance of the proclamation.
9.	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 ANR.
10.	3.6.3 (i)	Identify the biodiversity importance and implications of immature soil profiles for management.
11.	3.6.3 (ii)	Map the soils showing areas susceptible to erosion and develop appropriate mitigatory measures.
12.	3.7 (i)	Investigate the hydrology of the ANR, identify threats to its ecological functioning and propose mitigatory measures.
13.	3.8.1 (i)	Investigate the estuarine ecology and functioning within ANR and develop a

		management plan to mitigate against threats to its healthy functioning.
14.	3.8.2 (i)	There is the need to further investigate the intertidal ecology (in consultation with ORI and other relevant institutions) and to develop a specific management plan for this zone.
15.	3.8.3 (i)	Investigate and include the coastal and marine environments (in consultation with ORI and other organisations) and develop specific management actions as appropriate.
16.	3.9 (i)	Update the vegetation types and map for ANR.
17.	3.9 (ii)	Develop a vegetation monitoring programme for ANR.
18.	3.9 (iii)	Compile and implement a vegetation management plan that addresses the threats
19.	3.9 (iv)	Compile a vegetation map and diagnostics species list.
20.	3.9 (v)	Determine conservation targets for red data plants.
21.	3.9 (vi)	Investigate the mangrove swamps origin and propose a suitable management strategy.
22.	3.10 (i)	Copies of the Species Checklists will be updated and filed manually and digitally at the ANR 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, comparable and contemporary baseline data for management and scientific purposes.
23.	3.10 (ii)	Investigate priority marine fauna in consultation with ORI and other relevant institutions.
24.	3.10.1 (i)	Compile through research and collecting a checklist of the invertebrate species found in ANR.
25.	3.10.2 (i)	Identify the major threats to the priority Fish Species in ANR and propose mitigatory measures.
26.	3.10.2 (ii)	Complete a fish survey. Develop and implement a Fish Species Monitoring Programme.
27.	3.10.3 (i)	Compile, through further in particular confirm the presence of endangered (Red Data) species research and monitoring, checklists of the Herpetofauna. Identify the major threats to Herpetofauna in ANR and propose mitigatory measures.
28.	3.10.3 (ii)	Develop and implement a Herpetofauna Species Monitoring Programme.
29.	3.10.4 (i)	Determine which of the listed bird species breed in the Nature Reserve, and ensure that management protocols are set in place to maintain and conserve these breeding sites for the long- term persistence of the species.
30.	3.10.4 (ii)	Identify the major threats to priority Avifauna in ANR and propose mitigatory measures.
31.	3.10.4 (iii)	Develop and implement an Avifauna Species Monitoring Programme.
32.	3.10.5 (i)	Establish if the Red Data listed shrew species occur in the Nature Reserve.
33.	3.10.5 (ii)	Undertake a mammal survey and compile a comprehensive checklist of species.
34.	3.10.6 (i)	Map the GPS Co-ordinates and provide Management Plans for these sites.
35.	3.10.6 (ii)	Identify the archaeological, historical, palaeontological and cultural heritage sites at ANR. Ensure compliance with requirements of heritage legislation.
36.	3.11 (i)	Conduct research on the archaeology of the ANR.
37.	3.11 (ii)	Make use of archaeology and evidence of the past cultures inhabited the area in describing the cultural heritage value of ANR.
38.	3.12 (i)	Update the sociological context and its importance to ANR.
39.	3.13 (i)	Update the economic context including the contribution of the marine environment, its importance to ANR and identify opportunities to add existing commercial developments.
40.	3.14 (i)	Identify and map infrastructure using GIS and include in a spatial database. Develop standard protocols and procedures for infrastructure in ANR.
41.	3.14 (ii)	Repair, where necessary, existing infrastructure provided in the ANR.
42.	3.15.1 (i)	Undertake analysis of available recreational facilities. Repair and maintain recreational facilities as required.



43.	3.15.4 (i)	Develop a maintenance plan for all trails and fences.
44.	3.15.5 (i)	Update ANR Map to include the location of all water supply infrastructure.
45.	3.15.6 (i)	Compile MoA between different service providers and ANR. Protected area manager needs to ensure that he is familiar with all agreements.
46.	4.2 (i)	Establish neighbour liaison forums. Develop and maintain partnership forums with representation from community interest groups and leaderships around Amatikulu.
47.	4.2 (ii)	Implement EKZNW IEM policy and create awareness of/or educate surrounding landowners on the IEM Process and legislation.
48.	4.2 (iii)	Liaise with and support surrounding conservancies.
49.	4.2 (iv)	Identify and prioritise relevant forums and formalize relationships with municipal forums.
50.	4.6 (i)	Set conservation targets and monitoring strategies for the identified species.
51.	4.6 (ii)	Develop conservation targets and monitoring strategies for Cultural, Business and Partnerships Objectives.
52.	5 (i)	Revise the existing ANR zonation plan in accordance with the new EKZNW standard zonation system as soon as it is developed and approved.
53.	6.1.1 (i)	Develop a five-year Strategic Management Plan and Business Plan for ANR.
54.	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.
55.	6.1.2 (i)	Investigate and develop an appropriate human resource structure and capacity of ANR with a view to improving effectiveness and efficiency in achieving ANR objectives and informing the Business Plan.
56.	6.2 (i)	EKZNW will continue to work collaboratively with landowners and surrounding communities to improve conservation management of ANR for the benefit of all.
57.	6.2.1 (i)	Establish a Local Board for ANR.
58.	6.2.2 (i)	The Community Levy will continue to be collected for the development and upliftment of the local communities.
59.	6.2.3 (i)	Training of members of the local community will continued to be practiced. Investigate other employment opportunities that will benefit the surrounding local communities of ANR.
60.	6.2.5 (i)	Investigate and implement additional environmental education programmes for the communities surrounding ANR.
61.	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.
62.	6.3 (i)	Develop an integrated security strategy for the Nature Reserve that ensures collaboration with all relevant institutions.
63.	6.4.2 (i)	Develop an ANR <b>Fire Management Plan</b> that includes: Fire management objectives, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required and resource needs.
64.	6.4.2 (ii)	Develop a computerized decision support tool linked to GIS that will be included in the Fire Management Plan, to assist in the planning of burns at the annual Fire Workshop. This rule-based tool must ensure that ANR - wide and area-specific fire management objectives can be simultaneously achieved wherever possible, and must allow for flexibility in response to unplanned fires.
65.	6.4.2 (iii)	Promote and champion (in cooperation with DWAF and the "Working on Fire" programme) the establishment of FPAs on the borders of ANR.
66.	6.4.2 (iv)	Arrange an ANR Fire Management Workshop in February of each year.
67.	6.4.3 (i)	Compile and implement alien species control management plan.
68.	6.4.3.1 (i)	Undertake a full species inventory for alien plant species present and map their distribution in ANR.
69.	6.4.3.1 (ii)	Develop an ongoing time-bound programme to effectively control declared alien weeds and invader plants within ANR and 1 km beyond (buffer area)

		the Nature Reserve boundary.
70.	6.4.3.1 (iii)	Develop a phased 3-year plan to address the existing non-invasive alien plants in ANR.
71.	6.4.3.2 (i)	Develop a control programme for alien animals present in ANR.
72.	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 the ANR.
73.	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 must, <i>inter alia</i> clearly address: <ul style="list-style-type: none"> <li>• Threats to biodiversity conservation as a priority.</li> <li>• Reducing the numbers of such animals to an absolute minimum.</li> <li>• Designating areas where these animals must be kept. They must 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.</li> <li>• The proper and hygienic care of these animals.</li> <li>• Minimum standards (aesthetic acceptability, sizes, neatness and cleanliness) of facilities housing these animals e.g. stables, camps, cages etc.</li> <li>• Disciplinary measures for staff transgressing these regulations or failing to enforce these measures.</li> </ul>
74.	6.4.4 (i)	Obtain all standards for water quality from the Municipality or Department of Water and Environmental Affairs (DWEA), review monitoring results against these standards and take appropriate action should any standard not be met by referring all concerns to DWEA.
75.	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.
76.	6.4.6.1 (i)	Develop a policy that addresses the introduction of wildlife species into the Nature Reserve.
77.	6.4.6.2 (i)	Develop an ANR Game Introduction and Monitoring Programme, with Guidelines, in terms of the EKZNW Wildlife Introduction Policy and Action Project: 6.4.6.1 (i) and implement.
78.	6.4.6.3 (i)	Bag limits and size of species is monitored as well as closed seasons on fishing. Regular patrols for illegal gill-netting will continue to be conducted.
79.	6.4.6.4 (i)	The Honorary Officer in charge of the Birds in Reserve Programme will continue to conduct water bird counts.
80.	6.4.6.5 (i)	The ANR Conservation Manager will ensure that all complaints and incidents reported are investigated by the relevant staff and/or District Conservation Officer (DCO) as soon as possible. Complaint details, investigation findings and remedial action taken is 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 <b>EKZNW's DCO Control Protocol and Guidelines</b> .
81.	6.4.7 (i)	Assessment of the field ranger component will be done monthly.
82.	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.
83.	6.5 (i)	Develop a comprehensive Cultural Heritage Inventory and Management Plan for ANR in collaboration with Amafa. Institutional capacity must also be addressed by this plan.
84.	6.6 (i)	Control or 'bench mark' areas within ANR will be identified where no extractive resource utilisation of indigenous species will take place.
85.	6.6.1 (i)	Finalize a Guideline Document for the Evaluation of Extractive Resource Use Applications.
86.	6.7 (i)	Cognisant of the ANR IMP and CDP policy guidelines, develop a ANR. Eco-cultural Tourism Development and Marketing Strategy that addresses: <ul style="list-style-type: none"> <li>• the attainment of professional tourism service delivery standards</li> <li>• branding and marketing</li> <li>• linkages with other regional tourist initiatives</li> </ul>

		<ul style="list-style-type: none"> <li>• public / private partnerships</li> <li>• cultural heritage tourism</li> <li>• visitor awareness, orientation and interpretation</li> </ul>
87.	6.8 (i)	Develop an ANR environmental awareness education programme specifically for surrounding neighbouring communities and the general public interest groups.
88.	6.8 (ii)	Develop an interpretation programme in a standard format for the Nature Reserve.
89.	6.8 (iii)	Investigate the possibility of combining environmental awareness programmes with social programmes offered by other institutions in the general area of the Nature Reserve.
90.	6.8 (iv)	1 Engage in biodiversity and cultural education with schools, communities, interest groups and staff. 2 Facilitate access to educational information pertaining to the history of ANR and surrounding areas.
91.	6.9 (i)	Develop a prioritised ANR natural and cultural heritage research project list.
92.	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.
93.	6.9 (iii)	Identify and develop reference library facilities and procedures to maintain hard and digital copies of all ANR related research work, all documents listed as IMP supporting documentation in <b>Appendix 1</b> 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 ANR must be allocated to the most senior reserve management position and the Regional Co-ordinator: Ecological Advice.
94.	6.9.1 (i)	An appropriate monitoring and evaluation programme must be developed for the Nature Reserve and implemented.
95.	6.10 (i)	Review the desirability and effectiveness of all present infrastructure associated with the Nature Reserve with regard to: <ul style="list-style-type: none"> <li>• Adequacy</li> <li>• State of repair</li> <li>• Existing maintenance plans and programs</li> <li>• Visitor and staff use, requirements and values</li> <li>• Financial</li> <li>• Environmental impact (negative and positive)</li> <li>• Income generation</li> <li>• Possibilities of outsourcing</li> </ul>
96.	6.10.2 (i)	Assess the need for the erection of boundary fences where necessary.
97.	6.10.4 (i)	Develop the necessary policy and standards for each group of signage in ANR and implement a phased programme for replacing signage with the standardised formats – see also Action Project 6.8(ii).
98.	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.
99.	6.10.10.1 (i)	Develop an integrated waste management plan for ANR.
100.	6.10.10.1 (ii)	Develop, install and maintain effective standardized solid waste receptacles for ANR that are animal and baboon / monkey-proof.
101.	6.10.10.2 (i)	All sewage systems in ANR 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. This must be treated as a matter of urgency.
102.	6.10.11 (i)	Monitor and upgrade the current water and energy saving methods where necessary for ANR.
103.	6.10.12 (i)	Determine the requirement for helicopter landing pads on ANR. If required and approved, select site/s and maintain according to minimum aviation standards.
104.	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 can be safe and secure.

105.	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.
106.	6.11.3 (i)	Align the Concept Development Plan with all Municipal plans.
107.	6.11.3 (ii)	Engage with the municipality and other stakeholders in order to establish a buffer zone surrounding ANR.
108.	7.1 (i)	The PAMC must undertake a five-yearly review of this IMP between September and November 2013 for the following five years.
109.	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 109 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. 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 ANR Management Objectives.**

<b>Conservation</b>	
<b>Conservation</b> of key biodiversity features, biophysical processes, landscapes, abiotic, historical and archaeological resources.	
Conserve the Amatikulu Nature Reserve, its associated biodiversity and maintain its developed infrastructure	
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 ANR.
3.6.3 (i)	Identify the biodiversity importance and implications of immature soil profiles for management.
3.10.4 (i)	Determine which of the listed bird species breed in the Nature Reserve, and ensure that management protocols are set in place to maintain and conserve these breeding sites for the long- term persistence of the species.
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.
Facilitate environmental and cultural education and awareness, including access to historical information related to the history of the reserve and the surrounding area.	
6.2.5 (i)	Investigate and implement additional environmental education programmes for the communities surrounding ANR.
6.8 (iii)	Investigate the possibility of combining environmental awareness programmes with social programmes offered by other institutions in the general area of the Nature Reserve.
6.8 (iv)	1 Engage in biodiversity and cultural education with schools, communities, interest groups and staff. 2 Facilitate access to educational information pertaining to the history of ANR and surrounding areas.
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 priority Fish Species in ANR and propose mitigatory measures.
3.10.3 (i)	Compile through further in particular confirm the presence of endangered (Red Data) species research and monitoring, checklists of the Herpetofauna. Identify the major threats to Herpetofauna in ANR and propose mitigatory measures.
3.10.4 (ii)	Identify the major threats to Avifauna in ANR and propose mitigatory measures.

Safeguard the archaeological, historical, palaeontological and living cultural heritage of the Nature Reserve.	
3.10.6 (ii)	Identify the archaeological, historical, palaeontological and cultural heritage sites at ANR. Ensure compliance with requirements of heritage legislation.
3.11 (i)	Conduct research on the archaeology of the ANR.
3.11 (ii)	Make use of archaeology and evidence of the past cultures inhabited the area in describing the cultural heritage value of ANR.
Other Action Projects supporting ANR Conservation Management Objective	
2.1.1 (i)	Obtain written assignment from the MEC appointing EKZNW as the management authority for ANR in terms of Section 38(2) of NEMPAA.
2.4 (i)	Obtain the services of a land surveyor to register the consolidated ANR with the Surveyor General and seek the proclamation of the area by the MEC.
2.5.1 (i)	Annually explore and investigate opportunities to broaden conservation land use in and around ANR.
2.5.1 (ii)	Investigate and ensure that EKZNW has the first right to purchase the private owned land over the public.
3.4 (i)	Update the background of the Conservation History for ANR indicating the importance of the proclamations.
3.6.3 (ii)	Map the soils showing areas susceptible to erosion and develop appropriate mitigatory measures.
3.7 (i)	Investigate the hydrology of the ANR, identify threats to its ecological functioning and propose mitigatory measures.
3.8.1 (i)	Investigate the estuarine ecology and functioning within ANR and develop a management plan to mitigate against threats to its healthy functioning
3.8.2 (i)	There is the need to further investigate the intertidal ecology (in consultation with ORI and other relevant institutions) and develop specific management actions as appropriate.
3.8.3 (i)	Investigate and include the coastal and marine (in consultation with ORI and other relevant institutions) and develop specific management actions as appropriate.
3.9 (i)	Update the vegetation types and map for ANR.
3.9 (ii)	Develop a vegetation monitoring programme for ANR.
3.9 (iii)	Compile and implement a vegetation management plan that addresses the threats
3.9 (iv)	Compile a vegetation map and diagnostics species list.
3.9 (v)	Determine conservation targets for red data plants.
3.9 (vi)	Investigate the mangrove swamps origin and propose a suitable management strategy.
3.10 (i)	Copies of the Species Checklists will be updated and filed manually and digitally at the ANR 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, comparable and contemporary baseline data for management and scientific purposes.
3.10 (ii)	Investigate priority marine fauna in consultation with ORI and other relevant institutions.
3.10.1 (i)	Compile, through research and collecting a checklist of the invertebrate species found in ANR.
3.10.2 (ii)	Complete a fish survey. Develop and implement a Fish Species Monitoring Programme.
3.10.3 (ii)	Develop and implement a Herpetofauna Species Monitoring Programme.
3.10.4 (iii)	Develop and implement an Avifauna Species Monitoring Programme.
3.10.5 (i)	Establish if the Red Data listed shrew species occur in the Nature Reserve.
3.10.5 (ii)	Undertake a mammal survey and compile a comprehensive checklist of species.
3.10.6 (i)	Map the GPS Co-ordinates and provide Management Plans for these sites.
3.14 (i)	Identify and map infrastructure using GIS and include in a spatial database. Develop standard protocols and procedures for infrastructure in ANR.
3.14 (ii)	Repair, where necessary, existing infrastructure provided in the ANR.

3.15.1 (i)	Undertake analysis of available recreational facilities. Repair and maintain recreational facilities as required.
3.15.4 (i)	Develop a maintenance plan for all trails and fences.
3.15.5 (i)	Update ANR Map to include the location of all water supply infrastructure.
3.15.6 (i)	Compile MoA between different service providers and ANR. Manager needs to ensure that he is familiar with all agreements.
5 (i)	Revise the existing ANR zonation plan in accordance with the new EKZNW standard zonation system as soon as it is developed and approved.
6.4.2 (i)	Develop an ANR <b>Fire Management Plan</b> that includes: Fire management objectives, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required and resource needs.
6.4.2 (ii)	Develop a computerized decision support tool linked to GIS that will be included in the Fire Management Plan, to assist in the planning of burns at the annual Fire Workshop. This rule-based tool must ensure that ANR - wide and area-specific fire management objectives can be simultaneously achieved wherever possible, and must allow for flexibility in response to unplanned fires.
6.4.2 (iii)	Promote and champion (in cooperation with DWAF and the "Working on Fire" programme) the establishment of FPAs on the borders of ANR.
6.4.2 (iv)	Arrange an ANR Fire Management Workshop in February of each year.
6.4.3 (i)	Compile and implement alien species control management plan.
6.4.3.1 (i)	Undertake a full species inventory for alien plant species present and map their distribution in ANR.
6.4.3.1 (ii)	Develop an ongoing time-bound programme to effectively control declared alien weeds and invader plants within ANR and 1 km beyond (buffer area) the Nature Reserve boundary.
6.4.3.1 (iii)	Develop a phased 3-year plan to address the existing non-invasive alien plants in ANR.
6.4.3.2 (i)	Develop a control programme for alien animals present in ANR.
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 the ANR.
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 must, <i>inter alia</i> clearly address: <ul style="list-style-type: none"> <li>• Threats to biodiversity conservation as a priority.</li> <li>• Reducing the numbers of such animals to an absolute minimum.</li> <li>• Designating areas where these animals must be kept. They must 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.</li> <li>• The proper and hygienic care of these animals.</li> <li>• Minimum standards (aesthetic acceptability, sizes, neatness and cleanliness) of facilities housing these animals e.g. stables, camps, cages etc.</li> <li>• Disciplinary measures for staff transgressing these regulations or failing to enforce these measures.</li> </ul>
6.4.4 (i)	Obtain all standards for water quality from the Municipality or Department of Water and Environmental Affairs (DWEA), review monitoring results against these standards and take appropriate action should any standard not be met by referring all concerns to DWEA.
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.
6.4.6.1 (i)	Develop a policy that addresses the introduction of wildlife species into the Nature Reserve.
6.4.6.2 (i)	Develop an ANR Game Introduction and Monitoring Programme, with Guidelines, in terms of the EKZNW Wildlife Introduction Policy and Action Project: 6.4.6.1 (i) and implement
6.4.6.3 (i)	Bag limits and size of species is monitored as well as closed seasons on fishing. Timeous patrols for illegal gill-netting will continue to be conducted.

6.4.6.4 (i)	The Honorary Officer in charge of the Birds in Reserve Programme will continue to conduct water bird counts.
6.4.6.5 (i)	The ANR Conservation Manager will ensure that all complaints and incidents reported are investigated by the relevant staff and/or District Conservation Officer (DCO) as soon as possible. Complaint details, investigation findings and remedial action taken is 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 <b>EKZNW's DCO Control Protocol and Guidelines</b> .
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 ANR in collaboration with Amafa. Institutional capacity must also be addressed by this plan.
6.6 (i)	Control or 'bench mark' areas within ANR will be identified where no extractive resource utilisation of indigenous species will take place.
6.6.1 (i)	Finalize a Guideline Document for the Evaluation of Extractive Resource Use Applications.
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)	Identify and develop reference library facilities and procedures to maintain hard and digital copies of all ANR related research work, all documents listed as IMP supporting documentation in <b>Appendix 1</b> 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 ANR must be allocated to the most senior reserve management position and the Regional Co-ordinator: Ecological Advice.
6.9.1 (i)	An appropriate monitoring and evaluation programme must be developed for the Nature Reserve and implemented.
6.10.2 (i)	Assess the need for the erection of boundary fences where necessary.
6.10.4 (i)	Develop the necessary policy and standards for each group of signage in ANR and implement a phased programme for replacing signage with the standardised formats – see also Action Project 6.8(ii).
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 ANR.
6.10.10.1 (ii)	Develop, install and maintain effective standardized solid waste receptacles for ANR that are animal and baboon / monkey-proof.
6.10.10.2 (i)	All sewage systems in ANR 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. This must be treated as a matter of urgency.
6.10.11 (i)	Monitor and upgrade the current water and energy saving methods where necessary for ANR.
6.10.12 (i)	Determine the requirement for helicopter landing pads on ANR. If required and approved, select site/s and maintain according to minimum aviation standards.
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 can 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.



<b>Socio-Economic Benefits</b>	
The provision of <b>socio-economic benefits</b> (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 ANR Socio-Economic Management Objective.	
2.1.3 (i)	Update and compile a list of all service providers in ANR.
2.3 (i)	Management, in collaboration with other relevant EKZNW officials, are 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 ANR through an alignment of appropriate land use adjacent to the Nature Reserve and to contribute to sustainable and environmentally sound development.
3.12 (i)	Update the sociological context and its importance to ANR.
3.13 (i)	Update the economic context including the contribution of the marine environment, its importance to ANR and identify opportunities to add existing commercial developments.
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 continued to be practiced. Investigate other employment opportunities that will benefit the surrounding local communities of ANR.
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.
6.9 (i)	Develop a prioritised ANR natural and cultural heritage research project list.
<b>Business</b>	
The provision of appropriate ecotourism <b>business</b> opportunities in the natural and cultural environment based within the influence sphere of ANR	
Other Action Projects supporting ANR Business Management Objective.	
2.5 (i)	Review all formal and informal local agreements, leases, servitude arrangements <i>etc.</i> pertaining to ANR and document, update, maintain and monitor these appropriately authorised agreements. All informal and revised agreements are to be formalised and submitted for approval by the Executive.
6.1.1 (i)	Develop a five-year Strategic Management Plan and Business Plan for ANR.
6.1.2 (i)	Investigate and develop an appropriate human resource structure and capacity of ANR with a view to improving effectiveness and efficiency in achieving ANR objectives and informing the Business Plan.
6.8 (ii)	Develop an interpretation programme in a standard format for the Nature Reserve.
<b>Partnerships</b>	
The formation of functional <b>partnerships</b> to integrate the ANR with regional development plans and other initiatives which underwrite the vision of ANR	
Promote and ensure effective communication between the local communities and EKZNW through integrated, shared and co-operative working relationships.	
4.2 (i)	Establish neighbour liaison forums. Develop and maintain partnership forums with representation from community interest groups and leaderships around Amatikulu.
4.2 (ii)	Implement EKZNW IEM policy and create awareness of or educate surrounding landowners on the IEM Process and legislation.
4.2 (iii)	Liaise with and support surrounding conservancies in an effort to ensure proper functioning of the EESMP.
4.2 (iv)	Identify and prioritise relevant forums and formalize relationships with municipal forums.
6.8 (i)	Develop an environmental awareness education programme specifically for surrounding neighbouring communities and the general public interest groups.

Other Action Projects supporting ANR Partnerships Management Objective.	
2.3 (ii)	Establish and maintain relationship with local and district municipalities to ensure effective integration into planning.
6.2 (i)	EKZNW will continue to work collaboratively with landowners and surrounding communities to improve conservation management of ANR for the benefit of all.
6.2.1 (i)	Establish a Local Board for ANR.
6.7 (i)	Cognisant of the ANR IMP and CDP policy guidelines, develop a ANR. Eco-cultural Tourism Development and Marketing Strategy that addresses: <ul style="list-style-type: none"> <li>• the attainment of professional tourism service delivery standards</li> <li>• branding and marketing</li> <li>• linkages with other regional tourist initiatives</li> <li>• public / private partnerships</li> <li>• cultural heritage tourism</li> <li>• visitor awareness, orientation and interpretation</li> </ul>
6.10 (i)	Review the desirability and effectiveness of all present infrastructure associated with Nature Reserve with regard to: <ul style="list-style-type: none"> <li>• Adequacy</li> <li>• State of repair</li> <li>• Existing maintenance plans and programs</li> <li>• Visitor and staff use, requirements and values</li> <li>• Financial</li> <li>• Environmental impact (negative and positive)</li> <li>• Income generation</li> <li>• Possibilities of outsourcing</li> </ul>
6.11.3 (i)	Align the Concept Development Plan with all Municipal plans.
6.11.3 (ii)	Engage with the municipality and other stakeholders in order to establish a buffer zone surrounding ANR.

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## APPENDIX 1

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

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#### **Copies available from:**

Coastal Regional Office of Ezemvelo KZN Wildlife, Durban.  
Contact person: Ecological Advice Coordinator, Coastal Region

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#### **Item**

1. EKZNW Corporate Strategic Plan and Performance Plan for 2009-2014.
2. EKZNW Corporate Policies (Norms & Standards) listed below.
3. EKZNW Biodiversity Database Checklists for ANR. (List obtained from Conservation Manager)
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 ANR.
6. Guidelines for the Registration and Administration of Research Projects Undertaken by or through Ezemvelo KZN Wildlife (August 2002)
7. Public Participation Report for the Amatikulu Nature Reserve IMP.

## APPENDIX 2

The Table below lists the EKZNW Corporate Policies (Norms & Standards) referenced from intranet<sup>4</sup> 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.

<b><u>EKZNW CORPORATE POLICIES (NORMS &amp; STANDARDS)</u></b>	
<b><u>Policy File No.</u></b>	<b>CORPORATE AFFAIRS</b>
B 2	• Access to Ezemvelo KZN Wildlife Areas and Employment.
B 5	• Outsourcing of Functions and Services
B 7	• Monuments, Memorials and Names of Protected Areas under the control of 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.
	•
<b><u>Policy File No.</u></b>	<b>INTERNAL AUDIT</b>
C 5	• Management Control
	<b>BIODIVERSITY CONSERVATION OPERATIONS</b>
	<b>1. NATURAL RESOURCE SUSTAINABILITY</b>
<b><u>Policy File No.</u></b>	<b>Threatened Species and Ecosystems</b>
D 1.1	• Disposal of Black Rhino.
D 1.2	• Disposal of Surplus White Rhino.
D 1.3	• Strategy for the Management of Southern White Rhino in KwaZulu-Natal.
D 1.4	• Strategy for the Biological Management of Black Rhino in KwaZulu-Natal.
D 1.5	• Rhinoceros Products.
D 1.6	• Crocodylians
D 1.7	• Cycads.
D 1.8	• Disposal of Threatened Species.
<b><u>Policy File No.</u></b>	<b>Exotic and Invasive Species</b>
D 1.9	• Release of Alien Species.
D 1.10	• Control Measures for Red-billed Quelea.
D 1.12	• Grass Carp.
D 1.13	• Establishment of Alien Plantations.
<b><u>Policy File No.</u></b>	<b>Migratory Species</b>
D 1.14	• Black Wildebeest and Blue Wildebeest Hybridization and Conservation.
D 1.15	• Permit authorising the collection of Biological Material within Board Areas.

<sup>4</sup> [www.kznwildlife.com/intranet](http://www.kznwildlife.com/intranet) (Accessed 31 March 2009)

<b>2. CONSERVATION EFFECTIVENESS</b>	
<u>Policy File No.</u>	<b>Strategic Applications</b>
D 2.1	<ul style="list-style-type: none"> <li>Involvement of the KwaZulu-Natal Nature Conservation Board in Project 8 of the MAB (Man and Biosphere) Programme.</li> </ul>
<u>Policy File No.</u>	<b>Conservation Management: Protected Area Management</b>
D 2.2	<ul style="list-style-type: none"> <li>Management of Wilderness Areas.</li> </ul>
D 2.3	<ul style="list-style-type: none"> <li>Protected Area Development.</li> </ul>
D 2.4	<ul style="list-style-type: none"> <li>Prohibition of Works and Servitudes in Board Areas.</li> </ul>
D 2.5	<ul style="list-style-type: none"> <li><u>Zonation and Regulations for the control of off-road vehicles on beaches controlled by the Board.</u></li> </ul>
D 2.6	<ul style="list-style-type: none"> <li>Quarries in KZN Protected Areas.</li> </ul>
D 2.7	<ul style="list-style-type: none"> <li>Re-establishment and Management of Vegetation on Development Sites in the Ezemvelo KZN Wildlife Protected Areas.</li> </ul>
D 2.8	<ul style="list-style-type: none"> <li>Ecotourism and Protected Areas.</li> </ul>
D 2.9	<ul style="list-style-type: none"> <li>Solid Waste Management within Protected Areas.</li> </ul>
D 2.10	<ul style="list-style-type: none"> <li>State Security Service Activities within Board Areas.</li> </ul>
D 2.11	<ul style="list-style-type: none"> <li>Shark Nets in or bordering KwaZulu-Natal Nature Conservation Board Controlled Areas.</li> </ul>
<u>Policy File No.</u>	<b>Integrated Environmental Management</b>
D 2.12	<ul style="list-style-type: none"> <li>Integrated Environmental Management - incorporating the procedure for the assessment of the impact of proposed development projects on nature conservation concerns.</li> </ul>
D 2.13	<ul style="list-style-type: none"> <li>Precautionary Principle.</li> </ul>
D 2.14	<ul style="list-style-type: none"> <li>Shark Net Installations.</li> </ul>
D 2.15	<ul style="list-style-type: none"> <li>Bioprospecting in KwaZulu-Natal.</li> </ul>
D 2.17	<ul style="list-style-type: none"> <li>Use of Pesticides by the Ezemvelo KZN Wildlife: Safety to Humans and the Environment.</li> </ul>
D 2.18	<ul style="list-style-type: none"> <li>Interference with the Mouth of a Lagoon or River (Breaching).</li> </ul>
<u>Policy File No.</u>	<b>Ex Situ Wild Animal Management</b>
D 2.21	<ul style="list-style-type: none"> <li>Re-establishment of Terrestrial Mammals in Board Areas.</li> </ul>
D 2.22	<ul style="list-style-type: none"> <li>Translocation of Animals.</li> </ul>
D 2.25	<ul style="list-style-type: none"> <li>Elephant Introductions and Elephant in Enclosures.</li> </ul>
D 2.27	<ul style="list-style-type: none"> <li>Introduction and Keeping of Large Predators in Enclosures in KZN.</li> </ul>
D 2.28	<ul style="list-style-type: none"> <li>Use of Narcotic Drugs.</li> </ul>
D 2.29	<ul style="list-style-type: none"> <li>Falconry.</li> </ul>
<u>Policy File No.</u>	<b>Human Animal Conflict - Inside and Outside Protected Areas</b>
D 2.30	<ul style="list-style-type: none"> <li>Disposal of Leopard from Ezemvelo KZN Wildlife Protected Areas.</li> </ul>
D 2.31	<ul style="list-style-type: none"> <li>Problem Animal Control.</li> </ul>
D 2.32	<ul style="list-style-type: none"> <li>Compensation claims in respect of damage caused by Lion, Cheetah, Wild Dog and Elephant to Stock and Crops.</li> </ul>
D 2.33	<ul style="list-style-type: none"> <li>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.</li> </ul>
<u>Policy File No.</u>	<b>Environmental Awareness</b>
D 2.34	<ul style="list-style-type: none"> <li>Environmental Education Policy.</li> </ul>

	•
	<b>3. BIODIVERSITY PROTECTION</b>
<u>Policy File No.</u>	<b>Co-management</b>
D 3.1	• Supply of Game to Conservancies, Community Conservation Areas and Biosphere Reserves in KwaZulu-Natal
D 3.2	• Establishment and Management of Community Conservation Reserves (CCR)
D 3.4	• Community Conservation Programmes
D 3.5	• Neighbours' Access to Board Protected Areas
D 3.6	• Relationship with Local Boards
D 3.7	• Conservation Partnerships Between KwaZulu-Natal Nature Conservation Board and Adjacent Landowners
D 3.8	• Community Trust
D 3.9	• Community Levy Policy and Guidelines
D 3.10	• Land Claims on Proclaimed and Unproclaimed Provincial and Assigned National Protected areas in KwaZulu-Natal
D 3.11	• Amafa Policy Guidelines for the access of rock art sites in KwaZulu Natal
<u>Policy File No.</u>	<b>Resource-use benefits</b>
D 3.12	• Disposal of Venison from Ezemvelo KZN Wildlife Management Operations.
D 3.13	• Sustainable use of wildlife resources.
D 3.14	• Freshwater Angling.
D 3.15	• Freshwater species utilisation.
D 3.16	• Use of plant resources from protected areas.
D 3.17	• Use of doomed biological material.
D 3.19	• Provision of hunting by Ezemvelo KZN Wildlife.
<u>Policy File No.</u>	<b>4. RELATIONSHIPS</b>
D 4.1	• Neighbour Relations.
D 4.2	• Participation - Non Government Organisations.
D 4.3	• Data Access.
D 4.4	• <u>Consultation and Communication with Stakeholders: Policy and Guidelines.</u>
<u>Policy File No.</u>	<b>COMMERCIAL OPERATIONS</b>
E 1	• Concessions for Welfare Groups.
E 2	• Hiking and Mountaineering.
E 3	• Educational Concessions.
E 4	• Club Facilities within Board Areas.
E 5	• Hutted Camps.
E 6	• Joint Venture Scheme.
E 7	• Allocation of Sites in terms of the Joint Venture Scheme.
E 8	• Access to Protected Areas through Unofficial Entry Points.
E 9	• Visitor Facilities Management by Ezemvelo KZN Wildlife.
E 10	• Lease of Lakeshore at State Dam Protected Areas.
E 11	• Execution, Control and Management of Leases and Concession Contracts (excluding Biodiversity Conservation Partnerships and Leases of Wildlife).
E 12	• Private Sector Reservations Policy.
E 13	• Partnerships for Eco-Tourism Development within or Adjacent to Protected Areas.
E 14	• Discounting of Tariffs for Walk-in Guests.
E 15	• Ecotourism Discounting Strategy.

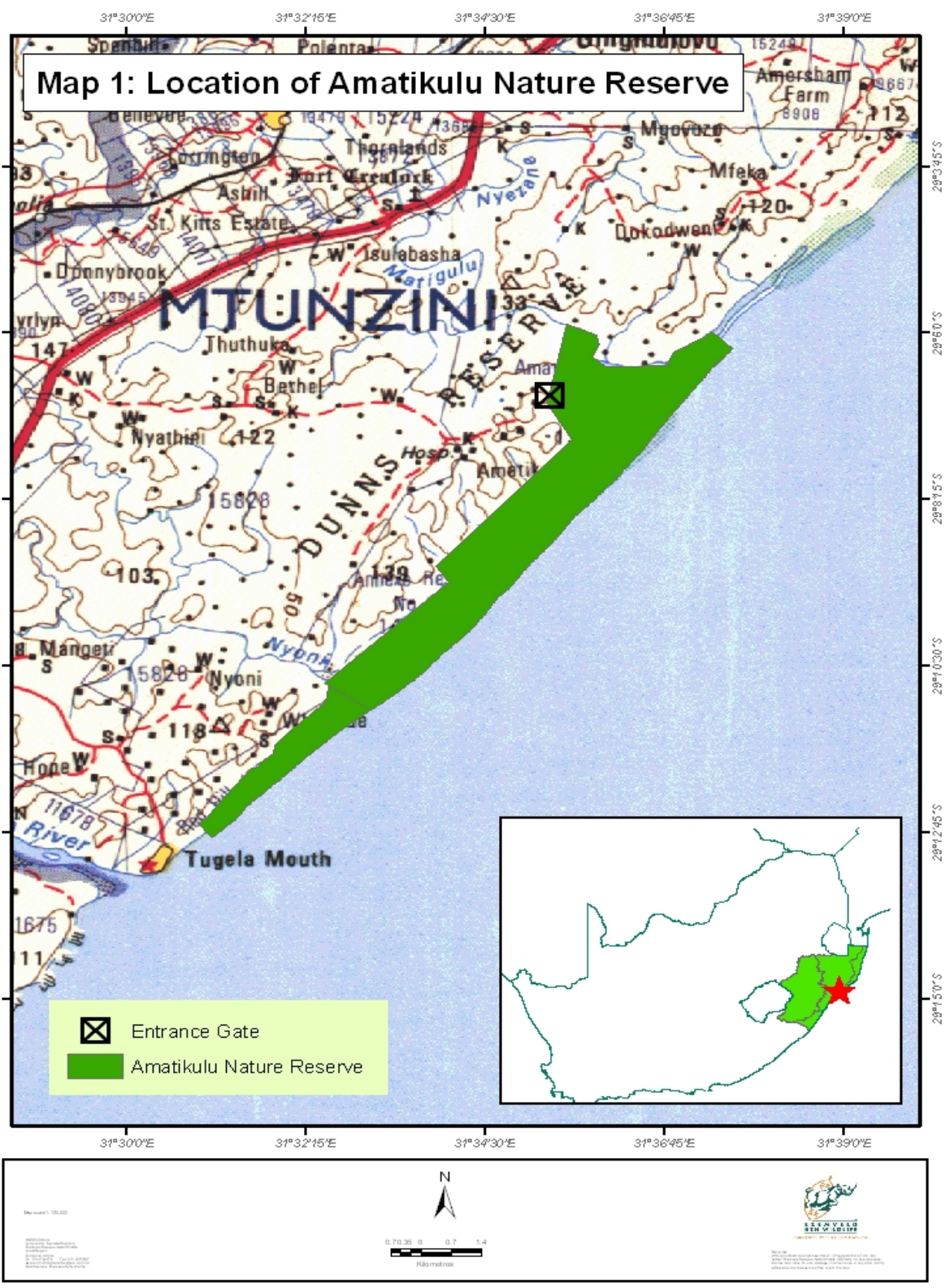
E 16	<ul style="list-style-type: none"> <li>• Travel Trade Commissions: Tour Operator/ Travel Agency.</li> </ul>
E 17	<ul style="list-style-type: none"> <li>• Policy and Procedure for the establishment and monitoring of Commercial Operations Public Private Partnership (PPP) Agreements.</li> </ul>
E 18	<ul style="list-style-type: none"> <li>• Administrative and operational policy on Professional hunting in South Africa.</li> </ul>
E 19	<ul style="list-style-type: none"> <li>• Commercialisation.</li> </ul>



**APPENDIX 3 – ZONATION DESCRIPTIONS**

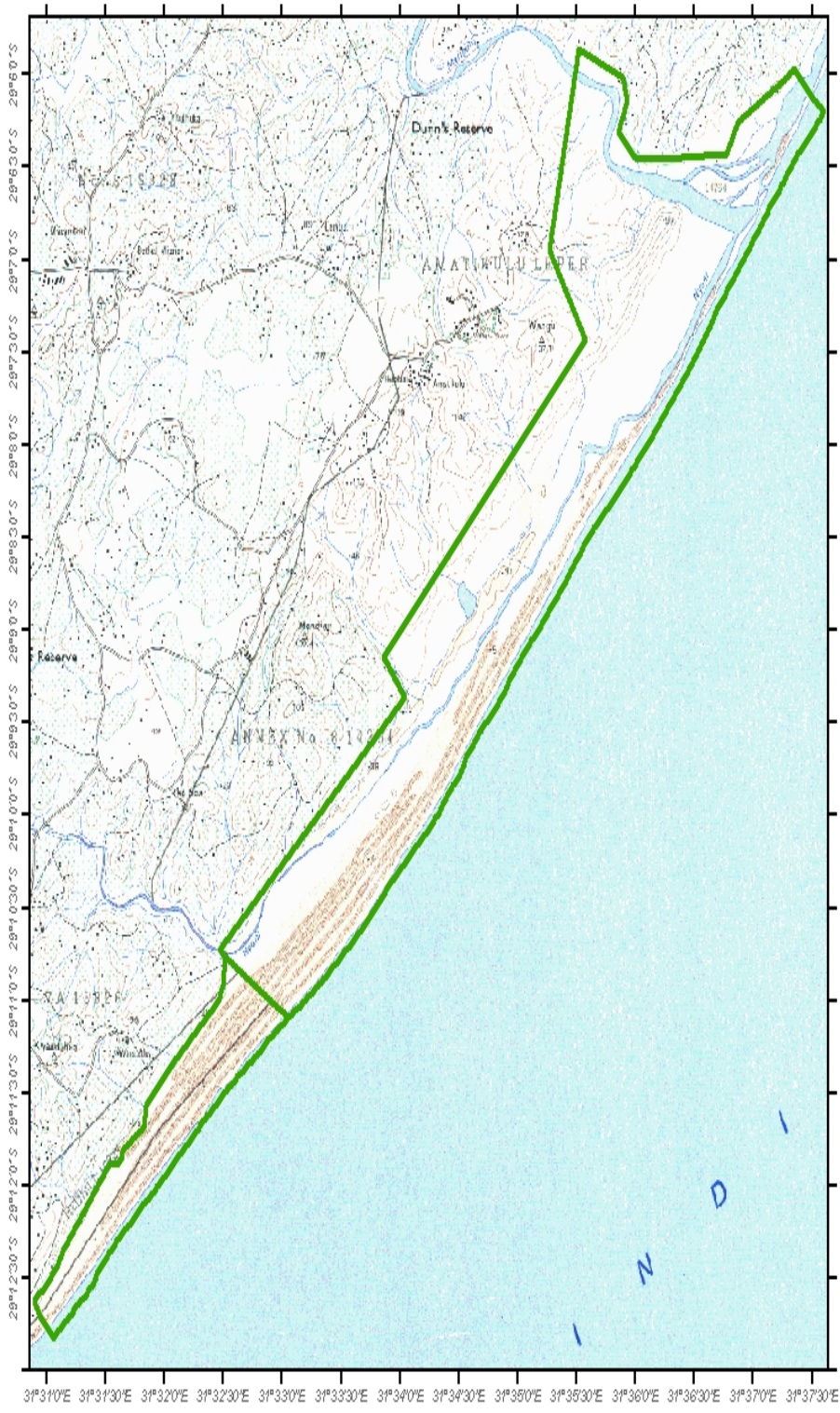
CATEGORY	DESCRIPTION OF CRITERIA TO BE USED FOR ZONATION	SETTING DESCRIPTIONS (AS FROM ROS HANDBOOK)
Semi-Primitive Non-motorised	<p>Closely related to the above zone, but usage of formalized trails at a high intensity – concreting/rock-packing of trails</p> <p>Natural environment experience, non-motorised 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 (&lt; 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 of Amatikulu Nature Reserve**





**Map 2a: Topographic Map for Amatikulu Nature Reserve**



**Topographic Map : Map 2a  
Amatikulu Nature Reserve**





































 Proclaimed boundary








**Reserve Extents**

Area: = (Am) 1702.4 Ha + (Rh) 282.8 Ha  
= 1985.2 Ha (Flat)  
Boundary length: = 34.5 Km (Flat)  
Highest point: 100 m a.s.l  
Lowest point: 20 m a.s.l  
Centroid (Am) Lat. -29.1278 dd Long. 31.5795 dd  
(Rh) Lat. -29.2062 dd Long. 31.5408 dd

**Geographical Extent**

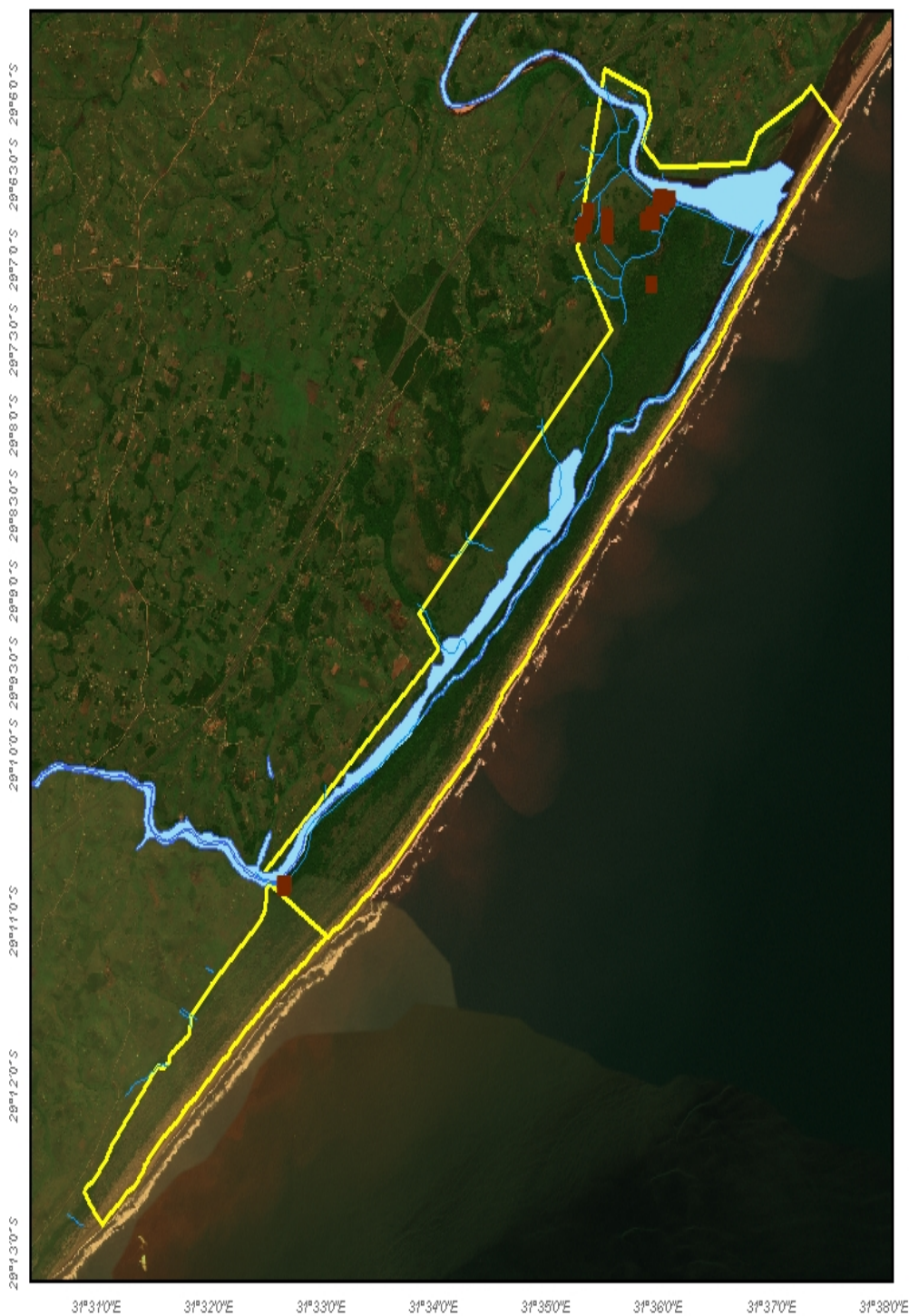
Lat. 29°06'03.035" to 29°12'50.512"  
Long 31°30'51.048" to 31°36'59.425"

	Trig Beacons (Number & ground height)		International Boundaries
	Magnetic Stations & Ground Signs		Provincial Boundaries
	Monuments		Multiple Track Railways
	Clipping Tanks		Single Track Railways
	Windmills		Electrified Railways
	Walls		Narrow Gauge Railways
	Excavations		Service Railways
	Antenna Wires		Freeways & Arterial Roads
	Perennial Water		Main Roads
	Non-perennial Water		Secondary Roads
	Dry Pans		Other Roads
	Springs, Waterholes & Wells		Tracks & Hiking Trails
	Marshes, Swamps & Vleis		Power Lines
	Pipelines		Telephone Lines
	Prominent Rock Outcrops		Post Offices, Police Stations, Stores, Halls, Schools & Places of Worship
	Tombosa		Lighthouses & Marine Lights
	Cultivated Lands		Marine Beacons
	Orchards & Vineyards		
	Trees & Bush		

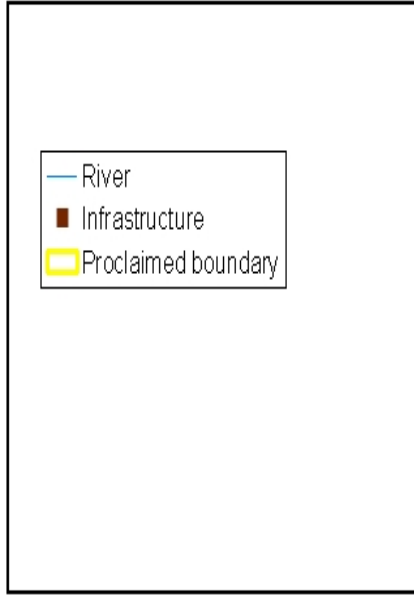
		Map scale: 1:70000			
					
Topographic map sheets		<p>0.5 0.25 0 0.5 1 Kilometres</p> <p><small>©2008 State Copyright reserved All rights reserved No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of the State.</small></p>			



**Map 2b: Topographic Map for Amatikulu Nature Reserve**



**Topographic Map: Map 2b  
Amatikulu Nature Reserve**



**Reserve Extents**

Area: = (Am) 1702.4 Ha + (Rh) 282.8 Ha  
 = 1985.2 Ha (Flat)

Boundary length: = 34.5 Km (Flat)

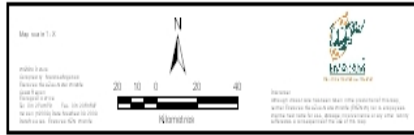
Highest point 100 m a.s.l

Lowest point 20 m a.s.l

Centroid (Am) Lat. -29.1278 dd Long. 31.5795 dd  
 (Rh) Lat. -29.2052 dd Long. 31.5408 dd

**Geographical Extent**

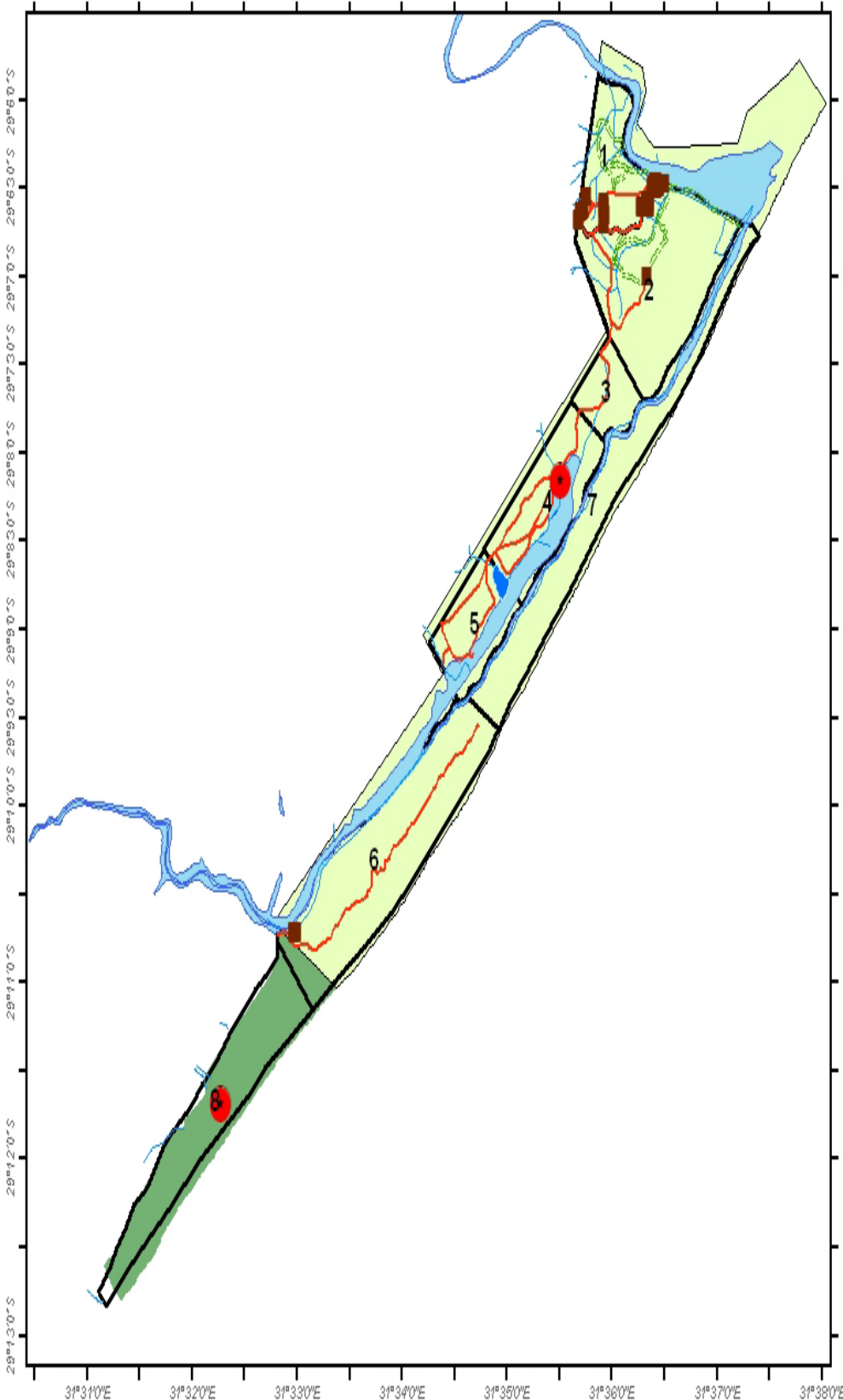
Lat. 29°06'03.035" to 29°12'50.512"  
 Long 31°30'51.048" to 31°36'59.425"



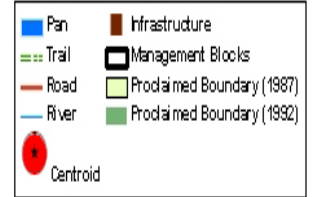
**Map 3: Zonation of Amatikulu Nature Reserve**



**Map 4: Infrastructure Map of Amatikulu Nature Reserve**



**Infrastructure (Management Blocks): Map 4  
Amatikulu Nature Reserve**



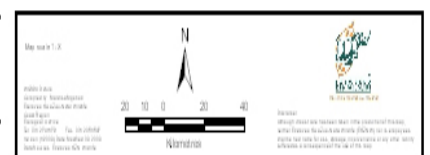
Management block	Hectares	Perimeter
1	114.1	5220.6
2	293.6	7571.3
3	60.9	3237.1
4	160.9	5615.8
5	105.7	4236.8
6	344.4	9462.5
7	244	13986.9
8	218.3	9932.5

**Reserve Extents**

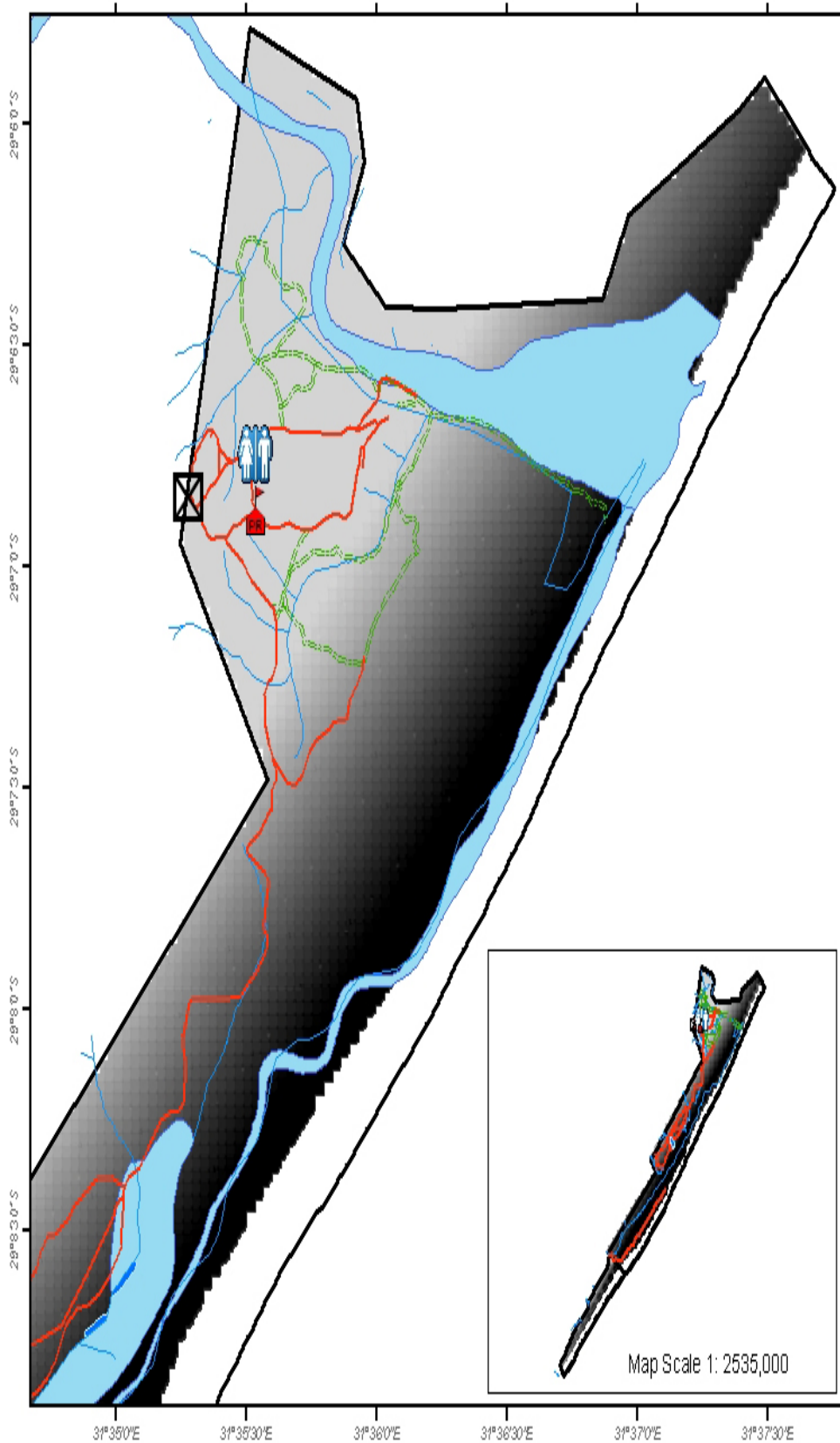
Area: = (Am) 1702.4 Ha + (Rh) 282.8 Ha  
 = 1985.2 Ha (Flat)  
 Boundary length: = 34.5 Km (Flat)  
 Highest point 100 m a.s.l  
 Lowest point 20 m a.s.l  
 Centroid (Am) Lat. -29.1278 dd Long. 31.5795 dd  
 (Rh) Lat. -29.2052 dd Long. 31.5408 dd

**Geographical Extent**

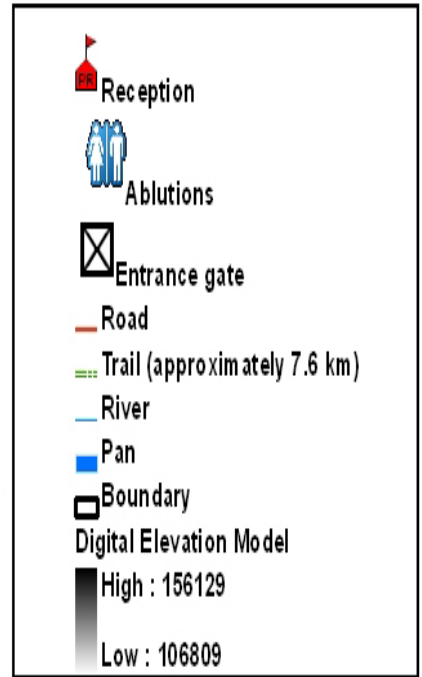
Lat. 29°06'03.035" to 29°12'50.512"  
 Long 31°30'51.048" to 31°36'59.425"



**Map 5: Trails Map of Amatikulu Nature Reserve**



**Trails Map: Map 5  
Amatikulu Nature Reserve**



Reserve Extents

Area: = (Am) 1702.4 Ha + (Rh) 282.8 Ha  
= 1985.2 Ha (Flat)

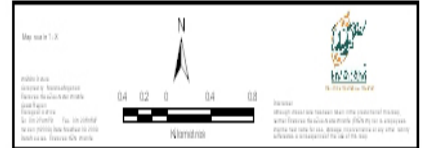
Boundary length: = 34.5 Km (Flat)

Highest point 100 m a.s.l  
Lowest point 20 m a.s.l

Centroid (Am) Lat. -29.1278 dd Long. 31.5795 dd  
(Rh) Lat. -29.2052 dd Long. 31.5408 dd

Geographical Extent

Lat. 29°06'03.035" to 29°12'50.512"  
Long 31°30'51.048" to 31°36'59.425"





**Map 6: Vegetation Map of Amatikulu Nature Reserve**

## Amatikulu Nature Reserve: Vegetation

