



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

MIDMAR NATURE RESERVE

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



Midmar 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
Brousse-James and Associates*

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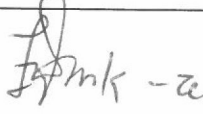

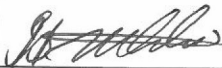
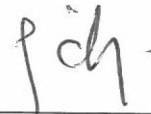

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TABLE OF CONTENTS

AUTHORISATION.....	ii
TABLE OF CONTENTS	iv
LIST OF APPENDICES.....	vii
LIST OF MAPS	vii
LIST OF FIGURES.....	vii
LIST OF TABLES	vii
PREFACE.....	viii
EXECUTIVE SUMMARY AND PURPOSE OF PLAN	ix
PROTECTED AREA MANAGEMENT PLANNING PROCESS FRAMEWORK FOR PROTECTED AREAS	x
DEFINITIONS	xii
ABBREVIATIONS.....	xv
COMMONLY USED ABBREVIATIONS FOR STATUTES (LEGISLATION).....	xvi
1. PURPOSE AND SIGNIFICANCE OF MIDMAR NATURE RESERVE	1
1.1 Purpose.....	1
1.2 Significance	1
2. ADMINISTRATIVE AND LEGAL FRAMEWORK.....	2
2.1 Institutional Arrangements.....	2
2.1.1 MNR Management Authority	2
2.1.2 Land Claims and Co-management	2
2.1.3 Separation of Authority Functions	2
2.2 Legislation Guiding the Administration of Midmar Nature Reserve	2
2.3 Regional Planning Context and Principles.....	4
2.4 Proclamation Status of MNR	5
2.5 Local Agreements, Servitude Arrangements and MOUs	6
2.6 Extending Conservation Land Use Management in Areas Surrounding MNR	8
3 BACKGROUND.....	9
3.1 Origin of the Name of the Nature Reserve.....	9
3.2 Location and Extent of the Nature Reserve	9
3.3 Previous Land Use	9
3.4 Conservation History of the Nature Reserve.....	9
3.5 Climate and Weather	10
3.6 Physical Description.....	10
3.6.1 Topography	10
3.6.2 Geology	10
3.6.3 Soils.....	11
3.7 Geomorphology.....	11
3.8 Hydrology	11
3.9 Flora.....	12
3.10 Fauna	12
3.10.1 Invertebrates.....	12
3.10.2 Fish	13

3.10.3	Herpetofauna (Amphibians and Reptiles)	13
3.10.4	Avifauna (Birds).....	13
3.10.5	Mammals.....	14
3.11	Cultural Heritage.....	15
3.12	Sociological Context	15
3.13	Economic Context	16
3.14	Developed Infrastructure.....	16
3.14.1	Eco-Cultural Tourism Infrastructure	17
3.14.2	Management Infrastructure	17
3.14.3	Bulk Infrastructure.....	17
3.14.4	Conservation Infrastructure	18
3.14.5	Water Supply Infrastructure	18
3.14.6	Infrastructure Maintained by other Organisations	18
4	MISSION STATEMENT, MANAGEMENT OBJECTIVES AND CONSERVATION TARGETS	19
4.1	Introduction	19
4.2	Stakeholder Participation	19
4.3	Vision.....	20
4.4	Mission	20
4.5	Management Objectives	20
4.6	Conservation Targets for Midmar Nature Reserve.....	21
4.7	Conservation Targets for the Reserve	22
5	ZONATION.....	24
6	OPERATIONAL MANAGEMENT POLICY FRAMEWORK AND GUIDING PRINCIPLES	25
6.1	Resources.....	25
6.1.1	Financial Resources.....	25
6.1.2	Human Resources Capacity	26
6.1.2.1	MNR Employment Policy Guidelines.....	26
6.2	Local Community Involvement.....	26
6.2.1	Local Board	27
6.2.2	Community Levy Trust Fund.....	27
6.2.3	External Funding Projects.....	27
6.2.4	Land Claims	27
6.2.5	Environmental Education	27
6.2.6	Transfrontier Partnerships	27
6.2.7	Informal Participation	28
6.3	Security and Safety.....	28
6.4	Natural Resource Management	28
6.4.1	Introduction	28
6.4.2	Fire Management	29
6.4.3	Alien Species Control and Management	30
6.4.3.1	Alien Plants.....	30
6.4.3.2	Alien Animals.....	31
6.4.4	Catchment / Wetland / Groundwater / River Management	32

6.4.5	Soil Erosion Control	32
6.4.6	Wildlife Management	33
6.4.6.1	Introductions of Indigenous Animal Species into MNR.....	34
6.4.6.2	Game Population Management	34
6.4.6.3	Fishery Management	35
6.4.6.4	Bird Management	35
6.4.6.5	Problem Animal Management (Damage Causing Animals)	35
6.4.7	Control over Illegal Use of Natural Resources.....	35
6.5	Cultural Resource Management.....	36
6.6	Resource Utilisation	36
6.6.1	Plants and Animals.....	37
6.6.2	Bioprospecting	37
6.6.3	Abiotic Resources	37
6.7	Eco-cultural Tourism and Marketing	37
6.8	Environmental Interpretation, Awareness and Education	38
6.9	Research.....	39
6.9.1	Monitoring and Evaluation	40
6.10	Infrastructure and Concept Development Plan.....	41
6.10.1	Entrance Points and Gates.....	42
6.10.2	Boundary Fence	42
6.10.3	Internal Fences	42
6.10.4	Signage.....	42
6.10.5	Roads, Tracks and Paths.....	43
6.10.6	Staff Accommodation.....	43
6.10.7	Offices, Workshops, Stables and Other Infrastructure.....	43
6.10.8	Services	44
6.10.9	Radio Communication and other Communication Equipment	44
6.10.10	Waste Management	44
6.10.10.1	Domestic Solid Waste	44
6.10.10.2	Sewage	44
6.10.11	Water and Energy Saving Measures	44
6.10.12	Aircraft Landing Fields.....	45
6.10.13	Staff and Visitor Safety.....	45
7	IMP REVIEW AND AMENDMENT PROCEDURES.....	46
7.1	Five-Yearly Review and Amendment Procedures.....	46
7.2	Annual Review and Amendment Procedures.....	46
8	PROJECTS FOR ACTION CORRELATED WITH MANAGEMENT OBJECTIVES	47
8.1	List of IMP Action Projects.....	47
8.2	Alignment of IMP Action Projects with Prioritised Management Objectives.....	52
	REFERENCES.....	57

LIST OF APPENDICES

Appendix 1: List of Unpublished References for MNR.....	58
Appendix 2: EKZNW Corporate Policies	59

LIST OF MAPS

Map 1: Location Map of MNR.....	63
Map 2: Topographic Map of MNR	64
Map 3: Zonation Map of MNR	65
Map 4: Vegetation Map of MNR.....	66
Map 5: Infrastructure Map of MNR	67

LIST OF FIGURES

Figure 1:Integrated Management Plans: Aligning Annual and Five year Cycles.....	xi
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LIST OF TABLES

Table 1:Biodiversity Targets.....	22
Table 2:..... List of IMP Action Projects.....	47
Table 3:.....IMP Action Projects Aligned with KNR Management Objectives.....	52

PREFACE

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

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 Reserve's 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.

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

Dr Bandile Mkhize
Chief Executive Officer

Date:

EXECUTIVE SUMMARY AND PURPOSE OF PLAN

The IMP forms the framework within which the Protected Area will be managed, aligned and developed in an endeavour to achieve the biodiversity conservation, ecotourism and partnership objectives as envisaged and set by the various stakeholders and refined by the Technical Task Team members during the consultative planning process.

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

Midmar Dam was constructed for the purpose of providing water for the urban, industrial and agricultural areas of the Umgeni River Valley, including Pietermaritzburg and Durban. As a spin-off, the Midmar Park Nature Reserve was established.

The Midmar Nature Reserve is the area surrounding the whole of the Midmar Dam, including the boating clubs, recreation areas, picnic sites, camp sites, regional offices and Game Park. The Game Park land is largely untransformed natural veld that has been stocked with a number of indigenous game species and has value for the protection of Veld Type 65 (Southern Tall Grassveld), for the breeding of game such as hartebeest, the protection of oribi and as a bird sanctuary. In contrast, the land on the northern banks of Midmar Dam is almost completely transformed, with mowed lawns, roads, recreation and management facilities and non-indigenous trees.

The land surrounding the dam has been earmarked for a number of development activities, by both private and municipal developers, including low- and high-cost urban developments and tourist facilities such as hotels and resorts. In addition, the corridor along the N3 National Highway is the focus of commercial and industrial development planning. If done insensitively, these developments could threaten the very reason for the existence of the dam, *via*, the provision of high-quality drinking water. In addition, they could threaten the last vestiges of untransformed grassland in the area. The fairly recent raising of the dam wall further reduced the area of untransformed grassland in the area. As a recreation area, Midmar offers the visitor a feeling of wide open spaces and a peaceful setting. Too much, or insensitive, development around the dam could destroy that aesthetic and spiritual appeal. Therefore, any management actions or considerations within this IMP need to take those plans into consideration.

PROTECTED AREA MANAGEMENT PLANNING PROCESS FRAMEWORK FOR PROTECTED AREAS

The Integrated Management Plan, its components and authorisation

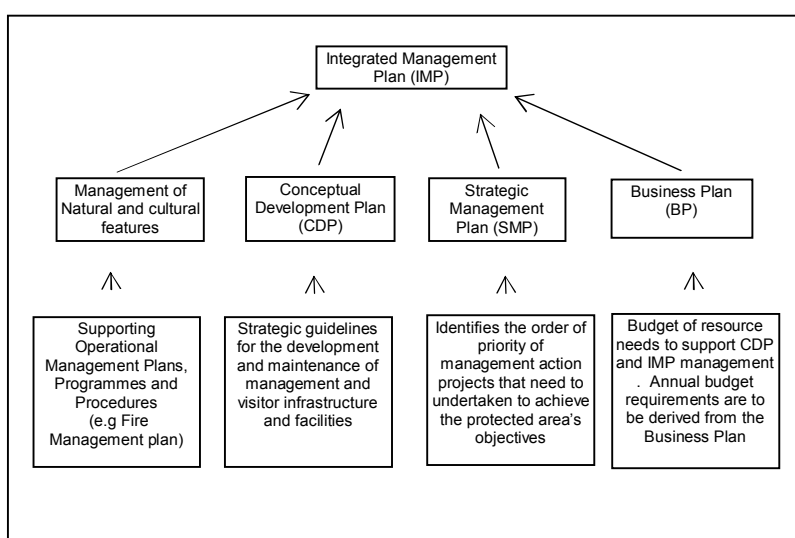
The **Integrated Management Plan (IMP)** is the overarching protected area integrated planning document that describes the administrative and legal framework, contextual background, public participation processes followed, vision / mission statements, management objectives, zonation as well as a management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

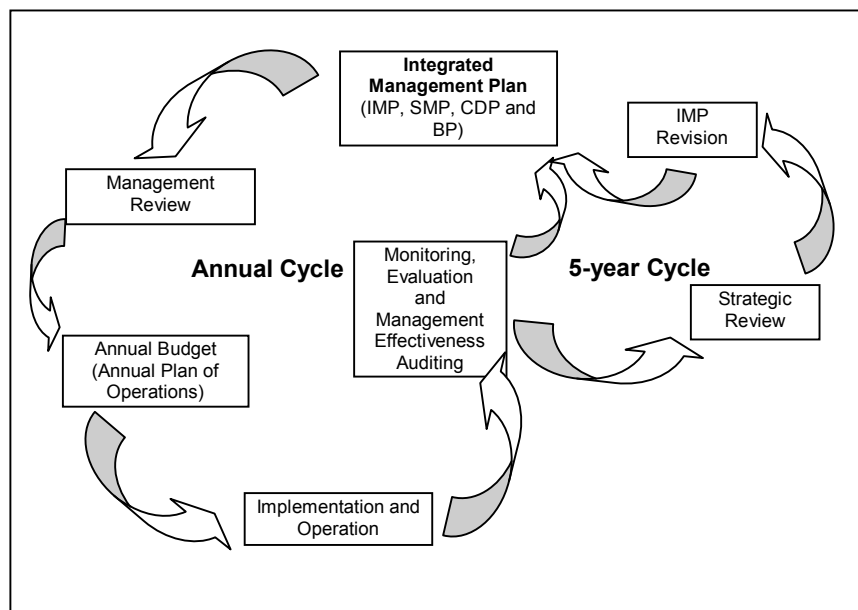


Figure 1: Integrated Management Plans: Aligning Annual and Five year Cycles

DEFINITIONS

Alien Species:

Means species or genotypes, which are not indigenous to the protected area and the surrounding area including hybrids and genetically altered organisms.

Amafa:

Amafa aKwaZulu-Natali (KZN Heritage Agency)

Biodiversity / Biological Diversity:

Means the variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and also includes diversity within species, between species, and of ecosystems (as per the National Environmental Management: Biodiversity Act, 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 the protected area that has restrictions placed on its use or where collaborative projects and programmes are undertaken to afford additional protection to the protected area.

Co-management:

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

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]).

¹Convention 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.

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.

Game Park:

Means the Game Park Section of the Midmar Nature Reserve

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]).

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 Midmar Nature Reserve and includes the Midmar Game Park

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) 1972² 'natural heritage' is considered as: "natural features consisting of physical and biological formations or groups of such formations, which are of value from the aesthetic or scientific point of view, geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of value from the point of view of science or conservation, natural sites or precisely delineated natural areas of value from the point of view of science, conservation or natural beauty." For the purposes of this IMP, this would include the required ecological integrity of the protected area for the production of ecosystem services.

Partnership/s:

Means a co-operative and / or collaborative arrangement between the protected area management / EKZNW and a third party that supports the achievement of the protected area 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 Parties³:

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

Sustainable:

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

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

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

ABBREVIATIONS

BBBE	Broad Based Black Economic Empowerment
BEEP	Biodiversity Environmental Education Programme
BP	Business Plan (Component of EKZNW protected area management planning process)
BPEO	Best Practicable Environmental Option
CDP	Concept Development Plan (Component of EKZNW protected area management planning process)
DAE&RD	KwaZulu-Natal Provincial Department of Agriculture, Environmental Affairs and Rural Development
DLA	Department of Land Affairs
DPW	Department of Public Works
DWEA	National Department of Water and Environmental Affairs
EIA	Environmental Impact Assessment
EKZNW	Ezemvelo KwaZulu-Natal Wildlife
FPA	Fire Protection Association in terms of the National Veld and Forest Fire Act, 1998 (Act No.101 of 1998)
GPS	Game Park Section (Of the Midmar Nature Reserve)
GIS	Geographical Information Systems
I&AP	Interested and Affected Parties
IDP	Municipal Integrated Development Plan
IEM	Integrated Environmental Management
IMP	Integrated Management Plan
IMP	Integrated Management Plan
IUCN	International Union for Conservation of Nature <u>or</u> The World Conservation Union (as commonly referenced)
JMC	Joint Management Committee
MNR	Midmar Nature Reserve
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
PAMC	Protected Area Management Committee / Reserve Panning Committee
PAMP	Protected Area Management Plan
PPP	Public Private Partnership
ROC	EKZNW Regional Operations Committee
ROS	Recreational Opportunity Spectrum
SA	Republic of South Africa
SAHRA	South African Heritage Resources Agency
SDF	Municipal Spatial Development Framework
SMME	Small, Micro and Medium Enterprises
SMP	Strategic Management Plan (Component of EKZNW protected area management planning process)
UNESCO	United Nations Educational, Scientific and Cultural Organisation

ABBREVIATIONS USED FOR STATUTES (LEGISLATION)

KZNHRA:	KwaZulu Heritage Resources Act, 1997 (Act No. 10 of 1997)
CARA:	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
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)
PFMA:	Public Finance Management Act, 1999 (Act No. 1 of 1999)

1 PURPOSE AND SIGNIFICANCE OF THE MIDMAR NATURE RESERVE

1.1 Purpose

The purpose of the Midmar Nature Reserve is to:

- Protect endangered, rare and endemic species indigenous to the area;
- Preserve and conserve its ecological and cultural heritage;
- Provide controlled and equitable access by the public to the area and its resources;
- Contribute to local and regional economies by providing high quality water to the Mngeni Water Board for urban, rural, agricultural and industrial use; and
- Provide a public service in the form of recreational facilities to generate income.

1.2 Significance

The significant values of the MNR include:

- Ø **Natural and cultural heritage values.** Natural and cultural heritage features of provincial significance incorporate the following:
 - Provides and regulates a supply of high quality drinking water to the main urban areas of KZN;
 - A major fresh water recreational amenity in the KZN Midlands situated in a beautiful natural landscape;
 - The Game Park Section on the southern bank protects Southern KwaZulu-Natal Moist Grassland which is poorly represented elsewhere in the Provincial Protected Area System (Vegetation type Gs11; Mucina and Rutherford 2006).
 - The Game Park, in particular, provides habitat and protection for Red Data species; specifically for grassland species, e.g.
 - birds such as African marsh harrier, blackrumped buttonquail, blue crane, broadtailed warbler, Denham's bustard and grass owl;
 - mammals such as oribi and striped weasel;
 - reptiles such as Bourquins' dwarf burrowing skink (*Scelotes bourquini*), and
 - plants such as *Kniphofia buechananii*;
 - Offers opportunities for environmental education;
 - Provides limited opportunities for the sustainable utilisation of natural resources; and
 - The land area provides an important buffer for the protection of the important water resources.
- Ø **Water Storage and Production**
 - MNR serves as a buffer in protecting the water quality within the Midmar Dam, which is important for providing water to the urban, industrial and agricultural areas of the Umgeni River valley, including Pietermaritzburg and Durban.
- Ø **Outdoor Recreation and Eco-cultural Tourism values.**
 - MNR provides sustainable outdoor recreation and eco-cultural tourism activities in an area of significant natural and aesthetic beauty. The Nature Reserve has the potential to significantly contribute to and enhanced tourism opportunities for visitors.

2 ADMINISTRATIVE AND LEGAL FRAMEWORK

2.1 Institutional Arrangements

2.1.1 MNR Management Authority

The land on which the Midmar is situated belongs to the DPW. It has been leased to DWEA to manage the dam as the responsible organ of State. DWEA has assigned responsibility to EKZNW to manage the surface area of the dam by way of a legal binding agreement. In the 1970's, the Administrator of Natal delegated this responsibility to the Natal Parks Board. This responsibility continued when the Natal Parks Board amalgamated with the KwaZulu Department of Nature Conservation, to become Ezemvelo KwaZulu-Natal Wildlife (EKZNW).

Ezemvelo KwaZulu-Natal Wildlife is the appointed Management Authority responsible and accountable for the Midmar Nature Reserve (MNR). This will to 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.

Action Project 2.1.1 (i): Together with DWEA undertake a legal review of the agreement. Obtain written assignment from the MEC re-appointing EKZNW as the management authority for MNR in terms of Section 38(2) of NEMPAA.

Action Project 2.1.1 (ii): The IMP must be revised to include more information on the entire MNR.

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 (MNR) through the relevant provincial departments, District and Local Municipalities.

2.1.2 Land Claims and Co-management

There are no known land claims against MNR.

2.1.3 Separation of Authority Functions

Other public service providers within MNR include electricity provided by Eskom and telephone lines provided by Telkom. Water is extracted from the dam at a minimal fee.

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

2.2 Legislation Guiding the Administration of Midmar Nature Reserve.

It is important to note that Midmar 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 – Natal Heritage Act, 1997 (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).
- Environmental 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, 2004 (Act No. 10 of 2004)

General Management:

- Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003)
- Communal Land Rights Act, 2004 (Act No. 11 of 2004)
- Development Facilitation Act, 1995 (Act No. 67 of 1995).
- Disaster Management Act, 2002 (Act No. 57 of 2002).
- Fencing Act, 1963 (Act No. 13 of 1963)
- Fire Brigade Services Act, 1987 (Act No. 99 of 1987).
- Firearms Control Act, 2000 (Act No. 60 of 2000)
- Intergovernmental Relations Framework Act, 2005 (Act No.13 of 2005).
- KwaZulu Ingonyama Trust Act, 1994 (Act No. 3 of 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).
- 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

MNR 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 MNR in line with the levels adopted for all protected areas within the EKZNW protected area network.

Midmar Nature Reserve is situated within the uMgungundlovu District Municipality and the uMngeni Local Municipality in the province of KwaZulu-Natal. The uMngeni Municipality IDP has, as one of its goals, to stimulate economic development, with emphasis on tourism, agriculture, manufacturing and commerce. One of the strategies in this respect is to formulate a master plan for areas with specific development potential, including the Midmar Dam Area. Specific events, such as the Midmar Mile, are identified as key to marketing the area. There is also a specific Natural Resources Management Strategy, which is outlined as follows.

Natural Resources Management Strategy

- Formulate a biodiversity conservation strategy.
- Establish an open space system and ensure effective management thereof, based on existing plans.
- Establish an effective alien invasive species control programme.
- Establish mechanisms for the monitoring and control of the use of indigenous plants and mechanisms (in association with EKZNW).
- Establish Catchment Management Forums (in association with DWAF).
- Initiate programmes to prevent soil erosion.
- Ensure law enforcement personnel are conversant with environmental policies and legislation.
- Establish an effective water quality monitoring programme.
- Undertake a Strategic Environmental Assessment (SEA) to form the base of an Environmental Management Plan (EMP) for the entire municipal area.
- Ensure that the maintenance of water quality is taken into account when taking decisions on proposed developments.

During the 2007 review period, the Municipality launched the formulation of Master Plans that includes the Midmar Dam. The plans will provide a guide to large-scale public and private investment. The Municipality believes that it is essential that the development potential of these features be optimized on a sustainable basis, especially Midmar Dam. EKZNW will provide input to these plans to ensure that the objectives of the Nature Reserve are provided for in these plans.

Action Project 2.3 (i): Obtain all documentation and ensure that copies are commented upon and filed at the Nature Reserve offices. The Nature Reserve Manager must be familiar with the contents of these plans.

Action Project 2.3 (ii): Management and the EKZNW Planning staff will engage with the Municipality on all planning initiatives that involve the MNR and its environment.

One of the Sector Plans undertaken by the Municipality related to the development of the Tourism Sector, and culminated in a report entitled “uMngeni Tourism Management Plan 2004”, prepared by Haley Sharpe Southern Africa. The spatial implication of the report's recommendations, especially those dealing with the development of tourism routes and destinations, have been incorporated into the Spatial Development Framework (SDF). Copies of the Tourism Management Plan could not be obtained from the uMngeni Municipality.

Mpophomeni, Howick and Hilton are the major residential centers within the uMngeni Municipality. Given the principles set out in Chapter 1 of the DFA, and in view of the Municipality's planning and development objectives, the primary node would incorporate the following areas :

- Cedara;
- Hilton;
- Howick;
- Merrivale and surrounding smallholdings;
- Midmar Dam and its immediate surrounds;
- Mpophomeni;
- The area between Hilton and Hilton College; and
- World's View.

The uMngeni Municipality views Midmar Dam as a hugely under-utilised recreation and tourist resource, which in future will serve as the green core and be an integral part of the greater urban area. Midmar Dam's primary function is obviously to continue providing high quality water to the downstream urban areas and Metropolitan Durban, but the Municipality believes that its recreation and tourism usage will be significantly enhanced, without having a detrimental affect on its primary function. This will require a strategic and well informed plan and inter-governmental consensus with regard to integrated planning, development and optimum resource usage. It is for these reasons that Midmar Dam has been incorporated into the primary node, and the Municipality has already initiated a master planning exercise for the area.

Mixed Use Tourism Areas are areas that are linked to existing tourism nodes and resources. On these Mixed Use Tourism Areas, the following land uses would be encouraged by the Municipality, namely: Residential Estates, Golf Course Estates, Theme/Niche Villages, Recreation Infrastructure and Facilities, Museums, Exhibition Centres, Conference Facilities, Hotels, Chalets, Restaurants, Sports Centres, Health Hydros and other tourism-orientated uses.

The main focus area for Mixed Use Tourism is Midmar Dam, and a detailed Master Plan to guide development is being formulated. This was, however, done without due consultation with EKZNW and there are significant concerns about some of the plans dealing with the Midmar Nature Reserve. In addition there would be some concerns about maintenance of water quality if the existing buffer of largely natural veld is removed.

Action Project 2.3 (iii): Obtain a copy of the agreement relating to the lease of Midmar Dam to EKZNW and place it on file in the Reserve Manager's office.

Action Project 2.3(iv): Protected area management in collaboration with other relevant EKZNW officials, will participate 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 MNR through an alignment of appropriate land use adjacent to the Nature Reserve and work with the Municipality to further develop tourist and recreational opportunities without compromising natural values.

2.4 Proclamation Status of MNR (incl. MGP)

Midmar is proclaimed as a Nature Reserve by the following proclamations:

- No. 24 of 1968, dated 18 March 1968.
- No. 97 of 1972, dated 16 June 1962.

- No. 224 of 1972, dated 4 May 1972.
- No. 17 of 1974, dated 24 January 1974.
- No. 21 of 1985, dated 24 April 1985.

Midmar Nature Reserve is a Category IV Protected Area, which is a Habitat and Wildlife Management Area, as determined under the Environment Conservation Act and defined in Government Gazette 15726, Notice 449 of May 1994.

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

2.5 Local Agreements, Servitude Arrangements and MOUs

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

The following servitudes are found in MNR:

Remainder of portion 64(of 4) of the Farm Hebron

- Subject to an electric power transmission line servitude
- Subject to a right of way servitude of 3,66 metres wide
- Subject to right of way servitude 3,66 metres wide
- Powerline servitude in favour of Eskom

Remainder of Lot 6 of Farm Hebron No. 914

- Subject to a road servitudes of 4, 57 metres wide
- Subject to reservoir servitude
- Subject to pipeline servitude 1,83 metres wide
- Subject to pump house servitude
- Subject to right of way servitudes 6,10 metres wide

Subdivision 61 (a subdivision of 4) of the Farm Hebron No. 914

- Subject to the electric power transmission line servitude

Portion 7 of the farm Brookdales No.935

- Subject to a power transmission line servitude

Portion 9 of Farm Rosedene No. 15098

- Subject to a power transmission line servitude
- Subject to the General Pipeline Servitude of 15 m wide in favour of the Umgeni Water Board
- With the benefit of a 6m wide Road Servitude

The Remainder of Farm Brookdales No.935

- With the benefit of a Pipe Line Servitude of 1, 000 metres wide

Remainder of Sub 1 of the Groot Vallei no.941

- Subject to an Electricity Power Transmission Line Servitude
- Right of Way Servitude 3.66 metres wide

Farm Brookdales No.935, portion 12

- General pipeline servitude six metres wide

Remainder of Farm Groot Vallei No.941

- Subject to Notarial Deed of Servitude in favour of the Electricity Supply Commission.

Sub Division seven of Groot Vallei No.941

- Subject to an Electricity Power Transmission Line Servitude

Remainder of sub division two of Groot Vallei No.941

- Subject to Notarial Deed of Servitude in favour of the Electricity Supply Commission.
- Personal Servitude of Habitation

Sub division six of Groot Vallei No.941

- Subject to an Electricity Power Transmission Line Servitude

Sub division nine of Groot Vallei No.941

- Subject to an Electricity Power Transmission Line Servitude

Potion 10 (of one) of Groot Vallei No.941

- Subject to Right of Way Servitudes 3.66 metres wide
- Subject to an Electricity Power Transmission Line Servitude
- Subject to a Perpetual Servitude in favour of Eskom Holdings Ltd.
- Subject to Power Line Servitude in favour of Eskom

Sub 418 (of 409) of the farm Allemans Drift No.950

- Subject to an Electricity Power Transmission Line Servitude

Sub 430 (of 80) of farm Allemans Drift No.950

- Subject to an Electricity Power Transmission Line Servitude
- Subject to Right of Way Servitude 9.14 metres wide

Sub 205 (of Sammerknowes) of farm Allemans Drift No.950

- Subject to a 30 foot Right of Way Servitude
- Subject to an Electricity Power Transmission Line Servitude in favour of Eskom
- Subject to Road Servitude in favour of Sub 204

Sub 406 (of Sammerknowes) of farm Allemans Drift No.950

- Subject to an Electricity Power Transmission Line Servitude
- Subject to a 30 foot Right of Way Servitude

Lot 117 (a sub division of sub Riversdale) of farm Allemans Drift No.950

- Subject to an Electricity Power Transmission Line Servitude

Sub 417 (of Sammerknowes) of farm Allemans Drift No.950

- Subject to a 9.14 metre Servitude of Right of Way
- Subject to an Electricity Power Transmission Line Servitude

Sub division 49 of the farm Weltevreden No.1017

- Subject to an Electricity Power Transmission Line Servitude

Sub division 50 of farm Weltevreden No.1017

- Subject to Servitude of the Water Furrow 10 feet wide, drain and pipeline six feet wide
- Subject to an Electricity Power Transmission Line Servitude

Sub division 51 of farm Weltevreden No.1017

- Subject to the Servitude to the right to take and lead out water from the Umgeni River

Remainder of Portion 18 (of one) of the farm Weltevreden No.1017

- Subject to Electricity Power Transmission Line Servitude

Portion 5 of Brookdales No.935

- Subject to a Right of Way Servitude

Remainder of Tweedie Hall No.11880

- Subject to a Servitude of Intake and Water Furrow 3.05 metres wide, pipeline 1.83 metres wide, reservoir 6.10 metres by 9.15 metres.
- Subject to Right Granted to Eskom to convey electricity over the property.

Remainder of Blackwood farm No.15438

- Subject to Electricity Power Transmission Line Servitudes
- Subject to a Servitude of Intake and Water Furrow 3.05 metres wide
- Subject to a Pipeline Servitude 5 metres wide
- Subject to the Reservation of a Personal Servitude for Life

Action Project 2.5 (i): Obtain and review all formal and informal local agreements, leases, servitude arrangements and agreements with organising bodies of events *etc.* pertaining to MNR (incl. MGP) 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.

2.6 Extending Conservation Land Use Management in Areas Surrounding MNR

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 MNR in collaboration and co-operation with the relevant stakeholder and landowners. This is likely to contribute to the EKZNW conservation planning targets through more effective natural and cultural heritage conservation. Indirectly, new tourism opportunities could also develop with the resulting socio-economic benefits.

All EKZNW officials associated with MNR 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. Alignment with the municipal IDPs will also be actively sought to ensure appropriate land use on the borders of MNR.

The most important areas in this regard would be:

- The property, known as Wharoonga Natural Heritage, is at the time of writing, in the process of being transferred to EKZNW.
- There are possibly other opportunities to achieve more land under conservation by means of the Public Private Partnership route and this need to be explored.

Action Project 2.6 (i): Annually explore and investigate opportunities to extend conservation land use in and around MNR. Actively pursue cooperative agreements with neighbouring landowners.

3 BACKGROUND

3.1 Origin of the Name of the Nature Reserve

Midmar Dam took its name from the farm owned by a retired mining engineer from the Witwatersrand, Mr Ian McKenzie. Mr McKenzie named the farm, "Midmar", after his Scottish grandmother's family, who had owned Midmar Castle, 12 km west of Aberdeen in Scotland.

The uMngeni River, which was dammed to create Midmar Dam, means "*the River that flows through the thorn trees, or Acacia Trees*" in the Zulu Language. It is a corruption of *em(u)ngeni*, "place of the Acacia" (Koopman, 2002).

3.2 Location and Extent of the Nature Reserve

Midmar Dam is located on the uMngeni River and the main entrance to the recreation area is approximately 35 km from Pietermaritzburg along the N2 National Highway, seven kilometres from Howick and two kilometres from the Tweedie offramp on the N2 National Highway.

The Midmar Nature Reserve extends from -29°29'02"S to -29°32'50"S and from -30°07'51"E to 30°12'56"E. The GIS flat surface area of MNR amounts to 2857ha. The Game Park component was originally 800 ha when Midmar Dam was first created, however with the raising of the dam wall in 2002, the surface area of the dam increased from 1,564 ha to 1,880 ha, resulting in 47 ha of the Game Park being lost to inundation, reducing its size to 753 ha.

3.3 Previous Land Use

Land use prior to proclamation included commercial farming such as cattle grazing and ploughed land, subsistence farming of both livestock and crops, and rural dwellings. Some of the land remained as untransformed natural land.

Action Project 3.3 (i): The previous land use for MNR will be updated.

3.4 Conservation History of the Nature Reserve

The Midmar Nature Reserve was proclaimed under the Nature Conservation Ordinance (Act No.15 of 1974) however, individual properties were proclaimed at different times. The reserve was proclaimed both for its conservation value and with the intention to construct the Midmar Dam, for the purpose of providing water for the urban, industrial and agricultural areas of the Umgeni River Valley, including Pietermaritzburg and Durban.

Prior to proclamation, some of the land was privately owned while other portions were under the control of the Department of Water Affairs. In 1968, the management of recreation on the dam was transferred to the then Natal Parks Board, which was to manage the dam and its surrounds, as well as to provide a public service. Portions of the reserve had pre-existing conditions and agreements, such as the agreed water extraction from the dam to surrounding farmers.

Midmar was then developed as a Public Resort, and accommodation and recreation facilities were developed. The then Administrator of Natal, Mr. W.W.B. Haveman, officially opened Midmar Public Resort on 5 October 1974, 10 years after the dam was completed. The historical Midmar village was also redeveloped, but it was not financially viable and was eventually closed in 1997. The buildings are now used as regional management offices by EKZNW.

The Game Park was established at Thurlow soon after the dam was handed over to the Natal Parks Board. A total of 800 ha was fenced with game fence (including cable for rhino) and the area was stocked with animals (not all of which proved appropriate for the area).

Some animals that were introduced or present upon proclamation included eland, springbok, blue wildebeest and white rhino, all of which have been removed as they were not suitable for the area. Challenges that the reserve have encountered more recently stem from the introduction of the black wildebeest which did not adapt well to the environment. Many of the wildebeest attempted to cross the dam but ended up drowning. Other key challenges that the MNR has encountered, and is in the process of addressing, include alien plant invasions, soil erosion, crime (illegal harvesting of plants, poaching with dogs, theft of fences and arson fires), illegal grazing, opposition from some of the surrounding communities, and a shortage of financial resources

In 2002, the wall of Midmar Dam was raised by means of an innovative labyrinth spillway, which allows double the flow that a normal spillway would have allowed. This was implemented in the interests of the safety of all those living downstream, including the Durban CBD.

Action Project 3.4 (i): The conservation history for MNR will be expanded to include animals / plants that were present upon proclamation and a full history of introductions and removals.

3.5 Climate and Weather

Midmar Dam experiences hot, wet summers and cold, dry winters, with temperatures ranging from a maximum of 38°C in summer (average high 29°C) to a minimum of -3°C (average low 9°C) in winter.

The mean annual rainfall is 992mm, with November, December and January being the wettest months and May, June and July the driest. Prevailing winds are from the south-east, east and south. Midmar experiences calm days (i.e., winds less than 1 metre/second where wind motion is only visible in smoke) for approximately 25 % of the year, and seldom experiences winds exceeding 5.5 - 7.9 metres/second (light to gentle breezes). For half the year, the wind is between 1.6 - 3.3 metres per second. (Figures as supplied by the Weather Bureau for the weather station at Cedara).

Occasionally Midmar experiences extreme high winds, which have in previous years (including December 1988) caused damage to the rustic cabin area adjacent to the main entrance. Snow is an infrequent phenomenon, the most recent being in 2005, after a break of many years.

Action Project 3.5 (i): The collection and storage of climatic data records (with the predictive mean maximum and minimum temperatures and mean rainfall) for MNR will be maintained.

3.6 Physical Description

3.6.1 Topography

The landscape is gently undulating. The dam is at an altitude of 1,044 m above sea level.

3.6.2 Geology

The Game Park is underlain by deeply weathered dolerite that is overlain by Ecca shales, which has produced a gently undulating landscape. The impermeable dolerite made it possible for the dam to be located at this site despite the valley not having the steep sides more typical of dam sites.

The bedrock geology on the area belongs to the Karoo Supergroup. The sedimentary rocks surrounding Midmar belong to the Volksrust Formation which conformably overlies the Vryheid Formation, which consists of thick sandstone successions and accounts for the presence of Howick Falls. The Volksrust Formation is however dominated by dark blue-grey shales which weathers to light yellow to khaki coloured muds and clays. These sediments were deposited approximately 260 - 300 million years ago in the shallow epeirogenic seas associated with the initial development of the Karoo Sedimentary Basin.

The Karoo Supergroup is exposed in the Mount Ashley area to the west of Midmar the Estcourt Formation. This conformably overlies the Volksrust Formation with the contact being taken at the

appearance of the first thick sandstone unit. The Estcourt Formation consists of intercalated olive-yellow coarse- to medium-grained sandstone interbedded with blue-grey to dark grey mudstones and shales. The sandstone horizons represent river channel deposits while the muds and silts represent overbank deposits. In some areas underlain by the Estcourt Formation fossils of a mammal-like reptile may be exposed. The Estcourt Formation was deposited approximately 250 million years ago. Generally soils derived from Karoo Supergroup sediments are dispersive and are easily erodible giving rise to the development of deep dongas.

Karoo sedimentation was finally terminated in the Jurassic by the extrusion of the Karoo basalts which form the Drakensberg. The dolerites found in the Midmar area are associated with this episode of volcanism and were intruded into the country rocks approximately 193 million years ago. The geochemistry of the dolerite is similar to that of the basalts and it generally believed that the dolerite dykes and sills found in the Natal Midland were feeders to the basaltic lava flows evidenced in the Drakensberg. This episode of volcanism lasted less than 10 million years. (Information from Carl Haycock, South African Council for Geoscience.)

3.6.3 Soils

The soils in the Game Park are generally of good quality, although generally shallow.

Action Project 3.6.3 (i): Map the soils and indicate the implications it has for management and future infrastructural development for MNR.

3.7 Geomorphology

The geomorphology of Midmar Nature Reserve and surrounds needs to be investigated.

Action Project 3.7 (i): Investigate the geomorphology and indicate the implications it has for management and future infrastructural development for MNR

3.8 Hydrology

The uMngeni Secondary Catchment (No. U20) is the largest catchment in the Umgungundlovu District and occupies the vast majority of the central portion of the region. The Albert Falls Dam, Midmar Dam and Nagle Dam are situated within this catchment. This is a very important catchment, which provides water to over 3.5 million people. It supports an area which is responsible for approximately 65 % of the total economic production in KwaZulu-Natal. Both Durban and Pietermaritzburg are reliant on this catchment for most of their water supply.

Midmar Dam is fed by the uMngeni River in the west and the Gqishi and Nguklu Rivers in the south. The uMngeni River rises at Umngeni Vlei, an EKZNW managed Nature Reserve, which is located about 40km west of Nottingham Road, and ends at the Indian Ocean, just north of the Durban CBD. The river has a catchment area has an annual rainfall of 1,016mm and while the profile gradient of the river is rather steep (1.7m/km), it is interrupted in two places by waterfalls, namely above the Howick and Albert Falls. It is in these two flatter planes of the river that the Midmar and Albert Falls dams are built. The Midmar Dam wall is built on the same site as Allemans Drift, (a bridge built from yellowwood, by early settlers).

The Cascades section is a key hydrological feature for aeration of the water as it enters Midmar Dam. It has, however, been largely inundated with the raising of the dam wall.

Action Project 3.8 (i): Include and integrate the DWAF water quality and quantity management plan with the Midmar Nature Reserve IMP.

3.9 Flora

The Game Park on the southern side of the dam has a vegetation type which is described as Southern KwaZulu-Natal Moist Grassland (Vegetation type Gs11; Mucina and Rutherford, 2006). A large proportion of it is secondary grassland, having previously been ploughed for agriculture.

The most abundant grass species are *Hyparrhenia hirta*, *Eragrostis curvula*, *Sporobolus* spp., *Aristida junciformis* and *Themeda triandra* (red grass: the most abundant species and the species most relied on by the animals for grazing).

The EKZNW Biodiversity Database provides a very limited plant species list for the Nature Reserve.

Veld Types

The Midland Misbelt Grassland is critically endangered and the Southern KwaZulu Natal Moist Grassland is endangered.

Priority Species

However, the following Red Data listed species are suggested as occurring in MNR:

- *Scilla natalensis* Vulnerable
- *Sisyranthus fanniniae* Vulnerable

Action Project 3.9 (i): Complete a vegetation survey and compile a comprehensive plant species list for MNR

Action Project 3.9 (ii): The vegetation map for MNR including the diagnostic species will be updated.

Action Project 3.9 (iii): Threats to the priority flora and their associated habitats will be identified and a management plan with mitigatory measures developed and implemented.

3.10 Fauna

Species checklists will be compiled as data becomes available (**Appendix 1, Item 3**).

Action Project 3.10 (i): Copies of the Species Checklists will be updated and filed manually and digitally at the MNR 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.

3.10.1 Invertebrates

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

The EKZNW Biodiversity Database provides a limited invertebrate list. The Red Data listed butterfly, the Estcourt blue (*Lepidochrysops pephredo*) occurs in MNR.

Action Project 3.10.1 (i): Compile a checklist of the invertebrate species found in MNR.

3.10.2 Fish

Thirteen species of fish have been recorded within MNR, of which six are alien invasive species. No Red Data species are currently listed, however, the KZN endemic KwaZulu-Natal yellowfish (*Labeobarbus natalensis*) occurs in the Nature Reserve.

Action Project 3.10.2 (i): Identify the major threats to the indigenous fish Species in MNR and propose mitigatory measures.

3.10.3 Herpetofauna (Amphibians and Reptiles)

The EKZNW Biodiversity Database provides a limited amphibian list. Three species of frogs/toads are listed as occurring in the Reserve, one of which occurs on the Red Data lists:

Intermediate spiny reed frog (*Africalus spinifrons intermedius*) Vulnerable

This species occurs in high altitude wetlands, greater than 1 000 masl, and has adapted to living in man-made habitats *i.e.* dams.

Furthermore, the KZN Endemic Long-toed tree frog (*Leptopelis xenodactylus*) is predicted to occur in the Nature Reserve but has not been recorded.

Thirteen species of reptiles are listed as occurring in the Reserve (8 lizards and 5 snakes). The Red Data listed specie is:

Bourquins dwarf burrowing skink (*Scelotes bourquini*) Rare

Action Project 3.10.3 (i): Compile checklists of the Herpetofauna in MNR.

Action Project 3.10.3 (ii): Identify the major threats to priority Herpetofauna in MNR and propose mitigatory measures. Monitor the success of the mitigatory measures.

3.10.4 Avifauna (Birds)

The EKZNW Biodiversity Database lists 237 bird species for the Nature Reserve. Of particular importance are:

Blackrumped buttonquail (*Turnix nanus*) Endangered

The preferred habitat for the quail is short, open grassland. The primary threats to the species are overgrazing, too-frequent burning and human disturbance.

Southern ground-hornbill (*Bucorvus leadbeateri*) Vulnerable

Ground-hornbills require a large area (ca. 100km² per group) in which to forage and find suitable breeding trees. The NR has ensured that protection is afforded to this species by safe-guarding a core area of suitable habitat in a locality where habitat alteration due to development and human pressures are high.

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.

Denham's bustard (*Neotis denhami*) Vulnerable

This species favours the grassland biome, preferring high-lying open grassland and frequently on plateaux. May forage in cultivated lands, but strictly natural grassland for breeding. Eggs are laid onto bare ground amongst tall grass tussocks from September – December, with chicks fledging approximately 2 months after hatching. Primary causes of species decline include habitat loss and human disturbance.

Wattled crane (*Bugeranus carunculatus*) Critically Endangered

This species requires winter wetland sites for breeding, but there are no such suitable sites in MNR. However, Wattled cranes occasionally forage in the grasslands of the reserve, and MNR thus provides protected foraging grounds for birds occurring in the area.

Grey crowned crane (*Balearica regulorum*)

Vulnerable

Maintain the wetlands and the associated grasslands in the reserve in a suitable state for the occasional foraging of Grey crowned cranes. These cranes roost in the Game Park at night

Blue crane

Vulnerable

This is the world's most range-restricted crane. This species primarily occupies the grassland biome, though frequently occurs in pastures, and require shallow water or pans in which to roost. Maintain the wetlands and the associated grasslands in the reserve in a suitable state for the occasional foraging of Blue cranes.

African marsh-harrier (*Circus ranivorus*)

Vulnerable

The wetlands in the Reserve support breeding pairs of African Marsh Harrier.

Cape vulture (*Gyps coprotheres*)

Vulnerable

Vultures may occasionally be seen moving through the area, but as they breed exclusively in cliffs, these are not resident in the Reserve.

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 km²). Its persistence in this region depends on adjacent patterns of land use and transformation. The Reserve lacks trees for nesting although pylons may be used. The ability of the region to support a breeding pair will depend on future habitat use around the reserve.

Action Project 3.10.4 (i): Identify the major threats to priority avifauna in MNR and recommend appropriate mitigatory measures.

Action Project 3.10.4 (ii): Develop and implement a monitoring programme for priority avifauna species in MNR.

3.10.5

Mammals

The EKZNW Biodiversity Database lists twelve mammal species as occurring, one of which is a Red Data listed species:

Oribi (*Ourebia ourebia*)

Endangered

Oribi require open grassland with both short grass for grazing and long grass in which to take cover during resting and breeding. The primary threats to this species are illegal hunting (especially with dogs) and inappropriate burning regimes. Appropriate management for maintaining this population is a priority, for which fire management and preclusion of hunting is critical.

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

Action Project 3.10.5 (ii): Conduct an annual large herbivore census using a consistent methodology towards management of animal populations within the carrying capacity of the Game Park.

Action Project 3.10.5 (iii): Identify the major threats to priority mammals in MNR and propose mitigatory measures.

3.11 Cultural Heritage

MNR's cultural resources include:

- The Midmar Dam (a living heritage site)
- Two Buildings older than 60 years: Thurlow House and "The Sheds"
- Maloti House (related to the Tweedie Hall) and the Midmar Historical Village
- Late and Middle Stone Age Sites located next to the uMngeni River

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

Action Project 3.11 (i): Identify and GPS the archaeological, historical, palaeontological and cultural heritage sites at MNR. Develop management plans for these to ensure compliance with requirements of heritage legislation.

The Village of Howick and the waterfall are both known as *KwaNogqaza*, in reference to an early chief of the Dlamini Clan (Koopman, 2002).

Indigenous people living in the area have always claimed something mysterious lived near the Howick Falls. Legend has it that it would attack humans who ventured near it. In 1981, Johannes Hlongwane was looking into the misty Howick Falls when he saw the form of a giant monster, with its neck raised approximately thirty-two feet into the air. In 1995, Bob Teeney claimed that he saw a giant serpent-like creature rise out of the depths.

Many people suggest that the serpent is no more than the mistaken identity of a giant eel. This view is emphasised with the facts that *Inkanyamba* shares many traits with eels, which are common in the rivers and dams. The creature, *Inkanyamba*, is believed to live in large bodies of water like the pool below the Howick Falls. Other sites in the area include the Midmar Dam, the Mkomazi River which is about 69.6 km south of Howick, and dams on farms in the Dargle area of the Midlands.

The slippery beast is said to get the travel bug when fighting over territory with another *Inkanyamba*, when it feels amorous, or if the water has dried up. The serpent is believed to travel in dark and angry clouds which push their weighty black shadows over the land. Violent storms, with fierce winds, rain and hail, even tornadoes, are often ascribed to a vengeful *Inkanyamba* on the warpath again.

A terrible storm hit the Greytown, Ingwavuma and Pongola regions of KwaZulu in March 1998. The winds reached speeds of 52 mph, tearing sheeting from houses, ripping them apart. Thousands of people lost their homes. To discourage the serpent from destroying property, many locals paint their tin roofs a dark colour, believing that it won't attract the attention of the serpent.

3.12 Sociological Context

The Reserve is surrounded by commercial agriculture. The south western side of MNR is bordered by the Mpophomeni Township, while the town of Howick is situated on the eastern side of the Reserve. The N3 National Highway and the railway line between Durban and Johannesburg pass on the eastern boundary, below the dam wall. Land south of the Nature Reserve is State land and consists of a shooting range and airfield.

Action Project 3.12 (i): Update the Sociological context and its importance to MNR.

3.13 Economic Context

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

Recreational activities that are offered by MNR include:

- Camping / Caravan;
- Boating/ sailing;
- Tennis;
- Bird watching;
- Sporting events such as Midmar Mile (attracts about 27000 people), canoeing, water skiing, triathlons, marathons and cycling events;
- Angling competitions;
- Company outings;
- Rallies;
- Scouting;
- Festivals such as the jazz festival and Arisefest etc; and
- Picnicking.

Facilities and services that are offered by MNR include:

- Day visitor and overnight facilities;
- Accommodation and braai facilities;
- Employment opportunities to the local community for the eradication of alien plants; and
- Community Levy Fund which is used for the upliftment and development of the local community

Ecosystem services that are offered by MNR include:

- Potable drinking water to the greater economic zone;
- 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; and
- Carbon sequestration

Action Project 3.13 (i): Update resource economics study of MNR to determine its economic value regarding the provision of ecosystem services and its contribution to the local and regional economy.

3.14 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 MNR and promote eco-cultural tourism to the reserve. Concept future development will be detailed in the Concept Development Plan. (See **Par 6.10**)

Action Project 3.14 (i): Identify and map infrastructure using GIS and include in a spatial database. Develop standard protocols and procedures for recording and maintaining infrastructure in MNR.

Action Project 3.14 (ii): Repair, where necessary, the existing infrastructure provided in the MNR.

3.14.1 Eco-Cultural Tourism Infrastructure

The following facilities are provided:

- Seven kilometres of developed shoreline – Munroe Bay (32 chalets, 16 rustic cabins, 31 camp sites with nine ablution facilities);
- Morgen Zon Camp Ground (104 non powered sites, 35 further sites with electricity and five ablution facilities);
- Dukuduku (41 camp sites with two ablution facilities and 6 day visitor toilet blocks);
- Two squash courts and four tennis courts;
- Old restaurant which is utilised as a conference facility;
- Thurlow House. (Thurlow House, consists of eight beds and has a tennis court and swimming pool. It also used to have its own cook and cleaner, later it was used as offices, and has recently undergone a R1.1 million structural refurbishment;
- Orient Park (used for jazz festivals, rallies such as scouting, caravans etc);
- Special Events Area (caters for fishing events, 34 sporting events e.g. Midmar Mile, 60 angling competitions and company outings);
- Three public toilet blocks at picnic sites; and
- Yatching area

There are no eco - cultural tourism facilities in the Game Park (other than the gravel roads).

3.14.2 Management Infrastructure

The following management buildings are present in the MNR:

- 21 management level staff housing with ablution facilities;
- One main office;
- Two stores workshops;
- One structural workshop;
- Staff accommodation (multi-room) with ablution facilities;
- 95 boat storage lockers;
- Ukhahlamba Regional Offices with ablution facilities;
- Training Centre (Old Orient Park) with ablution facilities;
- Mechanical and underground diesel and petrol storage;
- Wood shed;
- Pump house;
- Garden shed; and
- Two game guard outposts at Nkutu. One of the outposts consists of three rondavels for sleeping and one kitchen/ablution rondavel.

3.14.3 Bulk Infrastructure

Midmar Nature Reserve:

- 21 km of public roads and no management tracks;
- Solid waste is collected and transported to the Howick Dump Site;
- There is a water purification works on the Nature Reserve and two water treatment plants. Water is obtained from the dam for most sites, but is extracted from a borehole at Thurlow;
- 31 septic tanks and 13 day visitor toilet blocks;
- Electricity is provided by Eskom;
- There are Telkom phone lines;
- One helipad; and
- Gravel roads within the Game Park.

Action Project 3.14.3 (i): Establish flight paths for the helicopter (for emergency purposes).

3.14.4 Conservation Infrastructure

Fences:

- There are internal fences around designated areas;
- The perimeter boundary fences total length is approximately 55 km. The existing boundary is demarcated by a six-strand barbwire fence;
- There is 17 km game fencing which was replaced in 2008. Fencing in the Game Park is approximately 1.8m high bonnox (which is regularly stolen or damaged).

Action Project 3.14.4 (i): Develop a maintenance plan for all fences in MNR.

3.14.5 Water Supply Infrastructure

Water is extracted from the dam, filtered and stored in water tanks where it is distributed via gravity. Water is stored in tanks in the following areas:

- Munroe Bay - 550 000 litre re- inforced concrete tank
- Windwood – 130 000 litre re – inforced concrete tank
- Dukuduku – 4 x 15 000 litre four standing tanks
- Orient Park – 140 000 litre re–inforced concrete tank and two JoJo tanks

At Thurlow, a pressure pump is used to extract water from the borehole.

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

Action Project 3.14.5: Update MNR (incl. MGP) Map to include the location of all water supply infrastructures.

3.14.6 Infrastructure Maintained by other Organisations

Outsourced organisations are responsible for the maintenance of the roads and the clearing of the drains. Security for the Nature Reserve is also outsourced to private companies.

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 2009-2013 which has identified the following corporate Vision, Mission, Goals and Core Values (see Text Box below):

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

Cognisant of EKZNW’s legislative mandate as well its corporate Vision, Mission, Goals and Core Values, this MNR 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 finalized while undertaking further consultation.

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

4.3 Vision

“A consolidated and legally protected Nature Reserve, providing protection for threatened grassland species; outdoor recreation and education opportunities in a safe and secure environment and that contributes to local economic development in an equitable manner”

4.4 Mission

“To sustainably manage and conserve the natural resources of the Midmar Nature Reserve, providing protection for grassland species and ecosystems, and maintaining the sense of place, providing opportunities for environmental education and nature based recreation”

4.5 Management Objectives

The Nature Reserve Objectives below, were aligned with the following overarching management Objectives for MNR (not in order of priority):

- **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 MNR.
- The formation of functional **partnerships** to integrate the MNR with regional development plans and other initiatives which underwrite the vision of MNR.

Biodiversity Objectives

- Control alien species.
- Maintain an effective buffer for the protection of the water resource in the dam.
- Maintain the natural ecological integrity of the Game Park (*i.e.* prevent it from being transformed through inappropriate development).
- To conserve its biodiversity through the maintenance of natural processes.
- To conserve key threatened grassland plant and animal species.

Cultural Objectives

- Minimise threats to the cultural heritage and sense of place (retain the aesthetic value of the area).

Business Objectives

- Ensure that the Game Park is effectively managed, according to international standards of best practice.
- Secure adequate resources for the management of the Game Park. This includes financial, human and institutional resources.

Benefit (Partnership) Objectives

- Allow sustainable resource use in line with existing EKZNW policies.
- Promote community benefit sharing by means of a community levy.
- Seek cooperative agreements with neighbouring communities towards optimising natural processes and expanding the area under conservation management.
- Use the MNR as a resource for environmental education and to support environmental education initiatives.

Tourism

- Encourage community participation in tourist entrepreneurial activities within and around MNR to increase the range of tourist opportunities and maintain and improve acceptability by neighbours and the wider public.
- Promote local and regional awareness of the Game Park.
- Provide an accessible, high quality nature experience for the public.
- Support local and regional tourism initiatives.

Action Project 4.5 (i): Develop targets and monitoring strategies for Cultural, Business and Partnerships objectives.

4.6 Conservation Targets for Midmar Nature Reserve

To develop a strategy 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 conservation 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 assumption made in the KZN Systematic Conservation Plan, 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. Failure to do this 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 the Game Park in particular 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 will conserve these, is poor, and the debate and research around this topic will continue for some time to come. This information will be continuously updated over time as our knowledge of area, connectivity and other process requirements improves for the conservation of ecosystems, communities and species. However, management has to take place despite these deficiencies so it is necessary to make best use of available information, stating the assumptions and limitations, and to see conservation targets as a set of working hypotheses around which conservation planning and evaluation will take place. Another advantage of developing strategies around targets is that this process serves to highlight the critical knowledge deficits, thus guiding future research and monitoring priorities.

The 2004 version of the KZN Systematic Conservation Plan (“C-Plan”) identifies that it is essential for the Midmar Nature Reserve to conserve a total of 13 vegetation types and species.

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

4.7 Conservation Targets for the Reserve

Specific conservation targets for the MNR are required to develop a strategy linked to budget and resources, to allow for monitoring and evaluation, as well as policy improvement. See Table 1 following:

Table 1: Biodiversity Targets

Element of Concern	Key Attribute (Threats)	Indicator	Current Status for 2008	Target
Conserve the endangered and critically endangered Veld types in MNR.				
Midlands Misbelt Grassland Critically endangered	<ul style="list-style-type: none"> The provincial target is 23%, however only 20.5% is untransformed. Only 5.2% of this vegetation type remains within protected areas. Decline of veldtype. 	<ul style="list-style-type: none"> Land transformation. Alien species invasion. Poor veld management. Arson Fires. No recruitment. Illegal harvesting of plants. 	<ul style="list-style-type: none"> MNR contributes 0.2% to the remaining provincial total. 	TBD
Southern KwaZulu Natal Moist Grassland endangered.	<ul style="list-style-type: none"> The provincial target is 23%, however only 33.5% is untransformed. Only 9.5% of this vegetation type remains within protected areas. Decline of veld type 	<ul style="list-style-type: none"> Land transformation. Alien species invasion. Poor veld management. Arson Fires. No recruitment. Overgrazing. 	<ul style="list-style-type: none"> MNR contributes 1.3% to the remaining provincial total. 	TBD
To conserve rare ecosystems and species.				
<i>Lepidochrysops Pephredo</i> (Rare. Invertebrate)	<ul style="list-style-type: none"> There is a loss of individuals. 	<ul style="list-style-type: none"> Decrease in condition. 	<ul style="list-style-type: none"> MNR needs to conserve this species in good condition 	TBD
<i>Scelotes Bourquini</i> (Rare Reptile)	<ul style="list-style-type: none"> There is a loss of individuals. 	<ul style="list-style-type: none"> Decrease in condition. 	<ul style="list-style-type: none"> MNR needs to conserve this species in good condition 	TBD
<i>Bugeranus Carunculatus</i> (Critically Endangered bird)	<ul style="list-style-type: none"> There is a loss of individuals. 	<ul style="list-style-type: none"> Loss of suitable habitat. 	<ul style="list-style-type: none"> MNR needs to conserve this species in good condition 	TBD
<i>Turnix Nanus</i> (Endangered bird)	<ul style="list-style-type: none"> There is a loss of individuals. 	<ul style="list-style-type: none"> Loss of suitable habitat 	<ul style="list-style-type: none"> MNR needs to conserve this species in good condition 	TBD
<i>Ourebia ourebia</i>	<ul style="list-style-type: none"> There is a loss of 	<ul style="list-style-type: none"> Decrease in 	<ul style="list-style-type: none"> 15 animals 	6 animals

Element of Concern	Key Attribute (Threats)	Indicator	Current Status for 2008	Target
(Rare mammal.	individuals.	condition. <ul style="list-style-type: none"> • Illegal hunting with dogs. • Inappropriate grassland management including fire. • Competition with other ungulates. 		
Black wildebeest	<ul style="list-style-type: none"> • RSA endemic species, global population of 20000 animals threatened by interbreeding with Blue wildebeest. Midmar has a known genetically pure Black wildebeest population 	<ul style="list-style-type: none"> • Inbreeding due to lack of metapopulation management. • Competition from other short grass grazers. • Inappropriate veld and wildlife management leading to insufficient short grass. 	<ul style="list-style-type: none"> • 64 animals 	70 animals
Red Hartebeest	<ul style="list-style-type: none"> • Interbreeding with Tsessebe and Blesbok has threatened their genetic integrity but the population in the gamepark is known to be pure bred and is thus to be managed for the genetic conservation of the species 	<ul style="list-style-type: none"> • Inbreeding due to lack of metapopulation management. • Competition from other short grass grazers. • Inappropriate veld and wildlife management leading to insufficient short grass. 	<ul style="list-style-type: none"> • 115 animals 	100 animals
Grass Owl, Barrows Korhan and Denhams Bustard	<ul style="list-style-type: none"> • Grass Owl: vulnerable Red Data Species • Barrows Korhan: Vulnerable Red Data Species; range has declined by >50% over the last 20 years. • Denhams Bustard: vulnerable Red Data Species (SA Bird Atlas; Eskom Red Data Book of Birds in South Africa, Lesotho and Swaziland) 	<ul style="list-style-type: none"> • Inappropriate veld management that removes breeding habitat. • Disturbance may reduce breeding success. • Habitat fragmentation in surrounding area. • Use of pesticides and rodenticides in surrounding areas. • Road strikes from speeding motorists at night. 	<ul style="list-style-type: none"> • Unknown 	Retain 100% of grassland habitat, and maintain sufficient long grass for breeding

Action Project 4.7 (i): Set conservation targets and monitoring strategies for the identified species.

5 ZONATION

As a result of the raising of the dam wall, Umgeni Water led the process of re-creating a Zonation Map for Midmar Dam (see Map 3).

The Zonation Plan is based on avoidance of activities that may conflict with one another eg. Between power boat and sail craft use by visitors. These are grouped according to water use, fishing and land use activities. Only those activities relating to the policy for each zone will be permitted within the designated areas.

Water use

- a) All craft – All water craft are permitted to use this section of the dam, which is a corridor which extends from the main slipway in a south-westerly direction towards the Morgonzon Campsite. It then expands to a large area extending to the south, in two “fingers”.
- b) Jet-ski operation only – This is a small strip to the south and east of the dam wall, north of the training centre and adjacent to the south-east bank.
- c) No boating allowed – This is a small portion of the dam where the uMngeni River flows into the dam at Cascades. It is demarcated by a line of buoys. It will also include the area directly adjacent to the dam wall.
- d) Power boats only – This is the entire western section of the dam, extending from the Game Park to the “No Boating” area adjacent to Cascades.
- e) Sail craft only – This area extends from the main slipway, southwards towards the Training Centre and across to the Morgonzon campsite. It is almost the entire north-eastern portion of the dam.

Fishing

Fishing from the banks is restricted to certain areas, namely:

- a) Almost the entire western bank, starting from the “no-boating” section at Cascades and going south towards the Game Park.
- b) A section of the bank south-east of the dam wall and further down that same bank just north of the Training Centre.

Land use

- a) Conservation – This is the Game Park Section on the south bank of the dam. This is predominantly a natural environment/limited use zone, with moderate evidence of the sights and sounds of man. Roads for motorised public transport are provided. Rustic facilities, such as picnic sites, bush camps and game viewing hides are not provided. There is no wilderness zone at Midmar.
- b) Entertainment – This is the area around the main slipway and includes the boat garages, restaurant, parking area and facilities for major events. It also includes the Henley-Midmar Yacht Club.
- c) Conservation Area (includes some management facilities) – This is a conservation area that includes the entrance gate, visitor centre/reception and main offices near the gate, staff housing and service facilities at Munro Bay, Fernhill and Thurlow; as well as the old Midmar Historical Village, which now houses the Ukhahlamba Regional Offices.
- d) Recreation – This includes almost the entire northern and eastern banks of the dam, with the high intensity recreation facilities being concentrated on the northern bank. Parts of Munro Bay, Morgonzon and Duku Duku have been set aside for camping in tents and for caravans. Munro Bay has a hutted camp. The Day Visitor Area includes Munro Bay, Eikedal, Windward, Cascades and Umgeni Resort, where areas for parking, restaurant facilities, ablutions, etc., are provided for day visitors.

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

6 OPERATIONAL MANAGEMENT POLICY FRAMEWORK AND GUIDING PRINCIPLES

This section includes all of the threats and sources of conflict that are associated with Midmar Dam and surrounds. Those that are specific to the Game Park are noted as such.

The integrity of this water resource, biodiversity and recreation asset is threatened by a number of factors, as follows.

- Illegal hunting in the Game Park.
- Invasive alien species.
- Theft of fences.
- Potential inappropriate housing, tourist or recreation developments. These could have aesthetic impacts, could result in increased nutrient load from septic tanks into the system and could result in leaching of pesticides, herbicides and fertilisers into the groundwater and thus the dam. All of this could increase the overall water purification cost.
- Pollution – fertilisers, pesticides, sewage, solid waste from farming and from urban expansion threaten resources for wildlife.
- Ignorance of the biodiversity value of the Game Park. Natural grassland is often viewed as being worthless and has consequently not received the level of protection that it deserves. It is a biome that is particularly threatened in South Africa.
- Inadequate security to prevent crime or simply the fear thereof. The recreation area on the northern bank is perceived to be quite safe, but the Game Park area does not engender the same feelings of security.
- Development and political pressures could result in adverse or inappropriate forms of development and further loss of natural areas..
- Unplanned and uncontrolled fires originating from land outside the Game Park.

In addition to threats to the integrity of Midmar, there are a number of potential sources of conflict between different user groups and groups that have an interest in the dam and its surrounds. These could include the following.

- Conservation, agriculture, urbanisation, water supply, recreation and municipal plans for local economic development may have conflicting needs.
- Neighbours wanting dedicated access to the water (different interpretations of public-private partnerships - PPP).
- Pressure to utilise resources excessively.
- Enforcing the spirit of the IMP, especially where entrenched use of resources is affected.

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

6.1 Resources

6.1.1 Financial Resources

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

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

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

The development of a MNR 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 MNR 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 MNR and that any operational profit will be used to subsidise the Nature Reserve's conservation and community programmes.

The value of ecosystem services that MNR 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 MNR, ensure continued government funding and where appropriate, leverage additional funding from other sources.

Insufficient finances are currently available to have a permanent presence at the entrance gate and to ensure the security of a cash collection point there.

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

6.1.2 Human Resource Capacity

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

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

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

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

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

6.1.2.1 MNR Employment Policy Guidelines

MNR Management Committee 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 MNR Management Committee.

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 MNR for the benefit of all.

6.2.1 Local Board

Community participation in the Nature Reserve is realised, mainly, through a Local Board which is established in terms of Chapter 5 of the KZNNCMA. The EKZNW Board Policy No.4.9 (**Appendix I- Conservation Partnerships Policies**) 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 will still be established.

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

6.2.2 Community Levy Trust Fund

Communities adjacent to the MNR 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.

Action Project 6.2.2 (ii): Identify community projects requiring funding from the fund.

6.2.3 External Funding Projects

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

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

6.2.4 Land Claims

There are no known land claims against MNR.

6.2.5 Environmental Education

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

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

6.2.6 Transfrontier Partnerships

MNR has no Transfrontier Partnerships.

6.2.7 Informal Participation

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

Action Project 6.2.7 (i): Annually 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 MNR will be a severe threat to the integrity of its natural and cultural heritage, its water storage and supply infrastructure, as well as the safety of MNR users, neighbouring communities and the attainment of its stated Mission and Management Objectives.

The Nature Reserve management will therefore initiate and institutionalise a security strategy that ensures co-ordinated participation in all possible local, regional or security forums and networks while optimising security in and around MNR. This strategy will ensure sufficient capacity to deal with conservation-related illegal activities in MNR (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 and stakeholders.

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

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

Biodiversity Conservation and Management

The Game Park conserves a representative portion of the biodiversity of the poorly protected Southern KwaZulu-Natal Moist Grassland (Muchina and Rutherford 2006, Vegetation type Gs11). It also provides valuable habitat for breeding populations of antelope, namely the endangered oribi (*Ourebia ourebi*), black wildebeest (*Connochaetes gnou*) and red hartebeest (*Alcelaphus buselaphus*) and birds; Denhams Bustard, Grass Owl and Buttonquail..

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

Conservation management is centered on the manipulation of fire and grazing, the key ecological processes influencing the biodiversity and ecosystem processes in the Game Park. The “natural” (historic) fire and grazing regimes are only poorly understood. It is not practical to apply these as they were believed to have occurred in the past, given the relatively small size of the Game Park and that surrounding habitat has been fragmented by land transformation. Management aims, instead, to promote a shifting mosaic of patches of different age and size, thereby creating a diversity of habitats. This approach will provide the known requirements for key species (e.g., oribi), while also providing the best insurance policy for the majority of organisms whose habitat requirements and response to fire and grazing are unknown.

6.4.2 Fire management

Game Park Management will conduct a pre-burn field inspection with EcoAdvice to agree upon the areas that are to be scheduled for burning that year. This inspection will occur by the end of May each year, prior to the establishment of trace-lines and fire breaks, and be based on at least the last three years’ fire history and the Fire Management Plan for the Game Park. Any changes to this fire programme for the year need to be agreed upon by both Management and EcoAdvice.

The extent and nature of both planned and unplanned fires will be reported by Game Park Management to EcoAdvice using the official format as part of their Monthly Biological Returns, with all submissions for the year due by the end of November that year.

The budgeting process will reflect that adequate resources to address fire management requirements in the Game Park have been considered.

The Game Park 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 Game Park Management will actively champion the establishment and maintenance of an FPA to gain the full legal advantages of being a member of the FPA and to promote, where possible, fire management regimes surrounding the Park that would benefit the conservation of biodiversity and ecological processes.

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

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

In this regard Park Management will actively champion the establishment and maintenance of FPAs on and bordering MNR in order to gain the full legal advantages of being a member of the FPA and to promote, where possible, fire management regimes surrounding MNR that would benefit the conservation of biodiversity and ecological processes.

6.4.3 Alien Species Control and Management

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 MNR (incl. MGP) strategy to deal with alien and alien invasive species in the Nature Reserve.

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

6.4.3.1 Alien Plants

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

Wherever possible and appropriate these plants will be removed from MNR. The following management guidelines apply:

Alien plant introductions

Introductions of alien plants to Midmar Nature Reserve 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 decoration purposes. These will not be permitted within the Game Park and will only be permitted within MNR provided they in no way impact negatively on the Game Park's landscape character and ecological processes or disrupt normal animal behaviour patterns (e.g., fruit trees and vervet monkeys).

Only plants indigenous to the Southern KwaZulu-Natal Moist Grassland will be used in landscaping projects. Refer also to EKZNW Board Policy No. 3.05 (**Appendix 2**).

Declared Alien Weeds and Invasive Plants

Alien plants declared weeds and invader plants, according to Section 29 of CARA (Act No. 43 1983), are a serious threat to the ecological functioning of natural systems, including water production, and will be strictly controlled in terms of the relevant CARA regulations. An ongoing time-bound programme to effectively control these alien weeds and invader plants within the Game Park and 1km (buffer area) of the Game Park boundary will be developed. State poverty relief programmes, such as "Landcare", "Working for Water", "Working on Fire" and "Working for Wetlands" will be used to full effect to complement the Game Park budget for this management task.

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

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

- | | |
|----------------------------------|--------------------|
| • <i>Acacia longifolia</i> | Long-leaved wattle |
| • <i>Acacia mearnsii</i> | Black wattle |
| • <i>Liquidambar styraciflua</i> | Liquid Amber |
| • <i>Rubus cuneifolius</i> | Bramble |

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

Action Project 6.4.3.1 (ii): Undertake a full species survey for alien plant species present and map this.

Existing Non-invasive Alien Plants

A phased 5-year plan to address the existence and spread of non-invasive alien plants (including grasses) that already exist within the Game Park will be developed. Where required, this plan will also address the re-planting of relevant areas with indigenous plants. If considered appropriate by the PAMC, certain non-invasive alien plants may be demarcated and retained for horticultural or cultural-historical purposes. They will, however, not be replaced should they die, unless recommended by the PAMC for cultural-historical reasons. All seedlings of demarcated alien plants will be removed annually.

Action Project 6.4.3.1 (iii): Develop a phased 5-year plan to address the existing non-invasive alien plants in the MNR.

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 MNR.

The following management guidelines apply:

Alien Animals Present in MNR

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.

The alien fish species occurring within the Nature Reserve are the following:

- | | |
|--|--------------------------|
| • <i>Ctenopharyngodon idella</i> | Grass carp |
| • <i>Cyprinus carpio</i> | Carp |
| • <i>Lepomis macrochirus</i> | Bluegill sunfish |
| • <i>Micropterus dolomieu</i> | Smallmouth bass |
| • <i>Micropterus punctulatus</i> | Spotted bass |
| • <i>Micropterus salmoides salmoides</i> | Northern largemouth bass |
| • <i>Gambusia affinis</i> | Mosquito fish |

A management strategy is needed to reduce and monitor alien fish species in MNR.

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

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

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

Alien Animal Introductions

Introductions of alien animals to MNR is 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, standardised and equitable MNR 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 MNR.

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 / Wetland / Groundwater / River Management

In order to ensure a sustained flow of good quality water entering the dam from the catchment, it is essential that throughout the catchment:

- A good vegetative cover is maintained in order to sustain the flow of water and to soil erosion that is deposited in the dam;
- Strict pollution control and waste management standards be applied especially in the Nature Reserve;
- Natural wetlands in the catchment be maintained and any damaged wetlands rehabilitated;
- Invasive alien plants are removed and controlled; and
- Aquifer and surface water quality and quantity be monitored.

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

6.4.5 Soil Erosion Control

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

Given that the Game Park forms part of the surrounds of Midmar Dam, a key water resource in KwaZulu-Natal, accelerated soil loss into the dam needs to be prevented. In all instances, infrastructure (e.g., roads) or human activities that are promoting the natural rate of soil loss from the Game Park need to be prioritised for attention. Similarly, fire and wildlife population management should take its potential impacts on accelerated soil loss into consideration (e.g. the Game Park should not be overstocked with concentrate grazers, or allow small fire compartments to be burnt in isolation encouraging localised overgrazing). Soil erosion prevention and control is particularly important in parts of the Game Park underlain by duplex soils, such as may be seen in the dongas in the adjacent property, Grootvallei, where the Game Park road runs along the fenceline, west of the Nguklu River.

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 EKZNW 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 MNR 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 MNR.

Wildlife in the Game Park would have previously roamed over a far greater area, interacting with other populations, promoting genetic diversity and reducing local grazing pressure on the veld. The small size of the Game Park necessitates that antelope populations be intensively managed to maintain an appropriate density and proportionate representation of different feeding guilds that maximises population growth while not posing a threat to the biodiversity and grazing capacity. It may also be necessary, from time-to-time, to introduce appropriate new genetic stock (i.e., genetically pure animals from the same sub-population).

Action Project 6.4.6 (i): Develop a programme of introduction of “new blood” into antelope populations residing in the Game Park. This should preferably be part of a larger meta-population strategy for the Province.

To monitor game populations, introductions, mortalities and removals are to be reported by Game Park Management to EcoAdvice as part their Monthly Biological Returns. An annual game census and oribi counts are to be conducted by the Game Park Management in September of each year and the results submitted to EcoAdvice prior to the annual Animal Population Control workshop. These figures will be added to and used with the historical game count data to advise planned game removals.

Oribi Management

Due to the Endangered Red Data Book status of Oribi, specific management interventions are required to maximise the population within acceptable limits of the behavioural ecology of this species. This is the priority mammal at MNR.

While the tall-grass character of the Game Park lends itself to providing the cover much needed by oribi, management interventions will include consideration of their requirement for short-grass for grazing. This may be achieved through manipulating the numbers of bulk grazers (i.e., zebra), by creating short-grass areas through mowing, or by adapting the burning programme within appropriate bounds.

Translocations and introductions to promote genetic diversity and seed other populations will be in line with the Oribi Conservation Plan.

Hunting with dogs poses a key threat to the oribi population in the Game Park and needs to be urgently addressed.

Action Project 6.4.6 (ii): Compile an Oribi Management Plan for MNR.

Black Wildebeest and Red Hartebeest Management

While considered of Least Concern in the Red Data Book, both black wildebeest and red hartebeest populations are threatened by poor genetic management. Crossbreeding with similar species (e.g., black wildebeest and blue wildebeest) and inbreeding in small populations (such as occur in the Game Park) are posing serious conservation threats to these antelope. Being short-grass, concentrate feeders, both species could potentially degrade the veld, if allowed to increase unchecked. However, this presents the opportunity of relocating animals to start or support other populations.

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 MNR's Management Objectives and set Conservation Targets;
- complying with MNR'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 MNR Manager. The Reserve Manager will, however ensure that all relevant information is recorded and the relevant data / specimens / material provided is provide to the Ecological Advice component staff responsible for processing and recording such information. A copy of these records will be kept in the reserve office record system. The by-products such as meat and horns will be disposed of according to tariffs and procedures determined by EKZNW and in accordance with the relevant legislation.

Action Project 6.4.6 (iii): Compile a Management Plan for the Black Wildebeest and Red Hartebeest populations in MNR.

6.4.6.1

Introductions of Indigenous Animal Species into MNR

The introduction of indigenous animal species into the Nature Reserve will be considered in terms of Corporate Policy D2.21 (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 MNR.

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 MNR is needed for the effective application of this policy guideline.

Having undergone some radical game introductions in the past (including springbok and white rhino), the Game Park is now populated with an appropriate suite of herbivores, with little call for new introductions. Nevertheless, if new species are to be considered, their introduction will be in line with Corporate Policy D2.21, and take 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 the Game Park.

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 MNR. This could result in overgrazing and trampling of the vegetation and eventually accelerated soil erosion and biodiversity losses. To guide game population management, it is therefore necessary to develop a MNR Game Management Policy Guideline document that is reviewed and recommended by the MNR PAMC.

The MNR PAMC will annually determine and recommend game removal or augmentation in terms of the Game Management Policy Guideline. Game removal from MNR will only be undertaken by means of:

- Live Capture; or
- Culling Programmes;
-

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

6.4.6.3 **Fishery Management**

No fishery monitoring is conducted at the MNR.

Action Project 6.4.6.3 (i): Develop and implement a fishery monitoring programme for MNR.

6.4.6.4 **Bird Management**

No bird monitoring is conducted at the MNR.

Action Project 6.4.6.4 (i): Develop and implement a bird Monitoring Programme for MNR.

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

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

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

Action Project 6.4.6.5 (i): The MNR 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 are to be recorded in the prescribed Damage Causing Animals Complaints Register kept on station. Investigations and incident reporting is to be carried out in accordance with **EKZNW's DCO Control Protocol and Guidelines**.

6.4.7 **Control over Illegal Use of Natural Resources**

Illegal utilisation of MNR's natural resources is not quantified and is to be considered a threat that has the potential to increase significantly if not adequately controlled. Illegal activities within the Game Park and illegal utilisation of the Game Park's natural resources are realities that are present, but not well quantified. It will be assumed that these threats have the potential to increase significantly.

The main effort towards resolving illegal utilisation of natural resources by neighbouring communities for purposes of subsistence will be to create understanding and awareness through pro-active education amongst these communities and controlled utilisation where appropriate

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 MNR management while high risk criminal activities will be monitored and communicated to the relevant security forces as part of a broader co-operative security strategy [See **Action Project 6.3(i)**].

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

In order to resolve illegal utilisation of natural resources by neighbouring communities, understanding and awareness through pro-active education amongst these communities is to be promoted (See **Local Community Involvement: Environmental Education under Par. 6.2.5**).

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 MNR. (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 MNR that would meet national requirements. This plan will cover archaeological historical sites as well as palaeontological features and living heritage sites.

The cultural heritage of the MNR 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 in MNR.

Action Project 6.5 (i): Develop a comprehensive Cultural Heritage Inventory and Management Plan for MNR 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 MNR are not compromised. Resource use will not be allowed to degrade the aesthetic landscape character of MNR or be permitted if management staff lack adequate capacity to ensure effective control over the resource utilisation or by compromising essential functions.

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

Action Project 6.6 (ii): Develop a monitoring and recording system with respect to the utilisation of natural resources within the Game Park, both in terms of volumes utilized and the effect that the utilisation has on the integrity of the resource base.

6.6.1 Plants and Animals

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

The PAMC are to evaluate applications with due consideration of:

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

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

6.6.2 Bioprospecting

Requests to collect biological material / samples from MNR will only be considered by the PAMC in accordance with, amongst others, **EKZNW Board 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 MNR management objectives and any application for extraction by an external body will be referred to the EKZNW Board.

6.7 Eco-cultural Tourism and Marketing

Eco-cultural tourism and marketing will be considered within the framework of, amongst others, **Board Policy E1 to E19** (Appendix 2) with regard to Commercial Operations.

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

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

The CDP will be guided by the framework of the PNR Mission, Management Objectives, Zonation and Management Policy Guidelines as adopted and approved for this IMP. The approach adopted in the compilation of the CDP will involve an objective and integrated assessment of the Nature Reserve in

terms of its natural and cultural heritage sensitivities, management and bulk infrastructure, its particular sense of place and its visitor infrastructure and facilities

EKZNW will strive to provide a quality eco-cultural tourism experience for visitors to the MNR. A range of appropriate facilities and services will be provided for the use of visitors to MNR. 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 MNR to realise its full income-generating potential:

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

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

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

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

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

6.8 Environmental Interpretation, Awareness and Education

Environmental interpretation, awareness and education of MNR'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.

Specifically the Game Park, to the Mphophomeni Township creates the opportunity to use the Nature Reserve as a facility for the use of the "Kids in Parks" Programme, BEEP – Biodiversity Environmental Education Programme, EEAP "Khwezela", which is a programme designed to create positive nature-based recreation experiences for children, so that they will become the visitors of the future to the KwaZulu-Natal Protected Areas. The visit takes place during schooling days.

Action Project 6.8 (i): Make more use of the Nature Reserve as a venue for the Kids in Parks Programme, to encourage children to visit Protected Areas and to develop a culture of appreciation of nature.

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 (ii): Develop a MNR environmental awareness education programme specifically for neighbouring communities and the general public interest groups. In conjunction with this develop an interpretation programme in a standard format for the Nature Reserve.

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.

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.

6.9 Research

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

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

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

- Management and scientific staff as well as external researchers will identify and prioritise research requirements. This research priority list will then be circulated to tertiary research institutions and made available on the web site.
- All baseline abiotic and biotic data collected 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 MNR 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 issued in accordance with approval of the research project.

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

A MNR bibliography and reference library facilities is to be developed together with procedures to maintain a hard and digital copy of all MNR 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 Regional Office. Strict curation

rules shall apply and the ultimate responsibility for the curation of this library at MNR will be allocated to the most senior reserve management position of 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 MNR related research work, all documents listed as IMP supporting documentation in **Appendix 1** as well as any new supporting management documentation produced. Strict curation rules shall apply and the ultimate responsibility for the curation of this library at MNR will be allocated to the most senior reserve management position and the Co-ordinator: Ecological Advice at the Ukhahlamba Regional Office.

6.9.1 Monitoring and Evaluation

Baseline data collection, monitoring and evaluation will be undertaken in order to determine whether conservation targets, natural and cultural heritage management objectives, as well as, eco-cultural tourism objectives and targets are being achieved, and to ascertain the effectiveness of management interventions. 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 and necessary to implement long term baseline collection and monitoring programmes. It is also necessary to monitor and record all management interventions and the biophysical environment in order to understand the causes for any biological and environmental changes that may occur.

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

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

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

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

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

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

- Monitoring eco-cultural tourism statistics and revenue generation and reporting against revenue targets.
- Monitoring energy and water use by eco-cultural tourism and associated management facilities.

- Monitoring compliance by outside parties with conditions as specified in agreements, contracts etc. in collaboration (where practical and as agreed) with the Biodiversity Conservation Management component.

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

6.10 Infrastructure and Concept Development Plan

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

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

Infrastructure development outside MNR 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.

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

Utility service providers (e.g. Telkom, Eskom), concessionaires or other groupings that may, through agreements develop, use and /or maintain infrastructure within MNR, 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 MNR and that they maintain the same values as expressed above.

All structures are to (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 PNR Infrastructure Map. Furthermore, it would be useful to objectively assess the desirability and effectiveness of this infrastructure with a view to reducing the impact of these structures on the PNR environment and landscape.

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

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

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 MNR 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.

Action Project 6.10 (iii): Develop a Concept Development Plan for MNR and align where practical, with Municipal Planning.

6.10.1 Entrance Points and Gates

All road entrance points to MNR 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 MNR.

There are four access gates to the MNR and one access gate to the MGP.

Action Project 6.10.1 (i): Investigate the provision of a secure gate facility where visitors can pay to enter the Game Park rather than having to pay at the main Administrative Centre.

6.10.2 Boundary Fence

The purpose of the boundary fence is to keep game in and live stock out of the Nature Reserve while demarcating Nature Reserve boundaries to assist in preventing illegal entry. There is currently 55 kilometers of Barbwire six strand fencing around the Midmar Nature Reserve and 17 km of newly erected fence in the Midmar Game Park.

Action Project 6.10.2 (i): Fencing will be maintained and sections of stolen fence are to be replaced

6.10.3 Internal Fences

There are internal fences around designated areas.

6.10.4 Signage

All access routes to MNR are to be signposted.

Four groups of signage are identified, namely:

Public Entrance Gate and Boundary Signage

A standard for this signage is to be developed that clearly depicts that one is entering the MNR (incl. MGP) with any camp /office names in a secondary position.

Action Project 6.10.4 (i): Review and fulfil the need for advertising signage directing visitors to the MNR and to guide them around once inside.

Management Infrastructure Area Signage

Interpretation, directional and information signage in MNR will have a standardised format

Trail Signage

There are no trails in the MNR.

Memorial Plaques

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

6.10.5 Roads, Tracks and Paths

Roads and tracks will be kept to a minimum to maintain the natural character of the landscape as far as possible and to avoid unnecessary negative impacts on the natural and cultural heritage of MNR. In terms of this management guideline, a critical evaluation of the existing road / track and footpath network needs to be undertaken to identify any that need to be closed or re-aligned. Any section that is approved for closure will be rehabilitated according to a documented rehabilitation programme.

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

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

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

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

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

6.10.6 Staff Accommodation

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

6.10.7 Offices, Workshops, Stables and other Infrastructure

MNR 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.

Action Project 6.10.7 (i): All service areas (e.g. workshops, waste management and storage areas) will be effectively screened from public view using indigenous plantings.

Action Project 6.10.7 (ii): Management will also be responsible for ensuring that any facility for keeping animals encamped or in captivity on MNR are legally compliant or maintained at generally accepted standards for keeping and caring for such animals.

6.10.8 Services

Management will strive to ensure that wherever possible, service infrastructure such as electricity, telephone, 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

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

6.10.10 Waste Management

6.10.10.1 Domestic Solid Waste

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

Action Project 6.10.10.1 (ii): Develop, install and maintain effective standardized solid waste receptacles for MNR 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 MNR has septic tank / french drain sewage systems that will possibly be contaminating ground and surface water. These systems will be replaced with more environmentally friendly systems.

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

6.10.11 Water- and Energy-saving Measures

MNR contributes to energy saving through the use of energy saving bulbs and energy saving shower heads. MNR purifies their own water and extracts water from the dam at a minimal fee.

MNR plans to engage in the “go green” programme by which sorting of solid waste will be practised in order to promote recycling.

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

6.10.12

Aircraft Landing Fields

No airstrips are permitted inside MNR except for helicopter landing pads (if required) maintained to the minimum aviation standards at selected sites within the Natural Zone. These are primarily for emergency purposes or for such other purposes on the approval of PAMC after taking into account the effect on biodiversity and the environment, 'sense of place' values and tourist disturbance aspects.

Action Project 6.10.12 (i): Determine the requirement for helicopter landing pads on MNR. 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 MNR (e.g. fire and electricity).

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

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

7 IMP REVIEW AND AMENDMENT PROCEDURES

7.1 Five-Yearly Review and Amendment Procedures

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

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

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

7.2 Annual Review and Amendment Procedures

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

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

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

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

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

Action Project 7.2 (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 budget are being prepared.

8 PROJECTS FOR ACTION CORRELATED WITH MANAGEMENT OBJECTIVES

8.1 List of IMP Action Projects

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

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

Table 2: List of IMP Action Projects

No.	IMP Action Project No.	Project Description
1	2.1.1 (i)	Together with DWEA undertake a legal review of the agreement. Obtain written assignment from the MEC re-appointing EKZNW as the management authority for MNR in terms of Section 38(2) of NEMPAA.
2	2.1.1 (ii)	The IMP must be revised to include more information on the entire MNR.
3	2.1.3 (i)	Update and compile a list of all other service providers in MNR
4	2.3 (i)	Obtain all documentation and ensure that copies are commented upon and filed at the Nature Reserve offices. The Nature Reserve Manager must be familiar with the contents of these plans.
5	2.3 (ii)	Management and the EKZNW Planning staff will engage with the Municipality on all planning initiatives that involve the MNR and its environment.
6	2.3 (iii)	Obtain a copy of the agreement relating to the lease of Midmar Dam to EKZNW and place it on file in the Reserve Manager's office.
7	2.3(iv)	Protected area management in collaboration with other relevant EKZNW officials, will participate 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 MNR through an alignment of appropriate land use adjacent to the Nature Reserve and work with the Municipality to further develop tourist and recreational opportunities without compromising natural values.
8	2.4 (i)	Obtain the services of a land surveyor to register the consolidated MNR with the Surveyor General and seek the proclamation of the area by the MEC.
9	2.5 (i)	Obtain and review all formal and informal local agreements, leases, servitude arrangements and agreements with organising bodies of events <i>etc.</i> pertaining to MNR (incl. MGP) 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.
10	2.6 (i)	Annually explore and investigate opportunities to extend conservation land use in and around MNR. Actively pursue cooperative agreements with neighbouring landowners.
11	3.3 (i)	The previous land use for MNR will be updated.
12	3.4 (i)	The conservation history for MNR will be expanded to include animals / plants that were present upon proclamation and a full history of introductions and removals.
13	3.5 (i)	The collection and storage of climatic data records (with the predictive mean maximum and minimum temperatures and mean rainfall) for MNR will be maintained.
14	3.6.3 (i)	Map the soils and indicate the implications it has for management and future infrastructural development for MNR.
15	3.7 (i)	Investigate the geomorphology and indicate the implications it has for management and future infrastructural development for MNR.
16	3.8 (i)	Include and integrate the DWAF water quality and quantity management plan with the Midmar Nature Reserve IMP.
17	3.9 (i)	Complete a vegetation survey and compile a comprehensive plant species list for MNR
18	3.9 (ii)	The vegetation map for MNR including the diagnostic species will be updated.
19	3.9 (iii)	Threats to the priority flora and their associated habitats will be identified and a management plan with mitigatory measures developed and implemented.
20	3.10 (i)	Copies of the Species Checklists will be updated and filed manually and digitally at the MNR 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

No.	IMP Action Project No.	Project Description
		to be developed to ensure that they provide accurate, comparable and contemporary baseline data for management and scientific purposes.
21	3.10.1 (i)	Compile a checklist of the invertebrate species found in MNR.
22	3.10.2 (i)	Identify the major threats to the indigenous fish Species in MNR and propose mitigatory measures.
23	3.10.3 (i)	Compile checklists of the Herpetofauna in MNR.
24	3.10.3(ii)	Identify the major threats to priority Herpetofauna in MNR and propose mitigatory measures. Monitor the success of the mitigatory measures.
25	3.10.4 (i)	Identify the major threats to priority avifauna in MNR and recommend appropriate mitigatory measures.
26	3.10.4 (ii)	Develop and implement a monitoring programme for priority avifauna species in MNR.
27	3.10.5 (i)	Conduct a full inventory of the mammals occurring in MNR.
28	3.10.5 (ii)	Conduct an annual large herbivore census using a consistent methodology towards management of animal populations within the carrying capacity of the Game Park.
29	3.10.5 (iii)	Identify the major threats to priority mammals in MNR and propose mitigatory measures.
30	3.11 (i)	Identify and GPS the archaeological, historical, palaeontological and cultural heritage sites at MNR. Develop management plans for these to ensure compliance with requirements of heritage legislation.
31	3.12 (i):	Update the Sociological context and its importance to MNR.
32	3.13 (i)	Update resource economics study of MNR to determine its economic value regarding the provision of ecosystem services and its contribution to the local and regional economy.
33	3.14 (i)	Identify and map infrastructure using GIS and include in a spatial database. Develop standard protocols and procedures for recording and maintaining infrastructure in MNR.
34	3.14 (ii)	Repair, where necessary, the existing infrastructure provided in the MNR.
35	3.14.3 (i)	Establish flight paths for the helicopter (for emergency purposes).
36	3.14.4 (i)	Develop a maintenance plan for all fences in MNR.
37	3.14.5	Update MNR (incl. MGP) Map to include the location of all water supply infrastructures.
38	4.5 (i)	Develop targets and monitoring strategies for Cultural, Business and Partnerships objectives.
39	4.7 (i)	Set conservation targets and monitoring strategies for the identified species.
40	5 (i)	Revise the existing MNR zonation plan in accordance with the new EKZNW standard zonation system as soon as it is developed and approved.
41	6.1.1 (i)	Develop a five-year Strategic Management Plan and Business Plan for MNR.
42	6.1.2 (i)	Investigate and develop an appropriate human resource structure and capacity of MNR with a view to improving effectiveness and efficiency in achieving MNR objectives and informing the Business Plan.
43	6.2 (i)	EKZNW will continue to work collaboratively with landowners and surrounding communities to improve conservation management of MNR for the benefit of all.
44	6.2.1 (i)	Establish a Local Board for MNR
45	6.2.2 (i)	The Community Levy will continue to be collected for the development and upliftment of the local communities.
46	6.2.2 (ii)	Identify community projects requiring funding from the fund.
47	6.2.3 (i)	Training of members of the local community will continue to be practiced. Investigate other employment opportunities that will benefit the surrounding local communities of MNR.
48	6.2.5 (i)	Investigate and implement additional environmental education programmes for communities surrounding MNR.
49	6.2.7 (i)	Annually arrange a public meeting to give feedback on progress, planned projects and encourage informal local community participation.
50	6.3 (i)	Develop an integrated security strategy for the Nature Reserve that ensures collaboration with all relevant institutions and stakeholders.
51	6.4.2 (i)	Develop a Fire Management Plan for the Game Park that details comprehensive fire management objectives, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required and resources needed.
52	6.4.3 (i)	Compile and implement an alien species management plan. Identify and itemize indicator species and their current species densities in MNR.

No.	IMP Action Project No.	Project Description
53	6.4.3.1 (i)	Develop an ongoing time-bound programme to effectively control declared alien weeds and invader plants within the MNR and 1 km (buffer area) of the Nature Reserve boundary.
54	6.4.3.1 (ii)	Undertake a full species survey for alien plant species present and map this.
55	6.4.3.1 (iii)	Develop a phased 5-year plan to address the existing non-invasive alien plants in the MNR.
56	6.4.3.2 (i)	Develop a control programme for alien animals present in MNR.
57	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 MNR.
58	6.4.3.2 (iii)	<p>Develop a new, equitable policy for keeping personal and official domestic animals and livestock in the Nature Reserve that includes procedures for dealing in a consistent manner with alien animals that stray into the Park. This policy will, <i>inter alia</i> clearly address:</p> <ul style="list-style-type: none"> • Threats to biodiversity conservation as a priority. • Reducing the numbers of such animals to an absolute minimum. • 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 <i>etc.</i> • Disciplinary measures for staff transgressing these regulations or failing to enforce these measures.
59	6.4.4 (i)	Obtain all standards for water quality from the Municipality and DWEA, review monitoring the results against these standards and take appropriate actions should any standard not be met.
60	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.
61	6.4.6 (i)	Develop a programme of introduction of "new blood" into antelope populations residing in the Game Park. This should preferably be part of a larger meta-population strategy for the Province.
62	6.4.6 (ii)	Compile an Oribi Management Plan for MNR.
63	6.4.6 (iii)	Compile a Management Plan for the Black Wildebeest and Red Hartebeest populations in MNR.
64	6.4.6.2 (i)	Develop and implement a MNR Game Introduction and Monitoring Programme, with Guidelines in terms of the EKZNW Wildlife Introduction Policy and Action Project: 6.4.6.1.
65	6.4.6.3 (i)	Develop and implement a fishery monitoring programme for MNR.
66	6.4.6.3 (i)	Develop and implement a bird Monitoring Programme for MNR.
67	6.4.6.4 (i)	Develop and implement a fishery monitoring programme for MNR.
68	6.4.6.5 (i)	The MNR 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 are to be recorded in the prescribed Damage Causing Animals Complaints Register kept on station. Investigations and incident reporting is to be carried out in accordance with EKZNW's DCO Control Protocol and Guidelines .
69	6.5 (i)	Develop a comprehensive Cultural Heritage Inventory and Management Plan for MNR in collaboration with Amafa. Institutional capacity will also be addressed by this plan.
70	6.6 (i)	Control or 'bench mark' areas within MNR will be identified where no extractive resource utilisation of indigenous species will take place.
71	6.6 (ii)	Develop a monitoring and recording system with respect to the utilisation of natural resources within the Game Park, both in terms of volumes utilized and the effect that the utilisation has on the integrity of the resource base.
72	6.6.1 (i)	Evaluate Resource Use in MNR in terms of EKZNW policies for the Evaluation of Extractive Resource Use. If possible, sustainable and feasible in terms of this guideline, develop a resource use management plan and implement.
73	6.7 (i)	<p>Cognisant of the MNR IMP and CDP policy guidelines, develop a MNR Eco-cultural Tourism Development and Marketing Strategy will be developed that addresses</p> <ul style="list-style-type: none"> • the attainment of professional tourism service delivery standards • branding and marketing

No.	IMP Action Project No.	Project Description
		<ul style="list-style-type: none"> • linkages with other regional tourist initiatives • public / private partnerships • cultural heritage tourism • visitor awareness, orientation and interpretation
74	6.7 (ii)	Develop and implement a visitor management plan. Undertake analysis of available recreational facilities and identify opportunities to improve these.
75	6.8 (i)	Make more use of the Nature Reserve as a venue for the Kids in Parks Programme, to encourage children to visit Protected Areas and to develop a culture of appreciation of nature.
76	6.8 (ii)	Develop a MNR environmental awareness education programme specifically for neighbouring communities and the general public interest groups. In conjunction with this develop an interpretation programme in a standard format for the Nature Reserve.
77	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.
78	6.9 (i)	Develop a prioritised MNR natural and cultural heritage research project list.
79	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.
80	6.9 (iii)	Identify and develop reference library facilities and procedures to maintain hard and digital copies of all MNR related research work, all documents listed as IMP supporting documentation in Appendix 1 as well as any new supporting management documentation produced. Strict curation rules shall apply and the ultimate responsibility for the curation of this library at MNR will be allocated to the most senior reserve management position and the Co-ordinator: Ecological Advice at the Ukhahlamba Regional Office.
81	6.9.1 (i)	An appropriate monitoring and evaluation programme for each of the above components will be developed for the Nature Reserve and implemented.
82	6.10 (i)	Develop and maintain a Nature Reserve Infrastructure database and map.
83	6.10 (ii)	<p>Review the desirability and effectiveness of all present infrastructure associated with the Nature Reserve with regard to:</p> <ul style="list-style-type: none"> • Adequacy • State of repair • Existing maintenance plans and programs • Visitor and staff use, requirements and values • Financial • Environmental impact (negative and positive) • Income generation • Possibilities of outsourcing
84	6.10 (iii)	Develop a Concept Development Plan for MNR and align where practical, with Municipal Planning.
85	6.11.1 (i)	Investigate the provision of a secure gate facility where visitors can pay to enter the Game Park rather than having to pay at the main Administrative Centre.
86	6.10.2 (i)	Fencing will be maintained and sections of stolen fence are to be replaced
87	6.10.4 (i)	Review and fulfil the need for advertising signage directing visitors to the MNR and to guide them around once inside.
88	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.
89	6.10.5 (ii)	Investigate the potential for a hiking trail routes and day walks in MNR and make recommendations on professional hiking trail evaluation, design, construction, maintenance, accreditation, marketing, management as well as estimated revenue and expenditure. Implement if feasible.
90	6.10.7 (i)	All service areas (e.g. workshops, waste management and storage areas) will be effectively screened from public view using indigenous plantings.
91	6.10.7 (ii)	Management will also be responsible for ensuring that any facility for keeping animals encamped or in captivity on MNR are legally compliant or maintained at generally accepted standards for keeping and caring for such animals.
92	6.10.10.1 (i)	Develop an integrated waste management plan for MNR.
93	6.10.10.1 (ii)	Develop, install and maintain effective standardized solid waste receptacles for MNR that are animal and baboon / monkey-proof.
94	6.10.10.2 (i)	All sewage systems in MNR will be investigated for legal compliance. A phased development plan to upgrade existing systems and septic tank / french drain

No.	IMP Action Project No.	Project Description
		systems is to be put in place.
95	6.10.11 (i)	Develop a phased plan to install standardised (reliable and tested) water- and energy-saving devices throughout MNR as soon as practically possible.
96	6.10.12 (i)	Determine the requirement for helicopter landing pads on MNR. If required and approved, select site/s and maintain according to minimum aviation standards.
97	6.10.13 (i)	Management will maintain a secure entry controls system and maintain a high level of internal security in order that visitors and their belongings will be safe and secure.
98	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.
99	7.1 (i)	The PAMC will undertake a five-yearly review of this IMP in 2013 for the following five years.
100	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 budget are being prepared.

8.2 Alignment of IMP Action Projects with Prioritised Management Objectives

The 16 Management Objectives for MNR were derived at the Key-Stakeholders Workshop on the 30th November 2007 and 4th February 2008.

The 126 IMP Action Projects from **Table 2** have been aligned with the Management Objectives and are listed in **Table 3** below.

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

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

Conservation	
Conservation of key biodiversity features, biophysical processes, landscapes, abiotic, historical and archaeological resources	
Control alien species.	
6.4.3 (i)	Compile and implement an alien species management plan. Identify and itemize indicator species and their current species densities in MNR.
6.4.3.1 (i)	Develop an ongoing time-bound programme to effectively control declared alien weeds and invader plants within the MNR and 1 km (buffer area) of the Nature Reserve boundary.
6.4.3.1 (ii)	Undertake a full species survey for alien plant species present and map this.
6.4.3.1 (iii)	Develop a phased 5-year plan to address the existing non-invasive alien plants in the MNR.
6.4.3.2 (i)	Develop a control programme for alien animals present in MNR.
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 MNR.
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, <i>inter alia</i> clearly address: <ul style="list-style-type: none"> • 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.
Maintain an effective buffer towards the protection of the water resource.	
3.8 (i)	Include and integrate the DWAF water quality and quantity management plan with the Midmar Nature Reserve IMP.
6.4.4 (i)	Obtain all standards for water quality from the Municipality and DWEA, review monitoring the results against these standards and take appropriate actions should any standard not be met.
6.4.5 (i)	Map all extensive or potential human-induced / aggravated soil erosion sites and annually monitor the condition of these sites in order to prioritise rehabilitation work.
To conserve its biodiversity through the maintenance of natural processes.	
6.4.6 (i)	Develop a programme of introduction of "new blood" into antelope populations residing in the Game Park. This should preferably be part of a larger meta-population strategy for the Province.

6.4.6.2 (i)	Develop and implement a MNR Game Introduction and Monitoring Programme, with Guidelines in terms of the EKZNW Wildlife Introduction Policy and Action Project: 6.4.6.1.
6.4.6.3 (i)	Develop and implement a fishery monitoring programme for MNR.
6.4.6.4 (i)	Develop and implement a fishery monitoring programme for MNR.
To conserve key threatened grassland plant and animal species.	
3.9 (i)	Complete a vegetation survey and compile a comprehensive plant species list for MNR
3.9 (ii)	The vegetation map for MNR including the diagnostic species will be updated.
3.9 (iii)	Threats to the priority flora and their associated habitats will be identified and a management plan with mitigatory measures developed and implemented.
3.10 (i)	Copies of the Species Checklists will be updated and filed manually and digitally at the MNR 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.
3.10.2 (i)	Identify the major threats to the indigenous fish Species in MNR and propose mitigatory measures.
3.10.3 (i)	Compile checklists of the Herpetofauna in MNR.
3.10.3(ii)	Identify the major threats to priority Herpetofauna in MNR and propose mitigatory measures. Monitor the success of the mitigatory measures.
3.10.4 (i)	Identify the major threats to priority avifauna in MNR and recommend appropriate mitigatory measures.
3.10.4 (ii)	Develop and implement a monitoring programme for priority avifauna species in MNR.
3.10.5 (i)	Conduct a full inventory of the mammals occurring in MNR.
3.10.5 (ii)	Conduct an annual large herbivore census using a consistent methodology towards management of animal populations within the carrying capacity of the Game Park.
3.10.5 (iii)	Identify the major threats to priority mammals in MNR and propose mitigatory measures.
4.7 (i)	Set conservation targets and monitoring strategies for the identified species.
6.4.6 (ii)	Compile an Oribi Management Plan for MNR.
6.4.6 (iii)	Compile a Management Plan for the Black Wildebeest and Red Hartebeest populations in MNR.
Other Action Projects supporting MNR Conservation Management Objective.	
2.1.1 (i)	Together with DWEA undertake a legal review of the agreement. Obtain written assignment from the MEC re-appointing EKZNW as the management authority for MNR in terms of Section 38(2) of NEMPAA.
2.1.1 (ii)	The IMP must be revised to include more information on the entire MNR.
2.4 (i)	Obtain the services of a land surveyor to register the consolidated MNR with the Surveyor General and seek the proclamation of the area by the MEC.
2.6 (i)	Annually explore and investigate opportunities to extend conservation land use in and around MNR. Actively pursue cooperative agreements with neighbouring landowners.
3.3 (i)	The previous land use for MNR will be updated.
3.4 (i)	The conservation history for MNR will be expanded to include animals / plants that were present upon proclamation and a full history of introductions and removals.
3.5 (i)	The collection and storage of climatic data records (with the predictive mean maximum and minimum temperatures and mean rainfall) for MNR will be maintained.
3.6.3 (i)	Map the soils and indicate the implications it has for management and future infrastructural development for MNR.
3.7 (i)	Investigate the geomorphology and indicate the implications it has for management and future infrastructural development for MNR.
3.10 (i)	Copies of the Species Checklists will be updated and filed manually and digitally at the MNR 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.
3.11 (i)	Identify and GPS the archaeological, historical, palaeontological and cultural heritage sites at MNR. Develop management plans for these to ensure compliance with requirements of heritage legislation.
3.14 (i)	Identify and map infrastructure using GIS and include in a spatial database. Develop

	standard protocols and procedures for recording and maintaining infrastructure in MNR.
3.14 (ii)	Repair, where necessary, the existing infrastructure provided in the MNR.
3.14.4 (i)	Develop a maintenance plan for all fences in MNR.
3.14.5	Update MNR (incl. MGP) Map to include the location of all water supply infrastructures.
6.3 (i)	Develop an integrated security strategy for the Nature Reserve that ensures collaboration with all relevant institutions and stakeholders.
6.4.2 (i)	Develop a Fire Management Plan for the Game Park that details comprehensive fire management objectives, scientific understanding, management actions, legal compliance, personnel training requirements, monitoring and research required and resources needed.
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.
Socio-Economic Benefits The provision of socio-economic benefits (benefit flow) to the Reserve's neighbours and to contribute to the local economy and the efforts of conservation in a sustainable manner based on sound business principles (EKZN Business Plan)	
Other Action Projects supporting MNR Socio-Economic Management Objective.	
3.12 (i):	Update the Sociological context and its importance to MNR.
3.13 (i)	Update resource economics study of MNR to determine its economic value regarding the provision of ecosystem services and its contribution to the local and regional economy.
3.14.3 (i)	Establish flight paths for the helicopter (for emergency purposes).
4.5 (i)	Develop targets and monitoring strategies for Cultural, Business and Partnerships objectives.
5 (i)	Revise the existing MNR zonation plan in accordance with the new EKZNW standard zonation system as soon as it is developed and approved.
6.9 (i)	Develop a prioritised MNR natural and cultural heritage research project list.
Business The provision of appropriate ecotourism business opportunities in the natural and cultural environment based within the influence sphere of MNR.	
Secure adequate resources for the management of the Game Park. This includes financial, human and institutional resources.	
4.5 (i)	Develop targets and monitoring strategies for Cultural, Business and Partnerships objectives.
6.1.2 (i)	Investigate and develop an appropriate human resource structure and capacity of MNR with a view to improving effectiveness and efficiency in achieving MNR objectives and informing the Business Plan.
6.5 (i)	Develop a comprehensive Cultural Heritage Inventory and Management Plan for MNR in collaboration with Amafa. Institutional capacity will also be addressed by this plan.
6.7 (i)	Cognisant of the MNR IMP and CDP policy guidelines, develop a MNR Eco-cultural Tourism Development and Marketing Strategy will be developed that addresses <ul style="list-style-type: none"> the attainment of professional tourism service delivery standards branding and marketing linkages with other regional tourist initiatives public / private partnerships cultural heritage tourism visitor awareness, orientation and interpretation
6.7 (ii)	Develop and implement a visitor management plan. Undertake analysis of available recreational facilities and identify opportunities to improve these.
6.10 (i)	Develop and maintain a Nature Reserve Infrastructure database and map.
6.10 (ii)	Review the desirability and effectiveness of all present infrastructure associated with the Nature Reserve with regard to: <ul style="list-style-type: none"> Adequacy State of repair Existing maintenance plans and programs Visitor and staff use, requirements and values Financial Environmental impact (negative and positive) Income generation Possibilities of outsourcing
6.10 (iii)	Develop a Concept Development Plan for MNR and align where practical, with Municipal Planning.

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.
6.10.5 (ii)	Investigate the potential for a hiking trail routes and day walks in MNR and make recommendations on professional hiking trail evaluation, design, construction, maintenance, accreditation, marketing, management as well as estimated revenue and expenditure. Implement if feasible.
Other Action Projects supporting MNR Business Management Objective.	
2.5 (i)	Obtain and review all formal and informal local agreements, leases, servitude arrangements and agreements with organising bodies of events <i>etc.</i> pertaining to MNR (incl. MGP) 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.
6.9.1 (i)	An appropriate monitoring and evaluation programme for each of the above components will be developed for the Nature Reserve and implemented.
6.10.1 (i)	Investigate the provision of a secure gate facility where visitors can pay to enter the Game Park rather than having to pay at the main Administrative Centre.
6.10.4 (i)	Review and fulfil the need for advertising signage directing visitors to the MNR and to guide them around once inside.
6.10.12 (i)	Determine the requirement for helicopter landing pads on MNR. 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 will be safe and secure.
6.10.13 (ii)	All Reserve staff will receive appropriate training regarding all health and safety aspect and will receive refresher course training as required on a regular basis.
Partnerships The formation of functional partnerships to integrate the MNR with regional development plans and other initiatives which underwrite the vision of MNR.	
Promote community benefit sharing by means of a community levy.	
4.5 (i)	Develop targets and monitoring strategies for Cultural, Business and Partnerships objectives.
6.2 (i)	EKZNW will continue to work collaboratively with landowners and surrounding communities to improve conservation management of MNR for the benefit of all.
6.2.1 (i)	Establish a Local Board for MNR
6.2.2 (i)	The Community Levy will continue to be collected for the development and upliftment of the local communities.
6.2.7 (i)	Annually arrange a public meeting to give feedback on progress, planned projects and encourage informal local community participation.
6.6 (ii)	Develop a monitoring and recording system with respect to the utilisation of natural resources within the Game Park, both in terms of volumes utilized and the effect that the utilisation has on the integrity of the resource base.
Other Action Projects supporting MNR Partnerships Management Objective.	
2.1.3 (i)	Update and compile a list of all other service providers in MNR
2.3 (i)	Obtain all documentation and ensure that copies are commented upon and filed at the Nature Reserve offices. The Nature Reserve Manager must be familiar with the contents of these plans.
2.3 (ii)	Management and the EKZNW Planning staff will engage with the Municipality on all planning initiatives that involve the MNR and its environment.
2.3 (iii)	Obtain a copy of the agreement relating to the lease of Midmar Dam to EKZNW and place it on file in the Reserve Manager's office.
2.3(iv)	Protected area management in collaboration with other relevant EKZNW officials, will participate 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 MNR through an alignment of appropriate land use adjacent to the Nature Reserve and work with the Municipality to further develop tourist and recreational opportunities without compromising natural values.
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 of members of the local community will continue to be practiced. Investigate other employment opportunities that will benefit the surrounding local communities of MNR.
6.2.5 (i)	Investigate and implement additional environmental education programmes for communities

	surrounding MNR.
6.6.1 (i)	Evaluate Resource Use in MNR in terms of EKZNW policies for the Evaluation of Extractive Resource Use. If possible, sustainable and feasible in terms of this guideline, develop a resource use management plan and implement.
6.8 (ii)	Develop a MNR environmental awareness education programme specifically for neighbouring communities and the general public interest groups. In conjunction with this develop an interpretation programme in a standard format for the Nature Reserve.
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.

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- Umgungundlovu IDP, Phase One: Part 3 - Analysis Report; Report 7: Environmental Planning Date: 10 December 2001 Responsible Consultant: Gaea Projects.

APPENDIX 1

List of References for Unpublished Supporting Documentation MNR (incl. MGP) - Integrated Management Plan 2009 - 2013

Copies available from:

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

Item

1. EKZNW Corporate Strategic Plan and Performance Plan for 2009-2014.
2. EKZNW Corporate Policies (Norms & Standards) listed in Appendix 2, following.
3. EKZNW Biodiversity Database Checklists for MNR.
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 MNR.
6. Guidelines for the Registration and Administration of Research Projects Undertaken by or through Ezemvelo KZN Wildlife (August 2002).
7. Public Participation Report for Midmar Nature Reserve.

APPENDIX 2

Appendix 2 below lists the EKZNW Corporate Policies (Norms & Standards) referenced from intranet⁴ that are most relevant to EKZNW PA management. It is, however, the responsibility of all management and other personnel associated with the management of protected areas to ensure that they familiarise themselves and comply with the most recent versions of *all* EKZNW Board Approved Policies.

<u>EKZNW CORPORATE POLICIES (NORMS & STANDARDS)</u>	
<u>Policy File No.</u>	CORPORATE AFFAIRS
B 2	• Access to Ezemvelo KZN Wildlife Areas and Employment.
B 5	• Outsourcing of Functions and Services
B 7	• Monuments, Memorials and Names of Protected Areas under the control of EKZNW.
B 8	• Restricted use of Board Theatres, Halls and Conference Facilities etc.
B 9	• Code of Ethics / Conduct.
B 10	• Photography in Board Protected Areas.
B 13	• Mission Statement
B 14	• Access to Information.
<u>Policy File No.</u>	INTERNAL AUDIT
C 5	• Management Control
	BIODIVERSITY CONSERVATION OPERATIONS
	1. NATURAL RESOURCE SUSTAINABILITY
<u>Policy File No.</u>	Threatened Species and Ecosystems
D 1.1	• Disposal of Black Rhino.
D 1.2	• Disposal of Surplus White Rhino.
D 1.3	• Strategy for the Management of Southern White Rhino in KwaZulu-Natal.
D 1.4	• Strategy for the Biological Management of Black Rhino in KwaZulu-Natal.
D 1.5	• Rhinoceros Products.
D 1.6	• Crocodilians
D 1.7	• Cycads.
D 1.8	• Disposal of Threatened Species.
<u>Policy File No.</u>	Exotic and Invasive Species
D 1.9	• Release of Alien Species.
D 1.10	• Control Measures for Red-billed Quelea.
D 1.12	• Grass Carp.
D 1.13	• Establishment of Alien Plantations.
<u>Policy File No.</u>	Migratory Species
D 1.14	• Black Wildebeest and Blue Wildebeest Hybridization and Conservation.
D 1.15	• Permit authorising the collection of Biological Material within Board Areas.
	2. CONSERVATION EFFECTIVENESS
<u>Policy File No.</u>	Strategic Applications

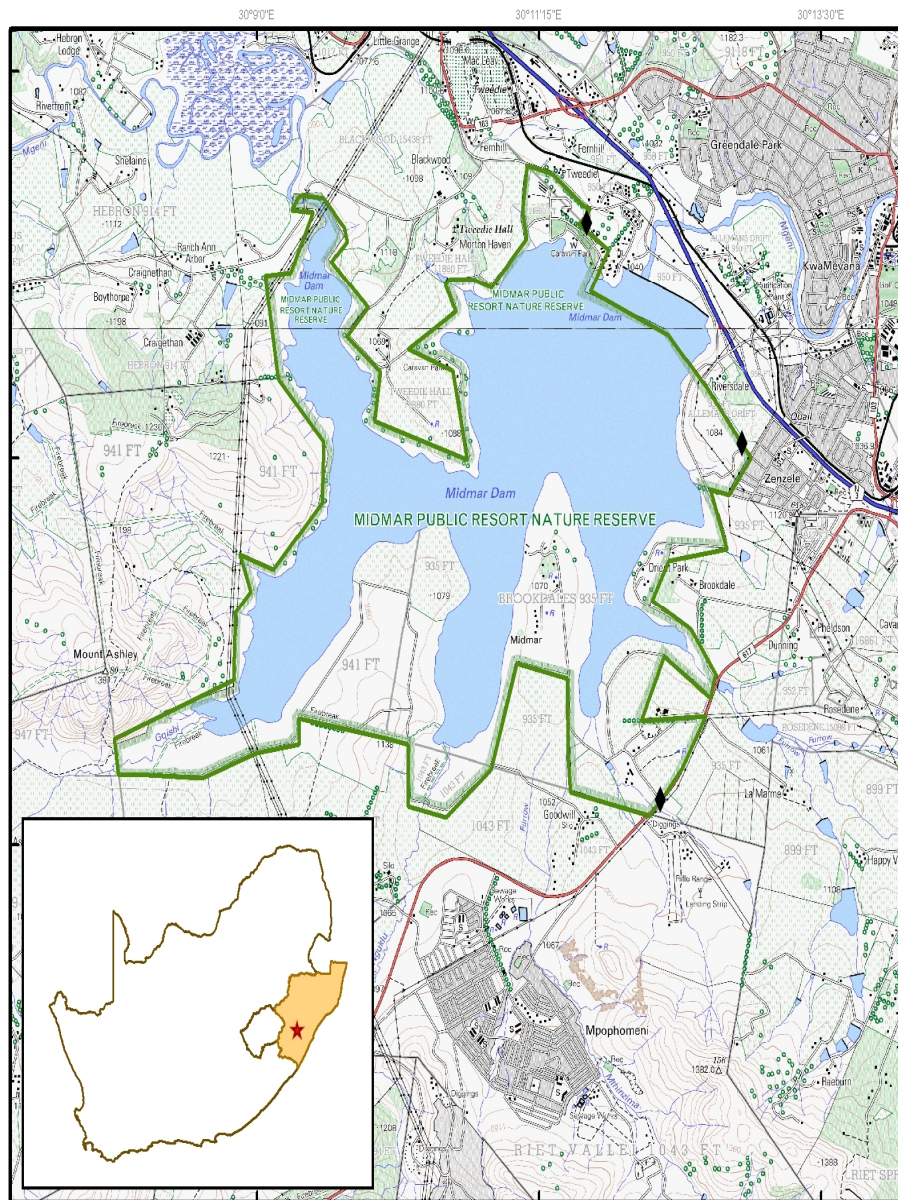
⁴ www.kznwildlife.com/intranet (Accessed 31 March 2009)

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

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

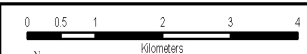
E 16	• Travel Trade Commissions: Tour Operator/ Travel Agency.
E 17	• Policy and Procedure for the establishment and monitoring of Commercial Operations Public Private Partnership (PPP) Agreements.
E 18	• Administrative and operational policy on Professional hunting in South Africa.
E 19	• Commercialisation.

Map 1 – Location Map of MNR



Map 1
Midmar Nature Reserve
Locality Map

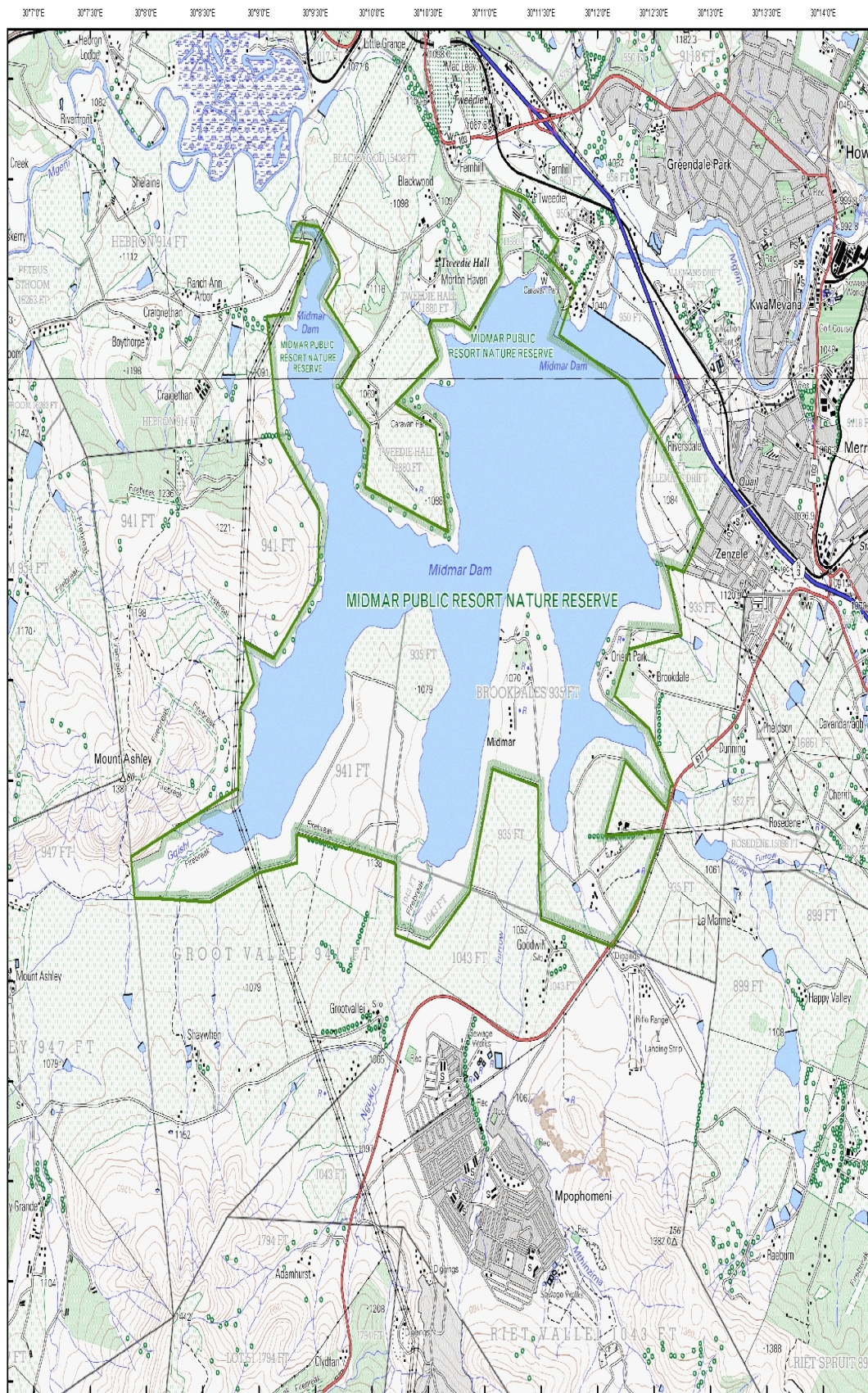
◆ Entrance gate



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



Map 2 – Topographic Map of MNR



Map 2

Midmar Nature Reserve

Topography

Area: 2 857 ha (flat)/ ha (surface)
 Boundary length: km (flat)/ km (surface)
 Highest point: m a.s.l.
 Lowest point: m a.s.l.
 Centroid: 29d 31m 10s S & 30d 10m 45s E
 Geographical extent:
 Latitude - 29d 29m 02s S to 29d 32m 50s S
 Longitude - 30d 07m 51s E to 30d 12m 56s E

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

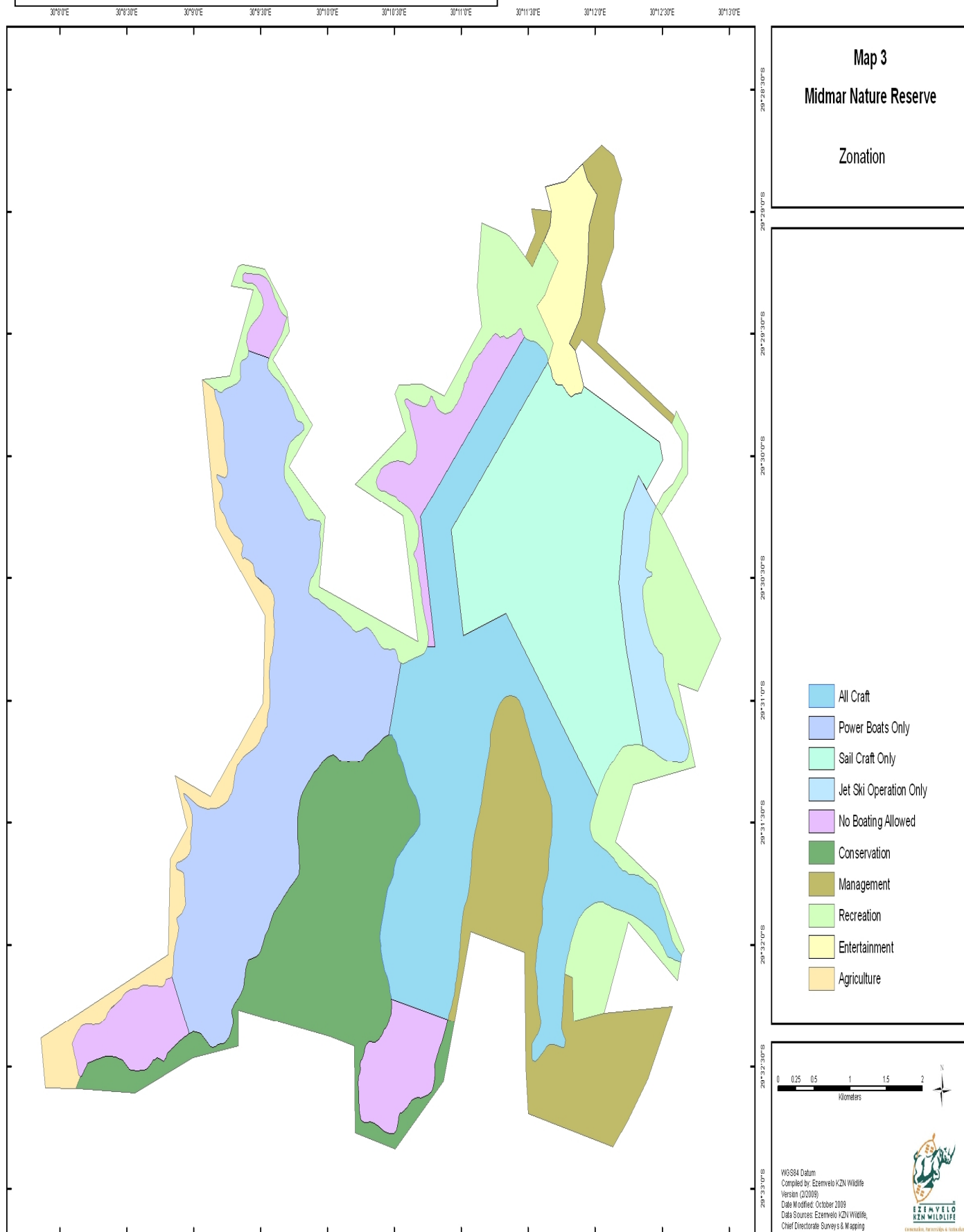
0 0.25 0.5 1 1.5 2 2.5
 Kilometers

Map reference: 283006 & 283000

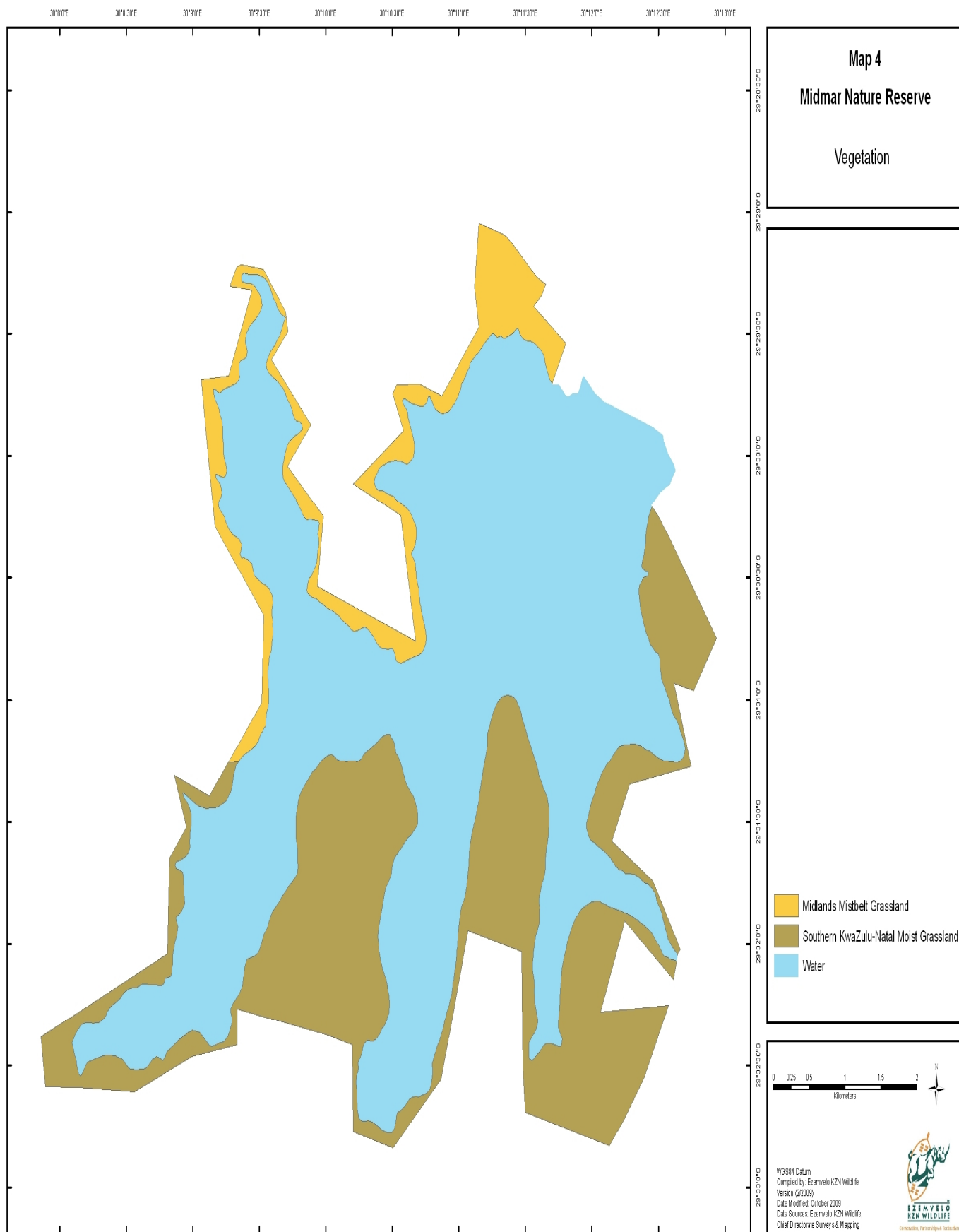
WGS84 Datum
 Compiled by: Ezemvelo KZN Wildlife
 Version: (2/2009)
 Date Modified: October 2009
 Data Sources: Ezemvelo KZN Wildlife,
 Chief Directorate Surveys & Mapping



Map 3 – Zonation Map of MNR



Map 4 – Vegetation Map of MNR



Map 5 – Infrastructure Map of MNR

