



**E Z E M V E L O  
K Z N W I L D L I F E**

Conservation, Partnerships & Ecotourism

# UMNGENI VLEI NATURE RESERVE

# *Integrated*

# **MANAGEMENT PLAN**

# **2009 - 2013**

## **Including Concept Development Plan**

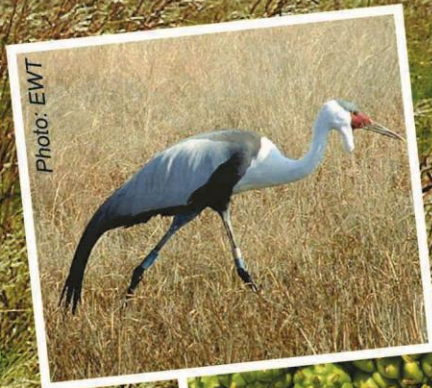


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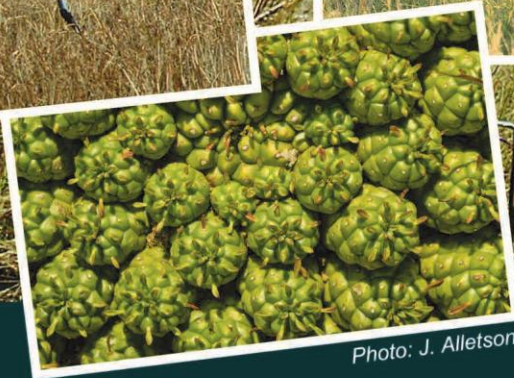


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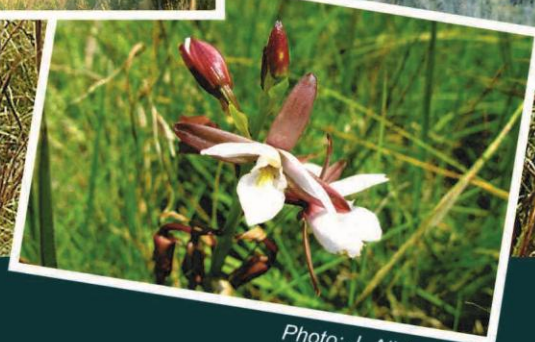


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**Maloti Drakensberg  
Transfrontier Project**





# **uMNGENI VLEI NATURE RESERVE**

**KwaZulu-Natal  
South Africa**

## **Integrated Management Plan: (Including Concept Development Plan) 2009-2013**

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## **PREFACE**

*This Integrated Management Plan for the uMngeni Vlei Nature Reserve is the primary and overarching management document for the Nature Reserve, for the period 2009-2013. It forms the framework within which the Nature Reserve will be managed towards achievement of its management objectives, which were derived in collaboration with the Nature Reserve's stakeholders during June, 2006.*

*The protected area management planning process and the resultant planning documents (which are elaborated on further in the next few pages) have been developed in collaboration and with the assistance of the Maloti Drakensberg Transfrontier Project (MDTP) and were designed to meet the statutory requirements of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).*

*The Ezemvelo KZN Wildlife protected area management planning process requires the participation of stakeholders of the Nature Reserve, the 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 is designed to ensure an active adaptive management planning approach.*

*Furthermore, a long-term business approach has been introduced. Its intention is to ensure that the Nature Reserve management objectives will be achieved through the preparation of a Strategic Management Plan that will inform the Nature Reserve's operational budget. A Business Plan will simultaneously pursue possible additional funding and income towards the achievement of the natural and cultural heritage conservation objectives for this planning period.*

*Ezemvelo KZN Wildlife, as the designated management authority for the Nature Reserve, hereby commits itself to the implementation of this plan.*

**Dr Bandile Mkhize  
Chief Executive Officer  
Ezemvelo KZN Wildlife**

**December 2008**

# Protected Area Management Planning Process Framework for uMngeni Vlei Nature Reserve

## Overview

The Protected Area Management Planning process used for uMngeni Vlei Nature Reserve has two Integrated Planning components and two Operational Planning components, **each with a five-year timeframe and reviewed annually.**

They are:

## Integrated Planning Components

1. An **Integrated Management Plan (IMP)** which is the primary overarching protected area planning document that describes the administrative and legal framework, contextual background, public participation processes followed, vision / mission statements, prioritised management objectives, zonation as well as a management policy framework and guidelines. The IMP forms the framework within which all the other planning components are developed.
2. Within the framework of the IMP, a **Conceptual Development Plan (CDP)** provides a strategic guideline for the development and maintenance of conservation management infrastructure and visitor facilities / activities within the constraints of the receiving environment.

Operational plans, programmes and procedures that support the IMP and CDP either are in place or will be compiled where these do not exist.

**Authorisation of IMP and CDP** These plans are authorised by the KwaZulu-Natal Provincial MEC for Agriculture and Environmental and Affairs on the recommendation of the KwaZulu-Natal Nature Conservation Board and are operationalised through the following two operational planning components.

## Operational Planning Components

1. A five-year **Strategic Management Plan (SMP)** - a database that operationalises (or actions) the uMngeni Vlei Nature Reserve's management objectives and any projects identified through its IMP, CDP and Business Plan.

The SMP is an operational management component that identifies the activities and tasks that need to be undertaken in the achievement of UVNR management objectives and attaches key performance areas, responsibilities, timeframes, budgets and resources to each activity. The SMP is a key planning document that also informs the UVNR's **Annual Budgeting Estimates** and provides information for **Annual Reports**.

2. With five-year expenditure estimates drawn from the SMP, a **Business Plan (BP)** will be developed for UVNR. The BP is primarily aimed at describing the manner in which the IMP and CDP are to be financially resourced. It may address issues of operational efficiency and the optimisation of income generation opportunities in order to bridge any possible shortfalls between required operational expenditure and committed provincial government budget allocations.

## Authorisation of BP

Once the BP has been approved by the MEC for Agriculture and Environmental and Affairs, the SMP is finalised according to the committed five -year provincial and other budget allocations for uMngeni Vlei Nature Reserve as well as estimated financial income.

## Legal

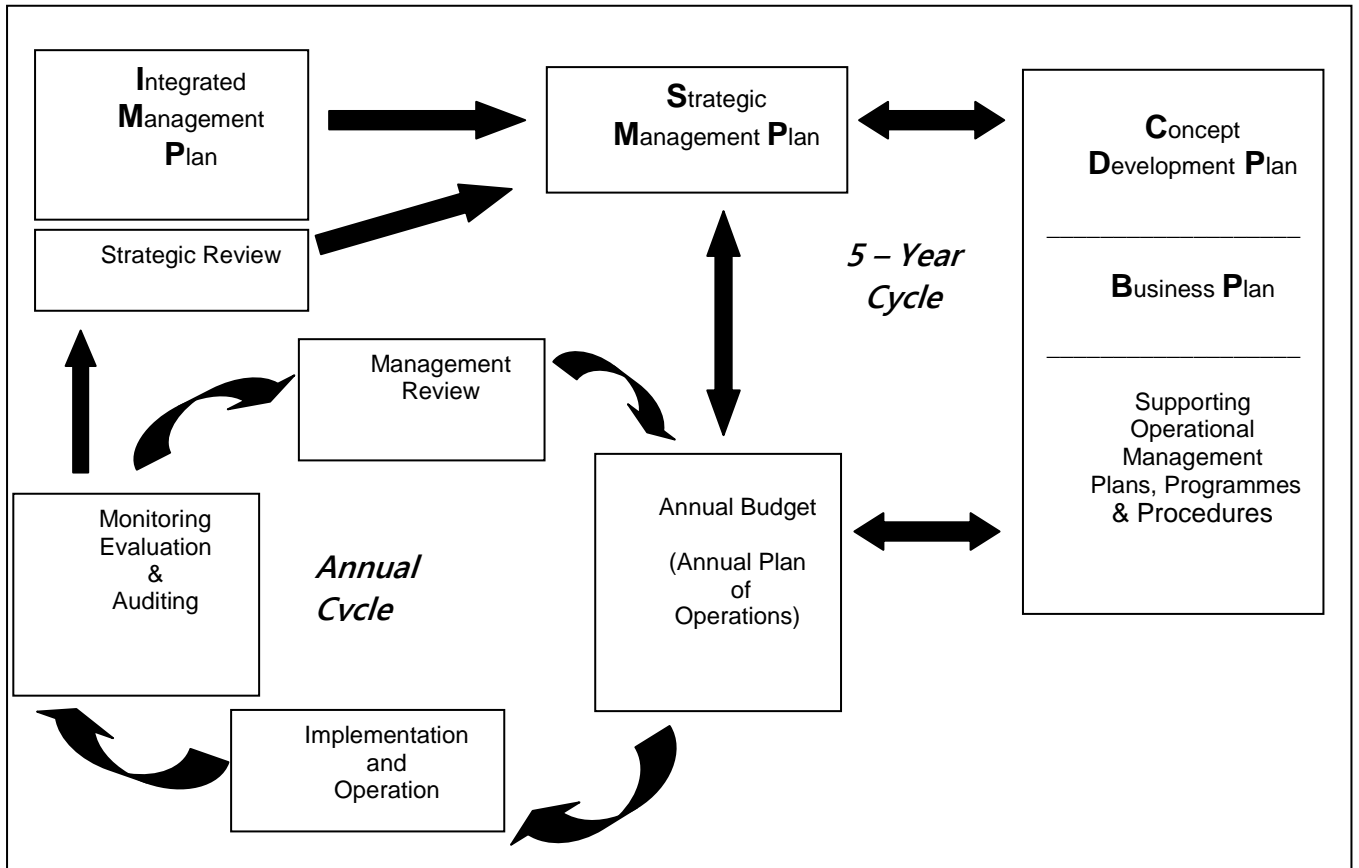
This management planning process has been implemented cognizant of the requirements of the National Environmental Management: Protected Areas Act (Act No. 57 of 2003).

## Public Participation

- The Nature Reserve Mission and Management Objectives contained in the IMP were derived at a Stakeholders' Workshop (see **paragraph 4.1** of the **IMP**), the proceedings of which were advertised regionally for public comment.
- The IMP and CDP will have been advertised regionally for public comment before being authorised.
- The SMP and BP will form the basis for progress reporting on a six monthly basis to the UVNR's Local Board.

**Figure 1** below illustrates the **Protected Area Management Planning Process** accommodating both five-year and annual planning and review cycles. The essential active adaptive nature of the process enables the continual improvement of the level of management effectiveness applied to uMngeni Vlei Nature Reserve.

**Figure 1: Protected Area Management Planning Process**



**Alien Species:**

Means species or genotypes that are not indigenous to KZN including hybrids and genetically altered organisms.

**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 a part and includes diversity within species, between species and of ecosystems (*vide* the National Environmental Management Biodiversity Act, No. 10 of 2004).

**Bioprospecting:**

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

**Board:**

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

**Buffer Zone:**

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

**Cultural Heritage:**

As defined in Article 1 of the World Heritage Convention (UNESCO) 1972<sup>1</sup>, 'cultural heritage' is considered (*with wording excluded as indicated*) 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,

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



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:**

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 or harm the environment, and contributing to the economic welfare of local people (adapted from a definition of ecotourism, by Ceballos-Lascurain, 1996<sup>2</sup>).

**Ecosystem:**

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

**Ecosystem services, or 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 ecosystems processes such as climate regulation, disease, flood control and detoxification;
- (c) cultural non-material benefits obtained from ecosystems such as benefits of a spiritual, recreational, aesthetic, inspirational, educational, community and symbolic nature (*vide* Section 1 of the National Environmental Management: Protected Areas Act No.57 of 2003). For purposes of this IMP, sustainable water production is also specifically included under this definition.

**Ezemvelo KZN Wildlife:**

The official organisation responsible for nature conservation and management of the designated protected areas of the province. It was previously known as KwaZulu-Natal Nature Conservation Service, and the Natal Parks Board.

**Ferrallitic (soils):**

A term of African origin which describes highly weathered soils characterised by a clay fraction SiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> molecular ratio of less than 1.3, a friable consistence and low cation exchange capacity of the clay separate which predominantly consists of kaolinite and/or sesquioxides. Amorphous compounds are often present, as is gibbsite. (After McVicar *et al.*, 1977).

**Genetic integrity:**

Genetic integrity refers to the inherent resilience or capacity of a genetic Nature Reserve in a natural system, for the system and various biotic components to recover or has the ability to maintain genetic processes (S. van Rensburg, personal communication, 2006).

**Heritage Resources:**

Means natural and/or cultural resources (*vide* the KwaZulu-Natal Heritage Act No 10 of 1997).

**Interested Party:**

(See Stakeholders).

**Local Community:**

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

**Maloti Drakensberg Transfrontier Conservation Area (MDTFCA):**

Means the area defined as the focus of the collaborative initiative between South Africa and the Kingdom of Lesotho. It is the focus of the Transfrontier Strategy for 2008 to 2028, although some actions may occur outside of this area. The Matatiele Nature Reserve is a core protected area within the MDTFCA and an integral part of its Protected Area Network.

**Maloti Drakensberg Transfrontier Conservation and Development Programme (MDTP):**

Means the collaborative initiative between South Africa and the Kingdom of Lesotho for ensuring effective, coordinated implementation of the 2008 to 2028 Strategy and Action Plan for “Conserving the MDTFCA’s Natural and Cultural Heritage for the People of the region and beyond”.

**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 (*vide* the National Environmental Management: Protected Areas Act, No.57 of 2003).

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<sup>2</sup> Ceballos-Lascurain, H., 1996. *Tourism, Ecotourism and Protected Areas*. IUCN : Gland, Switzerland.

**Monitoring:**

Intermittent (regular or irregular) surveillance carried out in order to ascertain the extent of compliance with a predetermined standard or the degree of deviation from an expected norm.

**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 (*vide* the KwaZulu-Natal Nature Conservation Management Act, No.9 of 1997).

**Natural Heritage:**

Means the physical and biological formations or groups of such formation, which are considered of value from the aesthetic or scientific point of view; geological and physiographical formations and areas, which constitute the habitat of threatened species of animals and plants considered of value from the point of view of science, science and natural beauty.

**Partnerships:**

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

**Precautionary Principle:**

Means the principle that states, that if the environmental consequences of a particular project, proposal or course of action are uncertain, then the project, proposal or action should not be undertaken (Enviropaedia, 2004).

**Process-based Management:**

Means a management system, which recognises the role played by natural processes (such as migration, predation, competition and fire) in regulating populations and communities of plants and animals, as a basis on which management actions are taken. This takes into account awareness of the scale, frequency, intensification and patterning intrinsic to these processes. It assumes that effective conservation of biological diversity is achieved, through permitting natural processes to function in their natural ranges as far as possible, given the confines of a protected area enclosed within a boundary fence, which limits migration (S. van Rensburg, S. personal communication, 2006).

**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 No.9 of 1997; or
- Any of the areas protected in terms of Section 9 of the National Environmental Management: Protected Areas Act No. 57 of 2003.

**Ramsar<sup>3</sup>:**

Means the Ramsar Convention, or "The Convention on Wetlands of International Importance", an inter-governmental treaty signed in Ramsar, Iran, in 1971, which provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources. There are presently 141 Contracting Parties to the Convention, with 1387 wetland sites totalling some 122, 7 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance. The Convention covers all aspects of wetland conservation and wise use, recognising wetlands as ecosystems that are extremely important for biodiversity conservation, provision of ecosystem services, and the well-being of human communities.

**Sense of Place:**

Means the value or values perceived by an individual or a group on the state, condition or quality of a specific natural or cultural landscape and how this should be maintained or protected, in order for that individual or group to continue to enjoy, appreciate or revere its particular qualities. It is a *sine qua non* that respect should be shown by managers or custodians of such areas for the sense of place held by stakeholders, who are accustomed to value, enjoy, appreciate or revere them (c.f. Cultural Heritage).

**Stakeholders / Interested Parties<sup>4</sup>:**

These are interested individuals or groups 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 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

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<sup>3</sup> <http://www.ramsar.org>

<sup>4</sup> As defined in Guideline Document EIA Regulations, Department of Environmental Affairs and Tourism, April 1998.

would ensure its continued use to meet the needs and aspirations of present and future generations of people (vide the National Environmental Management: Biodiversity Act, No.10 of 2004).

## ABBREVIATIONS

Amafa	Amafa aKwaZulu-Natali ( KZN Heritage Agency)
BP	Business Plan
CDP	Concept Development Plan
DAC	Drakensberg Alpine Centre
DEAT	National Department of Environmental Affairs and Tourism
DWAF	National Department of Water Affairs and Forestry
EKZNW	Ezemvelo KwaZulu-Natal Wildlife
GIS	Geographic Information System
IDP	Municipal Integrated Development Plan
IMP	Integrated Management Plan
IUCN	International Union for the Conservation of Nature or World Conservation Union (as commonly referenced)
KZN	KwaZulu-Natal Province of the Republic of South Africa
KZNNCS	KwaZulu-Natal Nature Conservation Service
MDTFCA	Maloti Drakensberg Transfrontier Conservation Area
MDTP	Maloti Drakensberg Transfrontier Conservation and Development Programme
mya	million years ago
my	million years
NPB	Natal Parks Board
NRPC	Nature Reserve Planning Committee
ROC	Regional Operations Committee
SA	Republic of South Africa
SAHRA	South African Heritage Resources Agency
SMP	Strategic Management Plan
UDP WHS	uKhahlamba Drakensberg Park World Heritage Site
UVNR	uMngeni Vlei Nature Reserve

## ABBREVIATIONS USED FOR STATUTES

CARA	Conservation of Agricultural Resources Act, No. 43 of 1983
KZNNCMA	KwaZulu-Natal Nature Conservation Management Act, No. 9 of 1997
NEMBA	National Environmental Management: Biodiversity Act, No.9 of 2004
NEMPAA	National Environmental Management: Protected Areas Act, No.57 of 2003
PFMA	Public Finance Management Act, No. 1 of 1999
NHRA	National Heritage Resources Act, No. 25 of 1999
WHCA	World Heritage Convention Act, No. 49 of 1999

## LIST OF APPENDICES

<b>Appendix 1:</b>	List of References for Unpublished Supporting Documentation
<b>Appendix 2:</b>	UVNR Zonation System
<b>Appendix 3:</b>	Acquisition Letter and Surveyor-General Diagrams

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<b>Map 1:</b>	Nature Reserve Location Map
<b>Map 2:</b>	Nature Reserve Topographical Map
<b>Map 3:</b>	Nature Reserve Zonation map

# 1. PURPOSE AND SIGNIFICANCE OF uMNGENI VLEI NATURE RESERVE

## 1.1 Purpose

The purpose of uMngeni Vlei Nature Reserve is to:

- Contribute to the achievement of provincial and national nature conservation targets through protection of a portion of the landscapes of the eastern fringes of the Drakensberg Alpine Centre, or the Maloti Drakensberg Transfrontier Project Area, at its interface with the KwaZulu-Natal Midlands, and its associated biodiversity, including the ecological and evolutionary processes that generate and maintain this diversity;
- Protect the source of the uMngeni River; which is of major ecological and economic importance to the province;
- Protect endangered, rare and endemic species indigenous to the area, especially the breeding population of Wattled Crane, a threatened (Red Data Book species);
- Safeguard the historical, palaeontological and living cultural heritage of the area;
- Promote awareness of the natural beauty and outstanding aesthetic value of the area;
- Provide access by the public to the area and its resources, provided that the well being of the sensitive breeding cranes is not compromised; and
- Contribute to local, regional and national economies through sustaining water production and other life support systems, limited eco-cultural tourism, and sustainable use of natural resources.

## 1.2 Significance

The significant values of uMngeni Vlei Nature Reserve are:

- **Natural and Cultural Values**  
As a component of an internationally recognised biodiversity “hotspot” and a part of the most important water source area in the province (the Drakensberg Mountain System, which includes the Impendle Plateau), the natural and cultural values include the following:
  - The exceptional biological diversity, including threatened and endemic species;
  - An exceptional and diverse system of fully functional wetlands, largely in their natural state;
  - The Nature Reserve and the surrounding areas are regarded as the most important breeding area of Wattled Crane in the country.
  - The Nature Reserve is a protected area situated within an area that is internationally recognised as an Important Bird Area (IBA SA 075).
- **Water Production**  
The Nature Reserve protects the principal source of the uMngeni River, which is of major significance for downstream users, including the two largest cities in the province. The management of the Nature Reserve strives to ensure that the water resources are conserved thereby sustaining a yield of high quality water.

# 2. ADMINISTRATIVE AND LEGAL FRAMEWORK



## **2.1 Institutional Arrangements**

The management of the EKZNW uKhahlamba Region is the responsibility of the General Manager: uKhahlamba (GMU). Under the GMU fall the two Biodiversity Conservation Co-ordinators, East and West. The Co-ordinator West (BCCWU) controls the uKhahlamba Drakensberg Park World Heritage Site (UDP WHS), whilst the Co-ordinator East (BCCEU) controls all District Conservation Officers, and smaller Nature Reserves in the rest of the uKhahlamba region.

Under the BCCWU, fall three Senior Conservation Managers (SCM) who control the three sub-regions of the UDP WHS, namely the North, Central, and South Sub-regions. uMngeni Vlei Nature Reserve management is the responsibility of the Senior Conservation Manager (UDP WHS: South Sub-region) but is managed as a separate protected area by the Conservation Manager of Mkhomazi in the UDP WHS.

## **2.2 Legislation Guiding the Administration of the Nature Reserve**

The Nature Reserve is subject to the following key statutes. It should be noted that the list is not exhaustive.

Managers must familiarise themselves with the contents of these statutes and their subsequent amendments.

### **Biodiversity and Cultural Resource Management and Development:**

- Animals Protection Act (No.71 of 1962)
- Atmospheric Pollution Prevention Act (No.45 of 1965)
- Constitution of the Republic of South Africa (No. 108 of 1996)
- Conservation of Agricultural Resources Act (No.43 of 1983)
- Criminal Procedures Act of 1977
- Environment Conservation Act (No.73 of 1989)
- Forest Act (No. 122 of 1984)
- Hazardous Substances Act (No.15 of 1973)
- KwaZulu-Natal Heritage Management Act (No.10 of 1997)
- KwaZulu-Natal Nature Conservation Act (No.8 of 1975)
- KwaZulu-Natal Nature Conservation Management Act (No.9 of 1997)
- National Environmental Management Act (No. 107 of 1998)
- National Environmental Management: Biodiversity Act (No.10 of 2004)
- National Environmental Management: Protected Areas Act (No.57 of 2003)
- National Forests Act (No.84 of 1998)
- National Heritage Resources Act (No.25 of 1999)
- National Water Act (No.36 of 1998)
- National Water Amendment Act (No.45 of 1999)
- National Veld and Forest Fire Act (No.101 of 1998)
- Nature Conservation ordinance (No.15 of 1974)
- World Heritage Convention Act (No. 49 of 1999)

### **General Management:**

- Development Facilitation Act (No.67 of 1995)
- Disaster Management Act (No. 57 of 2002)
- Fire Brigade Services Act (No 99 of 1987)
- Local Government: Municipal Systems Act (No.32 of 2000)
- National Road Traffic Act (No.39 of 1996)
- National Building Standards Act (No.103 of 1977)
- Natal Town Planning Ordinance (No.27 of 1949)
- Occupational Health and Safety Act (No.85 of 1993)
- KwaZulu-Natal Planning and Development Act (No.5 of 1998)
- Water Services Act (No 108 of 1997)

### **Financial Management:**

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

#### **Human Resource Management:**

- Basic Conditions of Employment Act (No.75 of 1997)
- Compensation for Occupational Injuries and Diseases Act (No.130 of 1993)
- Employment Equity Act (No.55 of 1998)
- Labour Relations Act (No.66 of 1995)
- Occupational Health and Safety Act (No.85 of 1993)
- Pensions Funds Act (No. 24 of 1956)
- Skills Development Act (No.97 of 1998)
- Skills Development Levies Act (No.9 of 1999)
- Unemployment Insurance Act (No.63 of 2001)

### **2.3 Regional Planning Context and Principles**

The Nature Reserve, although not an inclusive part of the UDP WHS, falls within the management area linked to the Park. In addition, it is contained within the MDTP region. Further, it is not included in the Special Case Area Plan produced by the Town and Regional Planning Commission (now the KwaZulu-Natal Provincial Planning and Development Commission) which incorporates planning principles, regional zonation and recommendations (TRPC, 2001). This omission is seen as something of an oversight and the Plan is applied to the area surrounding it. Also of relevance in the area, is the Drakensberg Approaches Policy (TRPC, 1990).

In accordance with the Local Government: Municipal Demarcation Act (No.27 of 1998) and the Local Government: Municipal Structures Act (No.117 of 1998), UVNR falls into the KZ DMA 22 - uMgungundlovu District Municipal Area. The local municipality is the Impendle (KZ 224) Local Municipality and this IMP is to be aligned in terms of the requirements of the Local Government: Municipal Systems Act (No.32 of 2000) with the Integrated Development Plans of that municipality.

**Action Project 2.3 (i):** Ensure alignment with the local government IDP as it is developed and reviewed.

#### **References:**

TRPC. 1990. *Drakensberg Approaches Policy*. Town and Regional Planning Commission Report. Vol.74. 70 pp.  
 TRPC. 2001 *A Special Case Area Plan for the Drakensberg*. Town and Regional Planning Commission Report. Vol.90. 127 pp.

### **2.4 Declaration Status of uMngeni Vlei Nature Reserve**

UVNR has been managed as a nature reserve since its expropriation on 31 January 1987 but has no legal status as a protected area.

To safeguard the integrity of the Nature Reserve, it is critically important that UVNR receive legal status through declaration in terms of the NEMPAA. The Nature Reserve's boundary description is contained in the Surveyor-General Diagrams that form part of **Appendix 3**. It is recommended that this protected area be assigned the name 'uMngeni Vlei Nature Reserve' in the declaration. The assignment of the name to the Nature reserve must also be dealt with in terms of the EKZNW Board: Corporate Affairs Policy No. 7 (**Appendix 1** – EKZNW Corporate Policies [Norms and Standards]).

**Action Project 2.4 (i):** Expedite the declaration of UVNR as a statutory nature reserve in accordance with NEMPAA.

### **2.5 Nature Reserve Boundaries**

The UVNR physical boundaries need to be checked compared to the expropriated boundaries. Any deviation from the expropriated (and the eventual declared) boundaries needs to be

documented with the reasons for this deviation. All property beacons must be located, physically marked with cairns and photographed for future reference.

**Action Project 2.5 (i):** Verify the position of the UVNR boundary as compared with the Surveyor-General's Diagrams. Locate all property beacons, mark with cairns, photograph each one, and place on file relevant offices. Any deviations from the Surveyor General's Diagrams must be also be noted, explained and placed on file.

## **2.6 Local Agreements, Servitude Arrangements and Memoranda of Understanding / Agreement**

Managers must familiarise themselves with the conditions of any agreements and arrangements and monitor compliance with any conditions.

Of particular importance is the decision to utilise the domestic stock of neighbouring farmers according to the grazing management plans (integrated with the fire management plans) developed by EKZMW which are intended to benefit the UVNR Wattled Crane population (See **Par. 3.12.2, 6.4.1 and 6.4.2**). To date this partnership has not been formalised. In order to avoid any future misunderstanding or unrealistic expectations on either side a Memorandum of Understanding must be entered into between EKZMW and the relevant landowners who annually assist with providing cattle to graze the reserve according to a Grazing Management Plan (See **Par. 6.4.2**).

**Action Project 2.6 (i):** Conclude a Memorandum of Understanding between EKZMW and the relevant landowners who annually assist UVNR by providing cattle to graze the reserve according to a Grazing Management Plan.

## **2.7 Broadening Conservation Land Use Management in Areas Surrounding the Nature Reserve**

Opportunities may arise that will enable the establishment of new formally protected areas or other conservation management areas on land bordering or in vicinity of the Nature Reserve in collaboration and co-operation with the relevant communities and landowners. This would contribute to the MDTP conservation and development objectives through more effective biodiversity conservation and mountain catchment management. Indirectly, new eco-cultural tourism opportunities, with the resulting socio-economic benefits, could develop.

All EKZMW staff associated with the Nature Reserve should remain sensitive to these opportunities and be ready to engage with the relevant role-players, especially the members of the Biodiversity Stewardship Programme, assisting them with the most appropriate options for establishing conservation areas. This may be in the form of conservancies, private or local authority protected areas, community conserved areas, contractual protected areas or even incorporation of land into the Nature Reserve and in so doing increasing the extent of core-protected areas within the MDTP. Alignment with the municipal IDP must also be actively sought, to ensure appropriate land use on the borders of the Nature Reserve [See also **Action Project 2.3(i)**].

The following are priority actions in this regard:

- An extension of a conservation area to incorporate all of the headwaters of the uMngeni River above the Nature Reserve. In order of priority, the properties to be considered are those marked FP37 7649 and the remainder of Woodhouse No 2 6871 on Map Sheet 2929 BD.
- To ensure that the integrity of the hydraulic control (the "Keypoint" in Begg, 1989) of the wetland remains intact and, if possible, to incorporate it into the Nature Reserve.
- Areas that adjoin the Nature Reserve have been identified as priority conservation areas in terms of the MDTP and / or would contribute to developing a buffer area surrounding the Nature Reserve. In the case of failure to acquire the two properties listed above, attention should be focused on developing them as buffers.

**Action Project 2.7 (i):** Annually explore and investigate opportunities to broaden conservation-sensitive land use in and around the Nature Reserve.

**Action Project 2.7 (ii):** Investigate the possibility of acquiring of the full catchment area.

**References:**

Begg, G., 1989. The Wetlands of Natal (Part 3). *The location, status and function of the priority wetlands of Natal*. Natal Town and Regional Planning Report. Vol.73. 256 pp.



### 3. BACKGROUND

#### 3.1 Introduction

uMngeni Vlei Nature Reserve (UVNR, or “the Nature Reserve”) is situated in the Impendle District of KwaZulu-Natal (KZN) Province. It consists of grasslands, a few small areas of scrubby woodland and most importantly, of an extensive series of unmodified wetlands. The latter form the principal source of the uMngeni River and are listed by Begg (1989) as being amongst the priority wetlands of the province. While relatively restricted in extent (approximately 951ha), the Nature Reserve is nevertheless one of the most important of the smaller provincial protected areas in KZN by virtue of the ecosystem services it delivers. These consist principally of the conservation of water resources (including maintenance of water flow into the uMngeni River), and carbon sequestration. It is also important for the conservation of Wattled Crane (*Bugeranus carunculatus*) and according to Johnson *et al.* (1998), is regarded as the premier site in South Africa for protection of this rare and threatened bird species. At times some 20% of the South African population of the species may be present in and around the Nature Reserve.

In 1985, Breen *et al.* estimated that some 20% of the gross national product of the country was generated within the uMngeni River catchment, and stated that as a consequence, the system was recognised as one of the most important river systems in the Republic and as the most important river in KZN. The area around the Nature Reserve is designated as Important Bird Area, SA 075 (Johnson *et al.*, *ibid.*). While specialist bird-watching opportunities are available, the area is not considered to hold significant potential for nature- and culture-based tourism, both because of the risk of disturbance to the Wattled Cranes during the breeding season, as well as problems related to difficult public access.

#### References:

- Begg, G., 1989. The Wetlands of Natal (Part 3). *The location, status and function of the priority wetlands of Natal*. Natal Town and Regional Planning Report. Vol.73. 256 pp.
- Breen, C.M., Ackhurst, E.G.J., and Walmsley, R.D. (eds), 1985. *Water quality management in the Mgeni catchment*. Proceedings of a workshop held in Durban on 27<sup>th</sup> February 1985 by NTRPC and FRD (CSIR). Natal Town and Planning Supplementary Report 12: 1-27.
- Hockey P.A.R., Dean W.R.J., Ryan P.G. (eds) 2005. Roberts – *Birds of Southern Africa*, VIIth ed. Trustees of the John Voelker Bird Book Fund, Cape Town.
- Johnson, D.N., Barnes, N.B. and Taylor, B. *Important Bird Areas of KwaZulu-Natal*. In: KN Barnes, 1998. *The Important Bird Areas of Southern Africa*. Birdlife South Africa, Johannesburg. ISBN 0-620-23423-7. 196 pp.
- Natal Parks, Game and Fish Preservation Board, 1983. Memorandum for Executive Committee. Authority for the Acquisition of Woodhouse No.1 (Umgeni Vlei). Mimeo. 3 pp.
- Rushworth, I. 2005. *Proceedings of the 16<sup>th</sup> South African Crane Working Group Workshop 9-12 May 2005*, Sterkfontein Dam, pp 74-80.

#### 3.2 Origins of the Name of the Nature Reserve

The Nature Reserve takes its name from the uMngeni River as it lies within the catchment area of the river and forms an important source of the river. It has been known colloquially known as the ‘uMngeni Vlei Nature Reserve’ for many years since acquisition of the land by the then Natal Parks, Game and Fish Preservation Board in 1988.

According to Raper (1987), the name “uMngeni”, given to this river (which is also variously spelled “Mgeni”, “uMgeni”, or “Umgeni”) is said to be derived from the *isiZulu* for ‘river of the thorn tree’ (possibly *Acacia nilotica*).

Discussion with an *isiZulu* speaking person revealed that the correct current name is “uMngeni”.

“Vlei” is originally an Afrikaans term for a wetland. During the recent past, the term has become an acceptable and commonly used South African English word for a stretch of low-lying ground that is either permanently marshy or is flooded in the rainy season to form a shallow lake.

#### Reference:

- Raper, P.E., 1987. *Dictionary of Southern African Place Names*. Johnathan Ball Publishers. Johannesburg. 608 pp.

### 3.3 Location and Extent of the Nature Reserve

UVNR, as indicated above is situated in the KwaZulu-Natal Province of the Republic of South Africa, located in a remote portion of the eastern fringes of the Maloti Drakensberg Transfrontier Project Area. It lies approximately 22 km south west of Nottingham Road, and is accessed either from a private road, which leads from the Nottingham Road-Sani Pass road (P 27) and passes through the farm "Castle Howard" or from the Lions River – Impendle road (D 130) though the farm "Ivanhoe" also along a private road. In either case, permission to cross the farm must be obtained, from the owner.

The Nature Reserve is shaped like an inverted 'B', at longitude 29°29' 34" S and latitude 29°49' 43" E. It comprises portions of two properties, Sub 1 of Woodhouse No.1 6870 (443,9756 ha) and Sub 1 of Woodhouse No.2 (514,2870 ha).

UVNR has not been formally declared, but the intention is to have it legally declared as a nature reserve in terms of NEMPAA [See **Action Project: 2.4(i)**]. The total area of the Nature Reserve to be declared is 958,2626 ha.

### 3.4 History of Conservation

Since the 1970s, apprehension had been expressed that the source of the uMngeni River, arguably "the most important river in the province" (Breen *et al, ibid.*), lay in private hands and was not given formal legal protection to guarantee protection of its water resources. There had also long been concern about the need for conservation of the biodiversity of this wetland, especially for the breeding population of Wattled Cranes. These sentiments led to the expropriation of the area in 1987.

The decision to expropriate the area was based on motivation submitted in May 1986 by the then Natal Parks, Game and Fish Preservation Board to the Executive Committee of the Natal Provincial Administration to secure this area in order to protect the source of water for the uMngeni River. The reasons given in support of the need to expropriate the area (Natal Parks, Game and Fish Preservation Board, December 1983) included the following:

- The rapid exploitation (drainage and cultivation) and bad management of wetlands was one of the factors contributing to the alarming shortage of water in the country in 1983 and the consequent need to impose water restrictions.
- The fact that the two largest cities in the province, Durban and Pietermaritzburg, depended on the dams (Midmar, Albert Falls and Nagle) constructed on the uMngeni River for their water supplies.
- The most basic conservation of water resource conservation measures lies in the protection of the catchment area of rivers and the uMngeni River catchment, in particular its source, was still unprotected and vulnerable.
- The catchment area of the uMngeni River is relatively small and river flow is dependent on a series of large wetlands, a number of which have already been drained for agricultural purposes. The uMngeni Vlei system of wetlands at that time was still in a largely unmodified state although some small dams had been built. It was considered to have been under threat, as its owner had submitted an application to plough the large wetland on Woodhouse No. 1 (although this was subsequently refused). Johnson *et al.* (1998) state that there was intent in the early 1980's to develop some of the surrounds for agriculture.
- UVNR was a known breeding site for Wattled Cranes and it was considered important to protect "one of the main breeding sites" for this species, listed as Vulnerable (Globally) and Critically Endangered (South Africa). The area also provides habitat for a range of other wildlife species, and is a site of natural scenic beauty.

Following expropriation of the site, the number of breeding cranes declined over a period of a few years from seven pairs to just one pair. On investigation, it was decided, that management intervention was necessary to re-establish the type of conditions that had prevailed when more pairs bred successfully within the Nature Reserve. Included in the interventions, were the introduction of a more frequent fire regime, coupled with large herbivore grazing, in order to achieve the following:

- Reduction of phytomass, thereby facilitating movement of cranes, especially the juveniles;

- Reduction of cover for predators of crane eggs and nestlings;
- Promotion of access for the cranes to the geophytes, which form an important food source for adults.

Following a long period of decline (1988 – 2000), the number of cranes that attempted to breed increased from one to two in the first year of intervention and thereafter by an additional pair in 2003 and another in 2004 (Rushworth, 2005). Subsequently (until September 2008), no additional pairs have been recorded at UVNR. The reasons for this are not clear and could be linked to extraneous factors beyond the control of Nature Reserve management (I. Rushworth, personal communication, 22 September 2008).

It would seem that the decision to expropriate the Nature Reserve has been vindicated on at least two scores. Firstly, to secure a major wetland near the source of the uMngeni River in the face of the threats posed by commercial agriculture and by global warming. Acquisition into public ownership has ensured that this important wetland will not be subjected to the abuse suffered by the other large uMngeni wetlands through the construction of drains, and impoundments. It should, however, be noted that while the Nature Reserve protects one of the principal wetlands that form the source of the uMngeni River, Begg (*ibid.*) recommended that approximately 425 ha of the grasslands that form the entire catchment of the vlei should also be expropriated. However, this recommendation (together with the other recommendations in Begg (1989)) have to date been ignored by the authorities.

The second aspect in vindication of the decision to expropriate the area is that an important breeding site for Wattled Cranes has been secured. Experience gained since the expropriation indicates that present conservation measures appear to be successful (See **Par. 3.12.2**).

#### References:

- Begg, G., 1989. The Wetlands of Natal (Part 3). *The location, status and function of the priority wetlands of Natal*. Natal Town and Regional Planning Report. Vol.73. 256 pp.
- Johnson, D.N., Barnes, N.B. and Taylor, B. *Important Bird Areas of KwaZulu-Natal*. In : KN Barnes, 1998. The Important Bird Areas of Southern Africa. Birdlife South Africa, Johannesburg. ISBN 0-620-23423-7. 196 pp.
- Rushworth, I. 2005. *Umgeni Vlei Nature Reserve: Learning the hard way how to manage for Wattled Cranes*. PowerPoint Presentation.

### 3.5 Climate and Weather

No direct weather observations have been made from the Nature Reserve itself, but broad weather patterns may be inferred from measurements taken from adjacent areas. Subsidence inversion may rise above the escarpment, resulting in an influx of humid air from the warm Mozambique current of the Indian Ocean in the form of south-easterly winds. Approximately 80% of the precipitation falls in summer and the remaining 20% in winter. In winter, air subsidence causes stability of the atmosphere and consequently, the area has a distinct dry season from May until August.

The mean annual **temperature** of the Drakensberg is about 16°C, but variations are considerable both seasonally and diurnally. The mean for the summer months is about 18°C. Winters are cold, with the mean minimum July temperature ranging approximately between 0°C and 3.6°C. The highest temperatures (rarely up to 35°C) occur during summer on north-facing slopes, while the lowest temperatures, about -14°C, are regularly experienced on clear nights throughout much of the winter.

The Nature Reserve is in one of the best-watered, least drought-prone areas of the subcontinent. Annual **precipitation** varies between an estimated 980-1000 mm p.a. (the nearest weather station, from which rainfall records date back to 1921 is some 30 km away at Impendle). Approximately 80% of the precipitation falls in summer and the remaining 20% in winter. Both orographically induced and squall-line thunderstorms make up a substantial proportion of the precipitation in summer, but interception from mist in early summer also makes a significant contribution. Snowfalls may be expected mainly in winter, but may also occur in spring and autumn, with an average frequency of about eight days of snowfall per annum (Tyson *et al.* 1976, Phillips 1973, Schulze 1982, Camp 1997).

The Drakensberg generally and by inference, the Nature Reserve, experiences amongst the highest incidence of lightning strikes in the country.

At a sub-regional scale, cool mountain-plain winds blow at night, whereas in the day, a warm up-valley wind blows towards the escarpment. Strong westerly pressure **winds** (known as “berg winds”) are prevalent in spring between August and September. They occur ahead of frontal disturbances and are of considerable significance with regard to the spread of wildfire.

**References:**

- Begg, G., 1989. The Wetlands of Natal (Part 3). *The location, status and function of the priority wetlands of Natal*. Natal Town and Regional Planning Report. Vol.73. 256 pp.
- Camp, K.G., 1997. *The Bioresource Groups of KwaZulu-Natal*. Department of Agriculture, KwaZulu-Natal. Mimeo.
- Phillips, J., 1973. The agriculture and related development of the Tugela Basin and its influent surrounds. Natal Town and Regional Planning Report 19: 1-299.
- Schulze, R.E., 1982. *Agrohydrology and climatology of Natal*. Agricultural Catchments Research Unit Report (14): 1-136.
- Tyson, P.D., Preston-Whyte, R.A., Schulze, R.E., 1976. *The climate of the Drakensberg*. Natal Town and Regional Planning Commission Report 31, Pietermaritzburg.

### 3.6 Topography

The Nature Reserve has the following topographical features:

- The south-eastern face of Drinkkop Mountain, the mountain itself is apparently a remnant of the Cainozoic landscape;
- Two large basins containing the wetlands, which are fringed by a series of Karoo dolerite ridges, separated by a central ridge all of which form a portion of the Impendle Plateau.
- A dolerite dyke, or “keypoint”<sup>5</sup>, which lies just outside the Nature Reserve, impedes further incision along the primary drainage line and so holds the accumulating sedimentary material, and maintains the integrity of the main wetland on Woodhouse No. 1.

The peak of Drinkkop Mountain is at an altitude of 2 081 m. The head of the vlei is at an altitude of 1840 m, and its outlet is at an altitude of 1828 m (Begg, *ibid.*), thus placing it within the Drakensberg Alpine Centre (DAC), as demarcated by Carbutt and Edwards, (2004).

**References:**

- Begg, G., 1989. The Wetlands of Natal (Part 3). *The location, status and function of the priority wetlands of Natal*. Natal Town and Regional Planning Report. Vol.73. 256 pp.
- Carbutt C. and Edwards, T.J., 2004. *The Flora of the Drakensberg Alpine Centre*. Edinburgh Journal of Botany. 60(3): 581-607.

### 3.7 Geology

The Nature Reserve is located in the ancient Great Karoo Basin in the Gondwana Supercontinent. Gondwanaland was fragmented by rifting, and in the process, massive basaltic outpourings started some 187 million years ago (mya), forming the Drakensberg volcanic group (Ezemvelo KZN Wildlife, 2005). The feeder pipes of these outpourings comprise a range of dolerite structures, includes dykes and sills formed during the extrusion of the magma, which congealed (solidified) under pressure as opposed to the basalt, which congealed on the surface after eruption, and therefore, not under pressure (Norman and Whitfield, 2006). The dolerite therefore has a fine-grained structure with no visible crystals or amygdaloids, while the basalt contains such features in abundance.

**References:**

- Ezemvelo KZN Wildlife, 2005. Integrated Management Plan: Ukhahlamba Drakensberg Park World Heritage Site (2006-2011), South Africa. Ezemvelo KZN Wildlife, Pietermaritzburg, 81 pp and 9 maps.
- Norman, N. and Whitfield, G., 2006. *Geological Journeys*. Struik. 320 pp.

### 3.8 Geomorphology

The Nature Reserve is located on the upper fringes of the Impendle Plateau, described as a massive undulating sheet of fractured dolerite (Turner, 1970, quoted in Begg, 1989). The basins in

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<sup>5</sup> A natural obstruction that resists downward erosion of the river channel, and is referred to as a “nickpoint” in a geomorphological context. From Begg, (*ibid.*).



which the wetlands occur are the product of the natural shapes of the dolerite structures, modified by weathering and erosion over time.

**Reference:**

Begg, G., 1989. The Wetlands of Natal (Part 3). *The location, status and function of the priority wetlands of Natal*. Natal Town and Regional Planning Report. Vol.73. 256 pp.

### 3.9 Soils

The landscapes of the Nature Reserve are similar in character in many respects to those of the Maloti Drakensberg Mountains, in that they are ancient and soils reflect the age and high precipitation of the area (Bainbridge, 2004). The soils of the slopes of Drinkkop Mountain and the dolerite ridges are generally shallow and highly weathered. While these ferrallitic soils are inherently resistant to erosion, once they have been disturbed or bared of cover (such as by trampling), they erode rapidly and erosion scars in the mountains do not readily heal naturally (Bainbridge *et al.*, 1986). In several locations, incipient erosion dongas have been formed, as a result of badly sited vehicle and old wagon tracks.

Acid hydromorphic soils of the Katspruit form (Scotney, 1970), quoted in Begg, (*ibid.*) have formed in the depressions that constitute the wetland, but these soils vary widely with regard to texture, pH and organic matter content. According to Begg, (*ibid.*) at least three series of Katspruit soils occur within UVNR and frequently all three series occur in the same wetland system. The stability of these soils is maintained under natural conditions by the high moisture status and consequent accumulation of organic matter and they remain permanently waterlogged for most of the year. It follows therefore that the depressions filled by these soils are important water-yielding areas and that their water-producing capacity would be impaired by such activities as drainage or cultivation and that such activities could result in a loss of organic matter either by bacterial decay or by oxidation and increased susceptibility to erosion (Begg, *ibid.*).

**References:**

Bainbridge, W.R., 2004. *Initiatives to conserve globally significant biodiversity resources in the Maloti-Drakensberg Transfrontier Conservation and Development Area, Lesotho and South Africa*. In: David Harmon and Graeme L. Worboys (eds.) *Managing Mountain Protected Areas: Challenges and Responses for the 21<sup>st</sup> Century*. Andromeda Editrice. 426 pp.

Bainbridge, W.R., Scott D.R. and Walker R. 1986. *Policy Statement for the Drakensberg State Forests*. Pietermaritzburg. Department of Environment Affairs.

Begg, G., 1989. The Wetlands of Natal (Part 3). *The location, status and function of the priority wetlands of Natal*. Natal Town and Regional Planning Report. Vol.73. 256 pp.

Scotney, D.M., 1970. *Soil and land-use planning in the Howick Extension Area*. Unpublished Ph.D. Thesis, University of Natal, Pietermaritzburg.

### 3.10 Hydrology and Wetlands

The hydrology of the Nature Reserve is poorly understood, despite the pleas made by a variety of hydrologists, agriculturists and a technical committee and which according to Begg (*ibid.*) date back over fifty years from the present, for studies to be undertaken to improve understanding of the importance of the wetland for water production. The unfortunate situation at present is that the state of knowledge on the hydrological significance of the uMngeni wetlands is no better than when the first calls for such studies were made in the early 1950s.

It may however, be stated that:

- Present management appears to be favourable for the maintenance of the ecological integrity of the wetland and its dependent biodiversity; and
- The ecosystem services provided by the wetlands (in particular the yield of high quality water) are of considerable significance, especially in regard to regulating streamflow and maintaining the high quality of the water released which, together, are of major economic importance for downstream users.

The wetlands on the two primary component sections of the Nature Reserve, Woodhouse No. 1 and No. 2 are not directly linked, but both form an important part of the network of wetlands that comprise the headwaters of the uMngeni River. The streams that emerge from the two wetland systems merge at lower altitude, outside of the Nature Reserve. A brief description of the vegetation of the wetlands follows in Section 3.11.

Attention is drawn in Section 3.4 above to the recommendation of Begg (*ibid.*) that consideration be given to securing protection for the catchment area of UVNR, the source of the primary water supply for the major wetland on Woodhouse No. 1.

**Action Project 3.10 (i):** Prepare a motivation for the designation of the Nature Reserve as a Wetland of International Importance in terms of the Ramsar Convention.

**Action Project 3.10 (ii):** Initiate and formally develop the formation of a partnership with regard to conservation of the catchment area upstream of the Nature Reserve.

**Action Project 3.10 (iii):** Initiate and formally develop the formation of a partnership with regard to conservation of the area around the dolerite sill that supports the wetland system.

**References:**

Begg, G., 1989. The Wetlands of Natal (Part 3). *The location, status and function of the priority wetlands of Natal*. Natal Town and Regional Planning Report. Vol.73. 256 pp.

### 3.11 Vegetation

The Drakensberg Mountain range and its outliers, which include enclaves such as the Impendle Plateau, have been identified as a biodiversity hotspot - an area of high endemism and species-richness, which is under threat (Myers, 1988). This is one of seven such areas on the sub-continent, known as the Eastern Mountain Hotspot (Cowling and Hilton-Taylor, 1994) or the Drakensberg Alpine Centre (DAC) (van Wyk and Smith, 2001, and Carbutt and Edwards, 2004). The DAC is a composite of high-altitude enclaves centred within the greater Drakensberg Range and has links to the Cape Floral Region. The floristic and vegetative diversity of the DAC may be accounted for by the altitudinal, climatic, topographic and edaphic gradients on a broad scale (Bainbridge *et al*, 1999).

The only published information on the vegetation of the Nature Reserve is provided by Begg (*ibid.*), and Johnson *et al.* (1998). There are a variety of classification systems that have been used and so the terminology has changed over the years. Thus it was considered to be Veld Type 44a, Highland Sourveld (Acocks, 1988), then Bioresource Group 8, Moist Highland Sourveld (Camp, 1997) and is now named as Drakensberg Foothill Moist Grassland (Ezemvelo KZN Wildlife Conservation Plan). It was described by Begg (*ibid.*) as "well-conserved *Themeda-Trachypogon* highland grassveld". Camp (*ibid.*) states that this veld type is "a fire-maintained grassland dominated by short bunch grasses, approximately 0.5 m high. In the absence or reduction of fire, a development towards *Podocarpus* forest occurs, with grasses such as *Cymbopogon* spp. and tall *Hyparrhenia* spp. and the trees *Leocosidea sericea* and *Buddleja salviifolia* being the initial forest precursors." He also states that forest patches occur mainly on the cooler and moister south-facing slopes, especially when they have been protected from fire. In such places, other tree species such as *Halleria lucida*, *Rapanea melanophloeos* and *Kiggelaria africana* are also to be found in the early successional stages.

The following primary vegetation formations are present within the Nature Reserve:

- Scattered communities of the succulent *Euphorbia clavarioides* on the upper rocky slopes of Drinkkop Mountain;
- Highland Sourveld grasslands (with associated forbs and low shrubs such as *Rubus ludwigii*, *Rhus* spp. and *Helichrysum* spp.) throughout the interfluvial ridges, including the mid- and foot-slopes of Drinkkop Mountain and the upper edges of the wetland;
- A forest patch at the foot of the mountain, dominated principally by *Leucosidea sericea*; and other associated shrubs or small trees, such as *Halleria*, *Rapanea* and *Kiggelaria*;
- Seasonally-wet swamp communities, or peripheral sedge meadow, with *Pycnus*, *Scleria welwitschii*, *Andropogon appendicularis*, *Aristida junciformis* and *Festuca*, merging into wet grassland;
- Permanently-wet swamp communities of *Carex acutiformis* and *C. cognata* marsh, with hummock-depression morphology, and with *Cyperus unioloides*, *Pycnus cooperi* and *Juncus*

*oxycarpus* intermixed with the *Carex*, and submerged vegetation such as *Largarosiphon major* and *Urticularia vulgaris*; and

- Widely scattered patches of alien invasive species, primarily American bramble (*Rubus cuneifolius*).

Areas of Protea savanna are present on properties surrounding the Nature Reserve and it is possible that further work will reveal the presence of this vegetation type within the Nature Reserve.

It might be expected that the Nature Reserve would contain a number of endemic or threatened plant species, by virtue of its location within the DAC biodiversity hotspot. However, it would seem that insufficient work has been undertaken to demonstrate whether this is the case. Scott-Shaw (1999) lists *Stachys rivularis* as a “Vulnerable” species occurring in the Nature Reserve and the following species as occurring in the areas of the two 1:50,000 maps (2929BD and 2929DB) which include the Nature Reserve:

<i>Bowiea volubilis</i>	Vulnerable **
<i>Calpurnia woodii</i>	Vulnerable **
<i>Crocosmia pearsei</i>	Vulnerable
<i>Dierama luteoalbidum</i>	Vulnerable
<i>Ocotea bullata</i>	Vulnerable **
<i>Sisyranthus fanniniae</i>	Vulnerable

\*\* Unlikely to be present due to absence of suitable habitat.

*Merwillia natalensis* (Vulnerable) is known to be present but its status is not known. *Kniphofia brachystachia* and *K. breviflora* are KwaZulu-Natal endemic species, whose modelled habitat preferences are met in the Nature Reserve.

**Action Project 3.11 (i):** Conduct a full botanical inventory survey of UVNR and surrounds.

#### References:

- Acocks, J.P.H., 1988. *Veld Types of South Africa*. Botanical Research Institute, Pretoria., 146 pp.
- Bainbridge, W.R., Motsamai, B., and Weaver, L.C., 1991. *Report of the Drakensberg-Maluti Conservation Programme*. Pietermaritzburg, Natal Parks Board.
- Begg, G., 1989. The Wetlands of Natal (Part 3). *The location, status and function of the priority wetlands of Natal*. Natal Town and Regional Planning Report. Vol.73. 256 pp.
- Camp, K.G., 1997. *The Bioresource Groups of KwaZulu-Natal*. Department of Agriculture, KwaZulu-Natal. Mimeo.
- Carbutt, C., and Edwards, J.J. 2004. *The Flora of the Drakensberg Alpine Centre*. Edinburgh Journal of Botany. 60(3): 581 – 607.
- Cowling, R.M. and Hilton-Taylor, C. 1994. *Patterns of plant diversity and endemism in Southern Africa: an overview*. In: Huntley, B.J. (ed.). *Botanical Diversity in Southern Africa*, pp. 31-52. Pretoria, National Botanical Institute.
- Myers, N., 1988. *Threatened biotas: “Hot-spots” in tropical forests*. The Environmentalist 8, 1-20.
- Scott-Shaw, C.R. 1999. *Rare and threatened plants of KwaZulu-Natal and neighbouring regions*. KwaZulu-Natal Conservation Service, Pietermaritzburg.
- Van Wyk, A.E. and Smith, G.F. 2001. *Regions of Floristic Endemism in Southern Africa: a Review with emphasis on Succulents*. Umdaus Press, Hatfield. 199 pages.

### 3.12 Animals

Published information of the fauna of the Nature Reserve is restricted to the generalised account of the Nature Reserve by Begg (*ibid.*) and the description by Johnson *et al.* (*ibid.*) of the Nature Reserve as an Important Bird Area. From the limited information available from these, and the EKZNW Biodiversity Database for UVNR, four key aspects emerge. These are the following:

- By virtue of the small size of the Nature Reserve, the habitats of many of the faunal species observed within it, especially those of medium to larger mammals and birds, extend beyond the boundaries of the Nature Reserve. Consequently, many faunal species and individuals cannot and do not occupy the area permanently.
- Following from the preceding point, the conservation of such species must be seen in the context of partnerships with landowners of areas surrounding the Nature Reserve.

- A key function of the Nature Reserve is to protect the breeding sites and feeding grounds of a significant portion of the national and provincial population of a single species, namely Wattled Cranes although attention will also be given to conservation of all other faunal species for which the Nature Reserve forms a part of their territories or home ranges.
- Apart from the birds, very few animal species are listed on the EKZNW Biodiversity Database for UVNR. It is essential that a full faunal inventory survey be undertaken for the Nature Reserve and its immediate surrounds.

**Action Project 3.12 (i):** Conduct a full faunal inventory survey of UVNR and surrounds.

**References:**

- Begg, G., 1989. The Wetlands of Natal (Part 3). *The location, status and function of the priority wetlands of Natal*. Natal Town and Regional Planning Report. Vol.73. 256 pp.
- Johnson, D.N., Barnes, N.B., and Taylor, B. *Important Bird Areas of KwaZulu-Natal*. In : KN Barnes, 1998. The Important Bird Areas of Southern Africa. Birdlife South Africa, Johannesburg. ISBN 0-620-23423-7. 196 pp.

### 3.12.1. Invertebrates, Fish and Herpetofauna

#### 3.12.1.1. Invertebrates

The EKZNW Biodiversity Database does not list any invertebrates for UVNR.

Invertebrates play critical roles in the functioning of all ecosystems as they are responsible for maintaining soil fertility, waste disposal, water purification, pest control and pollination. Few studies quantifying the contribution of invertebrates to these processes have been carried out in South Africa, but internationally the complexity of the invertebrate interactions required to sustain ecosystems and even in influencing the structure of plant communities is becoming increasingly evident. Several invertebrates, such as termites, are considered to be keystone species. Termites recycle large quantities of plant biomass into the soil and keep the soil porous with their tunneling, allowing water to infiltrate the soil profile. Earthworms play a similar role and are more diverse and widespread in the reserve grasslands than termites. The dung beetle fauna of the reserve are responsible for the removal of animal wastes and recycling of nutrients to the soil. Pollination of a large proportion of flowering plants, including endemics, is dependant on a range of insect groups, such as bees, wasps, flies, and beetles. In some cases the survival of locally endemic plant species is linked to pollination by a single insect species.

(Above paragraph is an extract, with amendments, from a report for the uKhahlamba Drakensberg Park World Heritage Site compiled by Dr. Michelle Hamer, University of KwaZulu-Natal dated 17 January 2005).

In the light of the potential important role that invertebrates can play in maintaining the ecological processes within UVNR, it is imperative that a survey is undertaken to determine the species that are present [See **Action Project 3.12(i)**].

#### 3.12.1.2. Fish

There are no records of any fish from within the Nature Reserve but two indigenous species may well be present. They are the Longfin Eel (*Anguilla marmorata*) and the Chubbyhead Barb (*Barbus anoplus*).

The nearby dams have been stocked with Rainbow Trout (*Onchorynchus mykiss*) and Brown Trout (*Salmo trutta*) for recreational angling purposes and these fish may occasionally enter the Nature Reserve but will be highly unlikely to establish permanent populations there as the habitat available is most unsuited to them.

It is important to verify the above assumptions by undertaking the appropriate surveys [See **Action Project 3.12(i)**].

#### 3.12.1.3. Amphibians

The EKZNW Conservation Plan suggests that there is a low possibility that the rare Natal leaf-folding Frog (*Afrivalis spinifrons intermedius*) may be present.

The EKZNW Biodiversity Database does not list any amphibians for UVNR. It is imperative that a survey is undertaken to determine the amphibian species present [See **Action Project 3.12(i)**].

#### 3.12.1.4. Reptiles

No formal surveys have been undertaken but the following species have been seen (D.J. Alletson, personal communication, 2007) in the Nature Reserve:

Striped Skink	( <i>Mabuya striata striata</i> )
Drakensberg Crag Lizard	( <i>Pseudocordylus melanotus melanotus</i> )

The EKZNW Biodiversity Database does not list any amphibians for UVNR. It is imperative that a survey is undertaken to determine the reptile species present [See **Action Project 3.12(i)**].

#### 3.12.2. Birds

The EKZNW Biodiversity Database lists approximately 100 bird species for the Nature Reserve but it is probable that more are present or utilise UVNR at times. While the list does not indicate the length of time each species spends within the Nature Reserve, it is clear that a number of the species listed are important migrants. It is necessary that the EKZNW Biodiversity Bird Database for UVNR be updated [See **Action Project 3.12(i)**].

A primary purpose of the Nature Reserve is to protect part of an area considered to be the most important breeding site of the Wattled Cranes (*Bugeranus carunculatus*) in the country (*vide* Section 3.4 above, Johnson *et al.*, *ibid.*). As an indication of the plight of this large bird species, listed as “Globally Vulnerable; Critically Endangered in S.A.”, the current national population was reduced from an estimated 380 (160 breeding pairs) in 1982 to an estimated current population of 81 breeding pairs and 85 “floaters” (Hockey *et al.*, 2005). The population in KZN is estimated at 68 – 70 pairs (maximum 140 individuals) and about 70 “floaters” (A. Rousseau, personal communication, 2007). According to McCann (personal communication, 2007) there are nine breeding pairs in the general vicinity of UVNR of which up to four or five pairs breed within the Nature Reserve itself. These, together with up to 20 “floaters”, have regularly been seen foraging in UVNR. Accordingly, the Nature Reserve may at times support as much as 20% of the national population.

However, it is important to note that for a period of seven or eight years following expropriation, the number of Wattled Crane pairs that successfully bred within the reserve, declined steadily. Prior to expropriation, up to six pairs of cranes successfully bred there, but by the end of that period, only a single pair was still nesting. The decline was attributed to the new management regime, which differed from that previously implemented when the properties were managed for commercial agriculture, and there were regular burns and grazing by livestock.

Acquisition of the Nature Reserve as a provincial protected area has ensured that protection is afforded against the principal threats posed to this species listed by Hockey *et al.* (*ibid.*) as “damming, draining, afforestation, overgrazing, trampling and disturbance by livestock, too-frequent and inappropriately-timed burning, erosion, siltation and road building.” However, Johnson *et al.* (*ibid.*) contend that cattle create some structural diversity in the vegetal cover that “appears to benefit the cranes”. Rushworth (*ibid.*) supports intervention by large herbivore grazing (provided by domestic cattle, in the absence of indigenous bulk and roughage foragers), in conjunction with regular applied burns, in order to reduce the height and density of the sward, and to improve access to the principal food source of the cranes, geophytes. Accordingly, the combination of controlled burns with controlled grazing has been implemented since 2001 (K. McCann, personal communication, 2007), and official records show a commensurate increase in the number of breeding pairs present. Following a long period of decline (1988 – 2000), the number of cranes that attempted to breed increased from one to two in the first year of intervention and thereafter by an additional pair in 2003 and another in 2004. Subsequently (until September 2008), however, no additional pairs have been recorded at UVNR. The reasons for this are not clear at present and could be linked to extraneous factors beyond the control of Nature Reserve management (I. Rushworth, personal communication, 22 September 2008).

Another important contribution to the conservation of this species that has followed acquisition of the area has been the protection of the breeding birds during their most vulnerable time which Tarboton (1989) describes as, “their inability to tolerate disturbance while nesting”. However, Hockey *et al.* (*ibid.*) indicate that this is a long-lived species, with a relatively low breeding rate, *i.e.* a species which may not breed annually and which normally raises only a single chick. Thus, the time needed for the population to recover to historic levels may be considerable.

In the light of the discussion above, an integrated fire management and grazing programme will continue to be planned, implemented and monitored at UVNR in pursuance of the conservation target set for UVNR (**Par. 4.5**) with regard to Wattled Cranes according to the management guidelines indicated for the Fire management Programme (**Par. 6.4.1.**) and the Grazing Management Programme (**Par. 6.4.2.**).

**Action Project 3.12.2 (i):** Continue with the Wattled Crane monitoring programme and correlate with the fire and grazing management regimes.

**References:**

Hockey, P.A.R., Dean W.R.J., Ryan P.G. (eds) 2005 Roberts – *Birds of Southern Africa*. VII<sup>th</sup> ed.  
 Rushworth, I., 2005. *Proceedings of the 16<sup>th</sup> South African Crane Working Group Workshop 9-12 May 2005*, Sterkfontein Dam, pp 74-80.  
 Tarboton, W.R. 1989., *Wattled Crane*. In: PJ Ginn, WG Mclleron and P.leS Millstein (Compilers). *The Complete Book of Southern African Birds*. Struik Winchester. 760 pp.

**3.12.3. Mammals**

Official records indicate the suspected presence of least one Critically Endangered species, the Rough-haired Golden Mole (*Chrysospalax villosus*).

The EKZNW Biodiversity Database for UVNR confirms the presence of two Endangered species, Oribi (*Ourebia ourebi*) and the White-tailed Rat (*Mystromys albicaudatus*) as well as a Near Threatened species, Serval (*Leptailurus serval*).

At least five antelope have been recorded in the area (Rowe-Rowe, 1994). Oribi, Grey Rhebuck (*Pelea capreolus*), Mountain Reedbuck (*Redunca fulvorufula*) Southern / Common Reedbuck (*Redunca arundinum*) and Common Duiker (*Sylvicapra grimmia*). Eland (*Tragelaphus oryx*) are known to frequent the farmlands surrounding the Nature Reserve, but their presence within the Nature Reserve is not recorded in official records.

Predators that are known to be present in the general area include Black-backed Jackal (*Canis mesomelas*), Caracal (*Felis caracal*), Clawless Otter (*Aonyx capensis*), Spotted-necked Otter (*Lutra maculicollis*), and Serval, the latter having been recorded within the Nature Reserve (Rowe-Rowe, 1994).

The following mammal species would have probably also occurred in the Nature Reserve area in the past:

Black Wildebeest	<i>Conchaetes gnou</i>
Red Hartebeest	<i>Alcelaphusbuse laphus</i>
Wild Dog	<i>Lycaon pictus</i>

As with the adjacent UDP WHS, the natural carrying capacity for wild ungulates in the Nature Reserve is considered very low. In the period between spring and early autumn the grasslands are in an active growth period, the grazing is palatable and the carrying capacity is moderate to high. However, in the period in which the grasses become dormant (and are “sour” or no longer palatable) the carrying capacity becomes low.

A full inventory survey of the mammals occurring in and around UVNR is necessary [See **Action Project 3.12(i)**].

**References:**

Rowe-Rowe, D., 1994. *The ungulates of Natal*. Natal Parks Board, Pietermaritzburg.  
Rowe-Rowe, D., 1994. *The carnivores of Natal*. Natal Parks Board, Pietermaritzburg.

### **3.13 Cultural Heritage**

The cultural heritage of the Nature Reserve is poorly researched and little known.

There are no known registered archaeological sites within the Nature Reserve, but there is much historical evidence of San activity in the “Upper Mngeni” (*sic*) area, which presumably included the Nature Reserve (Wright, 1971).

According to Prins (2006), the old farmhouse, which is located just south of the Nature Reserve and which is now largely in ruin, is said to have been built by an English soldier, who jumped ship while *en route* to India. He then made his way into the remote hinterland and spent the rest of his life there. The grave is near the house and is protected in terms of the KZN Heritage Management Act.

<b>Action Project 3.13 (i):</b> Undertake a Cultural Heritage survey of the Nature Reserve.
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**References:**

Prins, F., 2006. *Unpublished note on the Cultural Heritage of uMngeni Vlei*  
Wright, J., 1971. *Bushman Raiders of the Drakensberg 1840-1870*. University of Natal Press, Pietermaritzburg.

### **3.14 Socio-economic Context**

The fact that UVNR protects and conserves a significant portion of the uMngeni River’s catchment area in itself makes the Nature Reserve a valuable economic asset for the region and for KZN.

Commercial agriculture has been the most important economic driver for this portion of the province. The Nature Reserve is surrounded by privately owned land, on which the most important commercial use is mixed farming, primarily livestock management. The Lake Lyndhurst property to the east has been divided into a number of residential stands for holiday homes. Areas of communally owned land, on which subsistence agriculture is practised, lie some distance to the south-west but are not adjoining in any way.

The Nature Reserve is not a recognised eco-cultural tourism destination and such activity is therefore not economically important.

### **3.15 Socio-cultural History**

According to Prins (EKZMW, 2005), San hunter-gatherers were the first modern people to occupy the area in which the Nature Reserve is presently located. The earliest convincing evidence confirming the presence of San in the region dates back some 8000 years, but evidence from adjacent areas in Lesotho suggests that the San inhabited the area around 20 000 years ago. During the last 200 years, various linguistic groups of San inhabited the Drakensberg region, but these populations were either displaced or assimilated by later immigrant groups, although their descendents still live in the area.

The first black farmers moved into the Drakensberg region about 400 years ago, although there is no information of the presence in or around the Nature Reserve, until colonial times.

**Reference:**

Prins, F. In: Ezemvelo KZN Wildlife, 2005. *Integrated Management Plan: Ukhahlamba Drakensberg Park World Heritage Site (2006-2011)*, South Africa. Ezemvelo KZN Wildlife, Pietermaritzburg, 81 pp and 9 maps.

### **3.16 Eco-cultural Tourism**

The Drakensberg Region in general and the UDP WHS in particular, are recognised tourism destinations. In contrast, the location of the Nature Reserve is traditionally known as an agricultural area rather than as a tourist destination. However, the high scenic values and other natural attributes of the Nature Reserve, together with its proximity to the World Heritage Site, clearly indicate a potential role for the provision of eco-cultural tourism opportunities, subject to the caveat of the need to protect the cranes, one of the primary purposes of the Nature Reserve. The nearby historic farmhouse ruin has the potential to form an eco-cultural tourist interest node but will require the consent of the landowner for it to be developed as such. No significant eco-cultural tourism development for UVNR is however envisaged during the timeframe of this IMP (See also **par. 6.7**).

### **3.17 Developed Infrastructure**

The only developed infrastructure at UVNR consists of:

- A boundary fence with five vehicular entrance gates allowing vehicular entrance for fire control purposes and to facilitate cattle movement when grazing on the Nature Reserve is required.
- A vehicular management field track in Grazing Block B that is approximately few hundred metres long.
- An internal fence (with a barbed wire gate) that separates Grazing Blocks A & B in the Nature Reserve.

See infrastructure guidelines under **Par. 6.10**.



## **4. VISION, MISSION, MANAGEMENT OBJECTIVES AND CONSERVATION TARGETS**

### **4.1 Introduction**

An uMngeni Vlei Nature Reserve Key-stakeholder's Workshop<sup>6</sup> was held at the Kamberg Rock Art Centre in June 2006, at which the Vision, Mission and Management objectives for the Nature Reserve were determined. The following is a synthesis of the recommendations of that workshop.

### **4.3 Vision**

**A protected area which is securely protected in law, which has the support of the people of South Africa and which is set aside for the provision of a range of benefits that include the sustained flow of the uMngeni River, and conservation of the biodiversity resources of an internationally recognized "hotspot", and threatened species such as Wattled Cranes.**

### **4.4 Mission**

**To conserve the wetland, Wattled Cranes and the associated natural environment and to provide benefits for neighbouring communities and the country.**

### **4.5 Management Objectives**

- 1. Conserve the biodiversity<sup>7</sup>, scenic, aesthetic and cultural resources of the Nature Reserve, ensure the continued, unhindered functioning of the natural processes and life support systems, with especial reference to the wetlands, which generate and maintain biodiversity and ecosystem services.**
- 2. Conserve these resources for intrinsic and other purposes, so as to ensure their integrity and the sustainable flow of ecosystem services and other benefits arising from the Nature Reserve, including conservation of the water resources that maintain stream-flow in the uMngeni River, and the conservation of threatened and Red Data species such as the Wattled Cranes.**
- 3. Develop and implement strategies for the conservation of the natural communities based on best practice and management-orientated research, the focus of which includes valuable and rare ecosystems and species, which occur naturally in the Nature Reserve. See Appendix VI for details of the decision to make use of domestic stock to graze the Nature Reserve.**
- 4. Demonstrate the benefits of ecosystem services to neighbouring communities and other stakeholders and encourage the integration of these values into the regional economy.**
- 5. Establish and maintain effective and cordial relations with affected neighbouring communities and other stakeholders, in order to ensure effective collaborative management of the Nature Reserve and surrounding areas, to the benefit of both the environment and the communities involved.**

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<sup>6</sup> Reference is provided in **Appendix 1, Item 3.**

<sup>7</sup> Located in the Drakensberg Alpine Centre biodiversity "hot-spot", which is recognized at both national and international levels.

6. Address security issues and illegal activities such as arson, stock theft and poaching, in order to ensure the integrity of the Nature Reserve in collaboration with neighbours, security services and the justice system.
7. Promote public appreciation of the values of the Nature Reserve and its various resources through interpretive and other measures.
8. Effectively integrate the biodiversity and other values of the Nature Reserve with those of adjacent areas in order to establish a buffer zone to the Nature Reserve.
9. Take cognisance of, and co-operate with the Maloti Drakensberg Transfrontier Project<sup>8</sup> and its objectives.

#### 4.6 Conservation Targets for the Nature Reserve

The conservation targets for the Nature Reserve are indicated in Table 1 below.

**Table 1:** Species conservation targets for the participatory area including the Nature Reserve and its environs.

Feature	Target	Rationale/Notes	2007 Status
Wattled Crane ( <i>Bufo carunculatus</i> )	Seven breeding pairs in the overall uMngeni Vlei Sponge area of which at least three should be in the Nature Reserve.	The target figure is based on historic records for the area.	Two breeding pairs in the Nature Reserve.
Oribi ( <i>Ourebia ourebi</i> )	Twenty pairs in the general area of which at least four should be in the Nature Reserve.	The animals move around in the area and are not restricted to the Nature Reserve.	Three individual animals in the Nature Reserve.
Geophytes	To retain at least the current density and diversity of bulbous plants.	Bulbous plants are an effective indicator of grassland health and so of management effectiveness.	Unknown.

**Action Project 4.5 (i):** Develop conservation and monitoring strategies for all species for which Nature Reserve conservation targets have been set [See also **Action Project 6.9.1 (i)**].

<sup>8</sup> The Umgano Project falls within the MDTP Study Area

## 5. ZONATION

### 5.1. Zonation Categories

Zonation within protected areas is an internationally accepted practice for the purpose of effecting management and recreation activities. The use of a nationally standardised system of classification, which characterises the various zones, will ensure that protected area managers and users have a clear indication of the management and recreational opportunities within the various zones.

The UVNR zonation system follows that which is used for uKhahlamba Drakensberg Park World Heritage Site that is described in **Appendix 2**.

If, in the future, hiking in the area is to be permitted it is probable that restrictions will be based on both seasonal and spatial criteria.

### 5.2. Zonation Plan

The Zonation Plan is shown in **Map 2**.

## 6. OPERATIONAL MANAGEMENT POLICY FRAMEWORK AND GUIDING PRINCIPLES

### 6.1. Financial and Human Resources

#### 6.1.1. Financial Resources

Capital and operational funding for UVNR is sourced primarily from the KwaZulu-Natal Provincial Government. There is no income from any form of commercial operation. In order to ensure that the management of the Nature Reserve is sustained over time it is necessary to develop a realistic five-year business plan in order to secure the necessary funding on a year-to-year basis.

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

**Action Project 6.1.1(i):** Initiate a study to identify and quantify the Ecosystem Services provided by the Nature Reserve.

#### 6.1.2. Human Resource Capacity

The existing human resource structure and capacity are insufficient to meet UVNR management requirements, although neighbouring landowners are making important contributions in certain respects. The following management functions in particular are emphasised:

- Nature Reserve security including the control of illegal activities (poaching) within the Nature Reserve;
- Community liaison;
- Research and monitoring (staff may be shared with other Nature Reserves).

To effectively address the full spectrum of Nature Reserve management functions, an investigation must be undertaken and the outcome must inform the Nature Reserve Business Plan.

**Action Project 6.1.2 (i):** Investigate the human resource structure of the Nature Reserve with a view to improving effectiveness and efficiency in achieving the Nature Reserve management objectives and to inform the Business Plan.

## **6.2. Local Community Participation**

As the Nature Reserve does not have a continuous EKZNW management presence, participative management will be promoted with institutions and neighbouring landowners / communities that are willing to assist with conservation management in and around the Nature Reserve for the benefit of all in accordance with EKZNW reserve management guidelines provided by this IMP.

Neighbour relations and partnerships are guided by the EKZNW Board: Biodiversity Conservation Operations: Relationships Corporate Policies No. 4.1, 4.2 and 4.4 (**Appendix 1 – EKZNW Corporate Policies [Norms and Standards]**).

Community involvement in the management of the Nature Reserve through collaboration in the following programmes and projects will be encouraged.

### **6.2.1. Local Board**

The relatively small size of UVNR, coupled with the limited number of neighbours and the limited range of activities undertaken, suggest that the costs in terms of time and manpower to operate a Local Board would not be justified. However, because the Nature Reserve is managed from the UDP WHS, the Local Board of the latter will deal with the relevant matters. The Nottingham Road Farmers' Association and the Siminza Traditional Authority are to be involved.

At a local level, a Neighbouring Community Liaison Committee for UVNR must be formally constituted in terms of the draft EKZNW Neighbour Relations Policy Implementation Guide (2008). This will build on the existing informal agreement with neighbouring landowners. It will further promote collaboration and communication with the neighbouring community in terms of the implementation of this IMP. Responsibility for convening of meetings and the other tasks associated with the committee will lie with the Conservation Manager: uMkhomazi.

**Action Project 6.2.1 (i):** Formalise relations with the UVNR neighbouring community through the establishment of a Neighbouring Community Liaison Committee.

### **6.2.2. Community Levy Fund**

As UVNR presently has no commercial activities or any other form of income, it cannot contribute to any form of community fund. This will be revised should the Nature Reserve ever start to generate income. In the event that it happens, the funds are to be administered through the Community Levy Fund and provided to communities for development needs as prescribed by EKZNW Board Policies No. 4.16 and No. 4.6. In the interim, if it is necessary to obtain funding for a project, application may be made for a part of the 10% of the fund, which is available for external projects.

### **6.2.3. External Funding Projects**

Bids may be submitted for funding of special projects if necessary.

### **6.2.4. Land Claims**

There are no land claims on the Nature Reserve.

### **6.2.5. Environmental Education**

Due to its small size, difficulty of access, and the particular emphasis on Wattled Crane conservation, the Nature Reserve will not be considered for any development in relation to environmental education. Instead, use will be made of nearby Kamberg Nature Reserve which is larger, easily accessible and which has many features in common with UVNR.

### 6.2.6. Transfrontier Partnerships

UVNR is a core protected area within the MDTFCA protected area network but does not lie on an international frontier. UVNR and EKZMW will wherever possible, contribute to the outcomes of the 20-Year (2008 – 2028) Conservation and Development Strategy for the Maloti Drakensberg Transfrontier Conservation Area and its associated Five- Year Action Plan. All transfrontier initiatives in line with the above strategy will be supported wherever possible.

### 6.3. *Security and Safety*

Due to its small size and the indirect protection afforded by the surrounding privately owned properties, safety and security are not major issues in the Nature Reserve. Despite this, it is known that some poaching is taking place. For this reason, attention does need to be given to various conservation-related issues such as protection of the Wattled Cranes, poaching, monitoring and arson fires.

Management must therefore initiate and implement a strategy that, not only develops in-house procedures, but also ensures participation in all relevant local security forums and networks. The EKZMW Board: Biodiversity Conservation Operations: Conservation Management Corporate Policy No. 2.10 (State Security Service Activities within Board Areas) applies (**Appendix 1 – EKZMW Corporate Policies [Norms and Standards]**).

<b>Action Project 6.3 (i):</b> Develop a security and safety strategy that includes all appropriate external parties.
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### 6.4. *Biodiversity Conservation Management*

The management philosophy to be followed is one of adaptive management. This includes setting conservation targets, implementing management actions, monitoring progress towards achievement of these targets, and adapting the management strategy accordingly. A participatory and team-based approach is to be followed. The principle of sustainable use of natural resources is implicit in the philosophy.

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

As the key conservation objectives for UVNR relate primarily to Wattled Cranes, maintenance of biodiversity at all possible levels and the sustained yield of high quality water, the primary management activities (or interventions) involve fire, grazing by large herbivores, and soil retention. Control of alien plant species is also a management activity, which is necessary but fortunately, the infestations are not very serious and therefore require regular but not significant management input.

Management will implement a system of planned controlled burns and a variety of grazing pressures in order to achieve the above objectives. Such action will create diversity in the vegetation and so will both provide key habitat for the cranes while also ensuring the conservation of biodiversity more generally. Other important activities requiring lesser input include the control of activities such as illegal hunting and plant collecting, as well as wildlife management through population control.

Implicit within the biodiversity conservation management activities are requirements for monitoring of all relevant species, systems, and processes and, perhaps, original research [See **Action Project 6.9.1 (i)**]. The findings are to be used to direct the management strategies and planning processes.

### 6.4.1. Fire Management

The UDP WHS Conservation Manager: uMkhomazi who is also responsible for UVNR will attend the UDP WHS Fire Workshop held in February each year. At this workshop, the various burns of the previous fire season will be reviewed and, based on the UDP WHS Fire Management Plan (which will include UVNR); management compartments will be scheduled for burns in the upcoming fire season and will be recorded as the Annual Burning Plan for implementation. Fire management planning for UVNR must take into account the Wattled Crane breeding requirements and in this respect must be integrated with the Grazing Management programme (**Par. 6.4.2**). In preparation for the Fire Workshop, all fire returns must be with Ecological Advice by 30 November each year to allow for digital capture and analysis of the data.

**Action Project 6.4.1 (i):** Update the Annual Burning Plan for UVNR at the annual UDP WHS Fire Workshop Planning taking into account the requirements of the Wattled Cranes, ensuring, and ensuring an integrated approach with the Grazing Management Programme.

All Nature Reserves must become members of a Fire Protection Association in terms of the National Veld and Forest Fire Act. UVNR must therefore become a member of the local Fire Protection Association.

**Action Project 6.4.1 (ii):** Become an active member of the local Fire Protection Association.

### 6.4.2. Grazing Management

In view of the envisaged grazing management, indicated under **Par. 3.12.2**, utilising neighbouring landowners' domestic stock, a grazing management programme will be appropriately updated till 2013 and implementation monitored.

This grazing intervention with domestic stock will take place in accordance with a 2009 to 2013 UVNR Domestic Stock Grazing Management Programme as approved by the NRPC in collaboration with the relevant neighbouring landowners and in terms of the Memorandum of Agreement that will be drawn up with these landowners (See **Par. 2.6**). The UVNR Annual Burning Plan must be integrated with the Grazing Management Programme.

**Action Project 6.4.2 (i):** Develop a 2009 to 2013 Domestic Stock Grazing Management Programme for UVNR in collaboration with the relevant landowners and in terms of the Memorandum of Agreement (Par. 2.6) between these landowners and EKZNW.

### 6.4.3. Alien Species Control and Management

Alien species are regarded as species or genotypes that are not indigenous to the KZN Drakensberg area 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 as well as water production and must 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 UVNR must be developed and maintained. State poverty relief programmes such as "Working for Water", "Working on Fire" and "Working for Wetlands" should be used to full effect to complement the Nature Reserve budget for this management task.

The species of relevance within and immediately around the Nature Reserve are the following:

American bramble *Rubus cuneifolius*  
Wattle species *Acacia* spp. (Primarily *Acacia mearnsii*)

A further species, which is not known to be in the Nature Reserve at present, but which is spreading in the southern areas (uMkomazi, uMzimkulu and uMzimvubu catchments) of KZN is the grass *Glyceria maxima*. Of Eurasian origin, it is a rapid and serious invader of wetlands. In the Pholela River catchment near Himeville, it has extensively invaded a large wetland, which until a few years ago was used as a breeding site by Wattled Cranes but which has now been

abandoned. It is not known whether the departure of the birds was linked to the plant invader but it is possible. It is recommended that all of the upper uMngeni Vlei area be monitored for its presence.

**Action Project 6.4.3 (i):** Develop an ongoing time-bound programme to control alien declared weeds and invader plants within UVNR and 1 km (buffer area) beyond the Nature Reserve.

**Action Project 6.4.3 (ii):** Assess the status of any declared non-invasive alien plants in the Nature Reserve and plan an appropriate eradication programme.

**Action Project 6.4.3 (iii):** Develop an ongoing annual programme to monitor for the presence of *Glyceria maxima* in or near UVNR. When detected, the eradication of this species must be regarded as a priority and be included in the UVNR invasive alien vegetation control programme [See **Action Project 6.4.3(i)**].

**References:**

Anonymous. 2007. *Glyceria maxima*, an aggressive alien grass recently discovered in some KZN wetlands. Anonymous. 2007. *Glyceria maxima* (Hartman) Holmb, a highly invasive grass posing a considerable threat to the wetlands of the Maloti Drakensberg area.

#### 6.4.4. Catchment Management

The high Impendle Plateau on which the Nature Reserve is situated is a significant water catchment area for the region and for the uMngeni River catchment area, in particular. In recognition of the importance of this resource for the sustained livelihoods of people in the region, it is essential that Nature Reserve management practices do not threaten sustained natural flow regimes of good quality water with low sediment loads.

It is important that water flow and quality are effectively monitored over the long-term and this must be included in UVNR's monitoring programme [See **Action Project 6.9.1 (i)**].

#### 6.4.5. Soil Erosion and Control

Soil erosion is a process, which takes place naturally in the Nature Reserve. However, in the case of human-induced and / or accelerated soil erosion, appropriate remedial management action must be taken.

Human-induced and / or accelerated soil erosion in the Nature Reserve is primarily the result of poor alignment and management of footpaths and vehicle tracks as well as the creation of paths by livestock. Areas that have been cleared of invasive alien vegetation are also at risk and must be rehabilitated as appropriate. If a system of paths or trails is ever to be set up it must be effectively designed in a manner that will require minimal maintenance and to have the lowest possible risk of causing soil erosion.

Extensive sites of existing or potential aggravated soil erosion must be mapped, and the rehabilitation prioritised annually.

Rehabilitation of soil erosion sites should follow the guidelines presented by Coetsee (2005) and the EKZNW Trails Manual (See **Appendix 1, Item 4**).

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

**Action Project 6.4.5 (ii):** Instruct the farmers whose cattle graze in the Nature Reserve to keep changing lick sites in order to prevent the animals from creating bare patches in the veld and from creating tracks from the licks to their drinking areas.

**Reference:**

Coetsee, K. 2005. *Caring for Natural Rangelands*. University of KwaZulu-Natal Press, Scottville, South Africa.

#### **6.4.6. Wildlife Management**

Because of the relatively harsh climatic and environmental conditions that prevail at UVNR, most wildlife populations, from invertebrates to large ungulates, are self-regulatory. The vegetation of the Nature Reserve is therefore generally considered not to be over-utilised.

If ever any game introductions are to be considered, then only species known to have historically occurred in the Nature Reserve or its immediate surrounds will be permitted.

Minimum or no management intervention strategies will be applied with regard to indigenous wildlife populations except for any strategies that may be agreed to by the NRPC to safeguard populations of rare or endangered species, to meet the set conservation targets, or to meet the specific management guidelines detailed in this IMP.

#### **6.4.7. Problem Animal Management**

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

To minimize the need to control problem animals, pro-active and preventative measures (e.g. fencing) should be considered 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 must be with due regard for possible public criticism.

When dealing with UVNR animals that are causing damage to neighbours, the matter should be dealt with according to the principles of the National Policy and Strategy for Problem Animal Control in South Africa (**Appendix 1, Item 5**). If neighbouring landowners contact the UVNR Conservation Manager timeously and are able to demonstrate clearly that animals originating from the Nature Reserve are causing them damage, the reserve manager must attempt to capture or destroy that animal according best-practice guidelines for this type of control work.

Any control actions in terms of Red Data Book species need authorisation of the NRPC.

Rabid animals must be destroyed as soon as they are detected.

#### **6.4.8. Control over Illegal Activities and Use of Natural Resources**

Illegal activities within UVNR and illegal utilisation of natural resources are realities that are ever-present. In addition, it must be assumed that such threats have the potential to increase significantly.

It is policy to maintain an ongoing vigilance through cost-effective surveillance monitoring programmes and reaction capabilities. It is noted that the neighbours are potentially of key importance in this regard. To further assist in maintaining the ecological integrity of UVNR, it is essential that the situation be regularly and critically recorded and assessed in terms of a well-kept statistical incident register (See also **Monitoring and Evaluation under Par. 6.9.1**).

The main effort towards resolving illegal utilisation of natural resources by communities for purposes of subsistence will be to create understanding and awareness through pro-active and reactive environmental awareness programmes. Management will however be ruthless with those that illegally utilise natural resources for commercial or other purposes.

### **6.5. Cultural Resource Management**

At present there are no known features of cultural heritage within the Nature Reserve. A heritage survey should be undertaken and then management actions are to be taken as appropriate to the findings (See **Par. 3.13**)



## 6.6. Resource Utilisation

EKZNW will consider requests for extractive use of plant and animal resources provided that the natural and cultural heritage conservation management objectives are not compromised, and there is no long-term detrimental effect on the ecological and managerial functioning of the Nature Reserve.

### 6.6.1. Plants and Animals

Extractive resource use applications must be considered within the framework of the EKZNW Board: Biodiversity Conservation Operations: Resource-use Corporate Policies No. 3.12 to 3.18 (**Appendix 1** – EKZNW Corporate Policies [Norms and Standards]).

The NRPC must evaluate applications according to accepted guidelines that ensure:

- sustainable and wise use of the resource,
- ecological and social acceptability,
- benefit to neighbouring communities,
- equitable access to the resource,
- that the transaction is within the conditions of the PFMA,
- that the harvesting operations are effectively controlled and monitored,
- a written agreement stipulating resource price and conditions of harvest, and
- due consideration of alternatives.

### 6.6.2. Bioprospecting

Requests to collect biological material / samples from UVNR will only be considered in accordance with the EKZNW Board: Biodiversity Conservation Operations: Integrated Environmental Management Corporate Policy No. 2.15 (**Appendix 1** – EKZNW Corporate Policies [Norms and Standards]) from *bona fide* South African research institutions until national and provincial legislation governing bioprospecting is in place.

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

## 6.7. Eco-cultural Tourism and Marketing

There are no plans for eco-cultural tourism development within UVNR during the period 2009 to 2013. It is recommended that no such plans be made until the Wattled Crane population has stabilised at the target number (See **Par. 4.6**).

It is to be noted that there is potential for day visitor trips into the Nature Reserve. However, care must be taken that the presence of the visitors does not compromise the biodiversity conservation objectives in any way.

Where neighbours or special interest communities are to be provided with controlled access to the Nature Reserve, it must be in accordance with the EKZNW Board: Biodiversity Conservation Operations: Co-management Policy No. 3.5 [Neighbours' Access to Board Protected Areas] (**Appendix 1** – EKZNW Corporate Policies [Norms and Standards]).

**Action Project 6.7 (i):** Consider the feasibility of allowing day visitors into the Nature Reserve but with due consideration of any potential impacts or threats which might arise from their presence.

## 6.8. Environmental Interpretation, Awareness and Education

Given that UVNR visitor numbers are very low, environmental interpretation of the Nature Reserve's natural resources on site will not be a priority.

It is, however, of great significance to create an understanding and appreciation of the value of protecting this catchment area of the uMngeni River among the relevant authorities and regional stakeholders and public. This will assist in ensuring the integrity of UVNR and possible expansion of the Nature Reserve.

A professionally produced PowerPoint presentation on the economic and natural heritage value of UVNR must be made to increase general awareness about the Nature Reserve. The target audience for this presentation will be decision-makers / planners at relevant authorities, stakeholders and senior learners /students. Any such programme must also be incorporated into the UDP WHS Environmental Awareness Programme. Further, it must be noted that existing components of that programme may be adapted for use with local communities around the Nature Reserve.

**Action Project 6.8 (i):** Develop a professionally produced PowerPoint presentation on the economic and natural heritage value and significance of UVNR that can be presented to be decision-makers / planners at relevant authorities, stakeholders and senior learners /students.

## 6.9. *Research*

The biodiversity components, the functioning of the ecosystems and water resources, and in particular the hydrological characteristics of the wetland and surrounding sponge system, that the Nature Reserve was acquired to conserve are presently inadequately understood. Research is necessary to provide information that will assist in ensuring that the various management objectives and conservation targets of the Nature Reserve are realised.

Priority will be given to research that provides information and understanding that is of direct benefit to the Nature Reserve and will guide the management interventions required to achieve the protected area's management objectives and conservation targets in the most cost-effective manner. Opportunities will however, be considered and provided for both applied and theoretical research.

Long term research and monitoring of both the biotic and non-biotic (e.g. factors affecting the sustained flow of good quality water from the Nature Reserve) environment are desirable and necessary as a result of the dynamic and stochastic nature of the ecosystem and to ascertain whether management actions are having their desired effect in terms of achieving their conservation objectives.

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

- Management and scientific staff as well as external researchers must identify and prioritise research requirements. This research priority list will then be circulated to tertiary research institutions and made available on the web site.
- All baseline abiotic and biotic data collected must be collated and stored in databases as well as GIS data layers to assist researchers in the planning of research projects and interpretation of data.

**Action Project 6.9 (i):** Develop a prioritised biodiversity and hydrology research project list for the Nature Reserve.

**Action Project 6.9 (ii):** Develop procedures that will ensure that all biotic and abiotic 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 EKZNW (August 2002) [Appendix 1 Item 6]. Where research requires the collection of biological material, a collection permit will also be required.

A copy of all publications pertaining to UVNR must be lodged within the Regional Office and the Head Office library. Their details must be captured, using appropriate keywords, into uKhahlamba Region's bibliography.

**Action Project 6.9 (iii):** Conduct a formal search for any literature pertaining to UVNR.

### 6.9.1. Monitoring and Evaluation

Baseline data collection, monitoring and evaluation are essential in order to determine whether conservation, as well as any 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 NEM: BA, NEM: PAA, and the EKZNW Corporate Business Plan.

Due to (a) the stochastic 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 desirable and necessary to implement long-term baseline collection and monitoring programmes. It is also important to monitor and record all management interventions and the biophysical environment in order to understand the causes for any biological and environmental changes.

An appropriate monitoring and evaluation programme must be developed for the Nature Reserve and be implemented. This must include a fixed protocol for compiling and maintaining checklists in order to ensure that the lists provide accurate, comparable and contemporary baseline data for management and scientific purposes.

All existing monitoring programmes must be maintained unless there is a specific written decision by Management to terminate a particular programme.

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 advanced scientific monitoring and data collection.

The **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 development or land use change in the Nature Reserve and in its buffer zone for compliance with set environmental conditions linked to authorisation.

**Action Project 6.9.1 (i):** An appropriate monitoring and evaluation programme must be developed and implemented.

## 6.10. Infrastructure (Includes Concept Development Projects)

Any physical development or maintenance of infrastructure for management or eco-cultural tourism purposes must be undertaken cognisant of and in accordance with legal requirements and procedures regarding Environmental Impact and Cultural Resource Assessments. Placing infrastructure outside the boundaries should always be considered, where practical, as an option to reduce the amount of infrastructure within the Nature Reserve.

No new major physical development is, however envisaged for the Nature Reserve during the period 2009 to 2013. Only the few minor, mostly maintenance, projects mentioned below will be undertaken. For this reason, no separate Concept Development Plan for UVNR will be produced, as the minor projects envisaged will form part of this IMPs Action Projects.

Any projects of this nature must also be recommended by the NRPC and be approved by the EKZNW Board's Development Committee.

Nature Reserve management is responsible for UVNR infrastructure and must at all times ensure that it is maintained in a safe, sound, clean, serviceable and aesthetically acceptable condition and that it does not provide opportunity for establishment of invasive alien plant species.

Any structures must as far as possible be harmonised with the surrounding environment and landscape character through appropriate siting, use of colour, building materials, landscaping and screening.

### **6.10.1. Entrance Gates**

UVNR western boundary of Grazing Block A (Wodehouse No. 1):

Three vehicular entrance gates are situated in this section. These gates facilitate the movement of cattle onto the Nature Reserve when required and allow convenient access during fire management operations.

UVNR southern boundary of Grazing Block B (Wodehouse No. 2):

Two vehicular entrance gates are situated in this section. The more centrally situated gate serves as the main entrance gate to the nature reserve. They also facilitate the movement of cattle onto the Nature Reserve when required and allow convenient access during fire control operations.

All the entrance gates are presently being upgraded from 'barbed wire' gates to galvanised farm gates as the boundary fence is being replaced.

The possibility of placing one or two entrance gates into the northern boundary fence of Grazing Block B must be investigated, as the fence along this section has had to be cut on several occasions during fire control operations.

**Action Project 6.10.1(i):** Investigate the feasibility and desirability of placing one or two entrance gates into the northern boundary fence of Grazing Block B in order to improve emergency fire control capability. If feasible and desirable, implement.

Management must ensure that all entrance gates are effectively maintained and kept in good working order.

It is most unlikely that there will be a need to staff the main gate on a full time basis.

### **6.10.2. Signage**

All existing and potential boundary entrance points to the Nature Reserve must have appropriate signage.

Signage should adhere to the same standards as that placed at the minor entrance points to UDP WHS (in other words not the same as used at the main UDP WHS entrance gates) and may be permitted in rural, roaded natural, semi-primitive motorized and semi-primitive non-motorised zones only.

**Action Project 6.10.2 (i):** Boundary signboards are to be placed at existing and potential boundary entrance points to UVNR.

### 6.10.3. Roads, Tracks and Paths

There will be no public vehicle roads or tracks within the Nature Reserve. Visitors who approach the area in vehicles will do so on the neighbours' farm service tracks and will park at a point or points outside the Nature Reserve.

No further management vehicle tracks will be developed. The existing tracks must be regularly maintained (at least on an annual basis) to standards appropriate to their relevant use. Soil erosion as well as other negative impacts on the environment caused by these tracks must be rehabilitated timeously using the guidelines presented by Coetzee (2005) and the EKZNW Trails Manual (See **Appendix 2, Item 4**).

If there is an urgent need to develop new management tracks and paths or close them, the intended operations must be described and accurately mapped in a submission to the NRPC for approval.

**Any maintenance or other work done on roads, tracks and paths at UVNR must be done at a time out of the crane-breeding season.**

**Reference:**

Coetzee, K. 2005. *Caring for Natural Rangelands*. University of KwaZulu-Natal Press, Scottville, South Africa.

### 6.10.4. Fencing

The boundary fence is presently being renewed. Boundary and internal fencing will be cattle-proof fencing with a knee-high ground clearance gap under the bottom strand in order to allow juvenile cranes and small mammals to pass through.

The boundary fence must be subject to an ongoing maintenance programme in order to minimise replacement costs.

Internal fencing will be kept to a minimum. Presently the only the cattle fence, which divides the Nature Reserve into two grazing blocks, will be maintained for as long as that management intervention persists. This fence is to be constructed of four strands of wire, with only the top one being barbed wire. There is to be a knee-high gap under the bottom strand. A barbed-wire gate exists in this fence to assist fire management operations.

Should the need arise to erect new fences or remove fences; the intended operations must be described and accurately mapped in a submission to the NRPC for approval.

**Any maintenance or other work done on fences must be done at a time out of the crane-breeding season.**

<b>Action Project 6.10.4(i):</b> Develop a fencing standard and maintenance programme for UVNR and implement.
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### 6.10.5. Staff Accommodation

There will be no temporary or permanent staff accommodation within the Nature Reserve.

If it becomes necessary for any reason to have temporary or permanent resident staff, they are to be accommodated outside the Nature Reserve.

### 6.10.6. Offices, Workshops, Stables and other Management Infrastructure

There will be no offices, workshops, stables or other such management infrastructure in the Nature Reserve. Such facilities will be provided by the station at which the conservation manager is based.

### **6.10.7. Radio communication and other communication equipment**

If ever needed, any radio repeater stations or other similar communication towers must follow the set procedures for authorisation. Good two-way radio communication would be an advantage when conducting operations at UVNR and needs to be improved.

**Action Project 6.10.7(i):** Develop the ability to have effective radio coverage in the Nature Reserve.

### **6.10.8. Waste Management**

No waste of any sort may be disposed of in the Nature Reserve.

### **6.10.9. Air Space and Aircraft Landing Fields**

No airstrips or helicopter pads will be allowed inside the Nature Reserve due to the possible disturbance of the Wattled Cranes.

Aircraft flying over UVNR are a potential disturbance threat to the cranes using the nature reserve and this activity should ideally be regulated. A policy, which makes provision for aerial crane counts or other such management-oriented flights, is also needed.

**Action Project 6.10.9 (i):** Take steps to ensure that flight restrictions pertaining to protected areas air space are placed into the KwaZulu-Natal Biodiversity Conservation Act and formulate an air policy for UVNR for management purposes.

### **6.10.10. Staff and Visitor Safety**

All requirements of the Occupational Health and Safety Act and other applicable legal requirements (including fire contingency plans) must be met to provide for the safety of staff and visitors in the Nature Reserve.

## **7. IMP REVIEW AND AMENDMENT PROCEDURES**

### **7.1. Five-Yearly Review and Amendment Procedures**

The UVNR IMP will be reviewed every five years with the next review period planned for September to November 2013 to revise and amend the IMP for the following five years, namely 2014 to 2018. If deemed appropriate by the UVNR NRPC, the review can take place sooner.

The EKZNW Management Planning Steering Committee 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 and the Neighbouring Community Liaison Committee) will depend on the nature and extent of amendments recommended by the relevant NRPC.

**Action Project 7.1 (i):** The UVNR NRPC must undertake a five-yearly review of this IMP between September to November 2013 to revise and amend the IMP, if relevant for the following five years.

### **7.2. Annual Review and Amendment Procedures**

The Nature Reserve NRPC will convene annually between 10 and 20 November to monitor and evaluate IMP progress, plan and, if necessary, recommend the re-prioritisation of management activities for the next year. The meetings will be convened by the Senior Conservation Manager: South uKhahlamba or equivalent post, if a new structure is brought about. The NRPC must as record of these meetings, submit a report to the EKZNW Management Planning Co-ordination Unit that 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 NRPC of the Management Effectiveness Level achieved for UVNR. This must be calculated using the World Bank Protected Area Management Effectiveness Evaluation Tool (Stolton *et al*, 2003);
- ▶ 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 NRPC 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 UVNR IMP must be supported by the NRPC, the 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 Co-ordinator must ensure that any minor or significant IMP amendments that are appropriately approved, are duly noted / recorded and that a new digital 'master copy' (Word) version is generated and archived with the EKZNW Management Planning Co-ordination Unit as well as ensuring that updated 'read only' copies are distributed to the relevant Head Office sections and Regional General Manager who must ensure that the updated 'read only' digital and / or hard copies are distributed to all staff requiring these. The EKZNW Management 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 UVNR NRPC meeting annually between 10 and 20 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.

**Reference:**

Stolton, S., Hockings, M., Dudley, N., MacKinnon, K. and Whitten, T. 2003. *Reporting Progress at Protected Area Sites: A simple site-level tracking tool developed for the World Bank and WWF*. Prepared for the World Bank / WWF Forest Alliance.

## 8. ALIGNMENT OF IDENTIFIED PROJECTS FOR ACTION ACCORDING TO MANAGEMENT OBJECTIVES

### 8.1. List of 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 must not be interpreted in isolation but must be interpreted and operationalised within the context of the associated narrative that precedes the articulation of the Action Project in the relevant paragraph.

Table2: List of IMP Action Projects

No.	IMP Action Project No.	Project Description	Mangmnt. Objective No.
1	2.3 (i)	Ensure alignment with the local government IDP as it is developed and reviewed.	8
2	2.4 (i)	Expedite the declaration of UVNR as a statutory nature reserve in accordance with NEMPAA.	2
3	2.5 (i)	Verify the position of the UVNR boundary as compared with the Surveyor-General's Diagrams. Locate all property beacons, mark with cairns, photograph each one, and place on file relevant offices. Any deviations from the Surveyor General's Diagrams must be also be noted, explained and placed on file.	2
4	2.6 (i)	Conclude a Memorandum of Understanding between the EKZNW and the relevant landowners who annually assist UVNR by providing cattle to graze the reserve according to a Grazing Management Plan.	5
5	2.7 (i)	Annually explore and investigate opportunities to broaden conservation-sensitive land use in and around the Nature Reserve.	8
6	2.7 (ii)	Investigate the possibility of acquiring of the full catchment area	9
7	3.10 (i)	Prepare a motivation for the designation of the Nature Reserve as a Wetland of International Importance in terms of the Ramsar Convention.	3
8	3.10 (ii)	Initiate and formally develop the formation of a partnership with regard to conservation of the catchment area upstream of the Nature Reserve.	5
9	3.10 (iii)	Initiate and formally develop the formation of a partnership with regard to conservation of the area around the dolerite sill that supports the wetland system.	5
10	3.11 (i)	Conduct a full botanical inventory survey of UVNR and surrounds.	1
11	3.12 (i)	Conduct a full faunal inventory survey of UVNR and surrounds.	1
12	3.12.2 (i)	Continue with the Wattled Crane monitoring programme and correlate with the fire and grazing management regimes.	1
13	3.13 (i)	Undertake a Cultural Heritage survey of the Nature Reserve.	1
14	4.5 (i)	Develop conservation and monitoring strategies for all species for which Nature Reserve conservation targets have been set [See Action Project 6.10(i)].	3
15	6.1.1 (i)	Initiate a study to identify and quantify the Ecosystem Services provided by the Nature Reserve.	4
16	6.1.2 (i)	Investigate the human resource structure of the Nature Reserve with a view to improving effectiveness and efficiency in achieving the Nature Reserve management objectives and to inform the Business Plan.	1
17	6.2.1 (i)	Formalise relations with the UVNR neighbouring community through the establishment of a Neighbouring Community Liaison Committee.	5
18	6.3 (i)	Develop a security and safety strategy that includes all appropriate external parties.	6
19	6.4.1 (i)	Update the Annual Burning Plan for UVNR at the annual UDP WHS Fire Workshop Planning taking into account the requirements of the Wattled Cranes, ensuring, and ensuring an integrated approach with the Grazing	2



		Management Programme.	
20	<b>6.4.1 (ii)</b>	Become an active member of the local Fire Protection Association.	5
21	<b>6.4.2 (i)</b>	Develop a 2009 to 2013 Domestic Stock Grazing Management Programme for UVNR in collaboration with the relevant landowners and in terms of the Memorandum of Agreement (Par. 2.6) between these landowners and EKZNW.	5
22	<b>6.4.3 (i)</b>	Develop an ongoing time-bound programme to control alien declared weeds and invader plants within UVNR and 1 km beyond (buffer area) beyond the Nature Reserve.	2
23	<b>6.4.3 (ii)</b>	Assess the status of any declared non-invasive alien plants in the Nature Reserve and plan an appropriate eradication programme.	2
24	<b>6.4.3 (iii)</b>	Develop an ongoing annual programme to monitor for the presence of <i>Glyceria maxima</i> in or near UVNR. When detected, the eradication of this species must be regarded as a priority and be included in the UVNR invasive alien vegetation control programme [See <b>Action Project 6.4.3(i)</b> ].	2
25	<b>6.4.5 (i)</b>	Map all extensive existing or potential human-induced / aggravated soil erosion sites and annually monitor the condition of these sites in order to prioritise rehabilitation work.	2
26	<b>6.4.5 (ii)</b>	Instruct the farmers whose cattle graze in the Nature Reserve to keep changing lick sites in order to prevent the animals from creating bare patches in the veld and from creating tracks from the licks to their drinking areas.	1
27	<b>6.7 (i)</b>	Consider the feasibility of allowing day visitors into the Nature Reserve but with due consideration of any potential impacts or threats which might arise from their presence.	7
28	<b>6.8 (i)</b>	Develop a professionally produced PowerPoint presentation on the economic and natural heritage value and significance of UVNR that can be presented to be decision-makers / planners at relevant authorities, stakeholders and senior learners /students.	7
29	<b>6.9 (i)</b>	Develop a prioritised biodiversity and hydrology research project list for the Nature Reserve.	2
30	<b>6.9 (ii)</b>	Develop procedures that will ensure that all biotic and abiotic data collected are captured in managed databases and GIS data layers for interrogation by researchers and managers.	3
31	<b>6.9 (iii)</b>	Conduct a formal search for any literature pertaining to UVNR.	3
32	<b>6.9.1 (i)</b>	An appropriate monitoring and evaluation programme must be developed and implemented.	3
33	<b>6.10.1 (i)</b>	Investigate the feasibility and desirability of placing one or two entrance gates into the northern boundary fence of Grazing Block B in order to improve emergency fire control capability. If feasible and desirable, implement.	1
34	<b>6.10.2 (i)</b>	Boundary signboards are to be placed at existing and potential boundary entrance points to UVNR.	6
35	<b>6.10.4 (i)</b>	Develop a fencing standard and maintenance programme for UVNR and implement.	6
36	<b>6.10.7 (i)</b>	Develop the ability to have effective radio coverage in the Nature Reserve.	7
37	<b>6.10.9 (i)</b>	Take steps to ensure that flight restrictions pertaining to protected areas air space are placed into the KwaZulu-Natal Biodiversity Conservation Act and formulate an air policy for UVNR for management purposes.	2
38	<b>7.1 (i)</b>	The UVNR NRPC must undertake a five-yearly review of this IMP between September to November 2013 to revise and amend the IMP, if relevant for the following five years.	1
39	<b>7.2 (i)</b>	Convene a UVNR NRPC meeting annually between 10 and 20 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.	2

## 8.2. Alignment of IMP Action Projects with Prioritised Management Objectives

The nine (9) Management Objectives for UVNR derived at the Key-Stakeholders Workshop in June 2006.

The 38 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 crosscutting 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 UVNR Management Objectives.**

<b>1. Conserve the biodiversity, scenic, aesthetic and cultural resources of the Nature Reserve, ensure the continued, unhindered functioning of the natural processes and life support systems, with especial reference to the wetlands, which generate and maintain biodiversity and ecosystem services.</b>	
<b>3.11 (i)</b>	Conduct a full botanical inventory survey of UVNR and surrounds.
<b>3.12 (i)</b>	Conduct a full faunal inventory survey of UVNR and surrounds.
<b>3.12.2 (i)</b>	Continue with the Wattled Crane monitoring programme and correlate with the fire and grazing management regimes.
<b>3.13 (i)</b>	Undertake a Cultural Heritage survey of the Nature Reserve.
<b>6.1.2 (i)</b>	Investigate the human resource structure of the Nature Reserve with a view to improving effectiveness and efficiency in achieving the Nature Reserve management objectives and to inform the Business Plan.
<b>6.4.5 (ii)</b>	Instruct the farmers whose cattle graze in the Nature Reserve to keep changing lick sites in order to prevent the animals from creating bare patches in the veld and from creating tracks from the licks to their drinking areas.
<b>6.10.1 (i)</b>	Investigate the feasibility and desirability of placing one or two entrance gates into the northern boundary fence of Grazing Block B in order to improve emergency fire control capability. If feasible and desirable, implement.
<b>7.1 (i)</b>	The UVNR NRPC must undertake a five-yearly review of this IMP between September to November 2013 to revise and amend the IMP, if relevant for the following five years.
<b>2. Conserve these resources for intrinsic and other purposes, so as to ensure their integrity and the sustainable flow of ecosystem services and other benefits arising from the Nature Reserve, including conservation of the water resources that maintain stream-flow in the uMngeni River, and the conservation of threatened and Red Data species such as the Wattled Cranes.</b>	
<b>2.4 (i)</b>	Expedite the declaration of UVNR as a statutory nature reserve in accordance with NEMPAA.
<b>2.5(i)</b>	Verify the position of the UVNR boundary as compared with the Surveyor-General's Diagrams. Locate all property beacons, mark with cairns, photograph each one, and place on file relevant offices. Any deviations from the Surveyor General's Diagrams must be also be noted, explained and placed on file.
<b>6.4.1 (i)</b>	Update the Annual Burning Plan for UVNR at the annual UDP WHS Fire Workshop Planning taking into account the requirements of the Wattled Cranes, ensuring, and ensuring an integrated approach with the Grazing Management Programme.

<b>6.4.3 (i)</b>	Develop an ongoing time-bound programme to control alien declared weeds and invader plants within UVNR and 1 km beyond (buffer area) beyond the Nature Reserve.
<b>6.4.3 (ii)</b>	Assess the status of any declared non-invasive alien plants in the Nature Reserve and plan an appropriate eradication programme.
<b>6.4.3 (iii)</b>	Develop an ongoing annual programme to monitor for the presence of <i>Glyceria maxima</i> in or near UVNR. When detected, the eradication of this species must be regarded as a priority and be included in the UVNR invasive alien vegetation control programme [See <b>Action Project 6.4.3(i)</b> ].
<b>6.4.5 (i)</b>	Map all extensive existing or potential human-induced / aggravated soil erosion sites and annually monitor the condition of these sites in order to prioritise rehabilitation work.
<b>6.9 (i)</b>	Develop a prioritised biodiversity and hydrology research project list for the Nature Reserve.
<b>6.10.9 (i)</b>	Take steps to ensure that flight restrictions pertaining to protected areas air space are placed into the KwaZulu-Natal Biodiversity Conservation Act and formulate an air policy for UVNR for management purposes.
<b>7.2 (i)</b>	Convene a UVNR NRPC meeting annually between 10 and 20 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.
<b>3. Develop and implement strategies for the conservation of the natural communities based on best practice and management-orientated research, the focus of which includes valuable and rare ecosystems and species, which occur naturally in the Nature Reserve. See Appendix VI for details of the decision to make use of domestic stock to graze the Nature Reserve.</b>	
<b>3.10 (i)</b>	Prepare a motivation for the designation of the Nature Reserve as a Wetland of International Importance in terms of the Ramsar Convention.
<b>4.5 (i)</b>	Develop conservation and monitoring strategies for all species for which Nature Reserve conservation targets have been set [See <b>Action Project 6.10(i)</b> ].
<b>6.9 (ii)</b>	Develop procedures that will ensure that all biotic and abiotic data collected are captured in managed databases and GIS data layers for interrogation by researchers and managers.
<b>6.9 (iii)</b>	Conduct a formal search for any literature pertaining to UVNR.
<b>6.9.1 (i)</b>	An appropriate monitoring and evaluation programme must be developed and implemented.
<b>4. Demonstrate the benefits of ecosystem services to neighbouring communities and other stakeholders and encourage the integration of these values into the regional economy.</b>	
<b>6.1.1 (i)</b>	Initiate a study to identify and quantify the Ecosystem Services provided by the Nature Reserve.
<b>Establish and maintain effective and cordial relations with affected neighbouring communities and other stakeholders, in order to ensure effective collaborative management of the Nature Reserve and surrounding areas, to the benefit of both the environment and the communities involved.</b>	
<b>2.6 (i)</b>	Conclude a Memorandum of Understanding between EKZNW and the relevant landowners who annually assist UVNR by providing cattle to graze the reserve according to a Grazing Management Plan.
<b>3.10 (ii)</b>	Initiate and formally develop the formation of a partnership with regard to conservation of the catchment area upstream of the Nature Reserve.

<b>3.10 (iii)</b>	Initiate and formally develop the formation of a partnership with regard to conservation of the area around the dolerite sill that supports the wetland system.
<b>6.2.1 (i)</b>	Formalise relations with the UVNR neighbouring community through the establishment of a Neighbouring Community Liaison Committee.
<b>6.4.1 (ii)</b>	Become an active member of the local Fire Protection Association.
<b>6.4.2 (i)</b>	Develop a 2009 to 2013 Domestic Stock Grazing Management Programme for UVNR in collaboration with the relevant landowners and in terms of the Memorandum of Agreement (Par. 2.6) between these landowners and EKZNW.
<b>5. Address security issues and illegal activities such as arson, stock theft and poaching, in order to ensure the integrity of the Nature Reserve in collaboration with neighbours, security services and the justice system.</b>	
<b>6.3 (i)</b>	Develop a security and safety strategy that includes all appropriate external parties.
<b>6.10.2 (i)</b>	Boundary signboards are to be placed at existing and potential boundary entrance points to UVNR.
<b>6.10.4 (i)</b>	Develop a fencing standard and maintenance programme for UVNR and implement.
<b>6. Promote public appreciation of the values of the Nature Reserve and its various resources through interpretive and other measures.</b>	
<b>6.7 (i)</b>	Consider the feasibility of allowing day visitors into the Nature Reserve but with due consideration of any potential impacts or threats which might arise from their presence.
<b>6.8 (i)</b>	Develop a professionally produced PowerPoint presentation on the economic and natural heritage value and significance of UVNR that can be presented to be decision-makers / planners at relevant authorities, stakeholders and senior learners / students.
<b>6.10.7 (i)</b>	Develop the ability to have effective radio coverage in the Nature Reserve.
<b>7. Effectively integrate the biodiversity and other values of the Nature Reserve with those of adjacent areas in order to establish a buffer zone to the Nature Reserve.</b>	
<b>2.3 (i)</b>	Ensure alignment with the local government IDP as it is developed and reviewed.
<b>2.7 (i)</b>	Annually explore and investigate opportunities to broaden conservation-sensitive land use in and around the Nature Reserve.
<b>8. Take cognisance of, and co-operate with the Maloti Drakensberg Transfrontier Project and its objectives.</b>	
<b>2.7 (ii)</b>	Investigate the possibility of acquiring of the full catchment area.

# APPENDIX 1

## uMngeni Vlei Nature Reserve Integrated Management Plan (2009 – 2013)

### List of References for Unpublished Supporting Documentation

Available from:

uKhahlamba Regional Office of Ezemvelo KZN Wildlife, Midmar (Dam) Nature Reserve, Howick.

Contact person: Ecological Advice Co-ordinator, uKhahlamba Region

1. List of local agreements, leases and other servitude arrangements pertaining to the uMngeni Vlei Nature Reserve.
2. Species checklists for the Nature Reserve – EKZNW Intranet - Biodiversity Database.
3. uMngeni Vlei Nature Reserve Integrated Management Planning Process. Proceedings from the Key-Stakeholder Workshop held at Kamberg, UDP WHS, (1 June 2006).
4. Ezemvelo KZN Wildlife. 2008. Trails Manual uKhahlamba Drakensberg Park World Heritage Site, South Africa. Ezemvelo KZN Wildlife, Pietermaritzburg, 180 pages.
5. National Policy and Strategy for Problem Animal Control in South Africa (January 1998).
6. Guidelines for the Registration and Administration of Research Projects undertaken by or through Ezemvelo KZN Wildlife (August 2002).

Table 4 below lists the EKZNW Corporate Policies (Norms & Standards) referenced from EKZNW Intranet<sup>9</sup> that are of relevance to UVNR.

**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.**

Table 4: List of EKZNW Corporate Policies (Norms and Standards) that are relevant to

<b><u>EKZNW CORPORATE POLICIES (NORMS &amp; STANDARDS)</u></b>	
<b>Policy No.</b>	<b>CORPORATE AFFAIRS</b>
2	➤ Access to Ezemvelo KZN Wildlife Areas and Employment.
5	➤ Outsourcing of Functions and Services
7	➤ Monuments, Memorials and Names of Protected Areas under the control of EKZNW.
8	➤ Restricted use of Board Theatres, Halls and Conference Facilities etc.
9	➤ Code of Ethics / Conduct.
10	➤ Photography in Board Protected Areas.
13	➤ Access to Information.

<sup>9</sup> [www.kznwildlife.com/intranet](http://www.kznwildlife.com/intranet) (Accessed 11 September 2009)

<b>Policy No.</b>	<b>INTERNAL AUDIT</b>
5	➤ Management Control
	<b>BIODIVERSITY CONSERVATION OPERATIONS</b>
	<b>1. NATURAL RESOURCE SUSTAINABILITY</b>
<b>Policy No.</b>	<b>Threatened Species and Ecosystems</b>
1.1	➤ Disposal of Black Rhino.
1.2	➤ Disposal of Surplus White Rhino.
1.3	➤ Strategy for the Management of Southern White Rhino in KwaZulu-Natal.
1.4	➤ Strategy for the Biological Management of Black Rhino in KwaZulu-Natal.
1.5	➤ Rhinoceros Products.
1.6	➤ Crocodilians
1.7	➤ Cycads.
1.8	➤ Disposal of Threatened Species.
<b>Policy No.</b>	<b>Exotic and Invasive Species</b>
1.9	➤ Release of Alien Species.
1.10	➤ Control Measures for Red-billed Quelea.
1.12	➤ Grass Carp.
1.13	➤ Establishment of Alien Plantations.
	➤
<b>Policy No.</b>	<b>Migratory Species</b>
1.14	➤ Black Wildebeest and Blue Wildebeest Hybridization and Conservation.
1.15	➤ Permit authorising the collection of Biological Material within Board Areas.
	<b>2. CONSERVATION EFFECTIVENESS</b>
<b>Policy No.</b>	<b>Strategic Applications</b>
2.1	➤ Involvement of the KwaZulu-Natal Nature Conservation Board in Project 8 of the MAB (Man and Biosphere) Programme.
<b>Policy No.</b>	<b>Conservation Management: Protected Area Management</b>
2.2	➤ Management of Wilderness Areas.
2.3	➤ Protected Area Development.
2.4	➤ Prohibition of Works and Servitudes in Board Areas.
2.6	➤ Quarries in KZN Protected Areas.
2.7	➤ Re-establishment and Management of Vegetation on Development Sites in the Ezemvelo KZN Wildlife Protected Areas.
2.8	➤ Ecotourism and Protected Areas.
2.9	➤ Solid Waste Management within Protected Areas.
2.10	➤ State Security Service Activities within Board Areas.
2.11	➤ Shark Nets in or bordering KwaZulu-Natal Nature Conservation Board Controlled Areas.
<b>Policy No.</b>	<b>Integrated Environmental Management</b>
2.12	➤ Integrated Environmental Management - incorporating the procedure for the assessment of the impact of proposed development projects on nature conservation concerns.
2.13	➤ Precautionary Principle.
2.15	➤ Bioprospecting in KwaZulu-Natal.
2.17	➤ Use of Pesticides by the Ezemvelo KZN Wildlife: Safety to Humans and the Environment.
2.18	➤ Interference with the Mouth of a Lagoon or River (Breaching).
	➤
<b>Policy No.</b>	<b>Ex Situ Wild Animal Management</b>

2.21	➤ Re-establishment of Terrestrial Mammals in Board Areas.
2.22	➤ Translocation of Animals.
2.25	➤ Elephant Introductions and Elephant in Enclosures.
2.27	➤ Introduction and Keeping of Large Predators in Enclosures in KZN.
2.28	➤ Use of Narcotic Drugs.
2.29	➤ Falconry.
	➤
<b>Policy No.</b>	<b>Human Animal Conflict - Inside and Outside Protected Areas</b>
2.30	➤ Disposal of Leopard from Ezemvelo KZN Wildlife Protected Areas.
2.31	➤ Problem Animal Control.
2.32	➤ Compensation claims in respect of damage caused by Lion, Cheetah, Wild Dog and Elephant to Stock and Crops.
2.33	➤ Instances of Death as a result of an Unprovoked Attack by a Wild Animal Normally contained and originating from within a Fenced Protected Area under the Control of the KwaZulu-Natal Nature Conservation Board.
<b>Policy No.</b>	<b>Environmental Awareness</b>
2.34	➤ Environmental Education Policy.
	<b>3. BIODIVERSITY PROTECTION</b>
<b>Policy No.</b>	<b>Co-management</b>
3.1	➤ Supply of Game to Conservancies, Community Conservation Areas and Biosphere Reserves in KwaZulu-Natal
3.2	➤ Establishment and Management of Community Conservation Reserves (CCR)
3.4	➤ Community Conservation Programmes
3.5	➤ Neighbours' Access to Board Protected Areas
3.6	➤ Relationship with Local Boards
3.7	➤ Conservation Partnerships Between KwaZulu-Natal Nature Conservation Board and Adjacent Landowners
3.8	➤ Community Trust
3.9	➤ Community Levy Policy and Guidelines
3.10	➤ Land Claims on Proclaimed and Unproclaimed Provincial and Assigned National Protected areas in KwaZulu-Natal
3.11	➤ Amafa Policy Guidelines for the access of rock art sites in KwaZulu Natal
<b>Policy No.</b>	<b>Resource-use benefits</b>
3.12	➤ Disposal of Venison from Ezemvelo KZN Wildlife Management Operations.
3.13	➤ Sustainable use of wildlife resources.
3.14	➤ Freshwater Angling.
3.15	➤ Freshwater species utilisation.
3.16	➤ Use of plant resources from protected areas.
3.17	➤ Use of doomed biological material.
3.18	➤ Provision of hunting by Ezemvelo KZN Wildlife.
<b>Policy No.</b>	<b>4. RELATIONSHIPS</b>
4.1	➤ Neighbour Relations.
4.2	➤ Participation - Non Government Organisations.
<b>Policy No.</b>	<b>COMMERCIAL OPERATIONS</b>
1	➤ Concessions for Welfare Groups.
2	➤ Hiking and Mountaineering.

3	➤ Educational Concessions.
4	➤ Club Facilities within Board Areas.
5	➤ Hutted Camps.
6	➤ Joint Venture Scheme.
7	➤ Allocation of Sites in terms of the Joint Venture Scheme.
8	➤ Access to Protected Areas through Unofficial Entry Points.
9	➤ Visitor Facilities Management by Ezemvelo KZN Wildlife.
10	➤ Lease of Lakeshore at State Dam Protected Areas.
11	➤ Execution, Control and Management of Leases and Concession Contracts (excluding Biodiversity Conservation Partnerships and Leases of Wildlife).
12	➤ Private Sector Reservations Policy.
13	➤ Partnerships for Eco-Tourism Development within or Adjacent to Protected Areas.
14	➤ Discounting of Tariffs for Walk-in Guests.
15	➤ Ecotourism Discounting Strategy.
16	➤ Travel Trade Commissions: Tour Operator/ Travel Agency.
17	➤ Policy and Procedure for the establishment and monitoring of Commercial Operations Public Private Partnership (PPP) Agreements.
18	➤ Administrative and operational policy on Professional hunting in South Africa.



**Zonation System used for uKhahlamba Drakensberg Park World Heritage Site.**

SOURCE: Recreational Opportunity Spectrum User Guide, United States Forest Service, as in the Advanced Wilderness Course Manual)

Category	Description of Criteria to be used for Zonation	Setting descriptions
<b>Pristine Wilderness</b>	Unmodified, no development, not impacted by any sights or sounds of people (e.g. formalised trails) <i>Not above the 2400 m contour (used as a guideline, until a visual impact assessment can be undertaken)</i> No closer than 100 m to either side of existing trails No formalised paths, no signage	Area is characterised by essentially unmodified natural environment of fairly large size. Interaction between users is very low, and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorised use not permitted
<b>Primitive Wilderness</b>	Unmodified environment, except for formalised trails being used at a low intensity (no signage) Visual and audio impact from outside, but at a distance (>10 km) Everything above the 2400 m contour will be Primitive Wilderness 100 m buffer of formalised trails passing through Pristine Wilderness zones will be Primitive Wilderness.	Extremely high probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility and self-reliance through the application of woodsman and outdoor skills in an environment that offers a high degree of challenge and risk.
<b>Semi-Primitive Wilderness</b>	Unmodified environment, near-Wilderness experience, formalised trails used at a medium intensity Concreting or rock-packing of trails allowed where necessary (i.e. areas of medium intensity of use) Signage can occur Visual and audio impact from outside, but at a medium distance (5-10 km) Natural environment intact	High, but not extremely high, probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsman and outdoor skills in an environment that offers challenge and risk.
<b>Semi-Primitive Non-motorised</b>	Closely related to the above zone, but usage of formalised trails at a high intensity – concreting / rock-packing of trails Natural environment experience, non-motorised use, usually a buffer between Wilderness and semi primitive Wilderness / roaded natural areas Visual and audio impact from outside, at a short distance (<5 km) May be hiking huts or other types of low-scale accommodation, possible field ranger outposts	Area is characterised by a predominantly natural or natural-appearing environment of moderate to large size, interaction between users is low, but there is often evidence of other users. The area is managed such that minimum on-site controls and restrictions may be present, but are subtle. Motorised use is not permitted
<b>Semi-Primitive Motorised</b>	4x4 trails and their area of impact (audio and visual) Visitor and management tracks and their zone of visual & audio impact (GIS to be used to determine exact range of impact, hence an initial distance of 100 m other side has been set) Rustic accommodation, or low-level, low intensity tourism nodes (no bigger than 10-20 beds)	Area is characterised by predominantly natural or natural-appearing environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorised use is allowed.
<b>Roaded Natural</b>	Small to Medium sized Camp nodes (20-100 beds), access control points, 2x4 roads (tar and gravel), small to medium management nodes	Area is characterised by predominantly natural-appearing environments with moderate evidences of the sights and sounds of humankind. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modifications and utilisation practices are evident, but harmonise with the natural environment. Conventional motorised use is provided for in construction standards and design of facilities
<b>Rural</b>	A rural recreational node / area, rather than as a nature-based experience. Resort type development rather than a nature-based tourism facility	Area is characterised by substantially modified natural environment. Resource modifications and utilisation practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident and the interaction between users is often moderate-high. A number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorised use and parking are available.

uMngeni Vlei Nature Reserve IMP  
**Acquisition Letter and Surveyor-General Diagrams**

(Four pages attached)



*Photo: J. Alletson.*